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Addendum to Long Term Water Supply to Clearview, Schedule B Class EA

Community of Stayner
Township of Clearview

APPENDIX A
APPENDIX B

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Appendix A

Natural and Cultural Environment Assessment Documents

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Appendix A1

Terrestrial Environment Assessment Documents

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Natural Heritage Memo - Addendum to Long Term Water Supply EA

Date: December 20, 2019 **Project No.:** 300044192.0000

Project Name: Natural Heritage Memo - Addendum to Long Term Water Supply EA

Client Name: Township of Clearview

Submitted To: File

Submitted By: Sylvia Radovic, B.E.S.

Reviewed By: Jennifer Vandermeer, P.Eng. and Kevin Butt, B.Sc. (Env)., Eco. Rest. Cert.

R.J. Burnside & Associates Limited (Burnside) was retained by the Township of Clearview to complete a review and Addendum to the Municipal Class Environmental Assessment (EA) for the Long-Term Water Supply for Clearview (Schedule B), completed in February 2008 to assess long-term water supply requirements based on forecast growth. The Addendum is completed for the community of Stayner only and includes an overview of the significant modifications to the project or changes in the environment since the 2008 EA.

The revised preferred solution is to “Expand Existing Groundwater System” following the identification of groundwater source for local supply to Stayner. A component of the EA includes the characterization of the natural environment within the Study Area. The characterization of the terrestrial environment relating to the revised preferred solution is included herein.

1.0 Study Area

The Study Area encompasses the southern portion of an agricultural property, located at 1585 Klondike Park Road, at the northeast corner of Klondike Park Road and Sunnidale Concession 12 Road (Well Site) (Figure 1), and the existing Sunnidale Concession 12 Road right-of-way (ROW) west from 1585 Klondike Park Road to Highway 7, south on Highway 7 to Nottawasaga 27/28 Sideroad, and west on Nottawasaga 27/28 to the Clearview Township Public Works building (Watermain Route) (Figure 2).

Properties adjacent to the Study Area include primarily rural residential and agricultural uses. There are six watercourses (two creeks and four tributaries) that cross underneath the Watermain Route. The westernmost watercourse is Lamont Creek with two of its tributaries to

the east. Further east and approximately in the centre of the Watermain Route are McIntyre Creek and its tributary. The easternmost and sixth watercourse is a tributary of Nottawasaga River. Of these watercourses, woodland riparian communities are associated with both Lamont Creek, which crosses beneath Nottawasaga 27/28 Sideroad and McIntyre Creek, which crosses beneath Sunnidale Concession 12 Road. Within McIntyre Creek's woodland riparian community, there are unevaluated wetlands both north and south of Sunnidale Concession 12 Road.

2.0 Methodology

A review of existing data was conducted to obtain secondary source information relating to the Study Area. Sources reviewed included:

- Aerial photography;
- Natural heritage GIS data layers made public by Land Information Ontario ("LIO");
- Ontario Breeding Bird Atlas (OBBA) (Square 17NK72);
- Ontario Reptile and Amphibian Atlas (ORAA) (Square 17NK72);
- Ministry of Natural Resources and Forestry (MNRF) Aquatic Resources Area mapping; and
- MNRF Natural Heritage Information Centre (NHIC) online map viewer/database (Square 17NK7320 &17NK7522).

A Burnside ecologist completed a field assessment of the Study Area on September 6 and 9, 2019, from publicly accessible locations, to characterize vegetation communities according to the Ecological Land Classification (ELC) System for Southern Ontario, First Approximation (Lee et al., 1998), updated[1]. The field assessment included the assessment of the potential for habitat of Species at Risk (SAR), including breeding bird, bat, and reptile habitat, and incidental wildlife observations.

3.0 Vegetation Communities

The Study Area is comprised of five vegetation communities. Four of the five communities are within the Well Site, and include:

- Agricultural (AG)
- Residential – Rural Property (CVR_4)
- Naturalized Deciduous Hedgerow (FODM11)
- Meadow Marsh (MAM)

The fifth community, Right-of-Way (ROW) comprises the balance of the Study Area along the Watermain Route.

[1] Lee, H.T., et al. (1998). Ecological Land Classification for Southern Ontario: First Approximation and Its Application. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer branch. SCSS Field Guide FG-02.

The communities within the Study Area are described below and illustrated on Figure 1. All of the communities identified are considered to be relatively common in Ontario. Sensitive vegetation communities or provincially significant plant species were not observed within the Study Area during the field assessment.

Well Site Area

Photo 1: Well Site as viewed looking east from Klondike Park Road just south of CVR_4 (September 6, 2019).

The Well Site is occupied primarily by Agricultural (AG) communities, crops were not observed to be present at the time of the field assessment. Residential-Rural Property (CVR_4) fronts Klondike Park Road in the northwest portion of the Well Site and a Marsh Meadow (MAM) community was observed in the northeast portion of the Well Site (see **Photo 1**).

Adjacent to the Well Site are primarily agricultural fields that include Annual Row Crops Specialty Crops (OAGM_3), Naturalized Coniferous Plantation (FOCM6) and Rural Residential Properties (CV_4).

Within the east and southeast limits of the Well Site is a Naturalized-Deciduous Hedgerow (FODM11). A small Orchard community (SAGM2), less than 0.2 ha, is found at the southeast corner of the Well Site. Two Residential-Rural Properties front Sunnidale Concession 12 Road at the south limit of the site. The following sections describe the plant species observed within these vegetation communities.

Agricultural (AG)

Vegetation observed along the border of the agriculture field included mature planted Apple (*Malus sp.)* trees, self-seeded Choke cherry (*Prunus virginiana*) and Green ash (*Fraxinus pennsylvanica*); a tree regeneration area was observed with River-bank grape (*Vitis riparia*) vine and Dogwood sp. (*Cornus sp.*). Forbs and graminoids observed included Canada goldenrod (*Solidago canadensis)*, Common St. John's wort (*Hypericum punctatum*), Common evening primrose (*Oenothera biennis*), Common ragweed (*Ambrosia artemisifolia*), Smooth brome (*Bromus inermis*), Wild asparagus (*Asparagus officinalis*), Spotted knapweed (*Centaurea stoebe)*, Viper's bugloss (*Echium vulgare*), Rough cinquefoil (*Potentilla norvegica)* and Common milkweed (*Asclepias syriaca*).

Residential – Rural Property (CVR_4)

The Residential-Rural Property (CVR_4) that fronts Klondike Park Road includes a canopy of Basswood (*Tilia Americana*), American elm (*Ulmus americana*) and Walnut (*Juglans nigra*), Manitoba maple (*Acer negundo)*, Sugar maple (*Acer saccaharum)*, and Black cherry (*Prunus serotina*); shrubs included Choke cherry, Common buckthorn (*Rhamnus cathartica)*, Maple-leaved viburnum (*Viburnum acerifolium)*, Virginia Creeper (*Parthenocissus quinquefolia)*, Black raspberry (*Rubus occidentalis)*, and River-bank grape. Groundcover included Common mullein (*Verbascum thapsus)*, Tall lettuce (*Lactuca canadensis)*, Bladder campion *(Silene vulgaris)*, Queen Anne's lace, Motherwort (*Leonurus cardiaca)* and Common milkweed. Trees in the state of advanced decay with loose bark were noted.

The Residential-Rural Properties that front Sunnidale Concession 12 Road include ornamental and planted trees including Juniper sp. (*Juniperus sp.),* White cedar (*Thuja occidentalis*), European mountain-ash (*Sorbus aucuparia)*, Catalpa (*Catalpa speciosa*) and White birch (*Betula papyrifera)*; shrubs included Common ninebark (*Physocarpus opulifolius*) and Common lilac (*Syringa vulgaris*); groundcover included White clover (*Trifolium repens*), Queen Anne's lace (*Daucus carota)*, Wild strawberry (*Fragaria virginiana)* and Smooth brome within the manicured turf ROW.

Naturalized Deciduous Hedgerows (FODM11)

Photo 2: Hedgerow as viewed from MAM looking south along the easternmost border of Well Site (September 6, 2019).

The FODM11 canopy along the eastern and southern limits of the Well Site include Apple, Manitoba Maple, Sugar maple, Walnut, Black cherry and Norway spruce (*Picea abies)*. The shrubs included Staghorn sumach (*Rhus typhina),* Red-osier (*Cornus sericea)*, Honeysuckle sp. (*Lonicera sp.)*, and Common lilac, Black raspberry, Common buckthorn, River-bank grape, Virginia creeper and groundcover included Bull thistle (*Cirsium vulgare)*, Common mullein, and Heath aster (*Symphyotrichum ericoides)* (see **Photo 2**).

Meadow Marsh (MAM)

Photo 3: Overlooking MAM between agricultural communities looking norheast (September 6, 2019).

The Meadow Marsh community is dominated by forbs and grasses that are tolerant of seasonally saturated soils and found in early successional or disturbed areas. This MAM is dominated by Red-osier dogwood shrubs, Flat-topped goldenrod (*Euthamia graminifolia*) forb and Reed canary (*Phalaris arundinacea)* grass as well as Panicled aster *(Symphytrichum lanceolatum)*, New England aster (*Symphotrichum novae-angliae)*, Common milkweed, Curly dock (*Rumex crispus*), Tall lettuce, Queen-Anne's-lace and Bull thistle (see **Photo 3**).

Watermain Route

Right-of-Way – Transportation (CVI_1)

Photo 4: Sunnidale Concession 12 Road as viewed looking west towards McInytre Creek Bridge (September 6, 2019).

Photo 5: Mature trees in state of advanced decay looking north along Sunnidale Concession 12 Road (September 6, 2019)

The Watermain Route is comprised of the Right-of-Way – Transportation (CVI_1) community dominated by cool season grasses and common meadow forbs, with some Sugar maple hedge-row trees with severe crown dieback or are completely dead (See **Photo 4 and 5**). These Sugar maples are found throughout the Watermain Route growing as individuals or groupings. Woody vegetation is found within the ROW and consists of White cedar trees and Lilac shrubs.

Adjacent to the ROW in the Watermain Route are primarily agricultural fields that include Annual Row Crops Specialty Crops (OAGM_3), and Open Pasture (OAGM_4) and Mixed Forest (FOM) surrounding Open Water Body (OAO) observed as McIntyre Creek and Lamont Creek. The Rural Residential properties (CVR_4) are observed along the ROW with an individual Commercial and Institutional (CVC) site.

4.0 Wildlife and Habitat Observations

Habitat features in the Study Area are considered to be suitable for wildlife species habituated to anthropogenic land use, including: Eastern grey squirrel (*Sciurus carolinensis*), Eastern chipmunk (*Tamias minimus*), Raccoon (*Procyon lotor*) and Eastern cottontail (*Sylvilagus floridanus*).

Wildlife species observed during the field assessment included Tussock moth (*Orygia spp*) feeding a common milkweed plant, and Canada geese (*Branta canadensis*) in flight. Evidence of other wildlife observed in the Well Site included an abandoned Indigo bunting (*Passerina cyanea*) nest in a deciduous shrub in the residential property fronting Klondike Park Road (see **Photo 6**) and White-tailed deer (*Odocoileus virginianus*) tracks exiting the eastern Hedgerow into the agricultural field (see **Photo 7**). Within the Watermain Route, inactive and predated/decaying Barn swallow and Cliff swallow nests were observed under McIntyre Creek Bridge (see **Photo 8**). An active Barn swallow nest with nestlings was observed under Lamont Creek Bridge (see **Photo 9**).

Monarch (*Danaus plexippus*) butterfly butterflies were observed feeding on nectar plants in the ROW adjacent to the agricultural community adjacent to Klondike Park Road in the Well Site. Common milkweed, the sole food source for Monarch caterpillars, was observed in the Well Site ROW, MAM, and FODM11.

The majority of these species are considered widespread and common in Ontario (i.e., provincial ranking of S5), with the exception of Monarch and Barn swallow. Monarch is listed as a Special Concern species provincially and Threatened federally. Barn swallow is listed as a Threatened species both provincially and federally.

Photo 7: Indigo bunting nest (September 6, 2019).

Photo 6: White-tailed deer tracks (September 6, 2019).

Photo 8: Cliff swallow nests (September 6, 2019).

4.1 Species at Risk (SAR)

The Species at Risk in Ontario (SARO) List is Ontario Regulation 230/08 issued under the *Endangered Species Act, 2007* (ESA 2007). The ESA 2007 provides both species protection (Section 9) and habitat protection (Section 10) to species listed as "Endangered" or "Threatened" on the SARO List. If an activity or project will result in adverse effects to Endangered or Threatened species and/or their habitat, additional action would need to be taken by a proponent to remain in compliance with the ESA 2007. Species listed as "Special Concern" are not afforded legal protection under the ESA, however, they may receive protection by some agencies, such as provincial and national parks, or other acts, such as the Ontario Fish and Wildlife Conservation Act, and the Migratory Birds Convention Act (MBCA), which prohibits the killing, capturing, injuring, harassment and trapping of specially protected species.

4.1.1 Birds

A review of the OBBA (17NK71) indicated the potential for the following provincial SAR bird species in the general vicinity of the Study Area:

- Bank swallow (*Riparia riparia*) – Threatened
- Barn swallow (*Hirundo rustica*) – Threatened
- Bobolink (*Dolichonyx oryzivorus*) – Threatened
- Canada warbler *(Cardellina canadensiss)* – Special concern
- Chimney swift (*Chaetura pelagica*) – Threatened
- Common nighthawk (Chordeiles minor) - Threatened
- Eastern meadowlark (*Sturnella magna)* – Threatened
- Eastern wood-pewee (*Contopus virens*) – Special concern
- Golden-winged warbler (*Vermivora chrysoptera)* – Special concern
- Olive-sided Flycatcher (*Contopus cooperi*) – Special concern
- Red-headed Woodpecker (*Melanerpes erythrocepthalus*) – Special concern
- Whip-poor-will (*Antrostomus vociferous*) - Threatened
- Wood thrush (*Hylocichla mustelina*) – Special concern

Potential for SAR and SAR habitat in the Study Area is evaluated in the SAR Screening Table attached. The following SAR have the potential to be located within the Study Area:

- Barn swallow (*Hirundo rustica*) – Threatened
- Bobolink (*Dolichonyx oryzivorus*) – Threatened
- Eastern meadowlark (*Sturnella magna)* – Threatened

Potential habitat for the remaining SAR birds listed above was not observed in the Study Area. The ROW within the Watermain Route provides suitable habitat for Barn swallow within the bridge and culvert structures that facilitate the McIntyre Creek crossing beneath Sunnidale Concession 12 Road and Lamont Creek crossing beneath Nottawasaga 27/28 Sideroad. During the field assessment, a single Barn swallow nest occupied by nestlings and abandoned Barn swallow nests were observed affixed to the underside of Lamont Bridge and McIntyre

bridge structures respectively. Location of observation points are identified (See Figure 2).

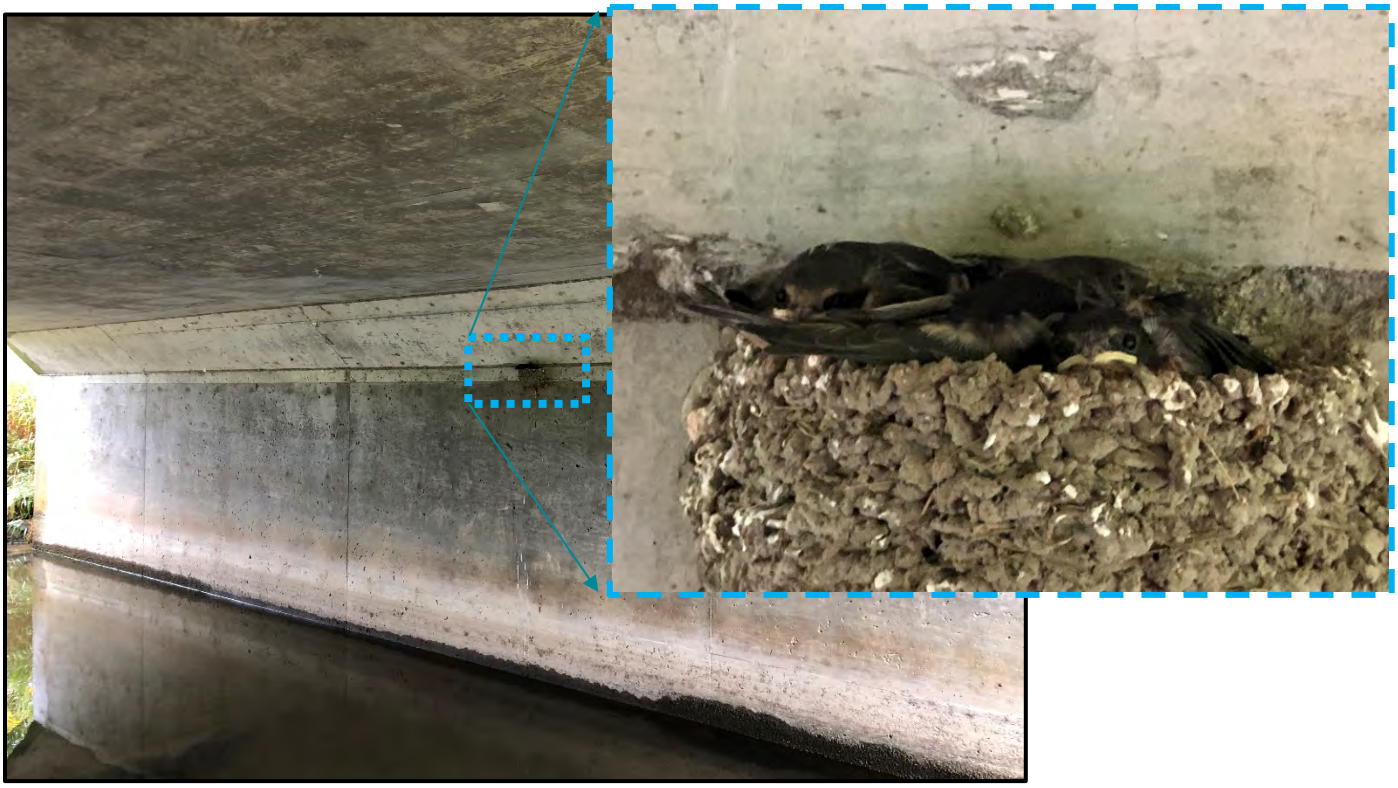

Photo 9: Barn swallow nestlings in nest underneath bridge of Lamont Creek as seen looking east along Nottawasaga Sideroad 27/28 (September 6, 2019).

Suitable habitat required to support SAR birds is not present within the Study Area. These habitats are large grass areas (Bobolink and Eastern meadowlark), mature forest (Eastern wood-pewee, Canada warbler, Eastern whip-poor-will, Red-headed woodpecker, Wood Thrush), successional scrub (Common nighthawk, Golden-winged warbler, Olive-sided flycatcher), vertical riparian bank habitat (Bank swallows) or anthropogenic structures other than bridges/culverts (Chimney swift).

Although Bobolink and Eastern meadowlark prefer large areas (minimum of 10 ha) of grassland habitat, the open meadow and pastures adjacent to the ROW in the Watermain Route may represent suitable habitat.

4.1.2 Candidate Bat Maternity Roosting Habitat

Since 2013, four bat species have been listed as endangered under the Endangered Species Act 2007 due to rapid declining population sizes caused by White-nose Syndrome (WNS).

Among the four listed species, three are known to roost in forested habitats: Little brown myotis (*Myotis lucifugus*), Northern myotis (*Myotis septentrionalis*), and Tri-colored bat (*Pipistrellus subflavus*). While Little brown bat typically chooses maternity roosts in anthropogenic structures, according to MNRF and Environment Canada (2015), key features of significant bat maternity roosting habitat sites for Northern myotis and Tri-colored bat species, and to a lesser extent Little brown myotis, include:

- Deciduous Forest (FOD), Mixedwood Forest (FOM), Coniferous Forest (FOC), Deciduous Swamp (SWD), Mixedwood Swamp (SWM) and Coniferous Swamp (SWC) communities;
- Older forest stands that typically feature increased snag availability for roosting and foraging under a relatively closed canopy and mature large-diameter trees with >25 cm DBH;
- Cavities with small entrances/crevices or loose bark; and
- Cavities in tall tree snags of live trees that exhibit early to mid-stages of decay.

Trees that may be suitable for roosting bats, including trees with > 25 cm DBH with potential for cavities/snags, were observed within the Well Site FODM11 and Watermain Route ROW and woodland riparian communities.

Sugar maple trees >25 cm DBH, with dying limbs and, preferred tree cavities/snags or peeling bark were observed within and immediately adjacent to the Watermain Route to the north and south of Sunnidale Concession 12 Road and on the east side of Highway 7.

The FODM11, within the Well Site and the woodland riparian community associated with McIntyre Creek and Lamont Creek in the Watermain Route are considered to be a key feature preferred for bat roosting.

Based on the field assessment and review of aerial photographs, suitable habitat for bats is present in the Study area; open areas and preferred treed communities have potential for large diameter trees with cavities/loose bark (see **Figure 2**). McIntyre and Lamont Creeks contribute to the Study Area as preferred foraging habitat.

4.1.3 Amphibians and Reptiles

A review of the ORAA Square 17NK72 indicated the potential for the following provincial SAR reptile species in the general vicinity of the Study Area:

- Eastern Hog-nosed snake (*Heterodon platirhinos)* (ORAA, 2018) – Threatened
- Midland painted turtle (*Chrysemys picta marginata*) (ORAA – 2017) – COSEWIC – Special Concern
- Northern map turtle (*Graptemys geographica)* (ORAA – 1952) – Special Concern
- Snapping turtle (*Chelydra serpentina) (*ORAA – 2017) – Special concern

Potential for SAR and SAR habitat in the Study Area is evaluated in the SAR Screening Table attached. The SAR turtles have the potential to be located within the Study Area. Potential habitat for the snake SAR listed above was not observed in the Study Area.

Observations of Midland painted turtle and Snapping turtle occurred in 2017, as per the ORAA database, indicating recent presence in the vicinity of the Study Area. Although only a single Northern map turtle observation occurred in 1952, the Study Area appears to provide suitable habitat for all three turtle species in the creek waterbodies. McIntyre Creek and Lamont Creek provide the typical shallow, slow-moving creek watercourse characteristics, as well as the opportunity for basking areas associated with open areas on shorelines and in-stream boulders and rocks protruding from the water preferred by these turtles.

The Eastern hog-nosed was observed as recently as 2018 per ORAA records, but this snake generally prefers habitats with sandy, well-drained soil and open vegetative cover which was not observed in the Study Area.

During the field assessment, reptiles or amphibians were not observed but have the potential habitat to be present.

4.1.4 Monarch Butterfly Habitat

The Monarch was already assessed as a species of Special Concern when the Endangered Species Act took effect in 2008. The Monarch's range extends from Central America to southern Canada. In Canada, Monarchs are most abundant in southern Ontario and Quebec where milkweed plants and breeding habitat are widespread. Common milkweed was observed in communities bordering the agriculture community in the Well Site. Monarch butterflies were observed within the ROW off Klondike Park Drive during the field assessment.

5.0 Conclusion

The construction activities associated with the revised preferred solution of expanding the existing water system by constructing a pump house in the Well Site area and associated works in connecting to the existing water distribution system for Stayner within the Watermain Route are anticipated to result in limited impact on natural features within the Study Area if the mitigation measures are implemented as recommended to avoid any potential adverse effects. Mitigation measures to minimize impacts to vegetation communities, wildlife habitat and SAR species and habitat are provided in the EA Addendum Report.

R.J. Burnside & Associates Limited

Sylvia Radovic, B.E.S.
Ecologist
SAR:sr

Enclosure(s) Figure 1 – Existing Conditions: ELC
Figure 2 – Barn Swallow and Potential Bat Habitat
Appendix A – SAR Table

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Figures

ELC Boundary

Study Area

ELC Descriptions
AG: Agriculture
CVR_4: Rural Property
FODM11: Naturalized Deciduous Hedge-row
MAM: Meadow Marsh
SAGM2: Orchard

Sources:

1. Ministry of Natural Resources and Forestry, © Queen's Printer for Ontario.
2. Natural Resources Canada © Her Majesty the Queen in Right of Canada.
3. County of Simcoe.

Disclaimer:

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Coord. System: NAD 1983 CSRS UTM Zone 17N	
Projection: Transverse Mercator	
Central Meridian: 81°0'0.00"W	
False Easting: 500,000m	False Northing: 0m
Page Orientation: 341.85°	Scale Factor: 0.99960

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Grid North

0 25 50 75 100
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TOWNSHIP OF CLEARVIEW

Figure Title

NATURAL HERITAGE MEMO - ADDENDUM TO LONG TERM WATER SUPPLY
ECOLOGICAL LAND CLASSIFICATION

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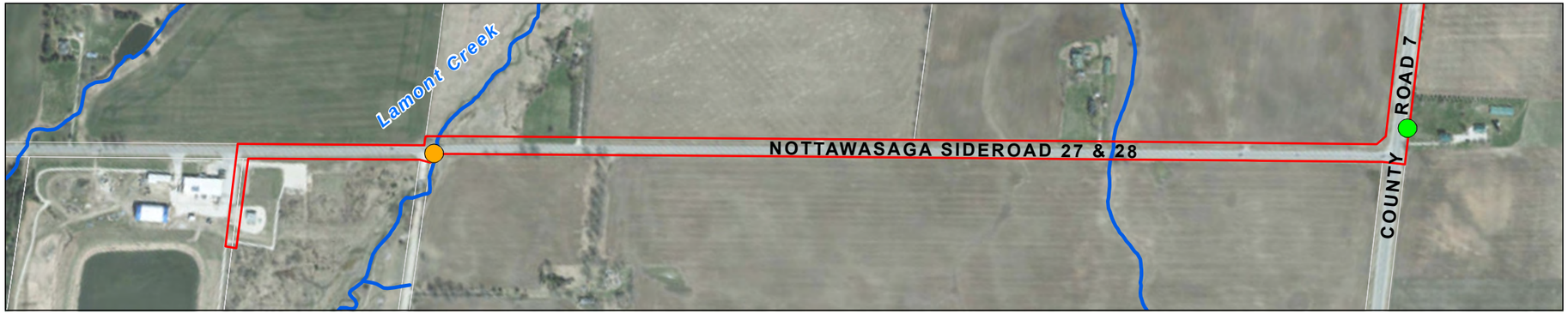

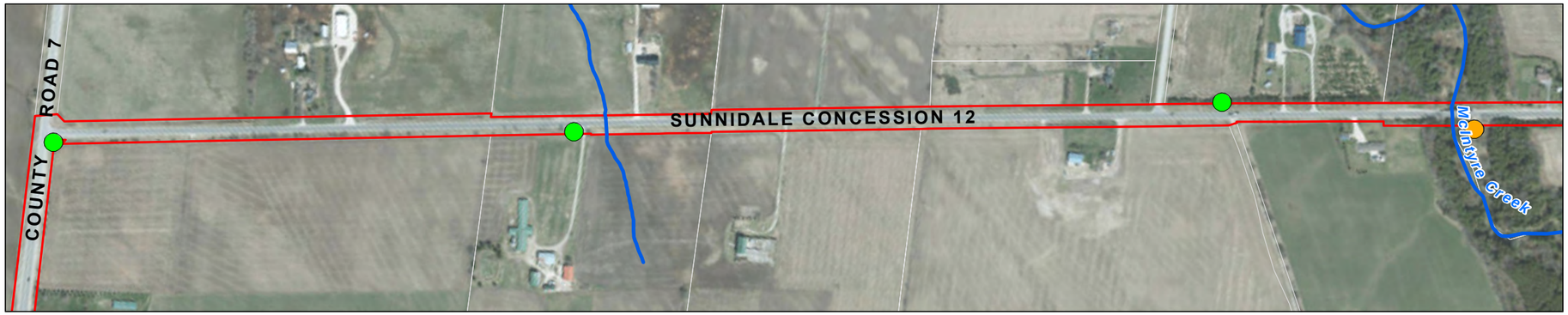

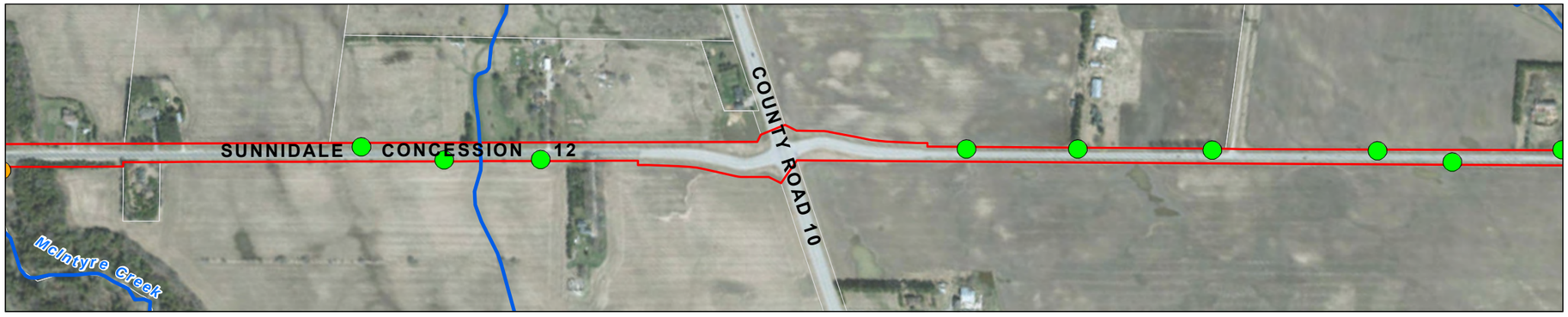

- Barn Swallow
- Potential Bat Habitat Tree
- Watercourse (MNRF)
- Study Area

Sources:

1. Ministry of Natural Resources and Forestry, © Queen's Printer for Ontario.
2. Natural Resources Canada © Her Majesty the Queen in Right of Canada.
3. County of Simcoe.

