Environmental Impact Assessment
Pratt (Orsi) Lands
Town of Midland
Simcoe County

Prepared for:
Pratt Development Inc.

Prepared by:
Azimuth Environmental
Consulting, Inc.

August 2020

AEC 18-143

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

August 6, 2020 AEC 18-143

Pratt Development Inc.
27 Clapperton Street
Barrie, Ontario
L4M 3E6

Attention: Don Pratt, President

Re: **Environmental Impact Assessment, Pratt (Orsi) Lands, Town of Midland, Simcoe County**

Dear Mr. Pratt:

As requested we have completed an Environmental Impact Assessment related to development proposed for the Orsi lands located in the Town of Midland.

If you have questions or require additional information please do not hesitate to contact the undersigned.

Yours truly,

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Jim Broadfoot, H. B.Sc.
Terrestrial Ecologist

Attach:

cc: Brian Zeman, MHBC
Ken Cave, Project Manager

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1.0 INTRODUCTION

Azimuth Environmental Consulting Inc. (Azimuth) was retained by Pratt Development Inc. to complete an Environmental Impact Assessment (EIA) related to development proposed for the "Orsi lands" in the Town of Midland.

The Orsi lands cover approximately 17.5ha and are located between King and William Streets, and north of Highway 12 (Figure 1). The lands are located south of the Galloway lands which have been approved for residential development but are currently vacant. Past development of adjacent lands has routed surface water to the Galloway and Orsi lands. The Galloway lands receive surface runoff from point sources associated with King Street to the west, a SWM Pond to the north located adjacent to Park Ave., discharge pipes south of Christine Drive and associated with Pratt Ave. from the north. A number of drainage ditches have been constructed on the Galloway lands. These convey surface water to a drainage feature located on the Orsi lands that discharges to the east, ultimately to the Wye River. Therefore, the Orsi lands are instrumental in managing uncontrolled and untreated surface water derived from various adjacent lands.

A Terms of Reference for the EIA was established in consultation with the Severn Sound Environmental Association (SSEA) and Town of Midland (Appendix A). The objective of the EIA was to determine if the Orsi or adjacent lands provided significant natural heritage features, including fish habitat and/or habitat of Species at Risk (SAR) protected under the *Fisheries Act* and Ontario's *Endangered Species Act*, 2007 (ESA), respectively. Specific studies were conducted to address SAR and define the nature of flows conveyed through the Orsi lands – i.e., relative contributions of surface and ground water, function as fish habitat.

The following report assesses the potential for development proposed for the Orsi lands, which focuses largely on surface water management to remediate uncontrolled drainage from adjacent lands, to impact significant natural heritage features and functions.

2.0 PLANNING CONTEXT

2.1 Provincial Policy Statement

The Provincial Policy Statement (PPS 2020) outlines policies related to natural heritage features (Section 2.1). Ontario's *Planning Act*, 1990 requires that planning decisions be consistent with the PPS. According to the PPS, development and site alteration shall not be permitted in:

- *Significant wetlands* in Ecoregions 5E, 6E and 7E; and

- *Significant coastal wetlands*.

Similarly, Section 2.1.5 of the PPS states that, unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions, development and site alteration shall not be permitted within:

a) *significant wetlands* in the Canadian Shield north of Ecoregions 5E, 6E; and 7E;
b) *significant woodlands* in Ecoregions 6E; and 7E;
c) *significant valleylands* in Ecoregions 6E; and 7E;
d) *significant wildlife habitat*;
e) *significant areas of natural and scientific interest*; and
f) *coastal wetlands* in Ecoregions 5E, 6E; and 7E that are not subject to policy 2.1.4(b)

It is ultimately the responsibility of the Province and/or the Municipality to designate areas identified within Section 2.1.4 and 2.1.5 of the PPS as 'significant'. The Natural Heritage Reference Manual (OMNR 2010) and Significant Wildlife Habitat (SWH) assessment guidelines for Ecoregion 6E (MNRF 2015) were used to identify SWH functions attributable to the subject and adjacent lands.

Section 2.1.6 of the PPS indicates that development and site alteration is not permitted in fish habitat except in accordance with federal and provincial requirements.

Section 2.1.7 of the PPS indicates that development and site alteration shall not be permitted in habitat of Threatened and Endangered species, except in accordance with provincial and federal requirements.

Furthermore, under Section 2.1.8 of the PPS, no development and site alteration will be permitted on lands adjacent to natural heritage features and areas identified in policies 2.1.4, 2.1.5 and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated there will be no negative impacts on the natural features and ecological functions.

2.2 Endangered Species Act

Ontario's *Endangered Species Act*, 2007 (ESA) provides regulatory protection to Endangered and Threatened species prohibiting harassment, harm and/or killing of individuals and destruction of their habitats. Habitat is broadly characterized within the ESA as the area prescribed by a regulation as the habitat of the species or an area on which the species depends, directly or indirectly, to carry on its life processes including reproduction, rearing of young, hibernation, migration or feeding.

The various schedules of the ESA included under Ontario Regulation (O. Reg.) 230/08 identify SAR in Ontario. These include species listed as Extirpated, Endangered, Threatened and Special Concern. As noted above, only species listed as Endangered and Threatened receive protection from harm and destruction to habitat on which they depend. Species designated as Special Concern are considered under the SWH provisions of the PPS.

2.3 Fisheries Act

On August 28, 2019, provisions of a modernized/ new *Fisheries Act* came into force that included new protections for fish and fish habitat in the form of standards, codes of practice, and guidelines for projects near water. The new *Fisheries Act* provides protection against the 'death of fish, other than by fishing', (Section 34.4(1)) and the 'harmful alteration, disruption or destruction of fish habitat', (Section 35(1)), otherwise known as HADD.

If death of fish, and/or HADD is likely to result from a project, the project will require an authorization from the Minister of Fisheries, Oceans and the Canadian Coast Guard as per Paragraph 34.4(2)(b) or 35(2)(b) of the *Fisheries Act Regulations*. The fish and fish habitat protection provisions of the *Fisheries Act* are documented in the Fish and Fish Habitat Protection Policy Statement (PDF), which outlines how the Department will implement these provisions. This process of fisheries review is currently being revised as Fisheries and Oceans Canada (DFO) unveils codes of practice, and further details as to how the new *Act* is to be implemented. Projects that take place near or in water that have the potential to impact fish and fish habitat after taking measures to avoid and mitigate impacts, require DFO submission and review.