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Grid North

0 100 200 300 400 500

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TOWNSHIP OF CLEARVIEW

Figure Title

NATURAL HERITAGE MEMO - ADDENDUM TO LONG TERM WATER SUPPLY

BARN SWALLOW AND POTENTIAL BAT HABITAT

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Appendix A

SAR Table

Appendix A: Screening Table - Background Review of Species at Risk and Species of Conservation Concern Potentially Present in the Study Area
Natural Heritage Memo - Addendum to Long Term Water Supply EA (300044192.0000)

Common Name	Scientific Name	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description	Habitat Present in Study Area?	Species Observed In Study Area During Site Assessment?
BIRDS									
Bank Swallow (Source: OBBA)	*Riparia riparia*	S4B	THR	THR	THR	1	In Ontario, Bank Swallows typically nest in exposed vertical earthen banks, created by erosion, along watercourses and lakeshores. It has also adapted to nesting in these banks in sand and gravel pits, along roadsides and in stockpiles of soil and other materials. The largest populations are supported by the shorelines of the lower Great Lakes and they can also be found throughout southern Ontario in the Carolinian and Lake Simcoe-Rideau regions.[7]	No. Suitable, vertical exposed, eroded riverbanks, pits, stockpiles and other suitable habitat were not present on site.	No.
Barn Swallow (Source: OBBA)	*Hirundo rustica*	S4B	THR	THR	THR	1	Barn Swallows usually build mud nests on ledges of walls in, or outside, of a barn or other man-made structures, including building and bridges. Natural nesting locations include caves and cliffs, but they are now rarely used. They often nest in small colonies in areas often associated with other insectivores. Foraging occurs in open areas where insects are present: over water, meadows, marshes, and agricultural fields. They are most abundant south of the Canadian Shield, within agricultural lands in the Carolinian and Lake Simcoe-Rideau regions.[5]	Yes Suitable culverts and bridge structures for nesting in Study Area.	Yes, birds nesting were observed underneath / on bridge structure.

Common Name	Scientific Name	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description	Habitat Present in Study Area?	Species Observed In Study Area During Site Assessment?
Bobolink (Source: OBBA)	*Dolichonyx oryzivorus*	S4B	THR	THR	THR	1	Bobolinks generally prefer open grasslands and hay fields for nesting, typically featuring relatively tall vegetation. Sometimes uses large fields (>50 ha) of winter wheat and rye in southwestern Ontario. Sensitive to vegetation structure and composition, they are positively associated with high grass-to-forb ratios, and moderate litter depth. They tolerate wetter portions of fields and are more likely to nest closer to field centers rather than field margins. They have a lower tolerance to presence of patches of bare ground and appear to prefer larger fields (>10 ha).[5, 7] This area sensitivity is also heavily influenced by the amount of regional grassland cover.	Yes. Open grasslands featuring tall vegetation are present adjacent to ROW portion of Study Area but not on field portion of Study Area The Study Area does not meet the large field use requirement but adjacent lands do.	No.
Canada Warbler (Source: OBBA)	*Cardellina canadensis*	S4B	SC	THR	THR	1	Canada Warblers are an interior woodland species, requiring large forested regions of at least 30 ha. Habitats include dense mixed coniferous-deciduous forests, with closed canopies and well developed understories. Preference is given to low-lying areas, including wet bottomlands of cedar or alder, as well as cool moist mature woodlands and riparian habitat. Breeding occurs throughout southern Ontario, with most occurrences found within the Southern Shield region. However, distribution of population and breeding extends north, towards Moosonee and south, towards Rondeau and Lake St. Claire.[5]	No. Coniferous and mixed forested habitat do not lie within the ROW portion of the Study Area. The only woodland within the ROW and adjacent to the Study Area along McIntyre Creek is part of a riparian habitat could be marginally suitable but does not meet the interior woodland forest of >30 ha preferred habitat.	No.
Chimney Swift (Source: OBBA)	*Chaetura pelagica*	S4B,S4N	THR	THR	THR	1	Chimney Swifts have historically nested/roosted in deciduous and coniferous, typically wet, forest types, with a well-developed, dense shrub layer. Currently, most are found in anthropogenic structures, most commonly in uncapped chimneys.	No. Rural property communities adjacent to Study Area may or may not have open chimneys but are not in the ROW or open Study Area.	No.

Common Name	Scientific Name	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description	Habitat Present in Study Area?	Species Observed In Study Area During Site Assessment?
Common Nighthawk (Source: RJB)	*Chordeiles minor*	S4B	SC	SC	THR	1	Prefers open, vegetation-free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks. This species also inhabits mixed and coniferous forests. Can also be found in urban areas (nest on flat roof-tops).	No. Pastures that could potentially provide habitat were noted outside of the study area adjacent to the ROW; riparian mixed forest (McIntyre Creek) runs through the ROW Study Area. Given the marginal nature of the habitat, it is not expected it to occur.	No.
Eastern Meadowlark (Source: OBBA)	*Sturnella magna*	S4B	THR	THR	THR	1	Generally, prefers grassy pastures, meadows and hay fields. Prefers moderately tall grass with abundant litter cover, a high proportion of grass cover, moderate forb density, low proportions of shrub and woody vegetation cover, and low percent of bare ground. Prefers to nest in drier sites and frequently nests around field margins.[5, 7]	Yes. Open grasslands featuring tall vegetation are present adjacent to ROW portion of Study Area but not on field portion of Study Area	No.
Eastern Wood-pewee (Source: OBBA)	*Contopus virens*	S4B	SC	SC	SC	1	This species is known to inhabit the mid-canopy layer of forest openings and edges of deciduous and mixed forests (MNRF 2018). It is most abundant in intermediate-age mature forest stands with little understorey vegetation (MNRF 2018). Eastern Wood-pewees generally nest in the interior of deciduous and mixed-wood forested habitats but are often found foraging along woodland edges and in within forest gaps. They do not require large habitats, but occurrences are noted less frequently in woodlots surrounded by development than in those without. Species distribution is throughout southern and northern Ontario, occurring less in the Hudson's Bay Lowlands.[5]	No. Although forest edges of mixed deciduous forest is present adjacent to ROW along McIntyre Creek, the preferred mid-canopy layer forest with little understory vegetation is not. .	No.
Golden-Winged Warbler (Source: OBBA)	*Vermivora chrysoptera*	S4B	SC	THR	THR	1	Generally prefer areas of early successional vegetation, found primarily on field edges, hydro or utility right-of-ways, or recently logged areas.[6] Early successional habitat; shrubby, grassy abandoned fields with small deciduous trees bordered by low woodland and wooded swamps; alder bogs; deciduous, damp woods; shrubbery clearings in deciduous woods with saplings and	No. Marginal habitat with open cultural lands but low woodland, swamp and shrubbery clearing not present. Prefers > 10 ha in size of habitat.	No.

Common Name	Scientific Name	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description	Habitat Present in Study Area?	Species Observed In Study Area During Site Assessment?
							grasses; brier-woodland edges; requires >10 ha of habitat [12]		
Olive-sided Flycatcher (Source: MNRF, OBBA)	*Contopus cooperi*	S4B	SC	SC	THR	1	Generally prefers natural forest edges and openings adjacent to rivers or wetlands. Commonly nest in conifers such as White and Black Spruce, Jack Pine and Balsam Fir.	No. No appropriate habitat exists as there are no swamps and forests adjacent to marsh within Study Area and lack the conifers to nest in	No.
Red-Headed Woodpecker (Source: MNRF, OBBA)	*Melanerpes erythrocephalus*	S4B	SC	END	THR	1	Generally prefer open oak and beech forests, grasslands, forest edges, orchards, pastures, riparian forests, roadsides, urban parks, golf courses, cemeteries, as well as along beaver ponds and brooks. These areas typically have many dead trees, which the bird uses for nesting and perching.	No. No open oak or beech forests appropriate habitat for this species was observed in the study area – there was not an abundance of dead trees for nesting and perching.	No.
Eastern Whip-poor-will (Source: MNRF, OBBA)	*Antrostomus vociferus*	S4B	THR	THR	THR	1	Generally prefer semi-open deciduous forests or patchy forests with clearings; areas with little ground cover are also preferred; In winter they occupy primarily mixed woods near open areas.	No. The semi-open deciduous forest community preferred is not present within the open Study Area or ROW.	No.
Wood Thrush (Source: OBBA)	*Hylocichla mustelina*	S4B	SC	THR	THR	1	The Wood Thrush breeds in southeastern Canada, from southern Ontario, east to Nova Scotia. Nesting typically occurs in second-growth, mature deciduous and mixed forests. The presence of tall trees and a thick understory are usually prerequisites for site occupancy.[6, 8] They prefer large forested areas, but they may also nest in small forest fragments. Nest building commonly occurs in Sugar Maples and American Beech saplings, trees or shrubs.[8] Wintering occurs in Central America, along the Atlantic and Pacific slopes.[6]	No. Sugar Maples present only in hedgerows within ROW in the Study Area and no mature forests with thick understorey within Study Area .	No.

Common Name	Scientific Name	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description	Habitat Present in Study Area?	Species Observed In Study Area During Site Assessment?
INSECTS									
Monarch (Source: RJB)	*Danaus plexippus*	S2N,S4B	SC	END	SC	1	Monarchs can be found in areas that Milkweed (*Asclepius sp.*) and other wildflowers are present. This includes open spaces (fields), abandoned farmland, and roadsides. Pin-sized green eggs are laid on the underside of Milkweed species (*Asclepias spp.*), which are the primary food source of the Monarch caterpillar. Adult Monarchs migrate in late summer/early fall. Overwintering occurs along the California coast, and the Oyamel Fir Forest in central Mexico.[8]	Yes. Appropriate foraging and breeding habitat was present in the ROW along Klondike Park Road open Study Area. open roadside area and on adjacent agricultural meadow within the study area.	Yes. Monarch were observed feeding on nectar producing plants in ROW adjacent to Klondike Park Road.
MAMMALS									
Eastern Small-Footed Myotis (Source: MNRF)	*Myotis leibii*	S2S3	END	-	-	-	Eastern Small-footed Myotis can be found from southern Georgian Bay to Lake Erie, and east to the Pembroke area. Record sightings also exist within the Bruce Peninsula, the Espanola area and Lake Superior Provincial Park.[8] Roosting habitat: during the spring and summer they will roost under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines or hollow trees. They often change their roosting locations every day.[8] Hibernacula: caves and abandoned mines that tend to be colder and drier than the hibernacula of similar bats, and they will return to the same hibernacula every year. As with Little Brown Myotis, Eastern Small-footed myotis populations have been declining rapidly due to a fungal infection (White-nose Syndrome) that affects bats while in hibernation.[8]	No. Hibernacula is not present (i.e., caves/mines). Roosting habitat is not considered present, given its preference for open, sunny rocky habitats within close proximity to its hibernacula.	No.

Common Name	Scientific Name	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description	Habitat Present in Study Area?	Species Observed In Study Area During Site Assessment?
Little Brown Myotis (Source: MNRF)	*Myotis lucifugus*	S3	END	END	END	1	Population distribution within Canada includes the boreal forest, south of the tree line through to the U.S. border.[10] Roosting habitat: mainly considered to be a cavity-roosting species, however, tree foliage and rock crevices may also be used for day and maternity roosting. Communal night roosts are used when temperatures are cool and tend to be in spaces that are warm or can be warmed by an accumulation of bats. Females prefer to roost in maternity colonies, preferring tree cavities, exfoliating bark, cracks and crevices in cliffs and small caves and crevices heated by hot springs. Temperature is the principal criterion for the selection of a maternity roost location. Maternity colonies form just after bats come out of hibernation (late April and early May) and are located within 1 kilometer of water.[10] Hibernacula: hibernation typically takes place in caves or abandoned mines, with favorable temperatures and humidity conditions. Migration to hibernation sites can be up to 1,000km, and typically occurs in early September.[11] Little Brown Myotis populations in Ontario have declined dramatically in recent years due to White-nose Syndrome, a fungal infection caused by *Pseudogymnoascus destructans*, which infects bats while in hibernation.[10]	Low. Preferred Sugar maple species present within ROW in the Study Area and permanent water body sources for foraging are found along Sunnidale Concession 12 along the Study Area. .	No.
Northern Myotis (Source: MNRF)	*Myotis septentrionalis*	S3	END	END	END	1	Roosting habitat: males and non-breeding females roost alone or in small groups, choosing trees, caves, and buildings. Breeding females roost in tree hollows, cavities, crevices or under loose bark of living or decaying trees, sometimes in groups of up to 60 adults. They often change roosting locations every few days. Prey mainly includes terrestrial insects such as flies, moths, beetles, caddisflies, lacewings and leafhoppers, as well as non-flying species, such as spiders and caterpillars. They tolerate cooler conditions than the Little Brown	Low. Preferred Sugar maple species present within ROW in the Study Area and permanent water body sources for foraging are found along Sunnidale Concession 12 along the Study Area.	No.

Common Name	Scientific Name	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description	Habitat Present in Study Area?	Species Observed In Study Area During Site Assessment?
							Myotis and are therefore not usually found near that species.[10] Hibernacula: tend to enter hibernation later than other species, around late September to early November, and will emerge from hibernation sometime between March and May. They spend the summer relatively close to their hibernacula (56km between summer and winter sites). [10] As with Little Brown Myotis, White-nose Syndrome has cause a dramatic decline in Ontario populations.[10]		
Tri-colored Bat (Source: MNRF)	*Perimyotis subflavus*	S3?	END	END	END	1	Roosting habitat: females roost alone, or in small colonies, and have been shown to exhibit fidelity to small roosting areas. Foraging typically occurs in forested riparian areas, over open water and in relatively open areas. Studies have shown that Tri-coloured bats forage in forested areas with the greatest coverage, suggesting that they may avoid agricultural clearings, urban areas and areas where forest harvesting has occurred.[10] Hibernacula: tends to hibernate in the deepest parts of caves or abandoned mines, where temperature is least variable and humidity levels are high. They hibernate solitarily and exhibit high fidelity to hibernacula.[10]	Low. Preferred Sugar maple species present within ROW in the Study Area and permanent water body sources for foraging are found along Sunnidale Concession 12 along the Study Area.	No.
REPTILES & AMPHIBIANS									
Eastern Hog-nosed Snake (Source: ORAA)	*Heterodon platirhinos*	S3	THR	THR	THR	1	Generally prefer habitats with sandy, well-drained soil and open vegetative cover, such as open woods, brushland, fields, forest edges and disturbed sites. The species is often found near water (MNRF Guelph - Hamilton List, 2013)	No. The sandy, well-drained soil (beeches / dry forests) preferred by Eastern Hog-nosed Snake is not present in the Study Area.	No.

Common Name	Scientific Name	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description	Habitat Present in Study Area?	Species Observed In Study Area During Site Assessment?
Midland Painted Turtle (Source: ORAA)	*Chrysemys picta marginata*	S4	-	SC	-	-	Inhabits waterbodies, such as ponds, marshes, lakes and slow-moving creeks, that have a soft bottom and provide abundant basking sites and aquatic vegetation. These turtles often bask on shorelines or on logs and rocks that protrude from the water. The midland painted turtle hibernates on the bottom of waterbodies.	Yes, Potential habitat exits in permanent creek waterbody with slow moving creek habitat suitable basking sites in McIntyre and Lamont Creek.	No.
Northern Map Turtle (Source: ORAA)	*Graptemys geographica*	S3	SC	SC	SC	1	Inhabits both lakes and rivers, showing a preference for slow moving currents, muddy bottoms, and abundant aquatic vegetation. These turtles need suitable basking sites (such as rocks and logs) and exposure to the sun for at least part of the day (MNRF Guelph - Waterloo List, 2014).	Yes. Potential habitat exists in permanent creek waterbody with slow moving creek habitat and suitable basking sites in McIntyre and Lamont Creek.	No.
Snapping Turtle (Source: ORAA, NHIC, iNaturalist)	*Chelydra serpentina*	S3	SC	SC	SC	1	Snapping Turtles generally inhabit shallow waters, where they can hide under the soft mud and leaf litter. Nesting sites usually occur on gravely or sandy areas along streams. They often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits. During nesting season, females travel overland in search of suitable nesting sites.[8]	Yes. Permanent creek waterbody, slow moving creek habitat with suitable basking sites exists in McIntyre Creek.	No.

** Sources: Natural Heritage Information Centre (NHIC) database searched on May 1, 2019 for square 17MK6912; Ontario Reptile and Amphibian Atlas (ORAA) for Square 17MK61, searched online on May 1, 2019; Ontario Breeding Bird Atlas (OBBA) 2001-2005 database for Square 17MK61 searched online on May 1, 2019.

[1]S-Ranks (provincial)
Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario (Please refer to: http://explorer.natureserve.org/nsranks.htm). S-Ranks obtained from the NHIC updated June 28, 2018.

SX — Presumed Extirpated - Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
SH — Possibly Extirpated (Historical) - Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20–40 years. A species or community could become SH without such a 20-40 year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for. The SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from verified extant occurrences.
S1 — Critically Imperiled - Critically imperiled in the province or state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.
S2 — Imperiled - Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.
S3 — Vulnerable - Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 — Apparently Secure - Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 — Secure - Common, widespread, and abundant in the province.
SNR — Unranked - Province conservation status not yet assessed.
SU — Unrankable - Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA — Not Applicable - A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
S#S# — Range Rank - A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
S#? – Inexact or Uncertain - Denotes inexact or uncertain numeric rank.

Breeding Status Qualifiers
B – Breeding Conservation status refers to the breeding population of the species in the nation or state/province.
N – Nonbreeding Conservation status refers to the non-breeding population of the species in the province.
M – Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.

[2]**SARO *Endangered Species Act, 2007***
(Provincial status from https://www.ontario.ca/page/species-risk-ontario#section-1 updated November 13, 2018)
The provincial review process is implemented by the Committee on the Status of Species at Risk in Ontario (COSSARO).

Extinct - A species that no longer exists anywhere.
Extirpated (EXT) - Lives somewhere in the world, and at one time lived in the wild in Ontario, but no longer lives in the wild in Ontario.
Endangered (END) - Lives in the wild in Ontario but is facing imminent extinction or extirpation.
Threatened (THR) - Lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it.
Special concern (SC) - Lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.
Not at Risk (NAR) - A species that has been evaluated and found to be not at risk.
Data Deficient (DD) - A species for which there is insufficient information for a provincial status recommendation.

[3]**SARA (Federal *Species at Risk Act*) Status and Schedule (includes COSEWIC Status)**
The Act establishes Schedule 1, as the official list of wildlife species at risk. It classifies those species as being either Extirpated, Endangered, Threatened, or Special Concern. Once listed, the measures to protect and recover a listed wildlife species are implemented. Obtained from the Species at Risk Public Registry on December 10, 2018.

Extinct - A wildlife species that no longer exists.
Extirpated (EXT) - A wildlife species that no longer exists in the wild in Canada, but exists elsewhere.
Endangered (END) - A wildlife species facing imminent extirpation or extinction.
Threatened (THR) - A wildlife species that is likely to become an endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
Special Concern (SC) - A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.
Data Deficient (DD) - A category that applies when the available information is insufficient (a) to resolve a wildlife species' eligibility for assessment or (b) to permit an assessment of the wildlife species' risk of extinction.
Not At Risk (NAR) - A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.

[4]**SARA Schedule**
Obtained from the Species at Risk Public Registry on December 10, 2018.
Schedule 1: is the official list of species that are classified as extirpated, endangered, threatened, and of special concern.
Schedule 2: species listed in Schedule 2 are species that had been designated as endangered or threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
Schedule 3: species listed in Schedule 3 are species that had been designated as special concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

The Act establishes Schedule 1 as the official list of wildlife species at risk. However, please note that while Schedule 1 lists species that are extirpated, endangered, threatened and of special concern, the prohibitions do not apply to species of special concern. Species that were designated at risk by COSEWIC prior to October 1999 (Schedule 2 & 3) must be reassessed using revised criteria before they can be considered for addition to Schedule 1 of SARA. After they have been assessed, the Governor in Council may on the recommendation of the Minister, decide on whether or not they should be added to the List of Wildlife Species at Risk.

Sources:
[5] Cadman, M.D., et al. (eds). 2007. *Atlas of the Breeding Birds of Ontario, 2001-2005.* Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, xxii + 706 pp
[6] Species at Risk Public Registry http://www.sararegistry.gc.ca
[7] McCracken, J.D. et al. 2013. Recovery Strategy for the Bobolink (Dolichonyx oryzivorus) and Eastern Meadowlark (Sturnella magna) in Ontario .Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario, viii + 88 pp.
[8] MNRF SARO List Species Descriptions (https://www.ontario.ca/page/species-risk-ontario#section-1)
[9] COSEWIC Species Assessment Reports
[10] Naughton, Donna. 2012. *The Natural History of Canadian Mammals*. Canadian Museum of Nature and University of Toronto Press, Toronto, + 784 pp
[11]Farrar, John Laird, 2017, *Trees in Canada*, Natural Resources Canada | Canada Forest Services, and, Fitchenry &Whiteside Limited, pp.238 – 239
[12]Significant Wildlife Habitat Technical Guide – Appendix G – Table G-3

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Appendix A2

Aquatic Environment Assessment Documents

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Technical Memorandum – Aquatic Habitat Conditions

Date: January 9, 2020 **Project No.:** 300044192.0000

Project Name: Addendum to Long Term Water Supply EA, Community of Stayner

Client Name: Township of Clearview

Submitted To: File

Submitted By: Matthew Moote, Hon. B.Sc., CAN-CISEC-IT, Aquatic Ecologist

Reviewed By: Chris Pfohl, C.E.T., EP, CAN-CISEC, Sr. Aquatic Ecologist

1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) was retained by the Township of Clearview to complete a review and Addendum to the Municipal Class Environmental Assessment (EA) for the Long-Term Water Supply for Clearview (Schedule B), completed in February 2008 to assess long-term water supply requirements based on forecast growth. The Addendum is completed for the community of Stayner only and includes an overview of the significant modifications to the project or changes in the environment since the 2008 EA. The revised preferred solution is to "Expand Existing Groundwater System" following the identification of groundwater source for local supply to Stayner. A component of the EA includes the characterization of the natural environment within the Study Area. The characterization of the aquatic environment relating to the revised preferred solution is included herein.

2.0 Aquatic Habitat Conditions

Burnside's Aquatic Ecology staff reviewed the following sources of background information for the watercourse crossings located in the Study Area:

- Aerial Imagery;
- Ministry of Natural Resources and Forestry (MNRF) Aquatic Resources Area (ARA) mapping;
- Department of Fisheries and Oceans (DFO) Species-At-Risk (SAR) mapping;
- Natural Heritage Information Centre (NHIC) mapping;

- Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) AgMaps mapping;
- Ontario Hydro Network (OHN) mapping; and
- Nottawasaga Valley Fisheries Management Plan

There is a total of 6 watercourses in the Study Area, which all cross beneath Sunnidale Concession 12 and Nottawasaga Sideroad 27/28. Three of the watercourses are cold-water thermal regime (MNRF ARA mapping). The three cold-water watercourse cross beneath Sunnidale Concession 12 between Wedgewood Drive and Klondike Park Road. The eastern most watercourse (Watercourse 1) is located 1.23 km west of Klondike Park Road. The two other cold-water watercourses (Watercourse 2 and Watercourse 3 respectively) are located 2.85 km and 3.52 km west of Klondike Park Road.

There are three cool-water thermal regime watercourses in the Study Area. The easterly-most cool-water watercourse (watercourse 4) is located 0.75 km east of Simcoe County Road 7, and the other 2 cool-water watercourses (watercourse 5 and 6) are located 0.38 km and 1.30 km west of Simcoe County Road 7. All watercourses flow from south to north within the Study Area. The OMAFRA AgMaps mapping did not state that any of the watercourses in the study are Municipal Drains. The OHN mapping states that all watercourses are permanent watercourses.

Burnside's aquatic ecology staff reviewed the DFO SAR and NHIC mapping and noted that aquatic SAR do not inhabit the Study Area.

Spring spawning species of fish are known to inhabit Watercourse 1 including Brassy minnow (*Hybognathus hankinsoni*), Brook stickleback (*Culaea inconstans*), Central mudminnow (*Umbra limi*), Johnny darter (*Etheostoma nigrum*), Northern redbelly dace (*Chrosomus eos*) and White sucker (*Catostomus commersonii*). Salmonid species are not noted in the MNRF ARA mapping as historically inhabiting Watercourse 1. Watercourse 1 is an unnamed tributary of the Nottawasaga River and discharges to the Nottawasaga River approximately 4.6 km downstream of Sunnidale Road. Watercourse 1 is a cold-water watercourse and the NVCA Fisheries Management Plan states that cold-water watercourses are to have the spring and fall in-water works timing windows applied. As such in-water works should be limited to July 15th-September 30th (no in-water works permitted during this window).

Watercourse 3 is known as MacIntyre Creek and Watercourse 2 is an unknown tributary of MacIntyre Creek. Both spring and fall spawning species of fish are known to inhabit Watercourses 2 and 3. These species include Rainbow trout (*Oncorhynchus mykiss*), Brook trout (*Salvelinus fontinalis*), Common shiner (*Luxilus cornutus*), Blacknose Dace (*Rhinichthys spp.*), Northern redbelly dace (*Chrosomus eos*), Brassy minnow (*Hybognathus hankinsoni*), White sucker (*Catostomus commersonii*), Pumpkinseed (*Lepomis gibbosus*), Central mudminnow (*Umbra limi*), Brook stickleback (*Culaea inconstans*) and Creek chub (*Semotilus atromaculatus*). Given the species present in the watercourses the timing for any in-water works is July 15th - September 30th.

Watercourses 4 and 5 are both tributaries of Lamont Creek and Watercourse 6 is known as Lamont Creek. Spring and fall spawning species of fish are known to inhabit these watercourses. These species include Common shiner (*Luxilus cornutus*), Johnny darter (*Etheostoma nigrum*), Creek chub (*Semotilus atromaculatus*), Rainbow trout (*Oncorhynchus mykiss*), Northern pearl dace (*Margariscus nachtriebi*), Pumpkinseed (*Lepomis gibbosus*), Central mudminnow (*Umbra limi*), Brassy minnow (*Hybognathus hankinsoni*), Hornyhead chub (*Nocomis biguttatus*), Mottled sculpin (*Cottus bairdii*), Finescale dace (*Chrosomus neogaeus*), Fathead minnow (*Pimephales promelas*), Bluntnose minnow (*Pimephales notatus*), Blacknose dace (*Rhinichthys spp.*), Longnose dace (*Rhinichthys cataractae*), White sucker (*Catostomus commersonii*), Rock bass (*Ambloplites rupestris*), Northern redbelly dace (*Chrosomus eos*), Brook stickleback (*Culaea inconstans*), Goldfish (*Carassius auratus*), Emerald shiner (*Notropis atherinoides*) and Central stoneroller (*Campostoma anomalum*). Given the species present in the watercourses the timing for any in-water works is July 15th-September 30th.

The Study Area is located in the Lower Nottawasaga River Subwatershed. Surface water quality in this subwatershed is “fair” according to the evaluated parameters (e.coli and phosphorus concentrations and benthic invertebrate community composition). The Nottawasaga Valley Conservation Authority Fisheries Management Plan states that Lamont and MacIntyre Creeks are both to be managed in a manner consistent with protecting, enhancing and restoring cold-water fisheries.

3.0 Conclusion

All of the watercourses located within the Study Area are considered to be fish habitat as defined by the Fisheries Act. The *Fisheries Act* prohibits carrying on any work, undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat. The *Fisheries Act* also states that *“no person shall carry on any work, undertaking or activity, other than fishing, that result in the death of fish.”* If any in-water works are required below then a Request for Project Review should be made to the Fish and Fish Habitat Protection Program at the Department of Fisheries and Oceans.

R.J. Burnside & Associates Limited

Matthew Moote, Hon. B.Sc., CAN-CISEC-IT
Aquatic Ecologist

MM:js

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Appendix A3

Stage 1 Archaeological Assessment Report

STAGE 1 ARCHAEOLOGICAL ASSESSMENT
STAYNER WATER SERVICING MCEA ADDENDUM
PART OF LOT 10, CONCESSION 13 AND LOT 27, CONCESSION 2
(FORMER TOWNSHIPS OF NOTTAWASAGA AND SUNNIDALE)
TOWNSHIP OF CLEARVIEW
COUNTY OF SIMCOE, ONTARIO

ORIGINAL REPORT

Prepared for:

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Archaeological Licence #P383 (Williams)
Ministry of Heritage, Sport, Tourism and Culture Industries PIF# P383-0157-2019
ASI File: 19EA-229

23 December 2019

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Stage 1 Archaeological Assessment
Stayner Water Servicing MCEA Addendum
Part of Lot 10, Concession 13 and Lot 27, Concession 2
Township of Clearview
County of Simcoe, Ontario

EXECUTIVE SUMMARY

Archaeological Services Inc. (ASI) was contracted by R.J. Burnside Limited to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Stayner Water Servicing Municipal Class Environmental Assessment (MCEA) Addendum in the Township of Clearview (Figure 1). This project involves the construction of a new watermain transmission route along the existing road right-of-ways (ROW) of Concession 12 Sunnidale Road, County Road 7 and Nottawasaga 27/28 Sideroad, and proposed new wells/well house site location on the southern portion of 1585 Klondike Park Road, located at the north-east corner of Klondike Park Road and Concession Road 12 Sunnidale.

The Stage 1 background study determined that three previously registered archaeological sites are located within one kilometre of the Study Area. The property inspection determined that parts of the Study Area exhibits archaeological potential and will require Stage 2 assessment.

In light of these results, the following recommendations are made:

1. The Study Area exhibits archaeological potential. These lands require Stage 2 archaeological assessment by test pit and pedestrian survey at five metre intervals, where appropriate, prior to any proposed impacts to the property;

2. The remainder of the Study Area does not retain archaeological potential on account of slopes in excess of 20 degrees, low and wet areas, deep and extensive land disturbance, or having been previously assessed. These lands do not require further archaeological assessment; and,

3. Should the proposed work extend beyond the current Study Area, further Stage 1 archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

ASI

PROJECT PERSONNEL

Senior Project Manager:	Lisa Merritt, MSc. (P094) *Partner / Director* *Environmental Assessment Division*
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1.0 PROJECT CONTEXT

Archaeological Services Inc. (ASI) was contracted by R.J. Burnside Limited to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Stayner Water Servicing Municipal Class Environmental Assessment (MCEA) Addendum in the Township of Clearview (Figure 1). This project involves the construction of a new watermain transmission route along the existing road right-of-ways (ROW) of Concession 12 Sunnidale Road, County Road 7 and Nottawasaga 27/28 Sideroad, and proposed new wells/well house site location on the southern portion of 1585 Klondike Park Road, located at the north-east corner of Klondike Park Road and Concession Road 12 Sunnidale.

All activities carried out during this assessment were completed in accordance with the *Ontario Heritage Act* (2017, as amended in 2018) and the 2011 *Standards and Guidelines for Consultant Archaeologists* (S & G), administered by the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI 2011).

1.1 Development Context

All work has been undertaken as required by the *Environmental Assessment Act,* RSO (Ministry of the Environment 1990 as amended 2010) and regulations made under the Act, and are therefore subject to all associated legislation. This project is being conducted in accordance with the planning and design process Schedule 'B" projects Municipal Engineers' Association document *Municipal Class Environmental Assessment* (2000 as amended in 2007, 2011 and 2015).

The County of Simcoe Archaeological Master Plan was consulted and the area was deemed as having archaeological potential (ASI 2019).

Authorization to carry out the activities necessary for the completion of the Stage 1 archaeological assessment was granted by R.J. Burnside on October 16, 2019.

1.2 Historical Context

The purpose of this section, according to the S & G, Section 7.5.7, Standard 1, is to describe the past and present land use and the settlement history and any other relevant historical information pertaining to the Study Area. A summary is first presented of the current understanding of the Indigenous land use of the Study Area. This is then followed by a review of the historical Euro-Canadian settlement history.

1.2.1 Indigenous Land Use and Settlement

Southern Ontario has been occupied by human populations since the retreat of the Laurentide glacier approximately 13,000 years before present (BP) (Ferris 2013). Populations at this time would have been highly mobile, inhabiting a boreal-parkland similar to the modern sub-arctic. By approximately 10,000 BP, the environment had progressively warmed (Edwards and Fritz 1988) and populations now occupied less extensive territories (Ellis and Deller 1990).

Between approximately 10,000-5,500 BP, the Great Lakes basins experienced low-water levels, and many sites which would have been located on those former shorelines are now submerged. This period produces the earliest evidence of heavy wood working tools, an indication of greater investment of labour in felling trees for fuel, to build shelter, and watercraft production. These activities suggest prolonged seasonal residency at occupation sites. Polished stone and native copper implements were being produced by approximately 8,000 BP; the latter was acquired from the north shore of Lake Superior, evidence of extensive exchange networks throughout the Great Lakes region. The earliest evidence for cemeteries dates to approximately 4,500-3,000 BP and is indicative of increased social organization, investment of labour into social infrastructure, and the establishment of socially prescribed territories (Ellis et al. 1990; Ellis et al. 2009; Brown 1995:13).

Between 3,000-2,500 BP, populations continued to practice residential mobility and to harvest seasonally available resources, including spawning fish. The Woodland period begins around 2,500 BP and exchange and interaction networks broaden at this time (Spence et al. 1990:136, 138) and by approximately 2,000 BP, evidence exists for macro-band camps, focusing on the seasonal harvesting of resources (Spence et al. 1990:155, 164). By 1,500 BP there is macro botanical evidence for maize in southern Ontario, and it is thought that maize only supplemented people's diet. There is earlier phytolithic evidence for maize in central New York State by 2,300 BP - it is likely that once similar analyses are conducted on Ontario ceramic vessels of the same period, the same evidence will be found (Birch and Williamson 2013:13–15). Bands likely retreated to interior camps during the winter. It is generally understood that these populations were Algonquian-speakers during these millennia of settlement and land use.

From the beginning of the Late Woodland period at approximately 1,000 BP, lifeways became more similar to that described in early historical documents. Between approximately 1000-1300 Common Era (CE), the communal site is replaced by the village focused on horticulture. Seasonal disintegration of the community for the exploitation of a wider territory and more varied resource base was still practised (Williamson 1990:317). By 1300-1450 CE, this episodic community disintegration was no longer practised and populations now communally occupied sites throughout the year (Dodd et al. 1990:343). From 1450-1649 CE this process continued with the coalescence of these small villages into larger communities (Birch and Williamson 2013). Through this process, the socio-political organization of the First Nations, as described historically by the French and English explorers who first visited southern Ontario, was developed. By 1600 CE, the communities within Simcoe County had formed the Confederation of Nations encountered by the first European explorers and missionaries. In the 1640s, the traditional enmity between the Haudenosaunee[1] and the Huron-Wendat (and their Algonquian allies such as the Nippissing and Odawa) led to the dispersal of the Huron-Wendat.

Samuel de Champlain in 1615 reported that a group of Iroquoian-speaking people situated between the Haudenosaunee and the Huron-Wendat were at peace and remained "la nation neutre". In subsequent years, the French visited and traded among the Neutral, but the first documented visit was not until 1626, when the Recollet missionary Joseph de la Roche Daillon recorded his visit to the villages of the Attiwandaron, whose name in the Huron-Wendat language meant "those who speak a slightly different tongue" (the Neutral apparently referred to the Huron-Wendat by the same term). Like the Huron-Wendat, Petun, and Haudenosaunee, the Neutral people were settled village agriculturalists. Several discrete settlement clusters have been identified in the lower Grand River, Fairchild-Big Creek, Upper

[1] The Haudenosaunee are also known as the New York Iroquois or Five Nations Iroquois and after 1722 Six Nations Iroquois. They were a confederation of five distinct but related Iroquoian–speaking groups – the Seneca, Onondaga, Cayuga, Oneida, and Mohawk. Each lived in individual territories in what is now known as the Finger Lakes district of Upper New York. In 1722 the Tuscarora joined the confederacy.

Twenty Mile Creek, Spencer-Bronte Creek drainages, Milton, Grimsby, Eastern Niagara Escarpment and Onondaga Escarpment areas, which are attributed to Iroquoian populations. These settlement clusters are believed by some scholars to have been inhabited by populations of the Neutral Nation or pre- (or ancestral) Neutral Nation (Lennox and Fitzgerald 1990).

Between 1647 and 1651, the Neutral were decimated by epidemics and ultimately dispersed by the Haudenosaunee, who subsequently settled along strategic trade routes on the north shore of Lake Ontario for a brief period during the mid seventeenth-century. Compared to settlements of the Haudenosaunee, the "Iroquois du Nord" occupation of the landscape was less intensive. Only seven villages are identified by the early historic cartographers on the north shore, and they are documented as considerably smaller than those in New York State. The populations were agriculturalists, growing maize, pumpkins, and squash. These settlements also played the important alternate role of serving as stopovers and bases for Haudenosaunee travelling to the north shore for the annual beaver hunt (Konrad 1974).

Shortly after dispersal of the Wendat, Ojibwa began to expand into southern Ontario and Michigan from along the east shore of Georgian Bay, west along the north shore of Lake Huron, and along the northeast shore of Lake Superior and onto the Upper Peninsula of Michigan (Rogers 1978:760–762). This history was constructed by Rogers using both Anishinaabek oral tradition and the European documentary record, and notes that it included Chippewa, Ojibwa, Mississauga, and Saulteaux or "Southeastern Ojibwa" groups. Ojibwa, likely Odawa, were first encountered by Samuel de Champlain in 1615 along the eastern shores of Georgian Bay. Etienne Brule later encountered other groups and by 1641, Jesuits had journeyed to Sault Sainte Marie (Thwaites 1896:11:279) and opened the Mission of Saint Peter in 1648 for the occupants of Manitoulin Island and the northeast shore of Lake Huron. The Jesuits reported that these Algonquian peoples lived "solely by hunting and fishing and roam as far as the "Northern sea" to trade for " Furs and Beavers, which are found there in abundance" (Thwaites 1896-1901, 33:67), and "all of these Tribes are nomads, and have no fixed residence, except at certain seasons of the year, when fish are plentiful, and this compels them to remain on the spot" (Thwaites 1896-1901, 33:153). Algonquian-speaking groups were historically documented wintering with the Huron-Wendat, some who abandoned their country on the shores of the St. Lawrence because of attacks from the Haudenosaunee (Thwaites 1896-1901, 27:37).

After the Huron-Wendat had been dispersed, the Haudenosaunee began to exert pressure on Ojibwa within their homeland to the north. While their numbers had been reduced through warfare, starvation, and European diseases, the coalescence of various Anishinaabek groups led to enhanced social and political strength (Thwaites 1896-1901, 52:133) and Sault Sainte Marie was a focal point for people who inhabited adjacent areas both to the east and to the northwest as well as for the Saulteaux, who considered it their home (Thwaites 1896-1901, 54:129-131). The Haudenosaunee established a series of settlements at strategic locations along the trade routes inland from the north shore of Lake Ontario. From east to west, these villages consisted of Ganneious, on Napanee Bay, an arm of the Bay of Quinte; Quinte, near the isthmus of the Quinte Peninsula; Ganaraske, at the mouth of the Ganaraska River; Quintio, at the mouth of the Trent River on the north shore of Rice Lake; Ganatsekwyagon (or Ganestiquiagon), near the mouth of the Rouge River; Teyaiagon, near the mouth of the Humber River; and Quinaouatoua, on the portage between the western end of Lake Ontario and the Grand River (Konrad 1981:135). Their locations near the mouths of the Humber and Rouge Rivers, two branches of the Toronto Carrying Place, strategically linked these settlements with the upper Great Lakes through Lake Simcoe. The inhabitants of these villages were agriculturalists, growing maize, pumpkins and squash, but their central roles were that of portage starting points and trading centres for Iroquois travel to the upper Great Lakes for the annual beaver hunt (Konrad 1974; Williamson et al. 2008:50–52). Ganatsekwyagon, Teyaiagon, and Quinaouatoua were primarily Seneca; Ganaraske, Quinte and Quintio were likely Cayuga, and Ganneious

was Oneida, but judging from accounts of Teyaiagon, all of the villages might have contained peoples from a number of the Iroquois constituencies (ASI 2013).

During the 1690s, some Ojibwa began moving south into extreme southern Ontario and soon replaced, the Haudenosaunee by force. By the first decade of the eighteenth century, the Michi Saagiig Nishnaabeg (Mississauga Nishnaabeg) had settled at the mouth of the Humber, near Fort Frontenac at the east end of Lake Ontario and the Niagara region and within decades were well established throughout southern Ontario. In 1736, the French estimated there were 60 men at Lake Saint Clair and 150 among small settlements at Quinte, the head of Lake Ontario, the Humber River, and Matchedash (Rogers 1978:761). This history is based almost entirely on oral tradition provided by Anishinaabek elders such as George Copway (Kahgegagahbowh), a Mississauga born in 1818 near Rice Lake who followed a traditional lifestyle until his family converted to Christianity (MacLeod 1992:197; Smith 2000). According to Copway, the objectives of campaigns against the Haudenosaunee were to create a safe trade route between the French and the Ojibwa, to regain the land abandoned by the Huron-Wendat. While various editions of Copway's book have these battles occurring in the mid-seventeenth century, common to all is a statement that the battles occurred around 40 years after the dispersal of the Huron-Wendat (Copway 1850:88; Copway 1851:91; Copway 1858:91). Various scholars agree with this timeline ranging from 1687, in conjunction with Denonville's attack on Seneca villages (Johnson 1986:48; Schmalz 1991:21–22) to around the mid- to late-1690s leading up to the Great Peace of 1701 (Schmalz 1977:7; Bowman 1975:20; Smith 1975:215; Tanner 1987:33; Von Gernet 2002:7–8).

Robert Paudash's 1904 account of Mississauga origins also relies on oral history, in this case from his father, who died at the age of 75 in 1893 and was the last hereditary chief of the Mississauga at Rice Lake. His account in turn came from his father Cheneebeesh, who died in 1869 at the age of 104 and was the last sachem or Head Chief of all the Mississaugas. He also relates a story of origin on the north shore of Lake Huron (Paudash 1905:7–8) and later, after the dispersal of the Huron-Wendat, carrying out coordinated attacks against the Haudenosaunee. Francis Assikinack, an Ojibwa of Manitoulin Island born in 1824, provides similar details on battles with the Haudenosaunee (Assikinack 1858:308–309).

Peace was achieved between the Haudenosaunee and the Anishinaabek Nations in August of 1701 when representatives of more than twenty Anishinaabek Nations assembled in Montreal to participate in peace negotiations (Johnston 2004:10). During these negotiations captives were exchanged and the Iroquois and Anishinaabek agreed to live together in peace. Peace between these nations was confirmed again at council held at Lake Superior when the Iroquois delivered a wampum belt to the Anishinaabek Nations.

From the beginning of the eighteenth century to the assertion of British sovereignty in 1763, there is no interruption to Anishinaabek control and use of southern Ontario. While hunting in the territory was shared, and subject to the permission of the various nations for access to their lands, its occupation was by Anishinaabek until the assertion of British sovereignty, the British thereafter negotiating treaties with them. Eventually, with British sovereignty, tribal designations changed (Smith 1975:221–222; Surtees 1985:20–21). According to Rogers (1978), by the twentieth century, the Department of Indian Affairs had divided the "Anishinaubag" into three different tribes, despite the fact that by the early eighteenth century, this large Algonquian-speaking group, who shared the same cultural background, "stretched over a thousand miles from the St. Lawrence River to the Lake of the Woods." With British land purchases and treaties, the bands at Beausoleil Island, Cape Croker, Christian Island, Georgina and Snake Islands, Rama, Sarnia, Saugeen, the Thames, and Walpole, became known as "Chippewa" while the bands at Alderville, New Credit, Mud Lake, Rice Lake, and Scugog, became known as "Mississauga." The northern groups on Lakes Huron and Superior, who signed the Robinson Treaty in 1850, appeared and remained as "Ojibbewas" in historical documents.

In 1763, following the fall of Quebec, New France was transferred to British control at the Treaty of Paris. The British government began to pursue major land purchases throughout Ontario in the early nineteenth century, and entered into negotiations with various Nations for additional tracts of land as the need arose to facilitate European settlement.

The eighteenth century saw the ethnogenesis in Ontario of the Métis, when Métis people began to identify as a separate group, rather than as extensions of their typically maternal First Nations and paternal European ancestry (Métis National Council n.d.). Métis populations were predominantly located north and west of Lake Superior, however, communities were located throughout Ontario (MNC n.d.; Stone and Chaput 1978:607,608). During the early nineteenth century, many Métis families moved towards locales around southern Lake Huron and Georgian Bay, including Kincardine, Owen Sound, Penetanguishene, and Parry Sound (MNC n.d.). Recent decisions by the Supreme Court of Canada (Supreme Court of Canada 2003; Supreme Court of Canada 2016) have reaffirmed that Métis people have full rights as one of the Indigenous people of Canada under subsection 91(24) of the Constitution Act, 1867.

The Study Area is within the Lake Simcoe-Nottawasaga Treaty No. 18 signed on October 17, 1818 by Chippewa chiefs who granted land along the shores of Lake Huron and southern Georgian Bay to the Crown (AANDC 2016).

1.2.2 Euro-Canadian Land Use: Township Survey and Settlement

Historically, the Study Area is located in the Former Townships of Nottawasaga and Sunnidale, Simcoe County in Lots 10, Concession 13 and Lot 27 & Concession 2.

The S & G stipulates that areas of early Euro-Canadian settlement (pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches, and early cemeteries are considered to have archaeological potential. Early historical transportation routes (trails, passes, roads, railways, portage routes), properties listed on a municipal register or designated under the *Ontario Heritage Act* or a federal, provincial, or municipal historic landmark or site are also considered to have archaeological potential.

For the Euro-Canadian period, the majority of early nineteenth century farmsteads (i.e., those that are arguably the most potentially significant resources and whose locations are rarely recorded on nineteenth century maps) are likely to be located in proximity to water. The development of the network of concession roads and railroads through the course of the nineteenth century frequently influenced the siting of farmsteads and businesses. Accordingly, undisturbed lands within 100 m of an early settlement road are also considered to have potential for the presence of Euro-Canadian archaeological sites.

The first Europeans to arrive in the area were transient merchants and traders from France and England, who followed Indigenous pathways and set up trading posts at strategic locations along the well-traveled river routes. All of these occupations occurred at sites that afforded both natural landfalls and convenient access, by means of the various waterways and overland trails, into the hinterlands. Early transportation routes followed existing Indigenous trails, both along the lakeshore and adjacent to various creeks and rivers (ASI 2006).

Nottawasaga Township

The township was named in 1832 after the Nottawasaga River, derived from the Ojibwa word *nahdowasaga*, meaning "outlet of the river of the Iroquois." Early maps dating from 1828 and 1836 describe the north part of the township as Java, and the south part as Merlin (Rayburn 1997:251).

The Township of Nottawasaga was first surveyed in 1833 by Thomas Kelly, a government surveyor. A second survey took place later in 1833, by Charles Rankin, who noted irregularities in the original survey. By 1834, the first settlers arrived in the township, many from the Island of Islay in Scotland, while others arrived from Ireland and Germany. Settlement was slow, largely because the 200 acre lots assigned to United Empire Loyalists were not all settled. Many Loyalists received the patent for their parcels, but held the land on speculation, or sold their rights to speculators. The first settlement in the township was located at Dunedin, on the banks of Noisy River, approximately 22 km southeast of Collingwood. This settlement had been previously named Bowerman's Hollow, after early setter Israel Bowerman built the township's first grist mill (Mika and Mika 1981:95-96).

The first roads in the township followed Indigenous trails. In exchange for supplies, early pioneers began clearing huge tracts of land including those areas for new roads. However, settlers had to carry goods on their backs from Barrie until a time when a government overseer was appointed. By 1842, the population was 420. Population began to increase in 1844, when a road linking Barrie, Bomore, Meaford and Owen Sound was completed (Mika and Mika 1983:95-96).

Sunnidale Township

Sunnidale was first surveyed in 1931 by Thomas Kelly and in 1833 a survey was done for Sunnidale Road by Williams Hawkins. Two town plots, Ripon and Hythe, were laid out but were never settled. The surveyors noted that 150 acres were cleared, and two log cabins were built, both which the surveyors attributed to an Indigenous settlement based on the discovery of graves. A deserted British military fort that was built during the war of 1812 was noted by the river (Mika and Mika 1983:475–476).

The first settlers arrived in 1834 with assistance from a Government Agency Building being established the year before. In 1843 only two schools existed, Sunnidale Corners and Crowe's Corners. A post office was established and run by Samuel Lamont in 1840. Alexander McNeil built a tavern and stables which was so popular it is thought to be the start of the village of Brentwood. There were no churches built until 1868 when a Methodist structure was erected but services were regularly held in private homes (Mika and Mika 1983:475–476).

A lack of roads made economic growth difficult as producers couldn't access mills and markets and the population drop from 174 people in 1842 to 144 people in 1848. The opening of the Ontario, Simcoe and Huron Railway in 1855 greatly helped the progress of the township (Mika and Mika 1983:475–476). Sunnidale became amalgamated into Clearview Township in 1994 with the Town of Stayner, the Village of Creemore and Nottawasaga Township.

1.2.3 Historical Map Review

The 1871 Hogg's County of Simcoe and the 1878 Miles and Co. Illustrated Historic Atlas (Hogg 1871; Miles & Co. 1878) maps were examined to determine the presence of historic features within the Study Area during the nineteenth century (Table 1; Figures 2-3).

It should be noted, however, that not all features of interest were mapped systematically in the Ontario series of historical atlases, given that they were financed by subscription, and subscribers were given preference with regard to the level of detail provided on the maps. Moreover, not every feature of interest would have been within the scope of the atlases.

In addition, the use of historical map sources to reconstruct/predict the location of former features within the modern landscape generally proceeds by using common reference points between the various sources. These sources are then geo-referenced in order to provide the most accurate determination of the location of any property on historic mapping sources. The results of such exercises are often imprecise or even contradictory, as there are numerous potential sources of error inherent in such a process, including the vagaries of map production (both past and present), the need to resolve differences of scale and resolution, and distortions introduced by reproduction of the sources. To a large degree, the significance of such margins of error is dependent on the size of the feature one is attempting to plot, the constancy of reference points, the distances between them, and the consistency with which both they and the target feature are depicted on the period mapping.

Table 1: Nineteenth-century property owner(s) and historical features(s) within or adjacent to the Study Area

		1871		*1879*	
Con #	**Lot #**	**Property Owner(s)**	**Historical Feature(s)**	**Property Owner(s)**	**Historical Feature(s)**
13	10	D. Hinds	N/A	Sam Hines	Homestead
2	27	J. Briggs, J Brown, J Blair	N/A	N/A	N/A

According to the maps, the majority of the Study Area did not have an owner as it was a public road ROW. According to 1871 map the Study Area crosses four privately owned parcels that were owned by D. Hinds, J. Briggs, J. Brown and J. Blair. There are no structures adjacent to the Study Area. The 1879 map notes Sam Hines as an owner with a structure on the lot. A church is shown on the northwest side of the intersection of Concession 12 and Sunnidale Road, with a structure on the south side. Two other structures are shown along Concession 12.

1.2.4 Twentieth-Century Mapping Review

The 1941 Department of National Defence map and the 1954 Hunting Survey Company aerial photographs (Department of National Defence 1941; University of Toronto 1954) were examined to determine the extent and nature of development and land uses within the Study Area (Figures 4-5). The 1941 map illustrates numerous farm and houses along the proposed transmission route with two structures shown within the proposed wells/well house site. The church seems to have been closed or demolished as it is not displayed. The aerial photograph indicates the Study Area remained within a rural agricultural landscape into the mid-twentieth century.

1.3 Archaeological Context

This section provides background research pertaining to previous archaeological fieldwork conducted within and in the vicinity of the Study Area, its environmental characteristics (including drainage, soils or surficial geology and topography, etc.), and current land use and field conditions. Three sources of information were consulted to provide information about previous archaeological research: the site record forms for registered sites available online from the MHSTCI (previously MTCS) through "Ontario's Past Portal"; published and unpublished documentary sources; and the files of ASI.

1.3.1 Current Land Use and Field Conditions

A review of available Google satellite imagery shows that the Study Area has remained relatively unchanged since 2003, except at the intersection of Sunnidale Road S/County Road 10 and Concession 12 which is shown to have been realigned between 2013 and 2015. Although the realignment may have impacted the old church, that area is recommended for Stage 2 archaeological assessment.

A Stage 1 property inspection was conducted on October 24th, 2019 that noted the Study Area is located primarily within disturbed road right of ways (ROW). The proposed transmission route is adjacent to rural agricultural land and the proposed wells/well house site consists of active agricultural fields and a sparsely treed a residential property. The proposed transmission route varies in width from approximately 20 metres to 30 metres.

1.3.2 Geography

In addition to the known archaeological sites, the state of the natural environment is a helpful indicator of archaeological potential. Accordingly, a description of the physiography and soils are briefly discussed for the Study Area.

The S & G stipulates that primary water sources (lakes, rivers, streams, creeks, etc.), secondary water sources (intermittent streams and creeks, springs, marshes, swamps, etc.), ancient water sources (glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels indicated by clear dip or swale in the topography, shorelines of drained lakes or marshes, cobble beaches, etc.), as well as accessible or inaccessible shorelines (high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh, etc.) are characteristics that indicate archaeological potential.

Water has been identified as the major determinant of site selection and the presence of potable water is the single most important resource necessary for any extended human occupation or settlement. Since water sources have remained relatively stable in Ontario since 5,000 BP (Karrow and Warner 1990:Figure 2.16), proximity to water can be regarded as a useful index for the evaluation of archaeological site potential. Indeed, distance from water has been one of the most commonly used variables for predictive modeling of site location.

Other geographic characteristics that can indicate archaeological potential include: elevated topography (eskers, drumlins, large knolls, and plateaux), pockets of well-drained sandy soil, especially near areas of heavy soil or rocky ground, distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases. There may be

physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings. Resource areas, including; food or medicinal plants (migratory routes, spawning areas) are also considered characteristics that indicate archaeological potential (S & G, Section 1.3.1).

The Study Area is located within Stayner Clay Plain of the Collingwood area of southern Ontario (Chapman and Putnam 1984) which borders Georgian Bay and Lake Simcoe. The lowlands were once flooded by ancient Lake Algonquin, thus the majority of the soils consist of sand, silt and clay. The Stayner Clay Plain is complex and is comprised of areas with deep beds of calcareous clay, beveled till plain with pebbly till in other areas, as well as calcareous clay beneath several feet of sand (Figure 6).

Figure 6 depicts surficial geology for the Study Area. The surficial geology mapping demonstrates that the Study Area is underlain by silty sandy and clayey till and minor fine gravel as a results of glaciolacustrine deposits (Ontario Geological Survey 2010). Soils in the Study Area consist of Alliston sandy loam which results in imperfectly drained soils and a smaller area of well drained soils (Figure 7).

Tributaries of Lamont Creek and McIntyre Creek cross into Study Area. These waterbodies are all part of the Georgian Bay watershed.

1.3.3 Previous Archaeological Research

In Ontario, information concerning archaeological sites is stored in the Ontario Archaeological Sites Database (OASD) maintained by the MHSTCI. This database contains archaeological sites registered within the Borden system. Under the Borden system, Canada has been divided into grid blocks based on latitude and longitude. A Borden block is approximately 13 km east to west, and approximately 18.5 km north to south. Each Borden block is referenced by a four-letter designator, and sites within a block are numbered sequentially as they are found. The Study Area under review is located in Borden block *BcHa*.

According to the OASD, three previously registered archaeological sites are located within one kilometre of the Study Area (Ministry of Heritage, Sport, Tourism and Culture Industries 2019). A summary of the sites is provided below.

Table 2: List of previously registered sites within one kilometre of the Study Area

Borden #	Site Name	Cultural Affiliation	Site Type	Researcher
BcHa-3	Paddison-Bellwood	Pre-Contact Indigenous	Camp/Campsite	Garrad 1974
BcHa-65	Vincent	Pre-Contact Indigenous	Findspot	Sutton 1982
BcHa-66	Georgian Stayner	Euro-Canadian	Homestead	Sutton 2006

Two previous reports were found detailing fieldwork within 50 m of the Study Area. In 2006 Archaeological Assessments Ltd. undertook a Stage 1-3 which discovered two sites BcHa-66 and BcHa-65. Site BcHa-65 was noted as not being a significant archaeological resource and no further work was required (AAL 2006). Later in 2006, a Stage 4 mitigative excavation was undertaken on site BcHa-66. The site was excavated and mechanically stripped with a gradall. The excavation was completed and the site does not require further assessment (AAL 2007).