3.0 STUDY APPROACH

The following work was completed to define existing conditions of the property and adjacent lands:

- Submitted an Information Request to MNRF Midhurst District (September 6, 2018) seeking input re: SAR and fish species/thermal regime (Appendix B);
- Acquired background natural heritage information fort the property and adjacent lands from online sources (Appendix C);
- Reviewed natural heritage studies completed for the town of Midland by the SSEA (2009) and Plan B Consulting (2017);
- Completed drainage feature assessments of the Orsi and adjacent lands on: April 27, June 13, June 21 and July 6, 2018, & April 29, May 3, June 6, July 12, August 12, August 16, August 20, August 21, September 23, and November 8, 2019;

- Completed bat related studies (snag tree assessment [leaf-off condition 2018], acoustic monitoring [June 2018]) on the Orsi and Galloway lands to assess habitat function for Endangered bats and Bat Maternity Colony Habitat;
- Completed evening calling amphibian surveys following the methods of the Marsh Monitoring Program (2008) – May 3, May 23, and June 26, 2018;
- Completed visual encounter surveys for snakes and other reptiles (turtles) on April 23, April 27, June 13, June 21, August 1 and September 11, 2018;
- Completed dawn breeding bird surveys following the methods of the Ontario Breeding Bird Atlas (2001) on June 13 and June 21, 2018;
- Completed nocturnal bird surveys over three evening during the breeding season coinciding with early and mid-season timing windows of the Ontario Whip-poor-will protocol on May 23, June 26 and June 29, 2018;
- Completed fish sampling under MNRF licence to collect fish for scientific purposes #1092746 issued by MNRF Midhurst District on May 3, 2019;
- Classified vegetation communities according to the methods of the Ecological Land Classification (ELC) system for southern Ontario (Lee *et al*. 1998 with 2008 update);
- Compiled lists of vascular plants by vegetation community based on reconnaissance surveys completed on June 13, August 1 and September 11, 2018;
- Completed a SAR assessment (January 19, 2019) and submitted the report to the MECP for review and comment (Appendix G);
- Completed a Stream Flow Assessment (July 27, 2020 - Appendix D); and,
- Completed a Significant Wildlife Habitat assessment according to the MNRF's Ecoregion 6E Criterion Schedule (MNRF 2015).

Species at Risk (SAR) are considered those species listed as Extirpated, Endangered, Threatened or as Special Concern on Schedules 1-4 of Ontario's *Endangered Species Act*, 2007 (ESA) – i.e., the SAR in Ontario list (https://www.ontario.ca/laws/regulation/080230). Rare plants and animals are considered to be those assigned a Sub-nation Rank (S rank) in Ontario of S1, S2 S3 or SH by the Natural Heritage Information Centre (NHIC) and/or NatureServe. Rare vegetation communities are considered as those listed as rare in the Ecoregion 6E Significant Wildlife Habitat (SWH) criterion schedule (MNRF 2015) and those assigned an S rank in Ontario of S1, S2 or S3 as per Appendix J of the SWH Technical Guide 2000 (MNR 2000) and the NHIC's ONTARIO_PLANT_COMMUNITY_LIST (accessed on-line July 8, 2020). Provincial conservation ranks assigned to all species detected are reported in tables and text.

Staff collecting field data for this project included: Brad Baker (H. B.Sc., Terrestrial Ecologist), Jim Broadfoot (H. B.Sc. [Wildl. Bio.], Terrestrial Ecologist); Stephanie

Casutt (H. Bes., Terrestrial Ecologist), David D'Entremont (H. B.Sc., Terrestrial Ecologist), Mike Gillespie (B.Sc.Env., Fisheries Ecologist), Jennifer Millington (M.A.Sc. P.Geo, Hydrogeologist), Alexa Pompilio (H. B. Sc., Terrestrial Ecologist), and Jason Runtas (H. B.Sc., Ecologist).

4.0 EXISTING CONDITIONS

4.1 Land Use

The Orsi lands are vacant and vegetated throughout. Historic air photos (1954, Appendix C) indicate that the lands were open for the most part and historically farmed. Lands on the east side of the site contained woodland cover and scattered vegetation associated with fencerows. The linear drainage ditch that enters the Orsi lands from lands west of Brandon Street was evident as a farm drain in 1954. The eastern portion of the property contains buried services – municipal sewer and water aligned in north/south and east/west directions.

The Orsi lands are bordered to the north by an access road (single lane, dirt surface, poorly maintained) linking Brandon Street to William Street and a sanitary sewer line. Adjacent lands to the north contain the approved Galloway residential subdivision (currently vacant lands), a storage facility and hydro building. Lands to the east contain residential, commercial and industrial development associated with William Street. The southeast section of the property abuts a woodland unit located northwest of the Highway 12 and William Street intersection. Adjacent lands to the south contain commercial and industrial development. The property is bordered on the west by Brandon Street. Adjacent lands to the west contain industrial development, vacant vegetated lands and a municipal soccer pitch.

4.2 Background Mapping

Background mapping indicates that the Orsi lands are located approximately 400m from the nearest mapped significant natural heritage feature – Wye Marsh Provincially Significant Wetland Unit (TA2) (Appendix C). MNR Unevaluated wetlands are identified on an eastern section of the property (Appendix C).

There are no significant ANSIs identified on or adjacent to the property (Appendix C).

As per Appendix C, Simcoe County identified four areas of woodland cover on the property.

A drainage feature is mapped by the County, province and Town of Midland on a portion of the eastern section of the property (Appendix C).

4.3 Topography & Soils

The lands are relatively flat and slope gently to the east – range in elevation 206 to 210 metres above sea level (masl). Lands to the north and west are elevated (approximately 220masl) and slope toward the Orsi lands.

Data provided by Terraprobe for 6 boreholes advanced on the Orsi lands revealed topsoil (10 to 15cm) over deposits of sands, silts, clays (and in some areas fill deposits of mixed sand/gravel/topsoil) of variable compositions within the upper surface of the profile (to depths of 1.5 to 2.3m below ground surface). These materials were deposited over glacial till composed mainly of sandy silt with some gravel, cobble and boulder inclusions.

4.4 Drainage

Background mapping depicts a drainage feature on the Orsi lands that begins mid-property and drains eastward toward William Street forming part of a tributary to the Wye River that is located approximately 900m to the east (Appendix C).

The results of field studies revealed surface drainage directed toward the Orsi lands from the north and west as diffuse overland flow and as conveyed via numerous drainage ditches that lead to the Orsi lands as shown on Figure 2. Main point sources of drainage directed toward the Orsi lands include: culvert directing drainage associated with King Street discharging to the Galloway lands (Photo 1); Park Ave. SWM pond discharging to the Galloway lands (Photo 2); culvert discharging to the Galloway lands south of intersection of Christine Dr. and Maxwell Ave (Photo 3); culvert discharging to the Galloway lands beyond cul-de-sac of Pratt Ave. (Photo 4); and a linear ditch conveying flow onto the Orsi lands from west of Brandon Street (Photos 5a,b).

Drainage ditches on the Galloway lands (Photo 6) converge north of the Orsi lands directing flow through a culvert beneath the access road that abuts the north side of the Orsi lands and into the mapped reach of the drainage feature (Photos 7, 8a-d). The drainage feature conveys flow in a general south/southeastward direction toward William Street. The drainage feature traverses a woodland on the eastern side of the property (Photos 9a,b) before connecting with the western ditch of William Street (Photos 10a, b). The drainage feature displays natural characteristics within the woodlot (meanders, undercut banks, runs/pools, substrate includes cobble/bolder and downed woody debris, etc. Photo 9a). Outside of the woodland the drainage feature has characteristics consistent with channelization (U-shaped channel, relatively strait reaches/no meanders, silty sand substrate with little cobble/bolder or downed woody debris, etc. Photos 8a-d). Most of the drainage feature flowed through wooded lands and hence had riparian tree

and shrub cover providing shade. In-water/aquatic vegetation is lacking owing to the intermittent flow regime (extremes of wet to dry conditions throughout the growing season) and scouring during high flow events. Flow is conveyed under William Street through two culverts (diameter approx. 150cm each) and discharged to a drainage feature on adjacent lands (Photos 11a,b; 12).

Field observations in 2018 and 2019 indicated periods of continuous flow (Photos 8a, 8b, 9a), intermittent flow (dry reaches with isolated pools), and dry conditions throughout much of channel during summer (Photos 8c, 8d, 9b). Flow in much of the drainage feature was responsive to snow melt and heavy rainfall events. Flow within the downstream end of the drainage feature within woodland near William Street was continuous throughout the year but reduced to trickle flow outside of precipitation events (snow melt, heavy rainfalls). The results of stream flow assessment (Appendix D) indicated that the drainage feature for the most part conveys storm runoff from up gradient lands as per field observations. Monitoring indicated that the downstream reach of the drainage feature within woodland adjacent to William Street, where flow was observed throughout the year - is supplemented seasonally (spring and summer months) by baseflow at 2.0 L/s. This baseflow was not discharged as overland flow to the drainage feature downstream of William Street but rather infiltrated near/within the west ditch of William Street (Photo 10b).

Channel characteristics measured on July 6, 2018 were as follows:

- Channelized section of Orsi drainage feature (mid-property) – bankfull width = 2.5m, bankfull depth = 0.6m, wetted width = 0.6m, wetted depth = 0.04m; substrate silt, cobble, bolder, gravel; flow minor/discontinuous;
- Un-channelized reach within woodland adjacent to William Street - bankfull width = 2.45m, bankfull depth = 0.45m, wetted width = 1.6m,, wetted depth = 0.04m; substrate silt, clay, gravel/sand, cobble; flow minor continuous

Spot temperatures taken on July 26, 2018 (air temperature +22^{o}C) at 10 sites along the length of the drainage feature on the Orsi and adjacent Galloway lands averaged +19.9^{o}C (range 18.7 to 21.5,). Water temperature within un-channelized reach within woodland adjacent to William Street averaged 19.6^{o}C (range 19.4 – 19.8). Water temperature in the west ditch of William Street was 19.9^{o}C and in drainage feature downstream of the William Street culverts was 21.1 ^{o}C.

Field observations indicate that flows within the reach of the drainage feature downstream of William Street follow the same pattern as those observed on the Orsi lands – storm responsive with relatively high flows associated with snow melt and heavy rainfalls. As per Photo 12, the drainage feature downstream of William Street has a steep

gradient and during summer conditions, there is no indication of baseflow contribution (i.e., no trickle flow observed). We understand that the SSEA assumes that some reaches of the drainage feature downstream of William Street receive ground water contributions and hence display continuous flow throughout the year. It is unknown if or where these conditions exist downstream.

4.5 Vegetation

Vegetation communities were identified based on the methods of the Ecological Land Classification (ELC) system for southern Ontario (Lee *et al*. 1998 plus 2008 update) based on field data collected during the 2018 growing season (D. D'Entremont, A. Pompilio). Vascular plant surveys (roving) were completed on June 13 (J. Broadfoot), August 1 (D. D'Entremont, A. Pompilio) and September 11 (D. D'Entremont, 2018).

Table 1 provides a classification of vegetation communities identified on the Orsi lands plus a description of composition and age/stage of development of communities. Table 2 provides a list of vascular plant species reported by community and conservation rank information for each.

As per 1954 air photos (Appendix C), most of the vegetation communities of the Orsi and adjacent lands are young/successional having become established on farmland. Woodland cover was evident on the east side of the Orsi lands in 1954 and this is now a mature Dry - Fresh Sugar Maple - White Ash Deciduous Forest Type (FODM5-8). Much of the regeneration has involved spread of Scotch Pine and Glossy Buckthorn – both non-native plant species. Glossy Buckthorn is considered invasive by most conservation agencies, including the SSEA (https://www.severnsound.ca/programs-projects/wildlife-habitat/invasive_species). Scotch Pine is identified as problematic by the Ontario Invasive Plant Council (http://www.ontarioinvasiveplants.ca/wp-content/uploads/2016/07/OIPC_BMP_ScotsPine_FINAL_Mar292017_D4.pdf). Therefore, most of the Orsi lands contain non-native and invasive plant species – including wetlands as discussed in Section 5.3. The plant list for the Buckthorn Deciduous Shrub Thicket Type (THDM2-6) that dominated most of the northeastern portion of the property (Figure 2) contained a number of wetland plants (i.e., Coefficient of Wetness -4 and -5). This reflects localized wet conditions within the vegetation community associated with the linear ditch conveying flow onto the Orsi lands from west of Brandon Street (Photos 5a,b). The Sumac Deciduous Shrub Thicket (THDM2-1) occurs in the alignment of an existing sanitary sewer line extending to William Street.