2.0 FIELD METHODS: PROPERTY INSPECTION

A Stage 1 property inspection must adhere to the S & G, Section 1.2, Standards 1-6, which are discussed below. The entire property and its periphery must be inspected. The inspection may be either systematic or random. Coverage must be sufficient to identify the presence or absence of any features of archaeological potential. The inspection must be conducted when weather conditions permit good visibility of land features. Natural landforms and watercourses are to be confirmed if previously identified. Additional features such as elevated topography, relic water channels, glacial shorelines, well-drained soils within heavy soils and slightly elevated areas within low and wet areas should be identified and documented, if present. Features affecting assessment strategies should be identified and documented such as woodlots, bogs or other permanently wet areas, areas of steeper grade than indicated on topographic mapping, areas of overgrown vegetation, areas of heavy soil, and recent land disturbance such as grading, fill deposits and vegetation clearing. The inspection should also identify and document structures and built features that will affect assessment strategies, such as heritage structures or landscapes, cairns, monuments or plaques, and cemeteries.

The Stage 1 archaeological assessment property inspection was conducted under the field direction of Martin Cooper (P380) of ASI, on October 24, 2019, in order to gain first-hand knowledge of the geography, topography, and current conditions and to evaluate and map archaeological potential of the

Study Area. It was a visual inspection only and did not include excavation or collection of archaeological resources. Fieldwork was only conducted when weather conditions were deemed suitable and seasonally appropriate, per S & G Section 1.2., Standard 2. Previously identified features of archaeological potential were examined; additional features of archaeological potential not visible on mapping were identified and documented as well as any features that will affect assessment strategies. Field observations are compiled onto the existing conditions of the Study Area in Section 7.0 (Figures 9-14) and associated photographic plates are presented in Section 8.0 (Plates 1-12).

3.0 ANALYSIS AND CONCLUSIONS

The historical and archaeological contexts have been analyzed to help determine the archaeological potential of the Study Area. These data are presented below in Section 3.1. Results of the analysis of the Study Area property inspection are presented in Section 3.2.

3.1 Analysis of Archaeological Potential

The S & G, Section 1.3.1, lists criteria that are indicative of archaeological potential. The Study Area meets the following criteria indicative of archaeological potential:

- Proximity to archaeological sites: BcHa-65, BcHa-66.
- Water sources: primary, secondary, or past water source (Lamont Creek and McIntyre Creek);
- Early historic transportation routes (Concession 12 Sunnidale Road, County Road 7 and Sunnidale Road);
- Proximity to early settlements (Stayner and Sunnidale Corners); and
- Well-drained soils (Alliston sandy loam)

According to the S & G, Section 1.4 Standard 1e, no areas within a property containing locations listed or designated by a municipality can be recommended for exemption from further assessment unless the area can be documented as disturbed. The Municipal Heritage Register was consulted and no properties within the Study Area are Listed or Designated under the Ontario Heritage Act.

These criteria are indicative of potential for the identification of Indigenous and Euro-Canadian archaeological resources, depending on soil conditions and the degree to which soils have been subject to deep disturbance.

3.2 Analysis of Property Inspection Results

The property inspection determined that the Study Area exhibits archaeological potential (Plates 2, 3, 5, 6, 7 and 12; Figures 9, 10, 11, 12 and 14: areas highlighted in green and orange). These areas will require Stage 2 archaeological assessment prior to any development. According the S & G Section 2.1.1, pedestrian survey is required in actively or recently cultivated fields (Plate 14). According to the S & G Section 2.1.2, test pit survey is required on terrain where ploughing is not viable, such as wooded areas, properties where existing landscaping or infrastructure would be damaged, overgrown farmland with heavy brush or rocky pasture, and narrow linear corridors up to 10 metres wide if conditions do not allow for pedestrian survey (Plates 2, 3, 5, 6 and 7; Figures 9, 10, 11 and 12).

Parts of the Study Area have been previously assessed and do not require further work (Figure 9: areas highlighted in red).

The remainder of the Study Area has been subjected to deep soil disturbance events and according to the S & G Section 1.3.2 do not retain archaeological potential (Plates 1-11; Figures 9-14: areas highlighted in yellow).

The property inspection determined that some of lands within the Study Area are sloped in excess of 20 degrees, and according to the S & G Section 2.1 do not retain potential (Plates 8; Figure 11: areas highlighted in purple). A part of the study area is located in low and wet conditions, and according to the S & G Section 2.1 does not retain potential (Figure 11: areas highlighted in blue). These areas do not require further survey.

3.3 Conclusions

The Stage 1 background study determined that three previously registered archaeological sites are located within one kilometre of the Study Area. The property inspection determined that parts of the Study Area exhibit archaeological potential and will require Stage 2 assessment.

4.0 RECOMMENDATIONS

In light of these results, the following recommendations are made:

1. The Study Area exhibits archaeological potential. These lands require Stage 2 archaeological assessment by test pit and pedestrian survey at five metre intervals, where appropriate, prior to any proposed impacts to the property;

2. The remainder of the Study Area does not retain archaeological potential on account of slopes in excess of 20 degrees, low and wet areas, deep and extensive land disturbance, or having been previously assessed. These lands do not require further archaeological assessment; and,

3. Should the proposed work extend beyond the current Study Area, further Stage 1 archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

NOTWITHSTANDING the results and recommendations presented in this study, ASI notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. In the event that archaeological remains are found during subsequent construction activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the MHSTCI should be immediately notified.

5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

ASI also advises compliance with the following legislation:

- This report is submitted to the Minister of Tourism, Culture and Sport as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, RSO 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological field work and report recommendations ensure the conservation, preservation and protection of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

- It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological field work on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act.*

- Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) of the *Ontario Heritage Act*.

- The *Cemeteries Act*, R.S.O. 1990 c. C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

6.0 REFERENCES CITED

AAL
2006 The Stage 1-3 Archaeological Assessment Of the Georgian Aggregates Site, Part Of The North Half Of Lot 27, Concession 2, Township of Clearview, County of Simcoe.

2007 The Stage 4 Excavation of the Georgian Stayner Site (BcHa-66), Part of the North Half of Lot 27, Concession 2, Township of Clearview, County of Simcoe. March.

Aboriginal Affairs and Northern Development Canada
2016 Lake Simcoe-Nottawasaga Treaty No. 18. Treaty Texts – Upper Canada Land Surrenders. https://www.aadnc-aandc.gc.ca/eng/1370372152585/1370372222012#ucls17.

ASI
2006 Historical Overview and Assessment of Archaeological Potential Don River Watershed, City Of Toronto.

2013 Archaeological Potential Model for Durham Region.

2019 County of Simcoe Archaeological Management Plan. October.

Assikinack, F.
1858 Legends and Traditions of the Odawa Indians. The Canadian Journal, Second Series III:115–125.

Birch, J., and R. F. Williamson
2013 The Mantle Site: An Archaeological History of an Ancestral Wendat Community. Rowman & Littlefield Publishers, Inc., Latham.

Bowman, I.
1975 History of the Peninsula Portage and Canoe Route: Colpoy's Bay to Lake Huron - with an Overview of Indian Occupation of the Broce Peninsula. Toronto.

Brown, J.
1995 On Mortuary Analysis – with Special Reference to the Saxe-Binford Research Program. In Regional Approaches to Mortuary Analysis, L. A. Beck, editor, pp. 3–23. Plenum Press, New York.

Chapman, L.J., and F. Putnam
1984 The Physiography of Southern Ontario. Vol. 2. Ontario Geologic Survey, Special Volume. Ontario Ministry of Natural Resources, Toronto.

Copway, G.
1850 The Traditional History and Characteristic Sketches of the Ojibway Nation. Charles Gilpin, London.

1851 The Traditional History and Characteristic Sketches of the Ojibway Nation. Benjamin B. Mussey & Co., Boston.

1858 Indian Life and Indian History. Albert Colby and Company, Boston.

Department of National Defence
1941 Collingwood Sheet.

Dodd, C. F., D. R. Poulton, P. A. Lennox, D. G. Smith, and G. A. Warrick
1990 The Middle Ontario Iroquoian Stage. In The Archaeology of Southern Ontario to A.D. 1650, C. J. Ellis and N. Ferris, editors, pp. 321–360. Occasional Publication of the London Chapter OAS Number 5. Ontario Archaeological Society Inc., London.

Edwards, T.W.D., and P. Fritz
1988 Stable-Isotope Palaeoclimate Records from Southern Ontario, Canada: Comparison of Results from Marl and Wood. Canadian Journal of Earth Sciences 25:1397–1406.

Ellis, C. J., and D. B. Deller
1990 Paleo-Indians. In The Archaeology of Southern Ontario to A.D. 1650, C. J. Ellis and N. Ferris, editors, pp. 37–64. Occasional Publication of the London Chapter OAS Number 5. Ontario Archaeological Society Inc., London.

Ellis, C. J., I. T. Kenyon, and M. W. Spence
1990 The Archaic. In The Archaeology of Southern Ontario to A.D. 1650, C. J. Ellis and N. Ferris, editors, pp. 65–124. Occasional Publication of the London Chapter OAS Number 5. Ontario Archaeological Society Inc., London.

Ellis, C. J., P. A. Timmins, and H. Martelle
2009 At the Crossroads and Periphery: The Archaic Archaeological Record of Southern Ontario. In Archaic Societies: Diversity and Complexity across the Midcontinent., T. D. Emerson, D. L. McElrath, and A. C. Fortier, editors, pp. 787–837. State University of New York Press, Albany, New York.

Ferris, N.
2013 Place, Space, and Dwelling in the Late Woodland. In Before Ontario: The Archaeology of a Province, pp. 99–111. McGill-Queen's University Press. http://www.jstor.org/stable/j.ctt32b7n5.15.

Hogg, J.
1871 Hogg's Map of the County of Simcoe. Collingwood, Ont.

Johnson, I. V. B.
1986 The Early Mississauga Treaty Process, 1781-1819 in Historical Perspective. PhD Dissertation, University of Toronto.

Johnston, D.
2004 Connecting People to Place: Great Lakes Aboriginal in Cultural Context. Unpublished

paper prepared for the Ipperwash Commission of Inquiry. http://www.attorneygeneral.jus.gov.on.ca/inquiries/ipperwash/transcripts.pdf.

Karrow, P.F., and B.G. Warner
1990 The Geological and Biological Environment for Human Occupation in Southern Ontario. In The Archaeology of Ontario to A.D. 1650, pp. 5–36. Occasional Publications 5. London Chapter, Ontario Archaeological Society, London.

Konrad, V. A.
1974 Iroquois Villages on the North Shore of Lake Ontario, 1665-1687. presented at the Fall Meeting of the Ontario Historical Geographers, November 9, Carleton University, Ottawa, Ontario.

1981 An Iroquois Frontier: The North Shore of Lake Ontario during the Late Seventeenth Century. Journal of Historical Geography 7(2):129–144.

MacLeod, P.
1992 The Anishinabeg Point of View: The History of the Great Lakes Region to 1800 in Nineteenth-Century Mississauga, Odawa, and Ojibwa Historiography. Canadian Historical Review 73(2):194–210.

Métis National Council
n.d. The Métis Nation. <http://www.metisnation.ca/index.php/who-are-the-metis>.

n.d. Métis Historic Timeline. http://www.metisnation.org/culture-heritage/m%C3%A9tis-timeline/.

Mika, N., and H. Mika
1981 Places In Ontario: Their Name Origins and History, Part II, F-M. Vol. 2. Encyclopedia of Ontario. Mika Publishing Company, Belleville.

1983 Places In Ontario: Their Name Origins and History, Part III, N-Z. Mika Publishing Company, Belleville.

Miles & Co.
1878 Illustrated Historical Atlas of the County of York and the Township of West Gwillimbury & Town of Bradford in the County of Simcoe Ontario. Miles & Co., Toronto.

Ministry of Heritage, Sport, Tourism and Culture Industries
2017 Ontario Heritage Act, R.S.O. 1990, c. O.18 [as Amended in 2017]. Province of Ontario.

Ministry of the Environment
1990 Environmental Assessment Act, R.S.O. Province of Ontario.

Ministry of Tourism and Culture
2011 Standards and Guidelines for Consultant Archaeologists. Cultural Programs Branch,

Ontario Ministry of Tourism and Culture, Toronto.

Ministry of Tourism, Culture and Sport
2018 Ontario's Past Portal. PastPortal. https://www.pastport.mtc.gov.on.ca.

Municipal Engineers Association
2000 Municipal Class Environmental Assessment, Last Amended 2015.

Ontario Geological Survey
2010 Surficial Geology of Southern Ontario. Miscellaneous Release — Data 128 – Revised. http://www.geologyontario.mndm.gov.on.ca/mndmaccess/mndm_dir.asp?type=pub&id=MRD128-REV.

Paudash, R.
1905 The Coming of the Mississagas. Ontario Historical Society Papers and Records 6(190).

Rayburn, A.
1997 Place Names of Ontario. University of Toronto Press, Toronto.

Rogers, E.S.
1978 Southeastern Ojibwa. In Handbook of North American Indians: The Northeast, 15:. Smithsonian Institution, Washington.

Schmalz, P.S.
1977 The History of the Saugeen Indians. Ontario Historical Society, Ottawa.

1991 The Ojibwa of Southern Ontario. University of Toronto Press.

Smith, D. B.
1975 Who Are the Mississauga? Ontario History 67(4):311–222.

2000 Kahgegagahbowh. Dictionary of Canadian Biography Online. http://www.biographi.ca/009004-119.01-e.php?&id_nbr=4517.

Spence, M. W., R. H. Pihl, and C. Murphy
1990 Cultural Complexes of the Early and Middle Woodland Periods. In The Archaeology of Southern Ontario to A.D. 1650, C. J. Ellis and N. Ferris, editors. Occasional Publication of the London Chapter OAS Number 5. Ontario Archaeological Society Inc., London.

Stone, L.M., and D. Chaput
1978 History of the Upper Great Lakes. In Handbook of North American Indians, Bruce G. Trigger, editor, pp. 602–609. Smithsonian Institution, Washington.

Supreme Court of Canada
2003 R. v. Powley. September 19. https://scc-csc.lexum.com/scc-csc/scc-csc/en/item/2076/index.do.

2016 Daniels v. Canada (Indian Affairs and Northern Development). April 14. https://scc-csc.lexum.com/scc-csc/scc-csc/en/item/15858/index.do.

Surtees, R.
1985 A Cartographic Analysis of Indian Settlements and Reserves in Southern Ontario and Southern Quebec, 1763-1867. Research Branch, Indian and Northern Affairs Canada, Ottawa.

Tanner, H. H., editor,
1987 Atlas of the Great Lakes Indian History. Oklahoma University Press, Norman.

Thwaites, R.G.
1896 The Jesuit Relations and Allied Documents: Travel and Explorations of the Jesuit Missionaries in New France, 1610-1791; the Original French, Latin, and Italian Texts, with English Translations and Notes. 73 vols. Burrows Brothers, Cleveland.

University of Toronto
1954 Digital Aerial Photographs, Southern Ontario 1954, Hunting Survey Corporation. http://maps.library.utoronto.ca/data/on/AP_1954/index.html.

Von Gernet, A.
2002 'Within the Prick'd Line': The Historical Context of the 1701 Deed from the Iroquois to the King of England of a Vast Tract of Land. Report Prepared for the Province of Ontario.

Williamson, R. F.
1990 The Early Iroquoian Period of Southern Ontario. In The Archaeology of Southern Ontario to A.D. 1650, C. J. Ellis and N. Ferris, editors, pp. 291–320. Occasional Publication of the London Chapter OAS Number 5. Ontario Archaeological Society Inc., London.

Williamson, R. F., D. A. Robertson, M. S. Cooper, R. I. MacDonald, S. J. Austin, and R. H. Pihl
2008 Life and Death at the Quarry: The Early Woodland Archaeology of the Peace Bridge Site. Ontario Archaeology 85–88:39–68.

7.0 MAPS

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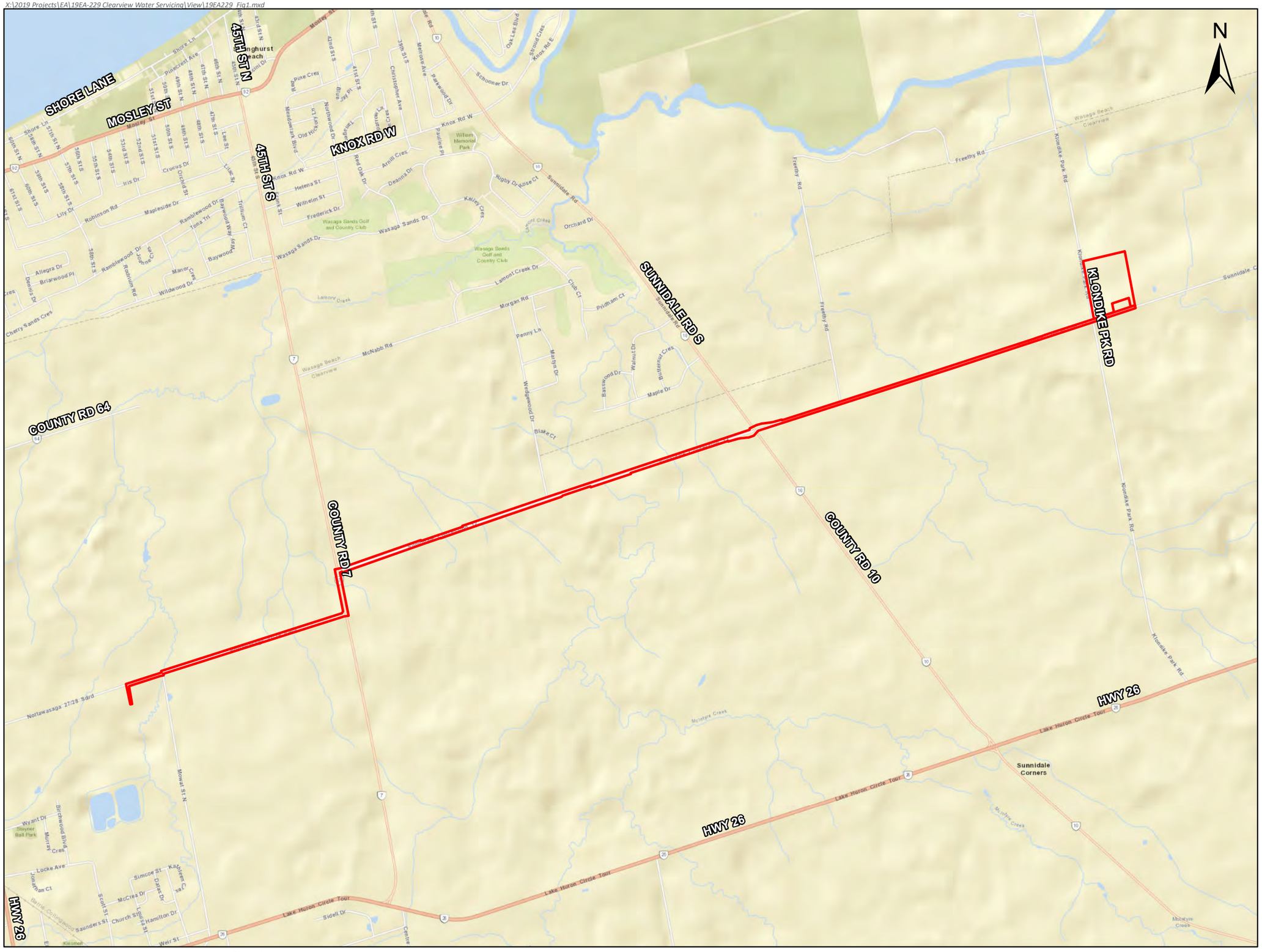

STUDY AREA

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Providing Archaeological & Cultural Heritage Services
528 Bathurst Street Toronto, ONTARIO M5S 2P9
T 416-966-1069 F 416-966-9723 asiheritage.ca

Figure 1: Stayner Water Servicing Location of Study Area

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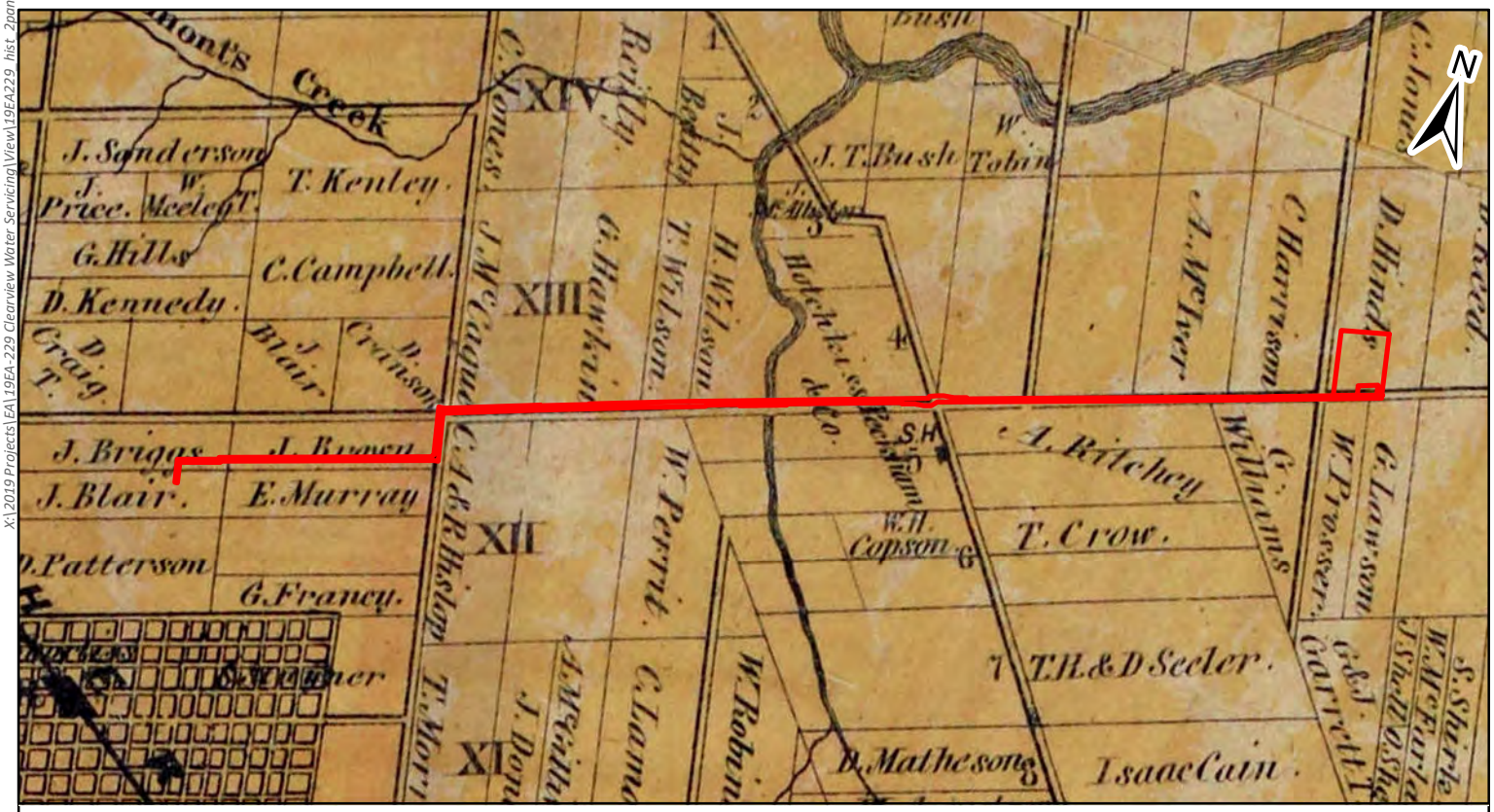

Figure 2: Study Area (Approximate Location) Overlaid on the 1871 Hogg's Map of the County of Simcoe

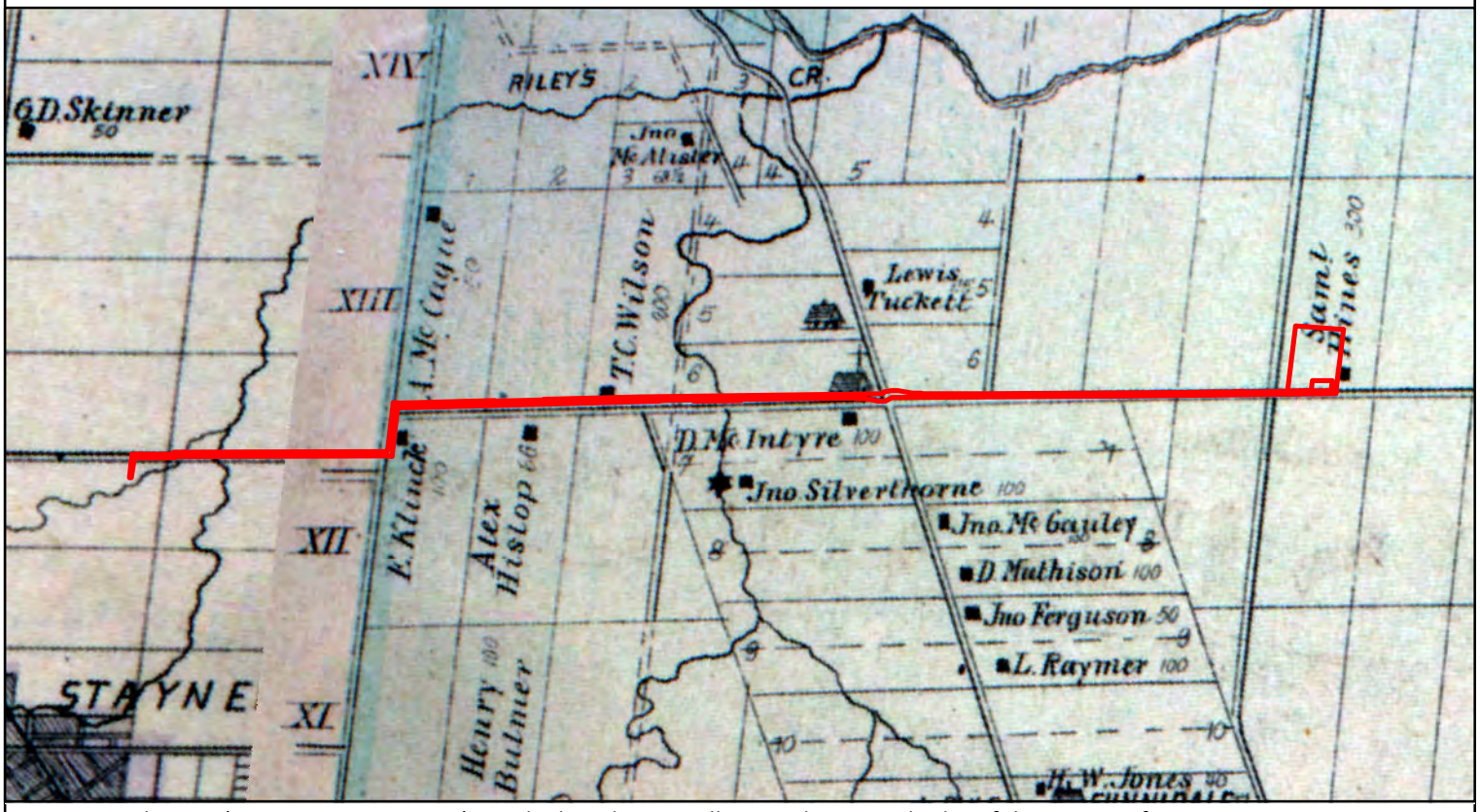

Figure 3: Study Area (Approximate Location) Overlaid on the 1879 Illustrated Historical Atlas of the County of Simcoe