None of the vegetation communities is a type listed as rare in Ecoregion 6E (MNRF 2015) and none is listed as provincially rare according to Appendix J of the Significant

Wildlife Habitat Technical Guide (MNR 2000) or the NHIC's plant community list (accessed on-line July 8, 2020).

As per Table 2, no Endangered, Threatened or Special Concern plant species were identified on or adjacent to the property. Black Ash (S3) was identified in one vegetation community - Fresh - Moist Green Ash - Hardwood Lowland Deciduous Forest Type (FODM7-2) (see Section 5.5 for further discussion).

Subsequent to completion of 2018 field studies to assess natural heritage features and related functions, including completion of a Species at Risk assessment that was reviewed and accepted by the province (Appendix G), vegetation was cleared from portions of the Orsi lands following consultation with the Town of Midland and the County of Simcoe (Appendix F). The limits of clearing are shown on Figure 2.

4.6 Wildlife

4.6.1 Amphibians

Evening calling amphibian surveys were completed on May 3, May 23, and June 26, 2018 according to the methods of the Marsh Monitoring Program (BSC *et al*. 2008). Four sampling stations were established in locations shown on Figure 2. As per the protocol, all species of calling amphibians detected during a three minute period were recorded and call intensity by species was estimated. Weather conditions during sampling are reported in Table 3a.

As per Table 3b two species were detected: Spring Peeper (S5); American Toad (S5). The distribution of calling amphibians (by species and highest level of Call Code over all three evenings) is shown on Figure 3.

Table 3a. Calling Amphibian Surveys – Observation Conditions, 2018

Date	Start Time/End Time	Air Temp.	Cloud Cover	Wind	Precip.	Observers
May 3	8:50p.m./9:30p.m.	+8 C	0%	B0	Nil	S. Casutt, B. Baker
May 23	9:35p.m./10:40p.m.	+12 C	<5%	B0	Nil	J. Broadfoot
June 26	11:30p.m./12:00a.m.	+16 C	50-80%	B0	Nil	J. Broadfoot

Table 3b. Results of Evening Calling Amphibian Surveys, 2018

Station	Date	Species (Call Code[1])	Comment
1	May 3	None	
	May 23	Spring Peeper (SPPE) (1-1)	
	June26	None	
2	May 3	SPPE (2-10)	Area of drainage feature convergence on Galloway lands plus 1 calling from small wetland unit on east side of Orsi lands/adjacent lands.
	May 23	SPPE (2-3), American Toad (AMTO) (1-2)	Area of drainage feature convergence on Galloway lands
	June 26	None	
3	May 3	None	
	May 23	SPPE (2-4)	Adjacent land west of Brandon Street
	June 26	None	
4	May 3	SPPE (3)	Manmade pond on adjacent lands to south in industrial area
	May 23	SPPE (2-4), AMTO (1-1)	Area of drainage feature convergence on Galloway lands
	June 26	None	

[1]*Call Code: 1-#, non-overlapping calls-number of individuals; Call Code 2-#, overlapping calls-estimate of number of individuals, Call Code 3, full chorus of overlapping calls numbers could not be estimated*

Figure 3. Distribution of calling amphibians on and adjacent to the Orsi lands 2018 (species and highest level of call intensity).

Northern Green Frog (S5) were observed in puddles associated with the access road along the north side of the Orsi lands during summer 2018.

4.6.2 Reptiles

Visual encounter surveys for snakes and turtles were completed on April 23, April 27, June 13, June 21, August 1 and September 11, 2018. Surveys were completed under conditions reported in Table 4 below. Roving ground searches were completed throughout the Orsi lands with extra effort expended to investigate habitats of particular value to reptiles (around wetlands/drainage features, in areas of potential hiding cover - rock piles, wood/limber piles, etc.). Observers were vigilant for evidence of snakes in the form of shed skins and turtle nesting (predated and/or hatched out nests with egg shells at surface).

Table 4. Visual Encounter Surveys, Observation Conditions – Reptiles, 2018

Date	Air Temp. (°C)	Wind (Beaufort)	Cloud Cover	Precip.	Time of Day	Observer
April 23	8	B1 south	<5%	Nil	Morning	J. Broadfoot
April 27	5	B0	5%	Nil	Mid-day	J. Broadfoot
June 13	22	B0-B2 southwest	100%	Nil	Morning	J. Broadfoot
June 21	15	B3 northwest	40%	Nil	Morning	J. Broadfoot
August 1	24	B2 west	20-40%	Nil	Morning	D. D'Entremont
September 11	19	B2 east	80-100%	Nil	Mid-day	D. D'Entremont

No snakes or turtles were observed. No evidence of turtle nesting was observed.

4.6.3 Birds

Dawn Bird Survey

Dawn breeding bird surveys were completed on June 13 and June 21, 2018. Surveys were completed as combined roving and point count surveys following the methods of the Ontario Breeding Bird Atlas program (OBBA 2001). Eight point count stations were established in locations shown on Figure 2. Point count survey duration was five minutes per station. All birds seen or heard while conducting point counts and while travelling between point count stations were recorded by species and assigned a breeding evidence code as per the OBBA (2001). Data were used to assign breeding evidence to the Orsi lands by species – none/observed, possible, probable or confirmed based on OBBA criteria. Observation conditions are reported in Table 5.

Table 5 provides a list of the 23 species of birds observed. All species observed showed evidence of breeding on the Orsi lands. American Woodcock (displaying male) was observed on-site the evening of May 3, 2018 and hence this species possibly breeds on the Orsi lands as well. None of the species is a SAR in Ontario and none is considered provincially rare.

Nocturnal Bird Survey

Nocturnal bird surveys were completed in association with full moon cycles during the breeding season on May 23, June 26 and June 29, 2018 following guidelines of the Eastern Whip-poor-will roadside survey in Ontario (BSC 2014) and recommended surveys windows for 2018. Two point count stations were established to provide full coverage of the subject and adjacent lands as shown on Figure 2. Table 6 provides a summary of observation conditions.

Table 6. Summary of Observation Conditions, Nocturnal Bird Surveys, 2018

Survey Window[1]	Full Moon Date	Preferred Timing[1]	Survey Date	Start Time	Weather Conditions	Observer
Early Window (good, early breeding season)	29 May	21 May – 29 May	23 May	9:35p.m.	Air Temp. +12C, Wind B0, Cloud Cover <5%, Precip. Nil., Moon – high, bright, central	J Broadfoot
Mid-season Window (good, mid-breeding season)	28 June	20 June – 28 June	26 June	11:40p.m.	Air Temp. +17C, Wind B0, Cloud Cover 50%, Precip. Nil., Moon – high, central	J Broadfoot
Mid-season Window (good, mid-breeding season)	28 June	20 June – 28 June	29 June	1:55a.m.	Air Temp. +18C, Wind B0-B2 west, Cloud Cover <5%, Precip. Nil., Moon – high, bright, central	J Broadfoot

[1]*As per guidelines of the Eastern Whip-poor-will roadside survey in Ontario*

No Eastern Whip-poor-will or Common Nighthawk were detected. Note: a "control site" near Orr Lake was sampled on all three evening to confirm active calling by Eastern Whip-poor-will under the observation conditions of all three surveys. Eastern Whip-poor-will were calling actively at Orr Lake at the time of all three surveys.

4.6.4 Mammals

Bats

Given that mature woodland cover occurred on the property, Azimuth completed snag density surveys within areas of mature woodland cover following the plot based sampling method of the MNRF's Technical Note Species at Risk Bats protocol (see Appendix G for snag survey plot locations). Data were collected under leaf-off conditions on April 27 and 28, 2018 (S. Casutt, A. Pompilio). Data revealed that mature woodland cover of the Orsi Lands provided > 10 snag trees/ha – the threshold density the MNRF considers woodlands to have potential function as summer/maternity roost habitat.

As woodlands provided > 10 snag trees/ha (i.e., trees having diameter at breast height > 25cm with cavities, peeling bark or other suitable cover elements for bats) Azimuth deployed four acoustic monitors in locations shown in Appendix G over a 10 day period (June 1 – June 11, 2018; S. Casutt, B. Baker) to sample for bats utilizing woodlands of the Orsi and adjacent lands. The monitors were installed in in proximity to clusters of high quality snag trees where bat activity would be concentrated.

The results of acoustic monitoring on the Orsi lands (Appendix G – monitors SM5714, SM5170) revealed 156 recordings per monitor over the 10 day sampling period – 15.6 passes/evening/monitor. Similarity in counts by species and time among the monitors indicate that both monitors were recording passes by the same bats. Most passes (95%) were by Big Brown Bat (S4). Other species included Little Brown Myotis (Endangered) and Hoary Bat (S4). The time series of passes revealed greatest activity between midnight and 2:00a.m. There was no indication in the time series in a burst of activity at dusk indicative of bats leaving maternity roosts to forage, no sign of repeated steady travel throughout the night indicative of forays to-from maternity roosts to feed young and no sign of an increase in bat activity near dawn when bats would be returning to roost habitat for the day. Therefore, monitoring data indicate no bat maternity roost function attributable to woodlands of the Orsi or adjacent lands.

Acoustic monitoring data for the Orsi and adjacent Galloway lands were provided to the MECP as part of a SAR assessment for its review and comment. The MECP agreed with Azimuth's conclusion that the Orsi and Galloway lands do not function as habitat of Endangered or Threatened species (including bats). The MECP advised that tree removals should be completed between October 15 and April 1 to avoid impacts to bats (Appendix G).

Others

The following mammals were observed/detected (tracks, scats, etc.) on and adjacent to the Orsi lands: Coyote (S5), Northern Raccoon (S5), Gray Squirrel (S5), Red Squirrel (S5), Eastern Chipmunk (S5), Eastern Cottontail (S5), and Striped Skunk (S5).

4.7 Fisheries

No fish were observed in any reaches of drainage features located on or adjacent to the Orsi lands during multiple site-visits completed in 2018. Fish sampling on the Orsi lands on May 13, 2019 (Smith-Root backpack electrofisher, 150 V, 60Hz, 1,352 sampling seconds, M. Gillespie, J. Runtas) resulted in no fish captures or observations of fish. Therefore, the drainage features do not function as direct fish habitat and hence do not provide critical habitats for fish – spawning, nursery or rearing habitat. The results of Azimuth's stream assessment (Appendix D) indicated that the groundwater contributions to the downstream end of the drainage feature within woodland habitat west of William St. are seasonal, minor and do not provide a meaningful contribution to flow within this channel relative to the surface water conveyance from upstream lands. Studies indicate that the ground water discharge/baseflow within the woodland reach is not conveyed as overland flow to the drainage feature downstream of William Street (this trickle flow infiltrates within the west ditch of William Street). Water temperature at downstream end

of William Street culverts was relatively warm (21.1^{o}C) indicating no ground water inputs.

The culverts under William Street are perched at their outlets by over 50cm. As per Photo 12 the reach of the drainage feature immediately downstream of William St. has a very steep gradient. The combination of steep gradient and perched culvert condition presents barriers to fish movement upstream of William St. Given that reaches of the drainage feature located further downstream are crossed by roads and a rail line, there may be additional barriers to fish passage further down the system.

5.0 BIOPHYSICAL ASSESSMENT

5.1 Drainage Features/Fisheries

The results of stream assessments and fish sampling indicate that the drainage features of the subject lands does not function as direct fish habitat and is inaccessible to fish from downstream reaches of the drainage feature or the Wye River (a key aquatic habitat feature). Therefore, the drainage features of the Orsi lands are not productive aquatic habitat as they do not function as spawning, feeding or nursery habitat or as a migratory corridor supporting a wide variety of species. Instead, they function as indirect habitat conveying surface water periodically to direct fish habitat located an undetermined distance downstream.