ASI

STUDY AREA

Sources:
1871 Hogg's Map of the County of Simcoe
1878 Illustrated Historical Atlas of the County of Simcoe
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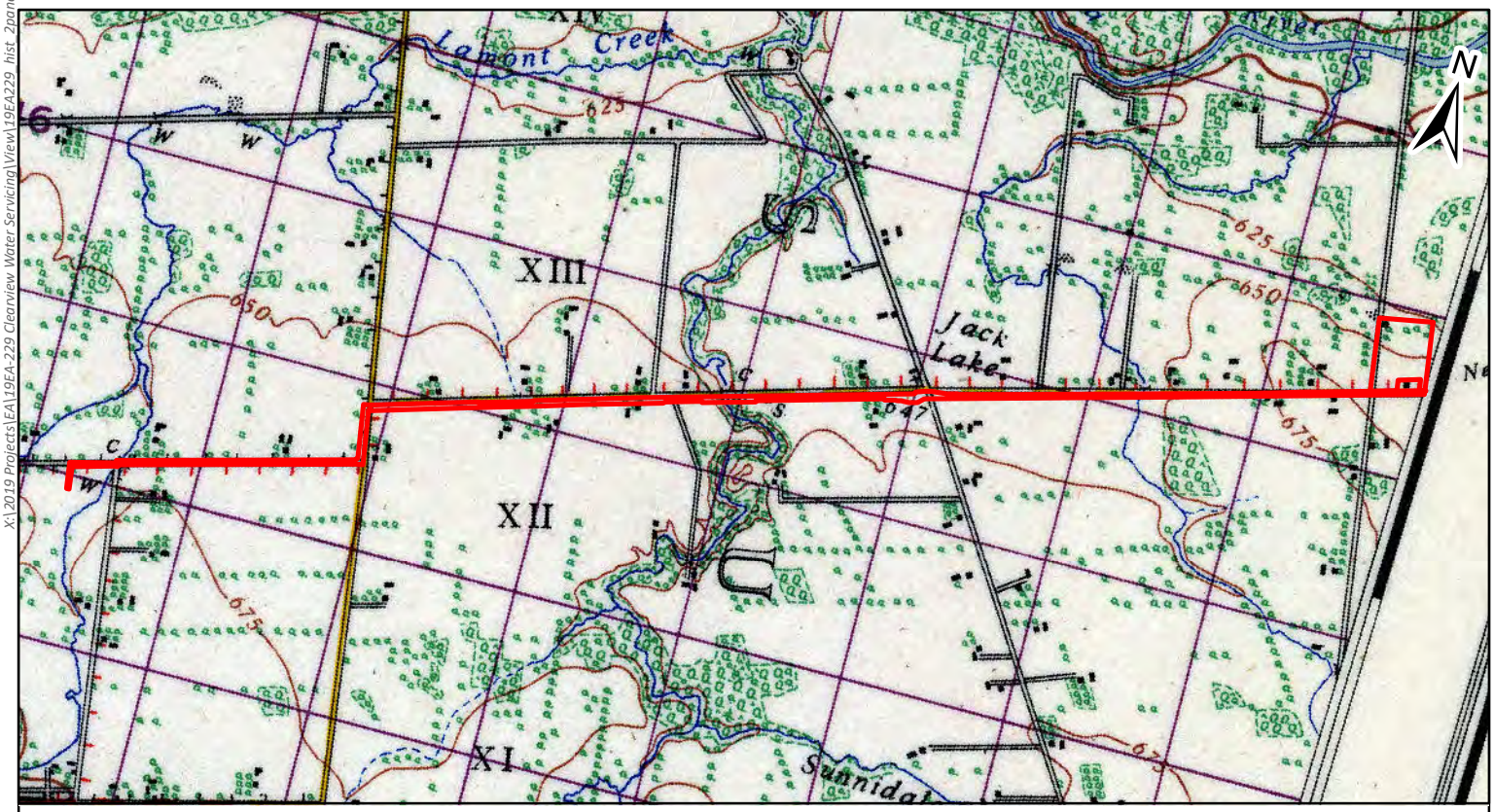

Figure 4: Study Area (Approximate Location) Overlaid on the 1941 National Topographic System Simcoe sheet

Figure 5: Study Area (Approximate Location) Overlaid on the 1954 aerial photograph of Simcoe

ASI

STUDY AREA

Sources:
1909 NTS Brampton sheet
1954 aerial photograph of Milton
Projection: NAD 1983 UTM Zone 17N
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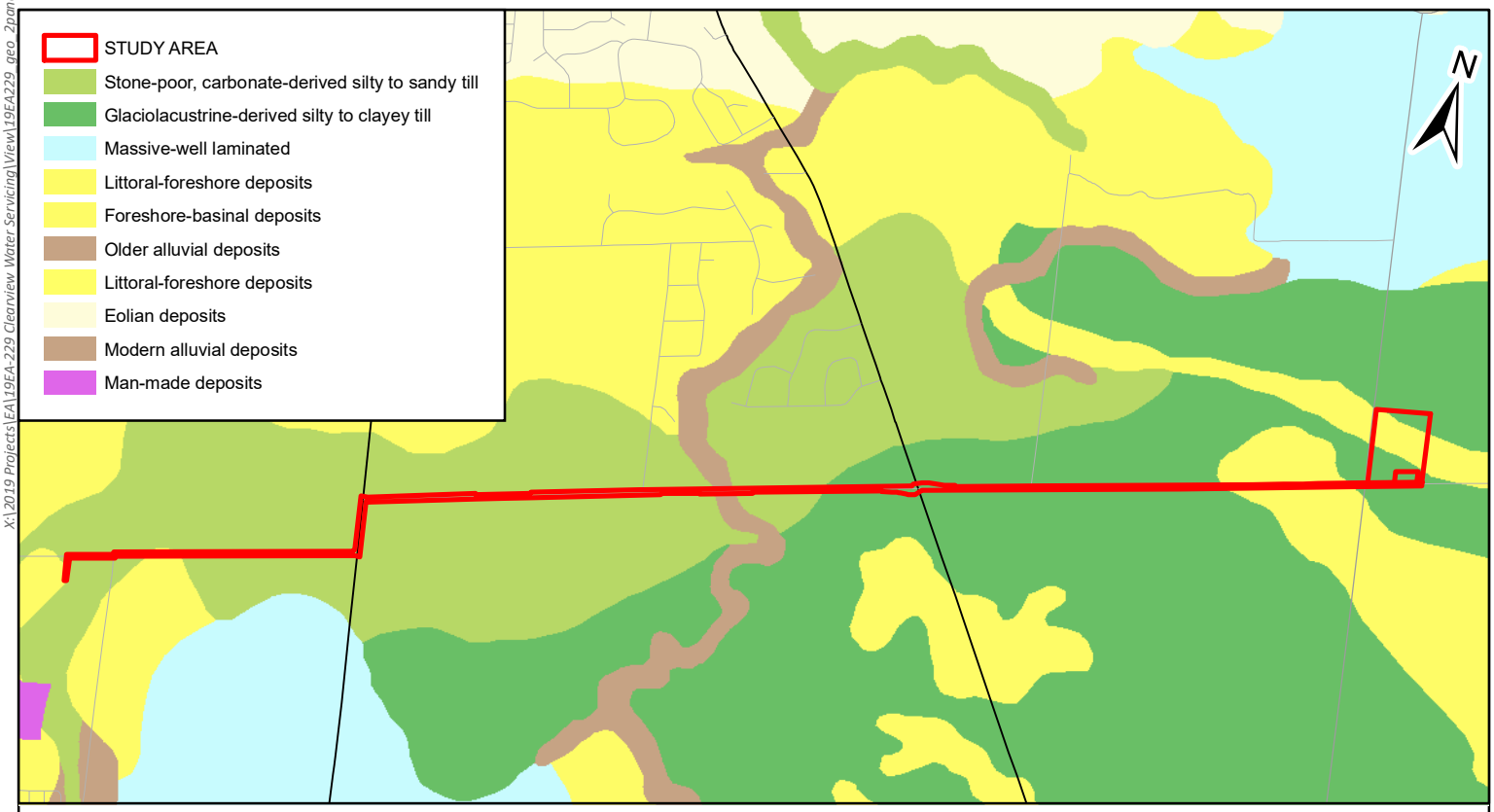

Figure 6: Study Area - Surficial Geology

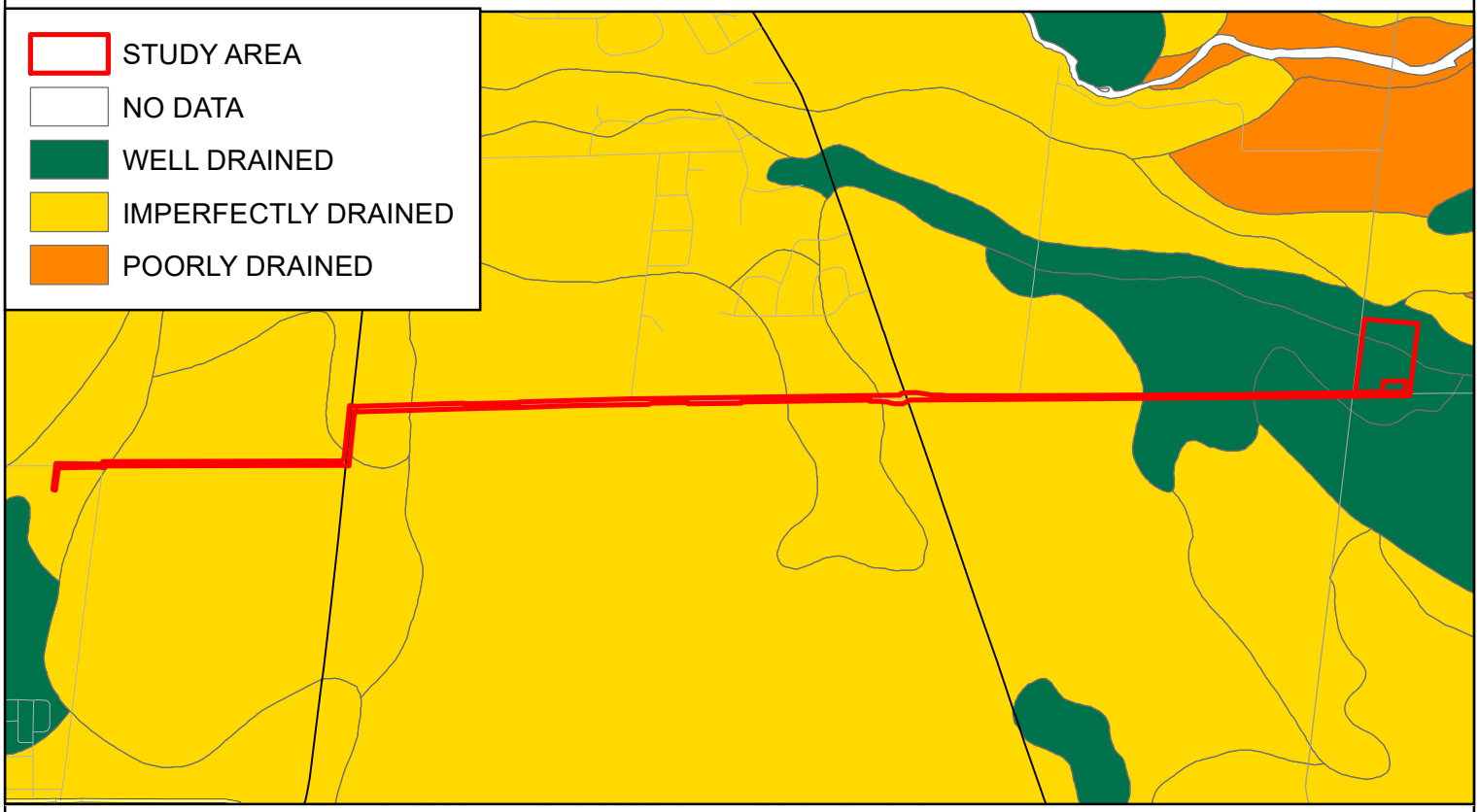

Figure 7: Study Area - Soil Drainage

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Sources:
1909 NTS Brampton sheet
1954 aerial photograph of Milton
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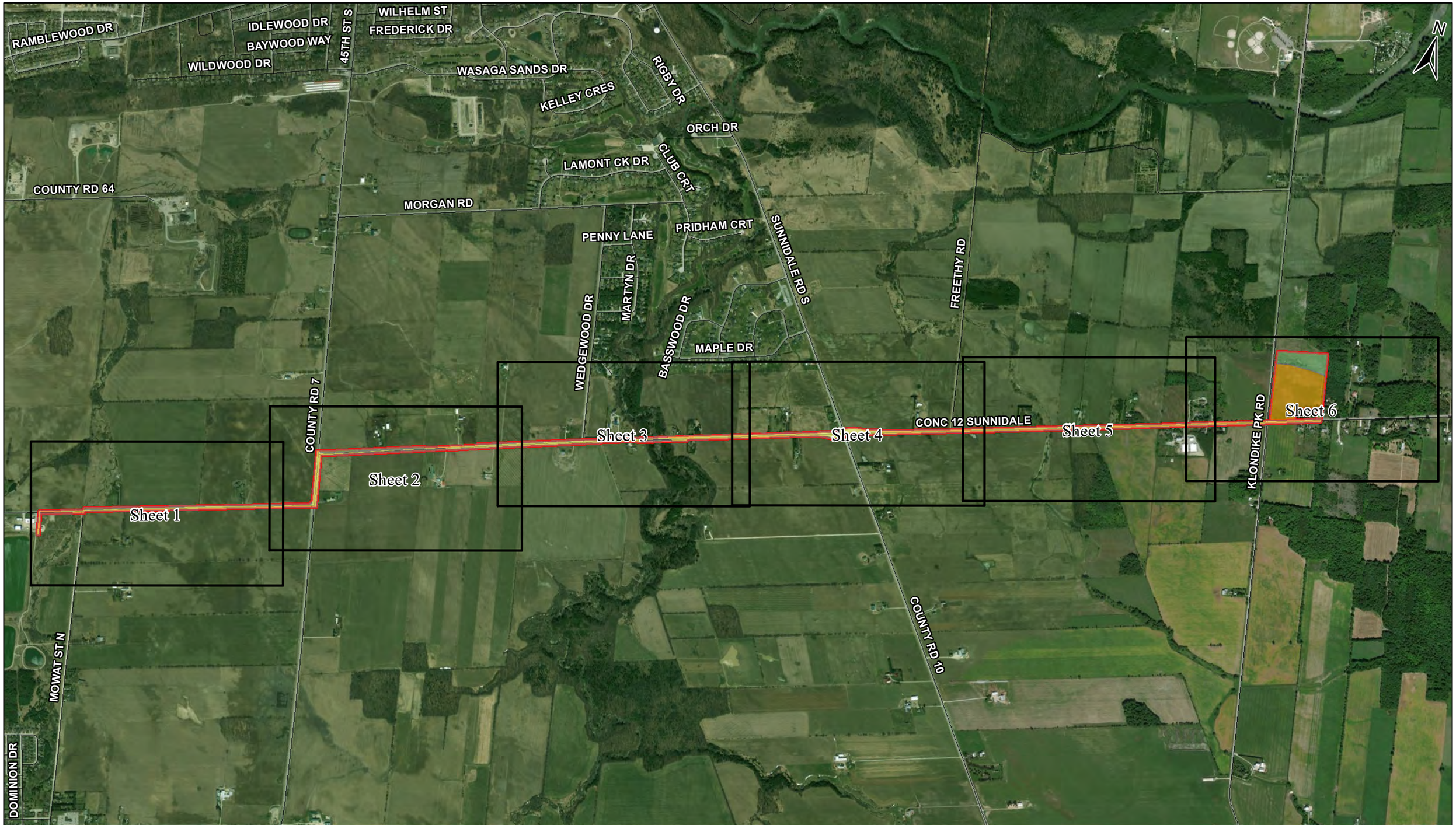

Figure 8: Clearview Water Servicing Stage 1 Results (Key Plan)

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STUDY AREA

PHOTO PLATE AND ORIENTATION

ARCHAEOLOGICAL POTENTIAL: PEDESTRIAN SURVEY REQUIRED

ARCHAEOLOGICAL POTENTIAL: TEST PIT SURVEY REQUIRED

DISTURBED

NO POTENTIAL: LOW AND WET

PREVIOUSLY ASSESSED: AAL 2006

SLOPE > 20 DEGREES

Sources:

Projection: NAD 1983 UTM Zone 17N
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Figure 9: Clearview Water Servicing Stage 1 Results (Sheet 1)

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STUDY AREA

PHOTO PLATE AND ORIENTATION

ARCHAEOLOGICAL POTENTIAL: PEDESTRIAN SURVEY REQUIRED

ARCHAEOLOGICAL POTENTIAL: TEST PIT SURVEY REQUIRED

DISTURBED

NO POTENTIAL: LOW AND WET

PREVIOUSLY ASSESSED: AAL 2006

SLOPE > 20 DEGREES

Sources:

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DATE: 11-Dec-19

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Figure 10: Clearview Water Servicing Stage 1 Results (Sheet 2)

STUDY AREA

PHOTO PLATE AND ORIENTATION

ARCHAEOLOGICAL POTENTIAL: PEDESTRIAN SURVEY REQUIRED

ARCHAEOLOGICAL POTENTIAL: TEST PIT SURVEY REQUIRED

DISTURBED

NO POTENTIAL: LOW AND WET

PREVIOUSLY ASSESSED: AAL 2006

SLOPE > 20 DEGREES

Sources:

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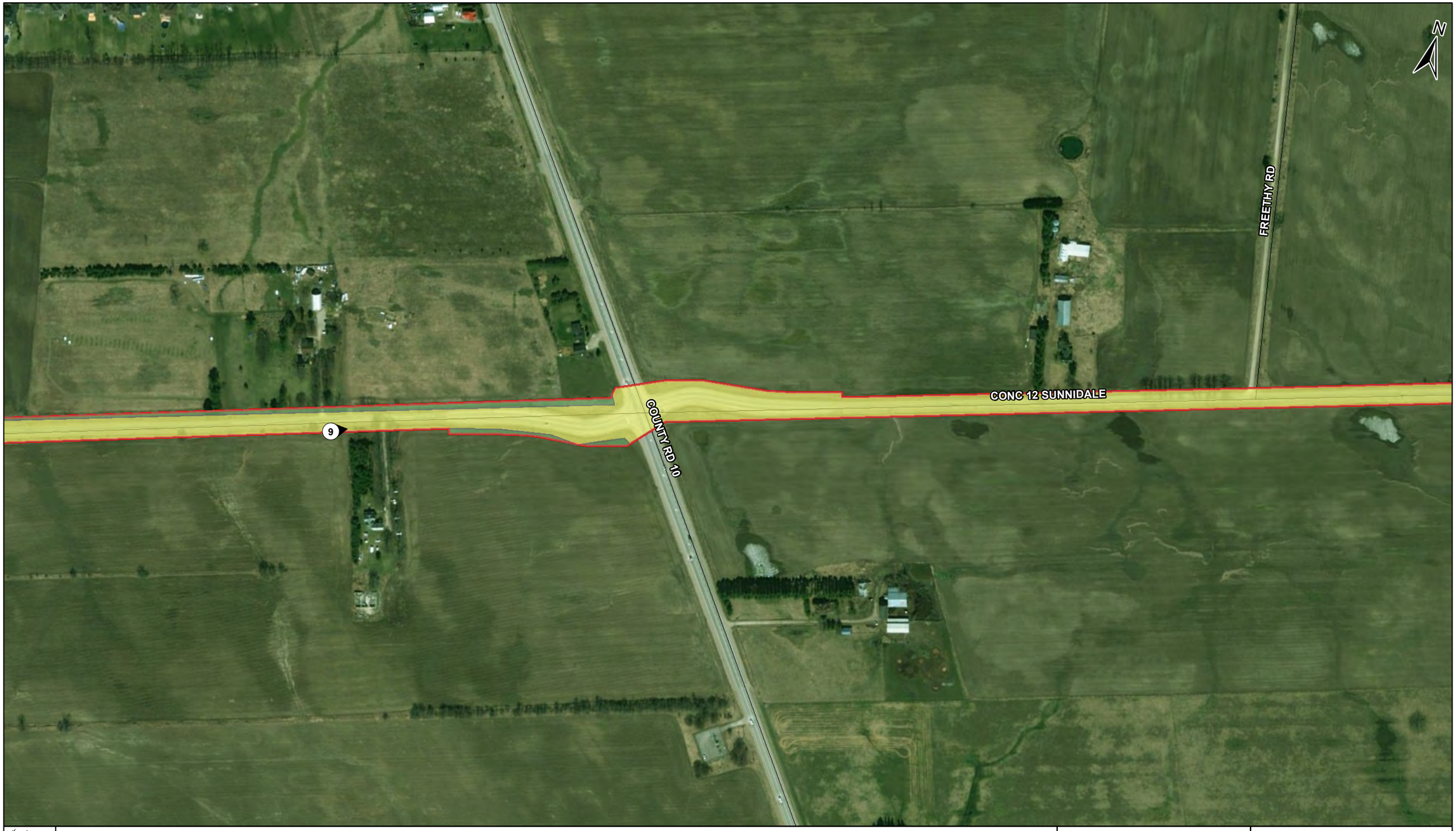
Figure 11: Clearview Water Servicing Stage 1 Results (Sheet 3)



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STUDY AREA

PHOTO PLATE AND ORIENTATION

ARCHAEOLOGICAL POTENTIAL: PEDESTRIAN SURVEY REQUIRED

ARCHAEOLOGICAL POTENTIAL: TEST PIT SURVEY REQUIRED

DISTURBED

NO POTENTIAL: LOW AND WET

PREVIOUSLY ASSESSED: AAL 2006

SLOPE > 20 DEGREES

Sources:

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ASI PROJECT NO.: 19EA229
DATE: 11-Dec-19

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Figure 12: Clearview Water Servicing Stage 1 Results (Sheet 4)

ASI

STUDY AREA

PHOTO PLATE AND ORIENTATION

ARCHAEOLOGICAL POTENTIAL: PEDESTRIAN SURVEY REQUIRED

ARCHAEOLOGICAL POTENTIAL: TEST PIT SURVEY REQUIRED

DISTURBED

NO POTENTIAL: LOW AND WET

PREVIOUSLY ASSESSED: AAL 2006

SLOPE > 20 DEGREES

Sources:

Projection: NAD 1983 UTM Zone 17N
Scale: 1:3,500
Page Size: 11 x 17

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ASI PROJECT NO.: 19EA229
DATE: 11-Dec-19

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Figure 13: Clearview Water Servicing Stage 1 Results (Sheet 5)

Figure 14: Clearview Water Servicing Stage 1 Results (Sheet 6)

8.0 IMAGES

Plate 1: (E) Disturbed ROW and ditch, no potential

Plate 2: (E) Disturbed road ROW, no potential. Archaeological potential outside ROW, test pit required

Plate 3: (E) Disturbed Road ROW and buried utilities, no potential; archaeological potential outside ROW, test pit required

Plate 4: (N) Country Road 7; disturbed ROW and ditches, no potential

Plate 5: (E) Disturbed Road ROW and ditch, no potential; archaeological potential outside ROW, test pit required

Plate 6: (E) Disturbed road ROW and buried utility lines, no potential; archaeological potential outside ROW, test pit required

Plate 7: (W) Disturbed road ROW, no potential; archaeological potential outside ROW, test pit required. Note slope to creek in distance.

Plate 8: (W) Disturbed road ROW with buried utilities, note distant sign showing buried gas line, no potential.

Plate 9: (E) Disturbed area showing ditches, no potential

Plate 10: (E) Disturbed road ROW, no potential

Plate 11: (E) Disturbed road ROW, no potential

Plate 12: (N) Agricultural field; archaeological potential requiring pedestrian survey at 5 m intervals.

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix A4

Cultural Heritage Evaluation Report

CULTURAL HERITAGE RESOURCE ASSESSMENT:
BUILT HERITAGE RESOURCES AND CULTURAL HERITAGE LANDSCAPES

EXISTING CONDITIONS AND PRELIMINARY IMPACT ASSESSMENT

CLEARVIEW TOWNSHIP WATER SERVICING
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
CLEARVIEW TOWNSHIP, ONTARIO

FINAL REPORT

Prepared for:

R.J. Burnside & Associates Ltd.
3 Ronell Crescent,
Collingwood, ON L9Y 4J6

ASI File: 19CH-177

November 2019 (Revised December 2020 and January 2021)

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CULTURAL HERITAGE RESOURCE ASSESSMENT:
BUILT HERITAGE RESOURCES AND CULTURAL HERITAGE LANDSCAPES

EXISTING CONDITIONS AND PRELIMINARY IMPACT ASSESSMENT

CLEARVIEW TOWNSHIP WATER SERVICING
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
CLEARVIEW TOWNSHIP, ONTARIO

EXECUTIVE SUMMARY

ASI was contracted by R.J. Burnside & Associates Ltd. to conduct a Cultural Heritage Resource Assessment (CHRA) as part of the Clearview Township Water Servicing project under the 'Schedule B' Municipal Class Environmental Assessment (EA) Addendum. The Clearview Township Water Servicing study area includes a proposed new wells/well house site (hereafter "Site") at 1585 Klondike Park Road, located at the northeast corner of Klondike Park Road and Concession Road 12 Stayner, and a transmission route which is planned for the right-of-way from the "Site" property, west along Concession Road 12, south on County Road 7, and west on Sideroad 27/28 Nottawasaga. The study area is generally located in an agricultural context associated with Clearview Township, near the Town of Stayner.

The results of background historical research and a review of secondary source material revealed a study area with land use history commencing in the nineteenth century. A field review was conducted for the entire study area to identify potential cultural heritage landscapes and built heritage resources.

The background research, data collection, and field review conducted for the study area determined that 1 built heritage resource and 9 cultural heritage landscapes are located within and adjacent to the Clearview Township Water Servicing study area.

Based on the results of the preliminary impact assessment, the following recommendations have been developed:

1. Construction activities and staging should be suitably planned and undertaken to avoid impacts to identified cultural heritage landscapes and built heritage resources.

2. To ensure the properties at: 5077 Concession 12 Sunnidale (BHR 1), 5546 Sideroad 27/28 Nottawasaga (CHL 2), 4600 Concession 12 Sunnidale (CHL 3), 1409 County Road 7 (CHL 4), 4784 Concession 12 Sunnidale (CHL 8), and 4660 Concession 12 Sunnidale (CHL 9) are not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that the structures at 5077 Concession 12 Sunnidale, 5546 Sideroad 27/28 Nottawasaga, 4600 Concession 12 Sunnidale, 1409 County Road 7, 4784 Concession 12 Sunnidale, and 4660 Concession 12

Sunnidale will be subject to vibrations, a vibration monitoring plan should be prepared and implemented as part of the detailed design phase of the project to lessen vibration impacts related to construction.

3. Should future work require an expansion of the study area then a qualified heritage consultant should be contacted in order to confirm the impacts of the proposed work on known and potential heritage resources.

4. This report should be submitted by the proponent to planning staff with the Township of Clearview, the MHSTCI, and any other local heritage stakeholders that may have an interest in this project.

PROJECT PERSONNEL

Senior Project Manager:	Lindsay Graves, MA, CAHP Senior Cultural Heritage Specialist |Senior Project Manager - Cultural Heritage Division
Project Manager:	Tara Jenkins, MA, GPCertCHS, CAHP Cultural Heritage Specialist, Cultural Heritage Division
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1.0 INTRODUCTION

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The purpose of this report is to describe the existing conditions of the study area, present an inventory of above ground built heritage resources and cultural heritage landscapes, assess potential impacts of the proposed undertaking, and propose appropriate mitigation measures and recommendations for minimizing and avoiding negative impacts on identified cultural heritage landscapes and built heritage resources. This research was conducted by Tara Jenkins, Cultural Heritage Specialist, and Kirstyn Allam, Cultural Heritage Technician | Technical Writer and Researcher, under the project management of Tara Jenkins and Johanna Kelly, Cultural Heritage Analyst, under the senior project management of Lindsay Graves, Senior Cultural Heritage Specialist, all of ASI.

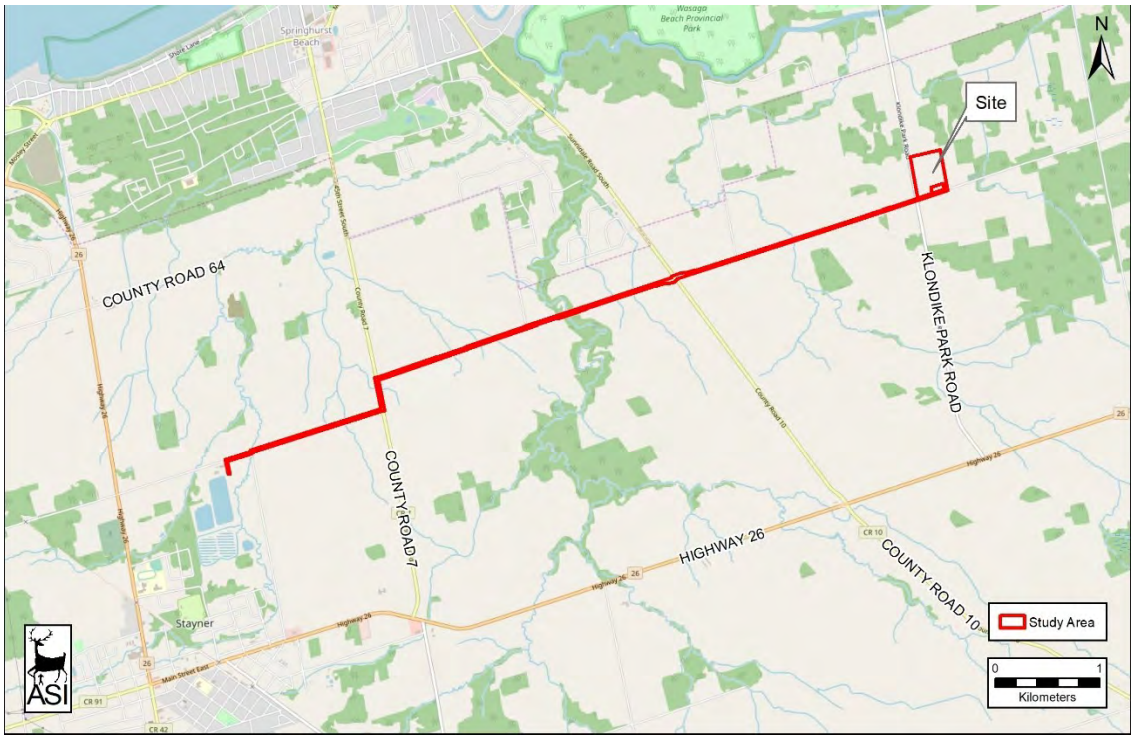

Figure 1: Location of the study area in the Township of Clearview, Ontario
Base Map: ©OpenStreetMap and contributors, Creative Commons-Share Alike License (CC-BY-SA)

2.0 BUILT HERITAGE RESOURCE AND CULTURAL HERITAGE LANDSCAPE ASSESSMENT CONTEXT

2.1 Policy Framework

The analysis throughout the study process addresses cultural heritage resources under various pieces of legislation and their supporting guidelines. This cultural heritage assessment considers cultural heritage resources in the context of improvements to specified areas, pursuant to the *Environmental Assessment Act* (EAA). The EAA (1990) provides for the protection, conservation and management of Ontario's environment. Under the EAA, "environment" is defined in Subsection 1(c) to include:

- cultural conditions that influence the life of man or a community; and,
- any building, structure, machine, or other device or thing made by man.