5.2 Valleylands

Table 8-1 of the NHRM (MNR 2010) provides criteria and standards for the identification of significant valleylands. The Town's Official Plan does not provide criteria or mapping of significant valleylands.

According to provincial criteria, significant valleylands are those having landform prominence and distinctive geomorphic landforms (large [average width 25m or more], well-defined valleys containing watercourses having defined floodplains, meander belts, oxbows, deltas, exposed soil strata or eroding slopes, etc.). As per Photos 9a, b the reach of the drainage feature within the woodland on the east side of the Orsi lands in the vicinity of William St. conveys water for at least two months of the year (surface water function) but the banks of the drainage feature are not prominent and do not provided any of the geomorphic features listed in the criteria. Lands west of the woodland are uniformly flat. The Orsi lands do not contain significant valleylands.

5.3 Wetlands

Field studies indicate that the area of unevaluated wetland depicted on the east side of property on background mapping is not wetland. However, two areas of wetland were identified as shown on Figure 2. Both are small (i.e., below the 0.5ha size threshold deemed feasible for mapping under the ELC system and Ontario Wetland Evaluation System [OWES]) and have characteristics of cattail mineral meadow marsh with margins of mineral thicket swamp.

According to the OWES (Southern Manual, 3rd Ed V 3.3 - MNRF 2014), in general, wetlands smaller than 2 ha are not evaluated. However, wetlands smaller than 2ha can be evaluated provided there is rational to do so based on provision of important ecological benefits, examples of which include: a grassy area used by spawning pike; an area containing a community or specimen of a rare or unusual plant species; a seepage area in which a regionally or provincially significant plant or animal species is found; or a wetland which strengthens a corridor link between larger wetlands or natural areas.

The eastern wetland unit is located along the boundary of the Orsi lands adjacent to an existing industrial/commercial lot that fronts onto William Street. The unit is approximately 0.26ha in size and is composed of Cattail Graminoid Mineral Meadow Marsh Type (MAMM1-2 = 0.17a) and Non-native Mineral Deciduous Thicket Swamp Type (SWTM5-8 = 0.09ha). Approximately half of the eastern wetland unit is located on adjacent land in an area influenced by existing commercial/industrial development. Field studies attributed no SWH functions or important ecological benefits including habitat linkage function, to this wetland unit. No SAR plants or animals were observed within or adjacent to the wetland. This wetland unit does not have characteristics or functions amenable to evaluation according to provincial methods and is below provincial thresholds for mapping.

The western wetland unit was located adjacent to Brandon St. and received surface water inputs from the linear drainage ditch that enters the Orsi lands via a culvert. The unit was approximately 0.11ha in size and was composed of Cattail Graminoid Mineral Meadow Marsh Type (MAMM1-2). Field studies attributed no SWH functions or important ecological benefits including habitat linkage function, to this wetland unit. No SAR plants or animals were observed within or adjacent to the wetland. This wetland unit does not have characteristics or functions amenable to evaluation according to provincial methods and is below provincial thresholds for mapping.

Therefore, the wetland units of the Orsi and adjacent lands would not be considered significant according to provincial criteria.

5.4 Woodlands

The Natural Heritage Reference Manual provides criteria for the identification of significant woodlands (MNR 2010) as did the Town of Midland in its Natural Heritage System methodology and approach (PlanB 2017). Woodland size criteria is specified in both. Provincial criteria link significant size to amount of woodland cover in the planning area/landscape. Town criteria specify woodland size thresholds based on predominant land use of the area: urban – woodlands > 20ha, rural – woodlands > 50ha.

PlanB (2017 – Figure 2) mapped Woodlands on the Orsi and adjacent lands. Much of the area delineated was thicket habitat and not woodland. By Azimuth's delineation based on air photo-interpretation and on-site vegetation community mapping, there were three woodland patches associated with the property and adjacent lands in 2018 as shown on mapping in Appendix H. These patches measured 2.3ha, 6.3ha and 2.4ha. The Orsi and adjacent lands occur in the "settlement area" of the Town of Midland (Plan B 2017 – Figure 7a) and hence woodlands are considered settlement woodland.

5.4.1 Provincial Criteria

According to PlanB (2017) the Midland settlement area covers 2,371ha and contains 583ha of woodland cover = 25% woodland cover. Provincial criteria (NHRM Table 7-2) indicate that in landscapes containing 25% woodland cover, woodlands over 20ha in size should be considered significant. None of the woodlands of the Orsi lands approach this size limit individually or in combination. The woodlands do not provide interior habitat, are not located within 30m of a significant natural feature, direct fish habitat, or within a sensitive headwater area. The woodlands are not topographically diverse, do not provide linkage function to adjacent natural heritage features, do not contain uncommon or declining native forest species, and don't provide economic or societal value. Therefore, the woodlands are not significant according to provincial criteria.

5.4.2 Town Criteria

All woodland units are smaller than the Town's 20ha urban size threshold for significance. Field studies indicate that the woodlands do not function as habitat for SAR plants or animals. Therefore, the woodlands are not significant according to municipal criteria.

5.5 Significant Wildlife Habitat

Table 7 provides an assessment of SHW functions according to the MNRF's criterion schedule for Ecoregion 6E (MNRF 2015).

As per Table 2, Black Ash (S3) was identified on the Orsi lands in vegetation community FODM7-2 and hence the Orsi lands provided habitat for a provincially rare (i.e., S1-S3 & SH) plant species. Black Ash was assigned the sub-national rank S3 by the NHIC in December 2018. The global rank for this species is listed as G5 – Secure. The NHIC indicates that the species is "*Widespread in southern and central Ontario, but declining due to Emerald Ash Borer. Ash trees are being decimated in southern Ontario by Emerald Ash Borer, which is now has populations throughout most of southern Ontario south of the Precambrian Shield as well as in Sault Ste. Marie and is likely to continue to expand its range and kill* Fraxinus *species.* Fraxinus nigra *is perhaps less likely to be adversely affected than other Ontario ash species since it ranges further north, well beyond the current range of Emerald Ash Borer*." Ash species, including Black Ash are being cut/recommended to cut in municipalities throughout southern Ontario, the Town of Midland included (Town of Midland, Urban Forests – Emerald Ash Borer Information https://www.midland.ca/urban-forest), in an effort to control the spread of Emerald Ash Borer and to remove dead and dying trees before they become falling hazards. Therefore, given that the conservation issue related to Black Ash is not habitat related, and efforts are underway to remove ash from the landscape – it is not logical to identify Significant Wildlife Habitat with respect to this species. Note: in keeping with our assessment in Section 5.4 that the woodlands do not contain uncommon or declining native forest species.

There are no Significant Wildlife Habitat functions attributable to the Orsi or adjacent lands.

5.6 Species at Risk

The results of Azimuth's SAR assessment (Appendix G) were accepted by the province (MECP) – no individuals or habitat of Endangered or Threatened species identified on or adjacent to the property.

5.7 Summary - Natural Heritage Features & Functions

The results of field studies and assessment of natural heritage features and functions according to provincial and municipal criteria identified the drainage feature as the only feature of significance located on or adjacent to the property – mapped watercourse (in part), intermittent surface water conveyance function, indirect fish habitat.

6.0 PROPOSED DEVELOPMENT

A Draft Plan of Subdivision (industrial) has been prepared for the Orsi lands by MHBC (Appendix I). The Draft Plan includes 19 industrial lots configures around a centrally placed SWM Pond (Block 21). Lots are proposed to be accessed from Streets 'A' and

'B'. Street 'A' is aligned at William Street to match the existing Coral Springs Lane intersection. Streets 'A' and 'B' both connect with Brandon Street to the west.

The proposed industrial lots would be serviced through connection to existing municipal water and sanitary sewer.

As per the Galloway FSR (Jones 2020), the SWM Pond on the Orsi lands has been designed as a hybrid wet pond/dry pond to provide quality and quantity control for existing upstream development, in addition to the proposed Pratt – Galloway Development. The Orsi Draft Plan also includes a SWM By-pass channel aligned along the western and southern sections of the property (SWM By-pass Easement). The SWM By-pass channel mainly collects drainage from external lands associated with King Street and conveys drainage directly to the William Street roadside ditch (Jones 2020)

The SWM Pond has been sized to accommodate flows from the approved Galloway residential lands receiving surface water collected from storm drains that convey flows to an inlet channel proposed between lots 10 and 11 (Block 22). The pond is designed to control quantity and quality. Quality control is designed to meet MECP enhanced level. The pond design includes a clearstone infiltration gallery located at the west limit of the SWM facility dry cell to promote infiltration in the post development condition (Jones 2020). This feature is included as mitigation to achieve a pre to post-development water balance for the Galloway residential and Orsi industrial developments. The SWM pond outlets to the east into a channel designed to convey the combined flows of the SWM pond and SWM By-pass channel (channel conveying King Street flows). The outlet channel is to be constructed as an open grassed ditch. A sub-drain is proposed within the outlet channel (i.e., pervious rock) to promote infiltration and reduce standing water in the ditch during low flow conditions.

As per the draft plan, a SWM By-pass channel is proposed to convey flows from King Street/lands west of Brandon Street along the western and southern limits of the Orsi lands to converge with the SWM Pond outlet channel described above. According to Jones Consulting (Jon Ingram, personal communications) the outlet channel is to be constructed as an open grassed ditch. A sub-drain is proposed within the outlet channel (i.e., pervious rock) to promote infiltration and reduce standing water in the ditch during low flow conditions. Culverts are required along the SWM By-pass channel to construct Streets 'A' and 'B' and driveway access to Lot 19.

The combined SWM Pond outlet and SWM By-pass channel flows are proposed to be discharged to the west ditch of William Street. From there flows would be conveyed

under William Street through existing double culverts and eastward along an existing mapped watercourse toward the Wye River.

The proposed development requires grading and filling of all of the Orsi lands to achieve grades necessary for the function of the SWM Pond and SWM By-pass channel.

7.0 IMPACT ASSESMENT

7.1 Terrestrial Features

As per Figure 4, the proposed development involves clearing and grading of all of the Orsi lands to manage surface waters derived primarily from offsite (i.e., Galloway lands [vacant, residential approved], King Street and developed lands associated with Christine Dr., Pratt Ave., Frazer Dr. to the north) and establish industrial lots. The results of background data review, multi-season/year field studies and assessment of natural heritage features and functions attributable to the property and adjacent lands revealed no significance attributable to terrestrial and wetland vegetation communities of the Orsi and adjacent lands. Therefore, the loss of existing vegetation communities does not represent a negative impact to significant natural heritage features and functions – including habitat of Endangered and Threatened species. Hence, there are no buffer requirements related to protection of significant habitat or ecological functions of adjacent lands and no requirements for a management/monitoring plan to avoid or minimize impacts to critical natural heritage features and ecological functions during or following construction as none were evident. The proposed development creates new woodland edges to construct the SWM By-pass channel associated with Lots 1-4 and adjacent to the existing industrial development adjacent to Lot 19, as well as on the west and east sides of Lot 19 (Figure 4). Therefore, we recommend that following approval and advancement of engineering plans (grading, etc.) an edge management plan is prepared to evaluate opportunities for tree protection (assumed limited) and to identify hazard trees for removal.

7.2 Aquatic Features

As per Section 5.1, the results of stream assessments and fish sampling indicate that the drainage features of the subject lands are not productive aquatic habitat as they do not function as spawning, feeding or nursery habitat or as a migratory corridor supporting a wide variety of species – i.e., not direct fish habitat. However, the drainage features of the Orsi lands function as indirect fish habitat as surface water is conveyed to direct fish habitat downstream of William Street. Therefore, the development team considered a variety of approaches to managing the drainage features of the Orsi lands given the following objectives:

- control quantity and quality of uncontrolled surface water conveyed to the Orsi lands from existing residential development to the north and from the residential development approved for the adjacent Galloway lands;
- convey surface water derived from King Street and lands west of Brandon Street through the Orsi lands;
- maintain the conveyance function of drainage features of the Orsi lands to downstream reaches of the mapped watercourse east of William Street (intermittent surface water flows and minor trickle flow in the reach of the Orsi drainage feature within the woodland west of William Street);
- align Street 'A' with the existing Coral Springs Lane intersection at William Street; and,
- retain the un-channelized reach of the Orsi land drainage feature within the woodland adjacent to William Street.