The *Ontario Heritage Act* (OHA) (Ministry of Culture 1990; now administered by the Ministry of Heritage, Sport, Tourism and Culture Industries) gives the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) the responsibility for the conservation, protection, and preservation of Ontario's cultural heritage resources. The MHSTCI is charged under Section 2.0 of the OHA with the responsibility to determine policies, priorities, and programs for the conservation, protection, and preservation of the heritage of Ontario and has published two guidelines to assist in assessing cultural heritage resources as part of an environmental assessment: *Guideline for Preparing the Cultural Heritage Resource Component of Environmental Assessments* (Ministry of Culture and Communications 1992; now administered by the Ministry of Heritage, Sport, Tourism and Culture Industries), and *Guidelines on the Man-Made Heritage Component of Environmental Assessments* (Ministry of Culture and Recreation 1980; now administered by the Ministry of Heritage, Sport, Tourism and Culture Industries). Accordingly, both guidelines have been utilized in this assessment process.

The *Guidelines on the Man-Made Heritage Component of Environmental Assessments* (Section 1.0) states the following:

> When speaking of man-made heritage we are concerned with the works of man and the effects of his activities in the environment rather than with movable human artifacts or those environments that are natural and completely undisturbed by man.

In addition, environment may be interpreted to include the combination and interrelationships of human artifacts with all other aspects of the physical environment, as well as with the social, economic and cultural conditions that influence the life of the people and communities in Ontario. The *Guidelines on the Man-Made Heritage Component of Environmental Assessments* distinguish between two basic ways of visually experiencing this heritage in the environment, namely as cultural heritage landscapes and as cultural features.

Within this document, cultural heritage landscapes are defined as the following (Section 1.0):

> The use and physical appearance of the land as we see it now is a result of man's activities over time in modifying pristine landscapes for his own purposes. A cultural landscape is perceived as a collection of individual man-made features into a whole. Urban cultural landscapes are sometimes given special names such as townscapes or streetscapes that

> describe various scales of perception from the general scene to the particular view. Cultural landscapes in the countryside are viewed in or adjacent to natural undisturbed landscapes, or waterscapes, and include such land uses as agriculture, mining, forestry, recreation, and transportation. Like urban cultural landscapes, they too may be perceived at various scales: as a large area of homogeneous character; or as an intermediate sized area of homogeneous character or a collection of settings such as a group of farms; or as a discrete example of specific landscape character such as a single farm, or an individual village or hamlet.

A cultural feature is defined as the following (Section 1.0):

> …an individual part of a cultural landscape that may be focused upon as part of a broader scene, or viewed independently. The term refers to any man-made or modified object in or on the land or underwater, such as buildings of various types, street furniture, engineering works, plantings and landscaping, archaeological sites, or a collection of such objects seen as a group because of close physical or social relationships.

The Ministry of Tourism and Culture also published *Standards and Guidelines for Conservation of Provincial Heritage Properties* (2010; now administered by the Ministry of Heritage, Sport, Tourism and Culture Industries) (hereinafter "*Standards and Guidelines"*). These *Standards and Guidelines* apply to properties the Government of Ontario owns or controls that have cultural heritage value or interest. The *Standards and Guidelines* provide a series of guidelines that apply to provincial heritage properties in the areas of identification and evaluation; protection; maintenance; use; and disposal. For the purpose of this CHRA, the *Standards and Guidelines* provide points of reference to aid in determining heritage significance in the evaluation of these properties.

Similarly, the *Ontario Heritage Toolkit* (Ministry of Culture 2006a; now administered by the Ministry of Heritage, Sport, Tourism and Culture Industries) provides a guide to evaluate heritage properties. To conserve a cultural heritage resource, the Ontario Heritage Toolkit states that a municipality or approval authority may require a heritage impact assessment and/or a conservation plan to guide the approval, modification, or denial of a proposed development.

Additionally, the *Planning Act* (1990) and related *Provincial Policy Statement* (*PPS*) (2020), make a number of provisions relating to heritage conservation. One of the general purposes of the *Planning Act* is to integrate matters of provincial interest in provincial and municipal planning decisions. In order to inform all those involved in planning activities of the scope of these matters of provincial interest, Section 2 of the *Planning Act* provides an extensive listing. These matters of provincial interest shall be regarded when certain authorities, including the council of a municipality, carry out their responsibilities under the *Act*. One of these provincial interests is directly concerned with:

> 2.(d) the conservation of features of significant architectural, cultural, historical, archaeological or scientific interest

Part 4.6 of the *PPS* states that:

> The official plan is the most important vehicle for implementation of this Provincial Policy Statement. Comprehensive, integrated and long-term planning is best achieved through official plans.
>
> Official plans shall identify provincial interests and set out appropriate land use designations and policies. To determine the significance of some natural heritage features and other resources, evaluation may be required.

Those policies of relevance for the conservation of heritage features are contained in Section 2- Wise Use and Management of Resources, wherein Subsection 2.6 - Cultural Heritage and Archaeological Resources, makes the following provisions:

> 2.6.1 Significant built heritage resources and significant cultural heritage landscapes shall be conserved.

In addition, significance is also more generally defined. It is assigned a specific meaning according to the subject matter or policy context, such as wetlands or ecologically important areas. With regard to cultural heritage and archaeology resources, significant means "resources that have been determined to have cultural heritage value or interest. Processes and criteria for determining cultural heritage value or interest are established by the Province under the authority of the *Ontario Heritage Act.* While some significant resources may already be identified and inventoried by official sources, the significance of others can only be determined after evaluation"(Government of Ontario 2020).

Accordingly, the foregoing guidelines and relevant policy statement were used to guide the scope and methodology of the cultural heritage assessment.

2.2 Clearview Township Municipal Heritage Policies

As the study area is located within the Township of Clearview, the Township's municipal policies regarding cultural heritage resources from the *Official Plan of the Township of Clearview* (Township of Clearview 2001, Consolidated 2019) were reviewed as part of this assessment. Select applicable policies have been included in Appendix A.

3.0 ASSESSMENT METHODOLOGY

3.1 Introduction

For the purpose of this CHRA, the following summarizes the tasks that were undertaken:

- The identification of major historical themes and activities within the study area through background research and review of available historical mapping (Section 4.0);

- A review to identify properties within and/or adjacent to the study area that have been designated under Part IV or V of the *OHA*, or listed on a Municipal inventory or heritage register (Section 4.2.1);
- Consultation with members of the community with knowledge regarding the community in general or potential cultural heritage resources (Section 4.2.2);
- A field review to confirm the location and condition of previously identified cultural heritage landscapes and built heritage resources. The field review is also used to identify cultural heritage landscapes and built heritage resources that have not been previously identified on federal, provincial, or municipal databases (Section 4.2.3);
- A preliminary analysis of potential impacts of the undertaking on identified potential cultural heritage landscapes and built heritage resources (Section 4.3);
- Development of appropriate mitigation measures and recommendations for minimizing and avoiding negative impacts on identified cultural heritage landscapes and built heritage resources (Section 4.3);
- Mapping of all cultural heritage landscape and built heritage resource locations (Section 9.0); and,
- Preparation of the Cultural Heritage Resource Assessment report.

This assessment addresses above-ground cultural heritage resources over 40 years old. Use of a 40-year-old threshold is a guiding principle when conducting a preliminary identification of cultural heritage landscapes and built heritage resources (Ministry of Heritage, Tourism and Sport 2016, now administered by the Ministry of Heritage, Sport, Tourism and Culture Industries). While identification of a resource that is 40 years old or older does not confer outright heritage significance, this threshold provides a means to collect information about resources that may retain heritage value. Similarly, if a resource is slightly younger than 40 years old, this does not preclude the resource from retaining heritage value.

For the purposes of this assessment, the term cultural heritage resource is used to describe both built heritage resources and cultural heritage landscapes.

A built heritage resource is defined as the following (Government of Ontario 2020:41):

> …a building, structure, monument, installation or any manufactured remnant that contributes to a property's cultural heritage value or interest as identified by a community, including an Indigenous community. Built heritage resources are located on property that may be designated under Parts IV or V of the Ontario Heritage Act, or that may be included on local, provincial, federal and/or international registers."

A cultural heritage landscape is defined as the following (Government of Ontario 2020:42):

> …a defined geographical area that may have been modified by human activity and is identified as having cultural heritage value or interest by a community, including an Indigenous community. The area may include features such as buildings, structures, spaces, views, archaeological sites or natural elements that are valued together for their interrelationship, meaning or association. Cultural heritage landscapes may be properties that have been determined to have cultural heritage value or interest under the Ontario

Heritage Act, or have been included on federal and/or international registers, and/or protected through official plan, zoning by-law, or other land use planning mechanisms.

3.2 Data Collection

In the course of the cultural heritage assessment, all potentially affected cultural heritage landscapes and built heritage resources are subject to inventory. Generally, when conducting an identification of cultural heritage landscapes and built heritage resources within a study area, three stages of research and data collection are undertaken to appropriately establish the potential for and existence of cultural heritage landscapes and built heritage resources in a geographic area.

Background historical research, which includes consultation of primary and secondary source research and historical mapping, is undertaken to identify early settlement patterns and broad agents or themes of change in a study area. This stage in the data collection process enables the researcher to determine the presence of sensitive heritage areas that correspond to nineteenth and twentieth century settlement and development patterns. To augment data collected during this stage of the research process, federal, provincial, and municipal databases and/or agencies are consulted to obtain information about specific properties that have been previously identified and/or designated as retaining cultural heritage value. Typically, resources identified during these stages of the research process are reflective of architectural styles, associated with an important person, place, or event, and contribute to the contextual facets of a particular place, neighbourhood, or intersection.

A field review is then undertaken to confirm the location and condition of previously identified cultural heritage landscapes and built heritage resources. The field review is also used to identify cultural heritage landscapes and built heritage resources that have not been previously identified on federal, provincial, or municipal databases.

Several investigative criteria are utilised during the field review to appropriately identify new cultural heritage landscapes and built heritage resources. These investigative criteria are derived from provincial guidelines, definitions, and experience. During the EA, a built structure or landscape is identified as a cultural heritage resource if it is considered to be 40 years or older, and if the resource has potential to meet at least one of the following criteria:

Design/Physical Value:

- It is a rare, unique, representative or early example of a style, type, expression, material or construction method.
- It displays a high degree of craftsmanship or artistic merit.
- It demonstrates a high degree of technical or scientific achievement.
- The site and/or structure retains original stylistic features and has not been irreversibly altered to destroy its integrity.
- It demonstrates a high degree of excellence or creative, technical or scientific achievement at a provincial level in each period.

Historical/Associative Value:

- It has a direct association with a theme, event, belief, person, activity, organization, or institution that is significant to: the Township of Clearview; the Province of Ontario; or Canada.
- It yields, or has the potential to yield, information that contributes to an understanding of the history of: the Township of Clearview; the Province of Ontario; or Canada.
- It demonstrates or reflects the work or ideas of an architect, artist builder, designer, or theorist who is significant to: the Township of Clearview; the Province of Ontario; or Canada.
- It represents or demonstrates a theme or pattern in Ontario's history.
- It demonstrates an uncommon, rare or unique aspect of Ontario's cultural heritage.
- It has a strong or special association with the entire province or with a community that is found in more than one part of the province. The association exists for historical, social, or cultural reasons or because of traditional use.
- It has a strong or special association with the life or work of a person, group or organization of importance to the province or with an event of importance to the province.

Contextual Value:

- It is important in defining, maintaining, or supporting the character of an area.
- It is physically, functionally, visually, or historically linked to its surroundings.
- It is a landmark.
- It illustrates a significant phase in the development of the community or a major change or turning point in the community's history.
- The landscape contains a structure other than a building (fencing, culvert, public art, statue, etc.) that is associated with the history or daily life of that area or region.
- There is evidence of previous historical and/or existing agricultural practices (e.g. terracing, deforestation, complex water canalization, apple orchards, vineyards, etc.)
- It is of aesthetic, visual or contextual important to the province.

If a resource meets one of these criteria it will be identified as a cultural heritage resource and is subject to further research where appropriate and when feasible. Typically, detailed archival research, permission to enter lands containing heritage resources, and consultation is required to determine the specific heritage significance of the identified cultural heritage resource.

When identifying cultural heritage landscapes, the following categories are typically utilized for the purposes of the classification during the field review:

Farm complexes:	comprise two or more buildings, one of which must be a farmhouse or barn, and may include a tree-lined drive, tree windbreaks, fences, domestic gardens and small orchards.
Roadscapes:	generally two-lanes in width with absence of shoulders or narrow shoulders only, ditches, tree lines, bridges, culverts and other associated features.
Waterscapes:	waterway features that contribute to the overall character of the cultural heritage landscape, usually in relation to their influence on historical development and settlement patterns.

Railscapes:	active or inactive railway lines or railway rights-of-way and associated features.
Historical settlements:	groupings of two or more structures with a commonly applied name.
Streetscapes:	generally consist of a paved road found in a more urban setting, and may include a series of houses that would have been built in the same time period.
Historical agricultural landscapes:	generally comprise a historically rooted settlement and farming pattern that reflects a recognizable arrangement of fields within a lot and may have associated agricultural outbuildings, structures, and vegetative elements such as tree rows.
Cemeteries:	land used for the burial of human remains.

Results of the desktop data collection and field review are contained in Section 4.0, while Sections 5.0 and 6.0 contain conclusions and recommendations with respect to potential impacts of the undertaking on the identified cultural heritage resource. A cultural heritage resource inventory is provided in Section 8.0, while location mapping is in Section 9.0.

4.0 BUILT HERITAGE RESOURCE AND CULTURAL HERITAGE LANDSCAPE ASSESSMENT

This section provides a brief summary of historical research and a description of identified above-ground cultural heritage landscapes and built heritage resources that may be affected by the proposed undertaking.

4.1 Background Historical Summary

A review of available primary and secondary source material was undertaken to produce a contextual overview of the study area, including a general description of physiography, as well as Indigenous and Euro-Canadian land use and settlement.

4.1.1 Physiography

The Simcoe Lowlands physiographic region consists of low-lying belts of sand plain, which cover an area of 280,000 hectares, bordering Georgian Bay and Lake Simcoe. The area was once inundated by the waters of glacial Lake Algonquin, inland of the present-day shorelines. Remnant shoreline features (beaches, shorecliffs, bars, etc.) mark the former water level of Lake Algonquin. Topography is generally flat, and subsoil consists of variable sand, gravel, silt and clay deposits as formed on the lake bottom (Chapman and Putnam 1984:177–182). Sand plains and beach ridges are glaciolacustrine features and

are products of the Late Wisconsin glacial stage (ca. 25,000-10,000 BP). Sand plains are formed in shallow waters and beach ridges mark the former shorelines (Karrow and Warner 1990:5).

4.1.2 Indigenous Land Use and Settlements

Ontario has a cultural history that begins approximately 11,000 years ago. The land now encompassed by the Township of Clearview has a cultural history which begins approximately 10,000 years ago and continues to the present. Table 1 provides a general summary of the history of Indigenous land use and settlement of the area[1].

Table 1: Outline of Ontario Prehistory

Period	Archaeological/ Material Culture	Date Range	Lifeways/ Attributes
PALEO-INDIAN PERIOD			
Early	Gainey, Barnes, Crowfield	9000-8500 BCE	Big game hunters
Late	Holcombe, Hi-Lo, lanceolate	8500-7500 BCE	Small nomadic groups
ARCHAIC			
Early	Nettling, Bifurcate-base	7800-6000 BCE	Nomadic hunters and gatherers
Middle	Kirk, Stanley, Brewerton, Laurentian	6000-2000 BCE	Transition to territorial settlements
Late	Lamoka, Genesee, Crawford Knoll, Innes	2500-500 BCE	Polished/ground stone tools (small stemmed)
WOODLAND PERIOD			
Early	Meadowood	800-400 BCE	Introduction of pottery
Middle	Point Peninsula, Saugeen	400 BCE-CE 800	Incipient horticulture
Late	Algonkian, Iroquoian	CE 800-1300	Transition to village life and agriculture
	Algonkian, Iroquoian	CE 1300-1400	Establishment of large palisaded villages
	Algonkian, Iroquoian	CE 1400-1600	Tribal differentiation and warfare
POST-CONTACT PERIOD			
Early	Huron, Neutral, Petun, Odawa, Ojibwa	CE 1600-1650	Tribal displacements
Late	Six Nations Iroquois, Ojibwa	CE 1650-1800's	
	Euro-Canadian	CE 1800-present	European settlement

The study area is within the Lake Simcoe-Nottawasaga Treaty No. 18 signed on October 17, 1818 by Chippewa chiefs who granted land along the shores of Lake Huron and southern Georgian Bay to the Crown (Crown-Indigenous Relations and Northern Affairs 2016).

4.1.3 Historical Euro-Canadian Land Use: Township Survey and Settlement

Historically, the study area is in the former Simcoe County in the historical Township of Nottawasaga, in part of Lots 27 and 28, Concession I, Lots 27 and 28, Concession II, and in the historical Township of Sunnidale in part of Lots 1-3, 5, and 8-10, Concession XII, and Lots 1-3, 6, and 8-10, Concession XIII.

[1] While many types of information can inform the precontact settlement of the Township of Clearview, this summary table provides information drawn from archaeological research conducted in southern Ontario over the last century. As such, the terminology used in this review related to standard archaeological terminology for the province rather than relating to specific historical events within the region. The chronological ordering of this summary is made with respect to two temporal referents: BCE – before Common Era and CE – Common Era.

Nottawasaga Township

The township was named in 1832 after the Nottawasaga River, derived from the Ojibwa word *nahdowasaga*, meaning "outlet of the river of the Iroquois." Early maps dating from 1828 and 1836 describe the north part of the township as Java, and the south part as Merlin (Rayburn 1997).
The Township of Nottawasaga was first surveyed in 1833 by Thomas Kelly, a government surveyor. A second survey took place later in 1833, by Charles Rankin, who noted irregularities in the original survey. By 1834, the first settlers arrived in the township, many from the Island of Islay in Scotland, while others arrived from Ireland and Germany. Settlement was slow, largely because the 200 acre lots assigned to United Empire Loyalists were not all settled. Many Loyalists received the patent for their parcels, but held the land on speculation, or sold their rights to speculators. The first settlement in the township was located at Dunedin, on the banks of Noisy River, approximately 22 km southeast of Collingwood. This settlement had been previously named Bowerman's Hollow, after early setter Israel Bowerman built the township's first grist mill (Mika and Mika 1983).

The first roads in the township followed Indigenous trails. In exchange for supplies, early pioneers began clearing huge tracts of land including those areas for new roads. However, settlers had to carry goods on their backs from Barrie until a time when a government overseer was appointed. By 1842, the population was 420. Population began to increase in 1844, when a road linking Barrie, Bomore, Meaford and Owen Sound was completed (Mika and Mika 1983).

Town of Stayner

First called Warrington, the community's name was later changed to Nottawasaga Station when the Ontario, Simcoe and Huron Railway (later the Northern Railroad) was extended from Lake Simcoe to Georgian Bay ca. 1854-1857. In 1855, a post office with the same name was established by Donald Baine, a lumber merchant and storekeeper. In 1857, the village name was changed to Dingwall, and by 1864, both the post office and village took the name of Stayner. The name Stayner may have been in honour of Thomas Allen Stayner, a postmaster general of Upper and Lower Canada. Or perhaps his son, Sutherland Stayner, owned extensive properties in the area (Mika and Mika 1983; Rayburn 1997).

The first settlers arrived in the mid-1850s: Andrew Coleman built a roughhewn hotel for railway workers and Gideon Phillips built the first sawmill. Village lots were laid out by Edward Shortiss and Charles Lount who owned much of the land in Stayner. Due to the presence of the railway, the town flourished, becoming a centre for agricultural and lumber trade. Stayner was incorporated as a village in 1872, and by 1888, Stayner was incorporated as a town, owning the distinction of the smallest town in Ontario for several years (Mika and Mika 1983).

In 1994, the communities of Stayner, Creemore and the Townships of Sunnidale and Nottawasaga amalgamated to form Clearview Township.

Sunnidale Township

The land within Sunnidale Township was first surveyed in 1831-1832 by Thomas Kelly, however this survey omitted the southeast corner of the township. Additional survey occurred in 1833 by William Hawkins, including Sunnidale Road, which laid out irregular lots from the southern boundary to Nottawasaga Bay (Mika and Mika 1983).

Development in the township formed around Sunnidale Road, although its conditions were recorded as appalling due to water often creating swampy and hazardous conditions along the route. In 1834, the first recorded settlers obtained five acre lots on the west side of Sunnidale Road, extending over Concessions 1-3. Among the early recorded settlers were: Henry Seelor, John Donald, Duncan and James Shaw, Alexander and Jamie Gillespie, Samuel Lamont, Alexander McNeill, and George Cathey. Between 1833 and the 1940s, the township had a government office to aid settlement, two schools, a post office, a tavern, stables and a hostelry. The first church was not constructed until 1868, and instead service was held in private homes for many years. In 1842, the population was 174 with 378 acres of land cleared. But by 1848, the populated dropped to 144 (Mika and Mika 1983).

In 1855, the Ontario, Simcoe and Huron Railway opened, which improved farmers' access to markets and helped to develop the lumber industry. In 1860, Sunnidale Township separated from Vespra Township and obtained independent municipal standing. This new independence allowed the township to take responsibility for improvements to Sunnidale Road, and in 1861, the southeast corner of the township was finally surveyed after settlers petitioned the new independent council (Mika and Mika 1983).

4.1.4 Review of Historical Mapping

The 1871 Hogg's Map of the County of Simcoe ("Hogg's map"; Hogg 1871) and the 1881 *Illustrated Historical Atlas of the Simcoe County,* Township of Nottawasaga ("Atlas map"; Belden 1881) were reviewed to determine the potential for the presence of cultural heritage landscapes and built heritage resources within the study area from the nineteenth century (Figure 2 and Figure 3).

It should be noted, however, that not all features of interest were mapped systematically in the Ontario series of historical atlases. For instance, they were often financed by subscription limiting the level of detail provided on the maps. Moreover, not every feature of interest would have been within the scope of the atlases. In addition, the use of historical map sources to reconstruct/predict the location of former features within the modern landscape generally begins by using common reference points between the various sources. The historical maps are geo-referenced to provide the most accurate determination of the location of any property on a modern map. The results can be often imprecise or even contradictory, as there are numerous potential sources of error inherent in such a process, including differences of scale and resolution, and distortions introduced by reproduction of the sources.

Historically, the study area is in former Simcoe County, in the historical Township of Nottawasaga in part of Lots 27 and 28, Concession I, Lots 27 and 28, Concession II, and in the historical Township of Sunnidale in part of Lots 1-3, 5, and 8-10, Concession XII, and Lots 1-3, 6, and 8-10, Concession XIII. In

general, these nineteenth-century maps indicate that the study area is located within a rural agricultural landscape of the former Simcoe County.

The 1871 Hogg's map (Figure 2) illustrates that the land in the vicinity of the Clearview Township Water Servicing study area had been surveyed in parcels, most of which for agricultural purposes. A portion of the proposed water servicing transmission route is in Nottawasaga Township between Lots 27, Concessions I and II. The 1871 Hogg's map suggests the land had been occupied, however no structures are shown. Eastwardly, the transmission route crosses into Sunnidale Township. Concession 12 Sunnidale Road is illustrated as continuing straight east-west from the neighbouring Nottawasaga Township, thus insinuating that Sideroad 27/28 Nottawasaga was a continuation of Concession 12 Sunnidale. However, it is likely that the 1871 Hogg's map does not show the alignment of Sideroad 27/28 Nottawasaga correctly or the early concession road had been surveyed but not constructed.

The 1871 Hogg's map (Figure 2) also illustrates that County Road 7, County Road 10 and Klondike Park Road were surveyed. The map labels County Road 10 as "Sunnidale Road". The "Site" location is proposed in Lot 10, Concession 8, Sunnidale Township. This lot was owned by D. Hinds in 1871. There is only one structure shown on the 1871 Hogg's map in the vicinity of the study area; a school house located in Lot 5, Concession XII, Sunnidale Township. This school house was located on the west side of County Road 10, south of Concession 12 Sunnidale. In addition, the company Hotchkiss Peckham & Co. occupied Lots 4 and 5, Concession XII and XIII, Sunnidale Township, along the major water source that is shown to intersect the study area. This company was a known lumber merchant.

The 1881 Atlas map (Figure 3) does depict the current alignment of Sideroad 27/28 Nottawasaga, which is south of Concession 12 Sunnidale. In general, the transmission route within Nottawasaga Township does not illustrate any property owners or historical features. However, the Sunnidale Township portion of the study area on the 1881 Atlas map does depict numerous structures on both sides of Concession 12 Sunnidale including, four farmhouses and one church. The church in Lot 7, Concession XII, owned by Duncan McIntyre's. The church is drawn as containing a steeple.

Details of the historic property owners and historical features based on the nineteenth century maps are listed in Table 2.

Table 2: Study Area – Nineteenth-century property owner(s) and historical features(s)

		1871 Hogg's Map of Simcoe County		1881 Illustrated Historical Atlas of Simcoe County	
Con #	**Lot #**	**Property Owner(s)**	**Historical Feature(s)**	**Property Owner(s)**	**Historical Feature(s)**
Nottawasaga Township					
I	27 (1881)	J. Brown (N ½); E. Murray (S ½)	None illustrated	-	None illustrated
	28 E½ (1881)	D. Cranson	None illustrated	-	None illustrated
	28 W½ (1881)	J. Blair	None illustrated	-	None illustrated
II	27 (1881)	J.Briggs (N½) ; J. Blair (S½)	None illustrated	-	None illustrated
	28 E½ (1881)	-	None illustrated	-	None illustrated

		1871 Hogg's Map of Simcoe County		1881 Illustrated Historical Atlas of Simcoe County	
Con #	**Lot #**	**Property Owner(s)**	**Historical Feature(s)**	**Property Owner(s)**	**Historical Feature(s)**
Nottawasaga Township					
	28 W½ (1881)	D.T. Craig	None illustrated	-	None illustrated
Sunnidale Township					
XII	1	CA & R Hislop	None illustrated	E. Klinck	Farm House
	2	-	None illustrated	Alex Hislop	Farm House
	3	W. Perrit	None illustrated	-	None illustrated
	5 NW ½ (1871); 7 NW¼ (1881)	Hotchkiss Peckham & Co. (lumber merchant)	School House (along County Road 10)	D. McIntyre	Church with steeple (along Concession 12 Sunnidale)
	5 NW ½ (1871); 7 NE¼ (1881)	A. Ritchey	None illustrated	-	None illustrated
	8	G. Williams	None illustrated	-	None illustrated
	9	W. Prosser	None illustrated	-	None illustrated
	10	G. Lawson	None illustrated	-	None illustrated
XIII	1	J. McCauge		A. McCaugue	House
	2	G. Hawkin		-	None illustrated
	3	H. Wilson		T.C. Wilson	House
	6	Hotchkiss Peckham & Co. (lumber merchant)		-	None illustrated
	7	-	None illustrated	-	None illustrated
	8	A. McIver	None illustrated	-	None illustrated
	9	C. Harrison	None illustrated	-	None illustrated
	10	D. Hinds	None illustrated	Samuel Hines	Farm House

In addition to nineteenth-century mapping, historical topographic mapping and aerial photographs from the twentieth century were examined. This report presents topographic maps from 1941 and 1994 and an aerial photograph from 1954. These do not represent the full range of maps consulted for the purpose of this study but were judged to cover the full range of land uses that occurred in the area during each period.

The twentieth-century mapping revealed that the study area retained a mostly rural agricultural character throughout the century. The 1941 NTS map (Figure 4) shows farmsteads along the study area route. In addition to the houses and barns shown along the study area route, the 1941 NTS map also shows some notable features such as a cement bridge over a tributary of Lamont Creek and another cement bridge over a tributary of the Nottawasaga River (McIntyre Creek), both of which carry Concession 12 Sunnidale over the creeks. In addition, the map depicts present-day 5077 Concession 12

Sunnidale as a school house (depicted as a church on the 1881 Atlas map). The 1941 NTS map labels a crossroad community at Concession 12 Sunnidale and County Road 10 as “Jack Lake”. A church with no spire or tower is depicted in the northwest corner of that crossroad.

The 1954 aerial photograph (Figure 5) depicts the agricultural context along the study area right-of-way. Three creeks associated with the Nottawasaga River are visible in the area, crossing the study area in a north-south direction. The aerial shows “Jake Lake” closer to Concession 12 Sunnidale and Klondike Park Road. The 1993 NTS map (Figure 6) shows that the study area did not undergo any significant development in the later part of the twentieth century.

Figure 2: The study area overlaid on the 1871 Hogg’s Map of Simcoe County

Base Map: (Hogg 1871)

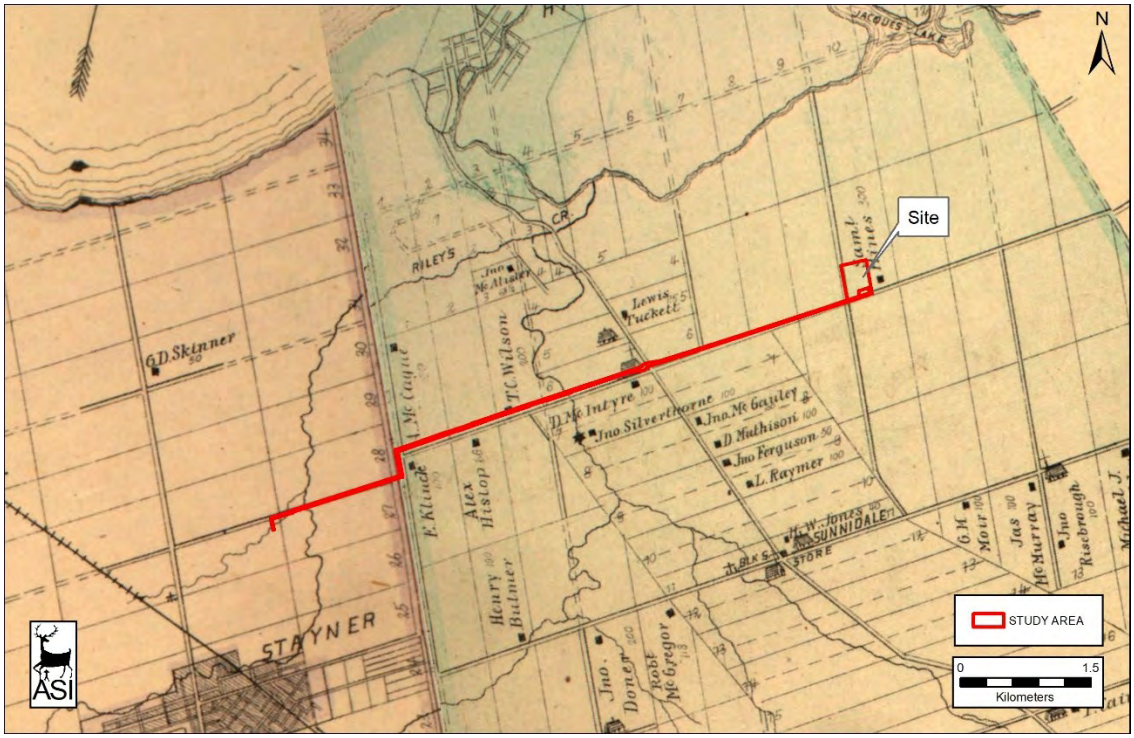

Figure 3: The study area overlaid on the 1881 *Illustrated Historical Atlas*

Base Map: (Belden 1881)

Figure 4: The study area overlaid on the 1941 NTS map, Collingwood

Base Map: NTS Sheet No. 041A08 (Department of National Defence 1941)

Figure 5: The study area overlaid on the 1954 Aerial Photograph, Stayner
Base Map: Plate 444.801 (Hunting Survey Corporation Limited 1954)

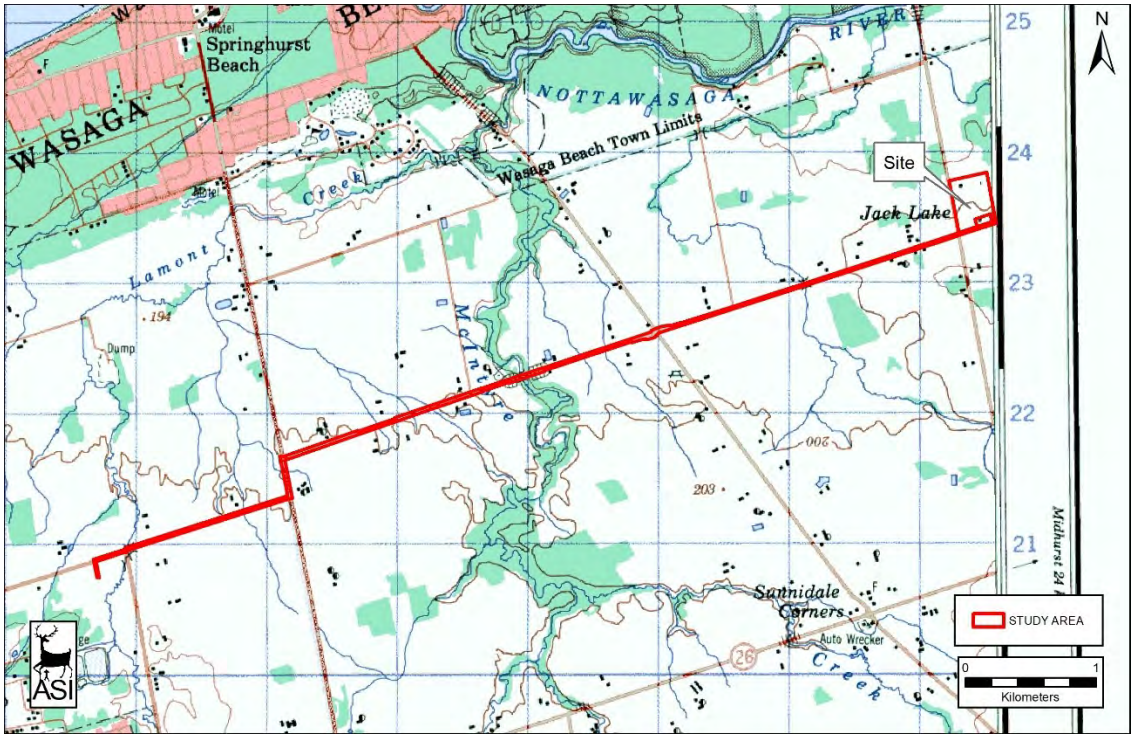

Figure 6: The study area overlaid on the 1994 NTS map, Collingwood
Base Map: NTS Sheet No. 041A08 (Department of Energy, Mines and Resources 1993)

4.2 Existing Conditions

4.2.1 Review of Existing Heritage Inventories

In order to make an identification of existing cultural heritage landscapes and built heritage resources within the study area, several resources were consulted. These include:

- The inventory of Ontario Heritage Trust easements[2];
- The Ontario Heritage Trust's Ontario Heritage Act Register[3]
- The Ontario Heritage Trust's *Ontario Heritage Plaque Guide*[4];
- *Ontario's Historical Plaques* website[5];
- Inventory of known cemeteries/burial sites in the Ontario Genealogical Society's online databases[6];
- Parks Canada's *Canada's Historic Places* website[7];
- Parks Canada's *Directory of Federal Heritage Designations*[8];
- Canadian Heritage River System[9]; and,
- United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Sites[10].

Based on the review of available provincial and federal data, there are no known or potential cultural heritage landscapes and built heritage resources within and/or adjacent to the Clearview Township Water Servicing study area.

4.2.2 Public Consultation

The following stakeholders were contacted to gather information on potential cultural heritage landscapes and built heritage resources, active and inactive cemeteries, and areas of identified Indigenous interest within and/or adjacent to the study area:

- Mara Burton, Director of Community Services, Planning and Development, Township of Clearview, was contacted to gather information on previously identified cultural heritage landscapes and built heritage resources within and/or adjacent to the study area (email communication 18 and 23 October 2019). A response received 07 October 2019 from Mara Salvucci stated, "there are no known heritage or cultural resources in the vicinity of the study area".

[2] Reviewed 18 October 2019 (http://www.heritagetrust.on.ca/en/index.php/property-types/easement-properties)
[3] Reviewed 18 October 2019 (https://www.heritagetrust.on.ca/en/oha/basic-search)
[4] Reviewed 18 October 2019 (http://www.heritagetrust.on.ca/Resources-and-Learning/Online-Plaque-Guide.aspx)
[5] Reviewed 18 October 2019 (www.ontarioplaques.com)
[6] Reviewed 18 October 2019 (http://vitacollections.ca/ogscollections/2818487/data?grd=3186)
[7] Reviewed 18 October 2019 (http://www.historicplaces.ca/en/pages/about-apropos.aspx)
[8] Reviewed 18 October 2019 (http://www.pc.gc.ca/apps/dfhd/search-recherche_eng.aspx)
[9] Reviewed 18 October 2019 (http://chrs.ca/the-rivers/)
[10] Reviewed 18 October 2019 (http://whc.unesco.org/en/list/)

- Myrna Johnson, Stayner Heritage Society (telephone communication 22 and 30 October 2019), was messaged to gather historical information on the school house within the study area at 5077 Concession 12 Sunnidale. Myrna reported that the building was used as a school house. She verified the use with a women that taught there 60 years ago when the "school house opened". The school house was referred to as "Crow's Corners". The Simcoe County Board of Education would have historical information on this school house.
- Simcoe County District School Board (telephone communication 01 November 2019). The Board reported the archives were moved to Simcoe County Archives.
- The Ministry of Tourism, Culture and Sport (email communication 21 and 25 October 2019)[11] confirmed that there are no Provincial Heritage Properties or Provincial Heritage Properties of Provincial Significance within or adjacent to the study area.

No known or potential cultural heritage landscapes and built heritage resources were identified during consultation within and /or adjacent to the study area.

4.2.3 Clearview Township Water Servicing Study Area – Field Review

On 24 October 2019, a field review of the Clearview Township Water Servicing study area was undertaken by Martin Cooper, Senior Archaeologist, ASI, to document the existing conditions from the existing right-of-way. The existing conditions of the study area are described below and captured in Plate 1 to Plate 11. The identified cultural heritage landscapes and built heritage resources are summarized in Section 4.2.4, details of the inventory in Section 8.0, and mapped in Section 9.0 (Figure 7 to Figure 10).

The Clearview Township Water Servicing study area is just north of the Town of Stayner and south of the community referred to as Springhurst Beach. The study area includes a "Site" at 1585 Klondike Park Road, located at the northeast corner of Klondike Park Road and Concession Road 12 Stayner, and a transmission route which is planned for the right-of-way from the "Site" property, west along Concession Road 12, south on County Road 7, and west on 27/28 Sideroad Nottawasaga. The study area is generally located in agricultural context associated with Clearview Township.

The western portion of the study area is in the former Nottawasaga Township. This portion of the study area includes Sideroad 27/28 Nottawasaga which is a paved rural two lane road with narrow shoulders and ditches.[12] This road features adjacent active agricultural fields and farmsteads. The terminus of the western portion of the study area is at the Clearview Township Public Works - Main Yard located on the south side of Sideroad 27/28 Nottawasaga. There is a concrete bridge, likely constructed in the twenty-first century, over Lamont Creek which carries Sideroad 27/28 Nottawasaga over the waterway.

County Road 7, a two lane paved road, marks the boundary between the historical townships. The proposed transmission route travels northward until Concession 12 Sunnidale, where it continues westward. Concession 12 Sunnidale is a nineteenth-century road. In general, it is two lanes with narrow gravel shoulders (Plate 1 and Plate 2). The road is bordered by agricultural properties with the exception

[11] Contacted at registrar@ontario.ca
[12] 27/28 Sideroad, between Highway 26 and County Road 7, is now County Road 96

of one property containing a former church (5077 Concession 12 Sunnidale). This concession road is also lined with hydro poles and some vegetation.

The intersection of County Road 10 and Concession 12 Sunnidale is wide. Concession 12 Sunnidale is not linear through the intersection. The right-of-way may be avoiding former structures no longer visible on the landscape - a church at the northwest corner and a schoolhouse at the southwest corner of the intersection. County Road 10 is a paved two lane highway with turning lanes. It has wide gravel shoulders. The study area continues easterly along Concession 12 Sunnidale which continues to be a narrow two lane concession road, however newly paved, surrounded by agricultural properties. In the vicinity of Klondike Park Road, there are rural residential properties, most of which were constructed after the mid-twentieth century. Klondike Park Road is a narrow two lane paved concession road.

In general, many of the existing farmhouses appear to date from the late nineteenth to early twentieth century. Some rural residential properties in the vicinity of Klondike Park Road and Concession 12 Sunnidale appear to have been severed more recently and many retain buildings that represent the mid to late twentieth century and into the twenty-first century.

Plate 1: View of Sideroad 27/28 Nottawasaga, looking east

Plate 2: View of Sideroad 27/28 Nottawasaga, looking east

Plate 3: View of County Road 7, looking north

Plate 4: View of Concession 12 Sunnidale, looking east

Plate 5: View of Concession 12 Sunnidale, looking west towards County Road 7

Plate 6: Concession 12 Sunnidale, looking east

Plate 7: View of the concrete bridge crossing McIntyre Creek, Concession 12 Sunnidale, looking east

Plate 8: Concession 12 Sunnidale, looking east towards County Road 10

Plate 9: Intersection of Phillips Street and Sunnidale Street, looking northwest

Plate 10: Concession 12 Sunnidale at Freethy Road, looking east

Plate 11: Concession 12 Sunnidale, looking towards Klondike Park Road

4.2.4 Clearview Township Water Servicing Study Area – Identified Cultural Heritage Landscapes And Built Heritage Resources

Based on the results of the background research and field review, 1 built heritage resource and 9 cultural heritage landscapes were identified within and/or adjacent to the Clearview Township Water Servicing study area (Figure 7 and Figure 8). These 10 potential resources comprise of six residences, one former school house and three farmscapes, and none are listed or designated under the OHA (Table 3). A detailed inventory of these cultural heritage landscapes and built heritage resources within the study area is presented in Section 8.0 and mapping of the features along with photographic plate locations is provided in Section 9.0 of this report.

Table 3: Summary of known and potential built heritage resources (BHR) and cultural heritage landscapes (CHL) within and/or adjacent to the study area

Feature ID	Location/Address	Resource Type	Heritage Recognition
BHR 1	5077 Concession 12 Sunnidale	Former School House	Potential BHR - Identified in field review
CHL 1	5692 Sideroad 27/28 Nottawasaga	Farmscape	Potential CHL - Identified in field review
CHL 2	5546 Sideroad 27/28 Nottawasaga	Farmscape	Potential CHL - Identified in field review
CHL 3	4600 Concession 12 Sunnidale	Farmscape	Potential CHL - Identified in field review
CHL 4	1409 County Road 7	Farmscape	Potential CHL - Identified in field review
CHL 5	5256 Concession 12 Sunnidale	Farmscape	Potential CHL - Identified in field review
CHL 6	4920 Concession 12 Sunnidale	Farmscape	Potential CHL - Identified in field review

Feature ID	Location/Address	Resource Type	Heritage Recognition
CHL 7	4913 Concession 12 Sunnidale	Farmscape	Potential CHL - Identified in field review
CHL 8	4784 Concession 12 Sunnidale	Farmscape	Potential CHL - Identified in field review
CHL 9	4660 Concession 12 Sunnidale	Farmscape	Potential CHL - Identified in field review

4.3 Preliminary Impact Assessment

The proposed undertaking for the Clearview Township Water Servicing Municipal Class EA Addendum involves the construction of new wells within the well house site at 1585 Klondike Park Road, located at the northeast corner of Klondike Park Road and Concession Road 12 Stayner, as well as a transmission watermain route which is planned for the right-of-way (ROW). The watermain route extends from the well house site, west along Concession Road 12, south on County Road 7, and west on Sideroad 27/28 Nottawasaga connecting to the Clearview Public Works Building located at 5833 County Road 96 (Sideroad 27/28 Nottawasaga). Mapping of the proposed works is provided in Figure 7 to Figure 10 in Section 9.0, including the study area mapping showing photographic plate locations and the location of the identified cultural heritage landscapes and built heritage resources. All work relating to the watermain is expected to be confined to the existing ROW and all work relating to the new wells is expected to be confined to the well house site at 1585 Klondike Park Road.

To assess the potential impacts of the undertaking, identified cultural heritage landscapes and built heritage resources are considered against a range of possible negative impacts, based on the *Ontario Heritage Tool Kit InfoSheet #5: Heritage Impact Assessments and Conservation Plans* (Ministry of Tourism and Culture 2006, now administered by the MHSCTI). These include, but are not limited to:

- Direct impacts:
  - Destruction of any, or part of any, significant heritage attributes or features; and
  - Alteration that is not sympathetic, or is incompatible, with the historic fabric and appearance.
- Indirect impacts
  - Shadows created that alter the appearance of a heritage attribute or change the viability of a natural feature or plantings, such as a garden;
  - Isolation of a heritage attribute from its surrounding environment, context or a significant relationship;
  - Direct or indirect obstruction of significant views or vistas within, from, or of built and natural features;
  - A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces; and
  - Land disturbances such as a change in grade that alters soils, and drainage patterns that adversely affect an archaeological resource.

Indirect impacts from construction-related vibration have the potential to negatively affect built heritage resources or cultural heritage landscapes depending on the type of construction methods and machinery selected for the project and proximity and composition of the identified resources. Potential vibration impacts are defined as having potential to affect an identified built heritage resources or cultural heritage landscapes where work is taking place within 50 m of features on the property. A 50 m buffer is applied in the absence of a project-specific defined vibration zone of influence based on existing secondary source literature and direction provided from the MHSTCI (Wiss 1981; Rainer 1982; Ellis 1987; Crispino and D'Apuzzo 2001; Carman et al. 2012). This buffer accommodates any additional or potential threat from collisions with heavy machinery or subsidence (Randl 2001).

Several additional factors are also considered when evaluating potential impacts on identified cultural heritage landscapes and built heritage resources. These are outlined in a document set out by the MHSTCI and the Ministry of the Environment entitled *Guideline for Preparing the Cultural Heritage Resource Component of Environmental Assessments* (1992) and include:

- Magnitude: the amount of physical alteration or destruction which can be expected;
- Severity: the irreversibility or reversibility of an impact;
- Duration: the length of time an adverse impact persists;
- Frequency: the number of times an impact can be expected;
- Range: the spatial distribution, widespread or site specific, of an adverse impact; and
- Diversity: the number of different kinds of activities to affect a heritage resource.

Table 4 outlines the potential impacts on all identified cultural heritage landscapes and built heritage resources within and adjacent to the overall study area.

Table 4: Potential Impacts of the Proposed Undertaking

Feature ID	Potential Impact(s)	Proposed Mitigation Measures
BHR 1	It is understood that the limits of the proposed improvements will be confined to the existing ROW. No direct impacts to this property are anticipated. Construction activities associated with the proposed road improvements have the potential to create vibrations that may have an indirect impact on the property.	To ensure this property is not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that the structure on this property will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.
CHL 1	It is understood that the limits of the proposed improvements will be confined to the existing ROW. As this work is located more than 50 m from the structures on the property, no impacts are anticipated.	No further work required.
CHL 2	It is understood that the limits of the proposed improvements will be confined to the existing ROW. No direct impacts to this property are anticipated.	To ensure this property is not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that the structure on this property will be subject to vibrations, prepare

Feature ID	Potential Impact(s)	Proposed Mitigation Measures
	Construction activities associated with the proposed road improvements have the potential to create vibrations that may have an indirect impact on the property.	and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.
CHL 3	It is understood that the limits of the proposed improvements will be confined to the existing ROW. No direct impacts to this property are anticipated. Construction activities associated with the proposed road improvements have the potential to create vibrations that may have an indirect impact on the property.	To ensure this property is not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that the structure on this property will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.
CHL 4	It is understood that the limits of the proposed improvements will be confined to the existing ROW. No direct impacts to this property are anticipated. Construction activities associated with the proposed road improvements have the potential to create vibrations that may have an indirect impact on the property.	To ensure this property is not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that the structure on this property will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.
CHL 5	It is understood that the limits of the proposed improvements will be confined to the existing ROW. As this work is located more than 50 m from the structures on the property, no impacts are anticipated.	No further work required.
CHL 6	It is understood that the limits of the proposed improvements will be confined to the existing ROW. As this work is located more than 50 m from the structures on the property, no impacts are anticipated.	No further work required.
CHL 7	It is understood that the limits of the proposed improvements will be confined to the existing ROW. As this work is located more than 50 m from the structures on the property, no impacts are anticipated.	No further work required.
CHL 8	It is understood that the limits of the proposed improvements will be confined to the existing ROW. No direct impacts to this property are anticipated. Construction activities associated with the proposed road improvements have the potential to create vibrations that may have an indirect impact on the property.	To ensure this property is not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that the structure on this property will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.

Feature ID	Potential Impact(s)	Proposed Mitigation Measures
CHL 9	It is understood that the limits of the proposed improvements will be confined to the existing ROW. No direct impacts to this property are anticipated. Construction activities associated with the proposed road improvements have the potential to create vibrations that may have an indirect impact on the property.	To ensure this property is not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that the structure on this property will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.

No direct impacts to identified cultural heritage landscapes and built heritage resources are anticipated as a result of the proposed infrastructure improvements.

Indirect impact to BHR 1, CHLs 2 – 4, and CHLs 8 – 9 may occur as a result of their location adjacent to the proposed alignment. To ensure the structures on the properties at 5077 Concession 12 Sunnidale (BHR 1), 5546 Sideroad 27/28 Nottawasaga (CHL 2), 4600 Concession 12 Sunnidale (CHL 3), 1409 County Road 7 (CHL 4), 4784 Concession 12 Sunnidale (CHL 8), and 4660 Concession 12 Sunnidale (CHL 9) are not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that the structures will be subject to vibrations, a vibration monitoring plan should be prepared and implemented as part of the detailed design phase of the project to lessen vibration impacts related to construction.

5.0 CONCLUSIONS

The results of background historical research and a review of secondary source material, including historical mapping, revealed a study area with a land use commencing in the nineteenth century. A review of federal registers, municipal and provincial inventories and background research revealed that there are no previously identified features of cultural heritage value within or adjacent to the Clearview Township Water Servicing study area. Ten potential cultural heritage landscapes and built heritage resources were identified during the field review.

Key Findings

- A field review of the study area identified 10 potential resources consisting of: one former school house (BHR 1) and nine farmscapes (CHL 1 – 9) within or immediately adjacent to the study area.

- The identified cultural heritage landscapes and built heritage resources are historically and contextually associated with the nineteenth-century development of agricultural properties in former Nottawasaga and Sunnidale Townships in Simcoe County.

Results of Preliminary Impact Assessment

- No direct impacts to any potential cultural heritage landscapes and built heritage resources are anticipated as a result of the preferred alternative.

- The proposed alignment is anticipated to result in indirect impacts, in the form of potential vibration impacts, to six potential resources:
    - 5077 Concession 12 Sunnidale (BHR 1);
    - 5546 Sideroad 27/28 Nottawasaga (CHL 2);
    - 4600 Concession 12 Sunnidale (CHL 3);
    - 1409 County Road 7 (CHL 4);
    - 4784 Concession 12 Sunnidale (CHL 8); and,
    - 4660 Concession 12 Sunnidale (CHL 9)

- No indirect impacts are anticipated to the remaining four potential resources:
    - 5692 Sideroad 27/28 Nottawasaga (CHL 1);
    - 5256 Concession 12 Sunnidale (CHL 5);
    - 4920 Concession 12 Sunnidale (CHL 6); and,
    - 4913 Concession 12 Sunnidale (CHL 7).

6.0 RECOMMENDATIONS

The background research, data collection, and field review conducted for the study area determined that 1 built heritage resource and 9 cultural heritage landscapes are located within or adjacent to the Clearview Township Water Servicing study area. Based on the results of the assessment, the following recommendations have been developed:

1. Construction activities and staging should be suitably planned and undertaken to avoid impacts to identified cultural heritage landscapes and built heritage resources.

2. To ensure the properties at: 5077 Concession 12 Sunnidale (BHR 1), 5546 Sideroad 27/28 Nottawasaga (CHL 2), 4600 Concession 12 Sunnidale (CHL 3), 1409 County Road 7 (CHL 4), 4784 Concession 12 Sunnidale (CHL 8), and 4660 Concession 12 Sunnidale (CHL 9) are not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that the structures at 5077 Concession 12 Sunnidale, 5546 Sideroad 27/28 Nottawasaga, 4600 Concession 12 Sunnidale, 1409 County Road 7, 4784 Concession 12 Sunnidale, and 4660 Concession 12 Sunnidale will be subject to vibrations, a vibration monitoring plan should be prepared and implemented as part of the detailed design phase of the project to lessen vibration impacts related to construction.

3. Should future work require an expansion of the study area then a qualified heritage consultant should be contacted in order to confirm the impacts of the proposed work on known and potential heritage resources.

4. This report should be submitted by the proponent to planning staff with the Township of Clearview, the MHSTCI, and any other local heritage stakeholders that may have an interest in this project.

7.0 REFERENCES

Belden, H.
1881 Illustrated Historical Atlas of the County of Simcoe. H. Belden & Co, Toronto.

Carman, Richard A., David Buehler, Stephen Mikesell, and Carolyn L. Searls
2012 *Current Practices to Address Construction Vibration and Potential Effects to Historic Buildings Adjacent to Transportation Projects*. Wilson, Ihrig and Associates, ICF International, and Simpson, Gumpertz and Heger, Incorporated for the American Association of State Highway and Transportation Officials (AASHTO), Washington, D.C.

Chapman, L.J., and F. Putnam
1984 *The Physiography of Southern Ontario*. Vol. 2. Ontario Geologic Survey, Special Volume. Ontario Ministry of Natural Resources, Toronto.

Crispino, M., and M. D'Apuzzo
2001 Measurement and Prediction of Traffic-induced Vibrations in a Heritage Building. *Journal of Sound and Vibration* 246(2): 319–335.

Crown-Indigenous Relations and Northern Affairs
2016 Lake Simcoe-Nottawasaga Treaty No. 18. *Treaty Texts – Upper Canada Land Surrenders*. <https://www.rcaanc-cirnac.gc.ca/eng/1370372152585/1370372222012#ucls17>.

Department of Energy, Mines and Resources
1993 Collingwood Sheet 41A/8.

1996 Hamilton-Grimsby Sheet. National Topographic System.

Department of Militia and Defence
1907 Grimsby Sheet 030M04. National Topographic System.

Department of National Defence
1941 Collingwood Sheet.

Ellis, Patricia
1987 Effects of Traffic Vibration on Historic Buildings. *The Science of the Total Environment* 59: 37–45.

Government of Ontario
2020 *Provincial Policy Statement*. Toronto, Ontario.

Hogg, J.
1871 Hogg's Map of the County of Simcoe. Collingwood, Ont.

Hunting Survey Corporation Limited
1954 Digital Aerial Photographs, Southern Ontario 1954.

<http://maps.library.utoronto.ca/data/on/AP_1954/index.html>.

Karrow, P.F., and B.G. Warner
1990 The Geological and Biological Environment for Human Occupation in Southern Ontario. In *The Archaeology of Ontario to A.D. 1650*, pp. 5–36. Occasional Publications 5. London Chapter, Ontario Archaeological Society, London.

MHSTCI, (Ministry of Heritage, Sport, Tourism and Culture Industries)
1980 *Guidelines on the Man-Made Component of Environmental Assessments, prepared by Weiler*. Historical Planning and Research Branch, Ontario Ministry of Culture and Recreation, Toronto, Ontario.

1990 Ontario Heritage Act, R.S.O. 1990, c. O.18 [as amended in 2019].

1992 *Guideline for Preparing the Cultural Heritage Resource Component of Environmental Assessments*.

2006a Ontario Heritage Tool Kit.

2006b Heritage Resources in the Land Use Planning Process: Info Sheet #5, Heritage Impact Assessments and Conservation Plans.

2010 Standards and Guidelines for Conservation of Provincial Heritage Properties.

2016 Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes, A Checklist for the Non-Specialist.

Mika, N., and H. Mika
1983 *Places In Ontario: Their Name Origins and History, Part III, N-Z*. Mika Publishing Company, Belleville.

Ministry of Municipal Affairs and Housing
1990 Planning Act, R.S.O. 1990, c. P.13.

Ministry of the Environment
1990 Environmental Assessment Act, R.S.O. Province of Ontario.

Rainer, J. H.
1982 Effect of Vibrations on Historic Buildings. *The Association for Preservation Technology Bulletin* XIV(1): 2–10.

Randl, Chad
2001 Preservation Tech Notes: Protecting a Historic Structure during Adjacent Construction. U.S. Department of the Interior National Park Service, July.
Rayburn, A.

1997 *Place Names of Ontario*. University of Toronto Press, Toronto.

Township of Clearview
2001 Official Plan of the Township of Clearview.

Wiss, J. F.
1981 Construction Vibrations; State-of-the-Art. *Journal of Geotechnical Engineering* 107: 167–181.

8.0 CULTURAL HERITAGE RESOURCE INVENTORY

Table 5: Inventory of known and potential built heritage resources and cultural heritage landscapes within and/or adjacent to the study area

Feature ID	Location/Address	Resource Type	Heritage Recognition	Description	Photographs(s)
BHR 1	5077 Concession 12 Sunnidale	Former School House	Identified in field review	Historical: - This structure is representative a late nineteenth or early twentieth century public building. - A church with a steeple is illustrated on the 1881 Atlas map roughly in the location of 5077 Concession 12 Sunnidale (Figure 3). - The 1941 NTS map labels the structure as a school house (Figure 4). - School house referred to as “Crow’s Corners” by former teacher (see Section 4.2.2) - The building was vacant at the time of field review. Design: -The design of this brick structure suggests that the building has a single room concept. Visible decorative features include exaggerated stone quoins and decorative stone moulds around the windows, decorative bargeboard in the gables and a small entry porch. The front gable roof includes a stone circle pattern in the front gable. - The front entry door has been removed and replaced with a window. Context: - The structure sits very close to Concession 12 Sunnidale and is surrounded by vegetation which partially obscures the structure.	 View of 5077 Concession 12 Sunnidale, looking south (ASI 2019)
CHL 1	5692 Sideroad 27/28 Nottawasaga	Farmscape	Identified in field review	Historical: - This agricultural property is representative of a late nineteenth to early twentieth century farmstead. Design: - A two-and-a-half storey red brick Ontario farmhouse with a hipped-style roof. A side dormer is visible from the road which includes three narrow windows with the centre being taller. - The property includes two outbuildings. Context: - The house is set far back from Sideroad 27/28 Nottawasaga. - This house supports the agricultural character of the area.	 View of 5692 Sideroad 27/28 Nottawasaga, looking north (ASI 2019)

Feature ID	Location/Address	Resource Type	Heritage Recognition	Description	Photographs(s)
CHL 2	5546 Sideroad 27/28 Nottawasaga	Farmscape	Identified in field review	Historical: - This agricultural property is representative of a late nineteenth to early twentieth century farmstead. Design: - A one-and-a-half storey brick Ontario farmhouse with a gabled roof including one steep pitched gable on the façade with a slightly arched window, and a covered veranda that spans the front facade. The segmented brick heads over the windows and doors have been painted white. The farmhouse has multiple rear additions. - The property includes two outbuildings, including a large vertical board barn. Context: - The house is set back from Sideroad 27/28 Nottawasaga. - This agricultural property supports the agricultural character of the area.	 View of 5546 Sideroad 27/28 Nottawasaga, looking north (ASI 2019)  View of barn from Sideroad 27/28 Nottawasaga, looking north (ASI 2019)

Feature ID	Location/Address	Resource Type	Heritage Recognition	Description	Photographs(s)
CHL 3	4600 Concession 12 Sunnidale	Farmscape	Identified in field review	Historical: - This agricultural property is representative of a late nineteenth or early twentieth century farmstead. Design: - A two-and-a-half vernacular farmhouse with an L-shaped plan and a field stone foundation. - A vertical board barn with a field stone foundation. Context: - The house sits slightly back on the north side of Concession 12 Sunnidale. - Mature trees surround the house. - This farm complex supports the agricultural character of the area.	 View of 4600 Concession 12 Sunnidale, looking north west (ASI 2019)  View of the barn at 4600 Concession 12 Sunnidale, looking north (ASI 2019)

Feature ID	Location/Address	Resource Type	Heritage Recognition	Description	Photographs(s)
CHL 4	1409 County Road 7	Farmscape	Identified in field review	Historical: - This agricultural property is representative of a late nineteenth to early twentieth century farmstead. Design: - A two-and-a-half storey brick Ontario farmhouse with a hipped-style roof, and a field stone foundation. - The property includes two outbuildings. Context: - The house is sits slightly back from County Road 7. - The house contributes to the farm complex. - This house supports the agricultural character of the area.	 View of 1409 County Road 7, looking southwest (ASI 2019)

Feature ID	Location/Address	Resource Type	Heritage Recognition	Description	Photographs(s)
CHL 5	5256 Concession 12 Sunnidale	Farmscape	Identified in field review	Historical: - This agricultural property is representative of a late nineteenth to early twentieth century farmstead. Design: - A one-and-a-half storey Ontario farmhouse with a gabled roof including one steep pitched gable on the façade with a slightly arched window. - The property includes vertical board barns and other outbuildings. One barn visible from the road, has a field stone foundation. Context: - The house sits far back from Concession 12 Sunnidale. - This agricultural property supports the agricultural character of the area.	 View of 5256 Concession 12 Sunnidale, looking north (ASI 2019)  View of outbuildings at 5256 Conession 12 Sunnidale, looking north (ASI 2019)

Feature ID	Location/Address	Resource Type	Heritage Recognition	Description	Photographs(s)
CHL 6	4920 Concession 12 Sunnidale	Farmscape	Identified in field review	Historical: - This agricultural property is representative of a late nineteenth or early twentieth century farmstead. Design: -A one-and-a-half brick Ontario farmhouse. The front façade is symmetrical with slight arched window opening and decorative ear dropped voussoirs windows and brick quoins. The house sits on a field stone foundation. - The property includes one outbuilding. Context: - The house sits slightly back on the north side of Concession 12 Sunnidale. - The house contributes to the farm complex. - This house supports the agricultural character of the area.	 View of 4920 Concession 12 Sunnidale, looking north (ASI 2019)  View of 4920 Concession 12 Sunnidale, looking northwest (ASI 2019)

Feature ID	Location/Address	Resource Type	Heritage Recognition	Description	Photographs(s)
CHL 7	4913 Concession 12 Sunnidale	Farmscape	Identified in field review	Historical: - This agricultural property is representative of a late nineteenth or early twentieth century farmstead. Design: -A one-and-a-half brick Ontario farmhouse with a T-shaped plan and a rear addition. Painted brick accents the windows and quoins. There is a porch that may include decorative woodwork. - The farm complex incudes small outbuildings and a foundation of a barn no longer extant. Context: - The house sits far back on the south side of Concession 12 Sunnidale and is obscured by trees. - This farm supports the agricultural character of the area.	 View of 4913 Coneccion 12 Sunnidale, looking southeast (ASI 2019)
CHL 8	4784 Concession 12 Sunnidale	Residence	Identified in field review	Historical: - This agricultural property is representative of the late nineteenth or early twentieth century. - The property was vacant at the time of the field review. Design: - A one-and-a-half brick Ontario farmhouse. The front façade is symmetrical with a steeply pitched gable. It appears the original windows and door opening have been altered and the house has been clad in modern vinyl siding. - The farm complex includes four outbuildings. Context: - The house sits slightly back on the north side of Concession 12 Sunnidale. - This farm supports the agricultural character of the area.	 View of 4784 Concession 12 Sunnidale, looking north (ASI 2019)

Feature ID	Location/Address	Resource Type	Heritage Recognition	Description	Photographs(s)
CHL 9	4660 Concession 12 Sunnidale	Farmscape	Identified in field review	Historical: - This agricultural property is representative of a late nineteenth or early twentieth century farmstead. Design: - A one-and-a-half storey frame Gothic Revival Ontario farmhouse with a L-shaped plan, gabled roof including a steeply pitched gable on the front façade with lancet window. There are decorative projecting brick bands or courses that accent the windows. The house has a fieldstone foundation. There are several rear additions. - The farm complex includes a large vertical board barn with a concrete foundation. Context: - The house sits slightly back on the north side of Concession 12 Sunnidale. - Mature deciduous trees line the property. - This farm supports the agricultural character of the area.	 View of the house at 4660 Consession 12 Sunnidale, looking north (ASI 2019)  View of the barn at 4660 Concession 12 Sunnidale, looking north (ASI 2019)

9.0 CULTURAL HERITAGE RESOURCE MAPPING

Figure 7: Location of cultural heritage landscapes and built heritage resources and photo plate locations in the Clearview Township Water Servicing study area (Sheet 1 of 4)

Figure 8: Location of cultural heritage landscapes and built heritage resources and photo plate locations in the Clearview Township Water Servicing study area (Sheet 2 or 4)

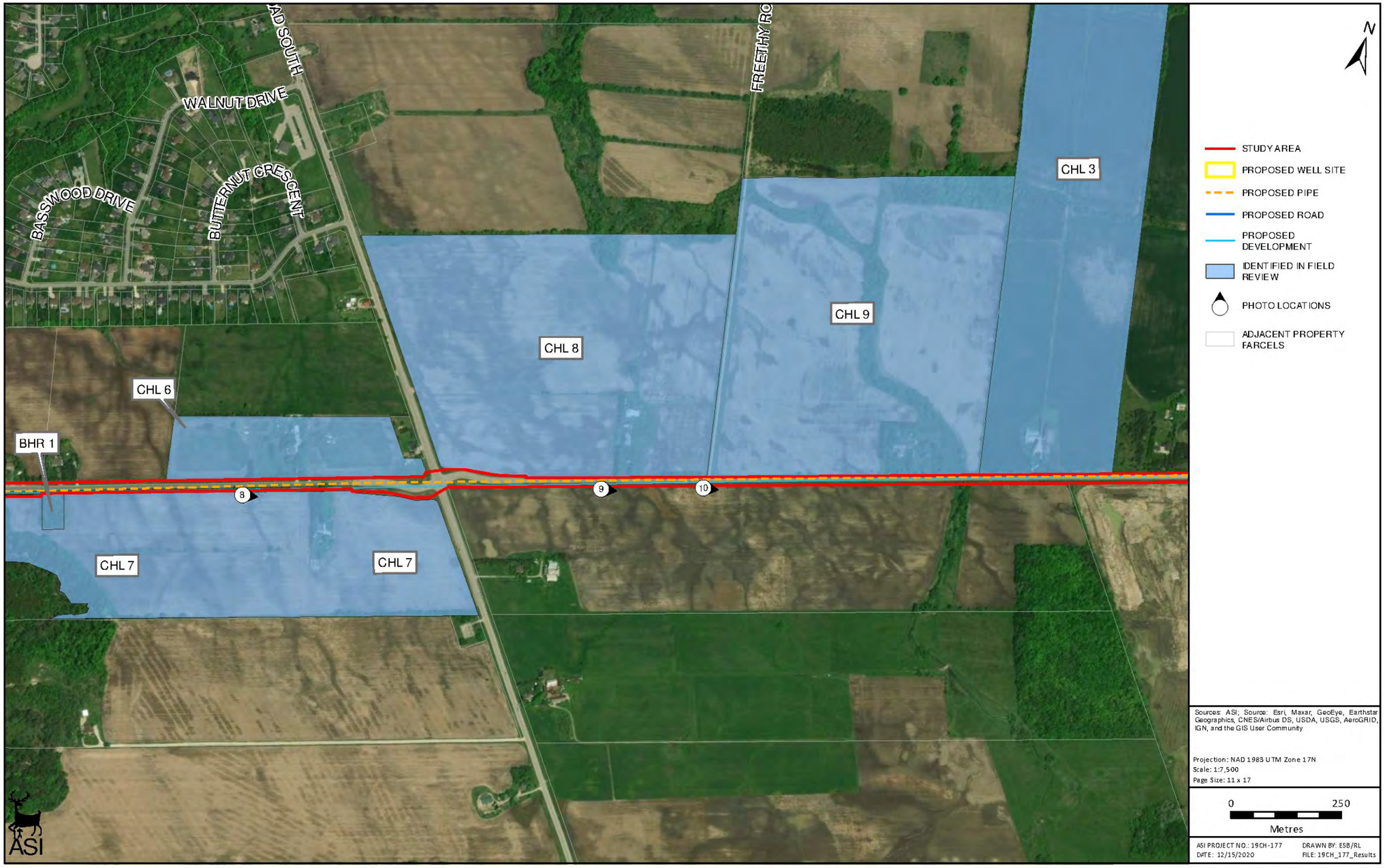

Figure 9: Location of cultural heritage landscapes and built heritage resources and photo plate locations in the Clearview Township Water Servicing study area (Sheet 3 or 4)

Figure 10: Location of cultural heritage landscapes and built heritage resources and photo plate locations in the Clearview Township Water Servicing study area (Sheet 4 or 4)

APPENDIX A

Official Plan of the Township of Clearview (2019)

2.2.5 CULTURAL HERITAGE

The municipality recognizes the importance of cultural heritage resources as a means of maintaining contact with the past, enabling a unique living environment and facilitating economic/tourism opportunities. It, therefore, is an objective of the municipality to foster development which complements the historical form and function of primary and secondary settlement areas, by establishing a method of planning control to identify and protect heritage resources, including individual buildings, structures, monuments, and community character in its unique settlement areas.

8.14 HERITAGE CONSERVATION

This Plan recognizes that the maintenance of Clearview's heritage resources will contribute to the municipality's rural character and tourist potential by balancing the potential impact of new development. Consequently, it is an objective of this Official Plan to, as far as possible, preserve the Township's heritage resources and to ensure that development occurs in a manner which respects Clearview's physical heritage. The following policies provide a strategy for the sensitive management of the Township's heritage resources.

8.14.1 HERITAGE INVENTORY The identification of the Township's heritage resources would comprise an important component of the heritage preservation process. Accordingly, Council may, at its discretion, arrange, or require a major development proponent to carry out for a defined area, the preparation and publication of an inventory of identified resources including buildings, structures, monuments or artifacts of historical and/or architectural value or interest, and areas of unique, rare or effective urban composition, streetscape, landscape or archeological value or interest, in which each resource is appropriately described, illustrated and evaluated in terms of:

1. The architectural and/or historical value or interest of the resource in accordance with the criteria outlined in Sections 8.14.2.1 and 8.14.2.2 below.

2. The contribution made by the resource to the effectiveness of the urban or rural composition, streetscape or landscape of which it may form part.

3. Where the information is available, the structural condition of the resource, including the need for and feasibility of undertaking its physical restoration or rehabilitation.

4. Where the information is available, the range of economic uses to which the resource might be put in accordance with the land use provisions of Section 4.0 of this Plan.

To assist in the preparation of the inventory and in the future identification of other heritage resources:

1. Council may establish a Local Architectural Conservation Advisory Committee (LACAC) by passing a by-law pursuant to Section 28 of the Ontario Heritage Act.

2. Council may encourage both the public and private sectors (Ministries, County, agencies, developers, etc.) to undertake analyses and/or surveys to identify sites of archeological significance.

3. Council may encourage the general public's involvement in the preparation of the inventory.

A heritage resource shall be deemed to have been published and included in the inventory when the required documentation describing, illustrating and evaluating the resource has been presented to Council and has been formally received and incorporated into the inventory by a resolution of Council, or when any such resource has been designated under the Ontario Heritage Act.

8.14.2 EVALUATION CRITERIA

2. Architectural and/or Historical Value or Interest A heritage resource shall be considered to have architectural value or interest if, in the opinion of Council, it provides an open space required for a visual appreciation of a building or district of architectural value or interest, or if the heritage resource satisfies at least two of the following criteria or one of the following criteria plus one of the criteria listed in Section 8.14.2.1 above; specifically:

a) If the heritage resource is a well-preserved, representative example of its architectural style or period of building.

b) If the heritage resource is a good, well-preserved and representative example of a method of construction.

c) If the heritage resource is a well-preserved and outstanding example of architectural design.

d) If the heritage resource terminates a view or otherwise makes an important contribution to the urban or rural composition, streetscape or landscape of which it forms a part.

e) If the heritage resource is generally recognized as an important Township landmark.

f) If the heritage resource is a well-preserved example of outstanding interior design.

g) If the heritage resource is an example of a rare or otherwise important feature of good urban or rural design, streetscaping or landscaping.

h) If the heritage resource is a good representative example of the work of an outstanding local, national or international architect, engineer, builder, landscape architect, interior designer or sculptor.

i) If the heritage resource associates with a person who is recognized as having made a significant contribution to the Township's social, cultural, political, economic, technological or physical development or who has materially influenced the course of local, regional, Provincial, national or international history.

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix B

Revised Evaluation of Alternative Solutions

Appendix B– Revised Evaluation of Alternative Solutions for Stayner Water Supply					
Criteria	**Alternative 1: Expand Existing Groundwater System**	**Alternative 2: Connect to Creemore**	**Alternative 3: Connect to Wasaga Beach**	**Alternative 4: Connect to C-NT pipeline**	**Alternative 5: New Surface Water Plant**
Meets Study Objective / Supply Capacity	Future Demands can be met. Ultimate Demands cannot be met.	Future Demands cannot be met. Ultimate Demands cannot be met.	Probability to meet projected future demands of both areas (Stayner and WB) good. Probability to meet ultimate demands of both areas limited.	Certainty of water supply not confirmed.	Meets study objective of supplying future and ultimate demands.
Impacts to Natural Environment	Aquatic and Terrestrial Environment: Moderate Impact • Potential impacts on water courses along watermain route and potential impacts from dewatering to existing water well users. • Minor disturbance of vegetation at new well site and within road ROW. • Species at risk include the grey fox and American Hart's tongue fern within the Stayner area. • Stayner wetland complex identified outside study area (outside settlement boundary). All proposed works must not encroach on this natural feature. • Impacts of construction can be mitigated to minimize permanent environmental damage.	Aquatic and Terrestrial Environment: Moderate Impact • Potentially numerous sites affected (including agricultural areas). • Impacts dependent on location of groundwater sources. • Further study required to determine potential impacts on water courses and ex water users for larger water taking. • Construction of transmission main to be within existing road allowance. Crossing of water course. • Land acquisition required for booster station and well sites. • Minor impact due to construction of new storage or expansion of ex storage. • Species at risk include the grey fox and American Hart's tongue fern within the Stayner area. • Stayner wetland complex identified outside study area (outside settlement boundary). All proposed works must not encroach on this natural feature.	Aquatic and Terrestrial Environment: Moderate Impact • Potentially numerous sites affected. • Impacts dependent on location of groundwater sources. • Further study required to determine potential impacts on water courses and ex water users for larger water taking. • Construction of transmission main within road ROWs. • Land acquisition required for booster station and well sites. • Minor impact due to construction of new storage or expansion of ex storage. • Species at risk include the grey fox and American Hart's tongue fern within the Stayner area. • Stayner wetland complex identified outside study area (outside settlement boundary). All proposed works must not encroach on this natural feature.	Aquatic and Terrestrial Environment: Moderate Impact • Source pipeline already in place in study area. • Construction of rechlorination facility within Stayner requires land acquisition and disruption of vegetation of selected in town site. • Construction of new in Town storage or expansion of ex storage minimal environmental disturbances. • Species at risk include the grey fox and American Hart's tongue fern within the Stayner area. • Stayner wetland complex identified outside study area (outside settlement boundary). All proposed works must not encroach on this natural feature.	Aquatic and Terrestrial Environment: High Impact • Installation of an intake pipe, surface water treatment plant, transmission mains, connections and storage greatest of all alternatives. • Species at risk include the grey fox and American Hart's tongue fern within the Stayner area. • Stayner wetland complex identified outside study area (outside settlement boundary). All proposed works must not encroach on this natural feature.
	Climate Effects: Low Impact • Local effects to snow accumulation, sun and shade at pumphouse and storage facility.	Climate Effects: Low Impact • Local effects to snow accumulation, sun and shade at pumphouse and storage facility.	Climate Effects: Low Impact • Local effects to snow accumulation, sun and shade at pumphouse and storage facility.	Climate Effects: Low Impact • Local effects to snow accumulation, sun and shade at pumphouse and storage facility.	Climate Effects: Low Impact • Local effects to snow accumulation, sun and shade at pumphouse and storage facility.
Temporary Disturbances (construction)	Moderate Impact • Construction of new wells, pumphouse and reservoir at new well site. • Construction of watermains along road right-of ways. Crossing of Lamont Creek and McIntyre Creek	Moderate Impact • Requires Clearview to obtain Certificate of Approval for plant expansion, and eventually construct. • Requires Clearview to obtain certificate of approval for pumphouse, transmission mains, booster station and storage facility • Construction of capital works.	Moderate Impact • Requires Wasaga Beach to obtain Certificate of Approval for system expansion, and eventually construct. • Purchase agreement between Wasaga Beach and Clearview. • Requires Clearview to obtain certificate of approval for pumphouse, transmission mains, booster station and storage facility • Construction of capital works.	Moderate-High Impact • Source connection in place. • Requires Cwood to obtain Certificate of Approval for plant expansion, and eventually construct. • New purchase agreement between Cwood/NT and NT/Clearview. • Requires Clearview to obtain certificate of approval for pumphouse, transmission main and storage facility. • Construction of capital works.	High Impact • Would require completion of SCH C EA. • Requires new PTTW. • Requires Clearview to obtain Certificate of Approval for intake, lowlift PS, transmission main and water storage facility.
Required Time to Complete (Design, construction, commissioning)	Moderate Impact • Construction of wells, pumphouse, reservoir and connecting mains. • Clearview to obtain permit to take water for new wells.	Moderate-High Impact • Hydrogeological investigation: test well program and GUDI study. • Clearview to obtain permit to take water for new wells. • Clearview to obtain certificate of approval for	Moderate-High Impact • WB to complete hydrogeological investigation: test well program and GUDI study. • WB to obtain permit to take water for new wells and amend C of A.	Moderate Impact • Source connection in place and in study area. Connection Sch A activity. • Land acquisition required for rechlorination facility. • Clearview to obtain certificate of approval for	High Impact • Would require completion of Sch C EA. • Construction of capital works extensive and requires extensive approvals. • Approximately 3-5 years.

Appendix B– Revised Evaluation of Alternative Solutions for Stayner Water Supply					
Criteria	**Alternative 1: Expand Existing Groundwater System**	**Alternative 2: Connect to Creemore**	**Alternative 3: Connect to Wasaga Beach**	**Alternative 4: Connect to C-NT pipeline**	**Alternative 5: New Surface Water Plant**
	• Approximately 2-3 years.	capital works. • Construction of wells, pumphouses and transmission mains. • Expansion of storage or new. • Approximately 2-3 years.	• Clearview to obtain certificate of approval for capital works. • Construction of wells, pumphouses, booster station and transmission mains. • Expansion of storage or new. • Approximately 2-3 years.	capital works. • Approvals and construction of rechlorination facility and storage. • Approximately 2-3 years.	
Impacts to Social Environment	Aesthetic Impacts: Low • Visual impact of pumphouse.	Aesthetic Impacts: Moderate • Visual impact of pumphouse and storage facility. Some persons outside of immediate study area affected.	Aesthetic Impacts: Moderate • Visual impact of pumphouse and storage facility. Some persons outside of immediate study area affected.	Aesthetic Impacts: Moderate • Visual impact of pumphouse and storage facility. Some persons outside of immediate study area affected.	Aesthetic Impacts: High • Visual impact of pumphouse and storage facility. Some persons outside of immediate study area affected.
	Agricultural Impacts: Low • Land on new well site is vacant, no longer being used for agricultural purposes. • Wellhead protection program would establish land use restrictions in area surrounding new wells.	Agricultural Impacts: Low • Several well sites and storage facility to be converted to well sites. • Wellhead protection program would establish land use restrictions in area surrounding new wells.	Agricultural Impacts: Low • Several well sites and storage facility to be converted to well sites. • Wellhead protection program would establish land use restrictions in area surrounding new wells.	Agricultural Impacts: Low to Moderate • Associated with conversion of land at pumphouse and storage facilities.	Agricultural Impacts: Moderate • Associated with conversion of land at WTP site and storage facilities.
	Socio-Economic: Low • Limited Increase in tax base • Limited Increase in employment opportunities • Does not provide fire protection (fire flows will continue to be provided by existing reservoir) • Provides supply during a power outage via emergency generator • Supply provided with regulated minimum level of treatment • Operated by licensed operators	Socio-Economic: Low • Increase in tax base • Increase in employment opportunities • Provides fire protection • Provide continuous supply during power outages • Supply provided with regulated minimum level of treatment • Operated by licensed operators	Socio-Economic: Low • Increase in tax base • Increase in employment opportunities • Provides fire protection • Provide continuous supply during power outages • Supply provided with regulated minimum level of treatment • Operated by licensed operators	Socio-Economic: Low • Increase in tax base • Increase in employment opportunities • Provides fire protection • Provide continuous supply during power outages • Supply provided with regulated minimum level of treatment • Operated by licensed operators	Socio-Economic: Low • Increase in tax base • Increase in employment opportunities • Provides fire protection • Provide continuous supply during power outages • Supply provided with regulated minimum level of treatment • Operated by licensed operators
	Heritage Resources: Low • Potential for indirect impacts to cultural heritage resources along watermain connection route.	Heritage Resources: Low • Potential for indirect impacts to cultural heritage resources along watermain connection route.	Heritage Resources: Low • Potential for indirect impacts to cultural heritage resources along watermain connection route.	Heritage Resources: Low • No Significant impacts anticipated.	Heritage Resources: Low • Potential for indirect impacts to cultural heritage resources at new surface water plant site. Investigation would be required.
Water Quality (aesthetic)	Acceptable (Moderate Impact) • Water quality in study area typically contains high iron.	Better (Low Impact) • Water quality aesthetically pleasing.	Better (Low Impact) • Water quality aesthetically pleasing.	Better (Low Impact) • Water quality aesthetically pleasing.	Better (Low Impact) • Water quality aesthetically pleasing.
Probability Raw Water Supply Capacity Can Be Located	High Probability (Minimal Impact) • Suitable sources have been identified • Test well program completed.	Low Probability (Moderate-High Impact) • Suitable sources have not yet been identified • Test well program must be completed for each well.	Moderate Probability (Moderate Impact) • Suitable sources have not yet been identified • Test well program must be completed for each well.	Moderate Probability (Moderate Impact) • Certainty of water supply not confirmed.	High Probability (Minimal Impact) • Available quantity would meet future and ultimate demand.

Appendix B– Revised Evaluation of Alternative Solutions for Stayner Water Supply					
Criteria	**Alternative 1: Expand Existing Groundwater System**	**Alternative 2: Connect to Creemore**	**Alternative 3: Connect to Wasaga Beach**	**Alternative 4: Connect to C-NT pipeline**	**Alternative 5: New Surface Water Plant**
Capital Costs and Capital Cost Equivalents	Moderate	Moderate	Moderate	Moderate	Moderate
Capital Works (2008)	N.A.	• $17,340,000	• $13,620,000	• $14,730,000	• $38,050,000
Purchased Capital Works (2008)	N.A.	• None	• $20,510,000	• $29,330,000	• None
NPV (Capital) Including Eng & Contingencies (2008)	N.A.	• $21.7 Million • Approximately $802/m3	• $39.6 Million • Approximately $1364/m3	• $50.7 Million • Approximately $1873/m3	• $47.6 Million • Approximately $1759/m3
NPV (Capital) Including Eng & Contingencies (2020)[1]	• $31.1 Million	• $29.5 Million	• $53.8 Million	• $69.0 Million	• $64.7 Million
Water Purchase Costs	• None	• None	• $1,947,000 /yr • NPV20 = 24.6 million	• $2,354,000 /yr • NPV20 = $29.7million	• None •
Operational Costs	• Low Costs	• Moderate Costs	• Moderate Costs	• Moderate Costs	• High Costs
Summary of Comments	Recent groundwater exploration near the Stayner settlement boundary has resulted in the identification of a suitable municipal well location. Since this alternative is favorable on the operational side, has a moderate cost and anticipated impacts to the natural environment are similar to other alternatives, this alternative is most preferred.	While this alternative is attractive from a cost and control perspective it is not anticipated that the Creemore aquifer would be capable of supporting the projected demand for Stayner hence this alternative is not preferred.	Wasaga Beach has good groundwater supply. Costs are projected to be less than a connection to the C-NT pipeline however the certainty of the supply has not been confirmed. Similarly, the terms of the cost agreement have not been established. This alternative is not preferred.	Viable alternative with connection to the C-NT pipeline; however, certainty of water supply not confirmed. With Stayner close to its system capacity, time to implementation is important and this alternative is relatively quick to implement, however would take more time than the expansion of the groundwater system. Costs associated with purchase of water are the highest of all alternatives. This alternative is not preferred.	Capital cost estimates for this alternative are favorable for ultimate demands. However, time to complete project is long, even when considering phased treatment capacity. Land acquisition and construction of new plant costly and time consuming. This alternative is not preferred.

[1] Present value costs associated with the "Connect to CN-T Pipeline" alternative and other alternatives were updated to account for inflation but were not recalculated in detail as part of this Addendum.

R.J. Burnside & Associates Limited