The proposed development satisfies the first four objectives through the approach to surface water management utilizing a SWM pond sized to provide quality and quantity control of surface water derived from the Galloway subdivision, and by establishing a SWM By-pass channel around/through the Orsi lands and outlet channel from the SWM Pond that discharges to the drainage feature downstream of William Street (same ultimate receiver of these surface flows as under pre-development conditions) (Jones 2020). The proposed development includes an infiltration gallery in the SWM Pond berm and sub-drains in the SWM Outlet/SWM By-pass that effectively balance pre-to-post infiltration maintaining ground water contributions to local water table/aquifer (Azimuth 2020). The SWM Pond and SWM By-pass channels will convey water in an intermittent fashion to downstream reaches of mapped watercourse following the same pattern as under current conditions (i.e., snow melt/storm responsive). The sub-drain proposed in the SWM Pond outlet/SWM By-pass channel in proximity to William Street allows for infiltration emulating the conditions observed in the un-channelized reach of the watercourse in this area by which trickle flow (minor ground water contributions) infiltrate in the west ditch of William Street (i.e., these minor shallow ground water flows are not conveyed at surface to downstream watercourse reaches). Therefore, conveyance functions are maintained within the proposed Orsi development/approach to storm water management.

The draft plan establishes an alignment of Street 'A' with the Coral Springs Lane intersection. As per Figure 4, in doing so avoidance of the un-channelized section of the drainage feature is not possible. Since the woodland associated with this reach of the drainage feature was: assessed as non-significant according to provincial and municipal criteria; provided no significant natural heritage functions; and the drainage feature does not function as productive aquatic habitat/direct fish habitat – the woodland and drainage feature alignment were not constraining from natural heritage/fish habitat perspectives.

Regardless, options were considered in the engineering design to retain this reach of the drainage feature using it as the outlet for the combined SWM Pond/SWM By-pass flows or by retaining it and creating a parallel open channel discharging toward William Street - with design elements to supply the reach with a portion of the discharge water. Given that the reach would have to be re-aligned to accommodate the Street 'A', that neither the reach or associated riparian woodland provided significant natural heritage or aquatic habitat functions, and that conveyance functions to downstream reaches could be emulated in the proposed development/approach to surface water management, it was decided to adopt the engineered outlet channel alternative. Given the engineering requirements involved in managing the uncontrolled storm water conveyed to the Orsi lands, the requirement to treat those waters before discharging to downstream aquatic habitat, and the need to promote on-site infiltration to achieve water balance - it was deemed not feasible to enhance or restore the drainage features of the Orsi lands through natural channel design, buffer plantings, etc.

The proposed development includes an approach to surface water management that addresses uncontrolled drainage related to King Street and adjacent commercial and residential developments consistent with the objectives of Section 4.1.3 of the Severn Sound Remedial Action Plan (Stage 2 Report, April 1993) – "all new development proposals should include a plan for managing storm water during construction and after construction". In doing so, the proposed development manages flow volume and improves the quality of water discharged to downstream aquatic habitat – an improvement to existing conditions. The proposed development balances pre- to post-development infiltration and hence there will be no disruption of the ground water regime.

8.0 RECOMMENDATIONS

- Submit a request for review to the DFO related to works impacting drainage features of the ORSI lands;
- Following approval, prepare and edge management plan to identify opportunities for tree retention and to identify hazard trees for removal (arborist report);
- Clear vegetation between October 15 and April 1 as per the MECP's direction provided in the context of this development;
- Within the landscape design for the industrial subdivision/SWM Pond/SWM By-pass channel, etc. - utilize native, non-invasive plant species (trees, shrubs, seed mixes) to the extent possible given design constraints;
- As part of the engineering design, develop a sediment and Erosion Control Plan (ECP) employing best management practices and according to municipal requirements. The ECP should include details related to monitoring to ensure that

the development does not discharge deleterious substances to environmental features of adjacent lands during and following construction;

- Apply best management practices for construction vehicle refueling, maintenance and marshalling to protect surface and ground water from potential release of deleterious substances.

9.0 CONCLUSIONS

The natural features and ecological functions of the Orsi and adjacent lands have been evaluated to inform decisions concerning the proposed development. The results of this EIA indicate that the proposed development can be achieved with no negative impacts to significant natural heritage features and functions – including individuals and habitat of Endangered and Threatened species consistent with Section 2.1 of the PPS and Ontario's ESA. The proposed alteration of drainage features of the Orsi lands does not impact productive aquatic habitat/direct fish habitat and maintains conveyance function emulating existing conditions. The proposed development manages flow volume and improves the quality of water discharged to downstream aquatic habitat – an improvement to existing conditions. The proposed development balances pre- to post-development infiltration maintaining the ground water regime.

10.0 REFERENCES

Azimuth. 2020. Preliminary Hydrogeological Assessment 16533 Highway 12, Town of Midland, Ontario, Pratt-Galloway/Orsi Subdivision. Prepared for Pratt Development Inc. AEC 16-143.

Bird Studies Canada. 2008. Marsh monitoring program participant's handbook for surveying amphibians. Bird Studies Canada, Environment Canada, United States Environmental Protection Agency. 13pp.

Jones Consulting. 2020. Preliminary Servicing & Stormwater Management Report, Pratt-Galloway Subdivision. Prepared for Pratt Development Inc. July 2020. PRA-16084 (70). 182 pp + engineering drawings.

Lee, H., W. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig, and S. McMurray. 1998. Ecological Land Classification for Southern Ontario: First Approximation and its Application. Ontario Ministry of Natural Resource. Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02. 225pp. + 2008 Update.

MNRF. 2014. Ontario Wetland Evaluation System, Southern Manual 3rd Edition, Version 3.3. Queens Printer for Ontario. 296pp.

MNRF. 2015. Significant Wildlife Habitat Criteria Schedules For Ecoregion 6E. Ontario Ministry of Natural Resources and Forestry, Regional Operations Division: Southern Region Resources Section, 300 Water Street, 4th Floor South, Peterborough, Ontario, Canada, K9J 8M5.

OBBA. 2001. Ontario Breeding Bird Atlas guideline for participants. Federation of Ontario Naturalists, Bird Studies Canada, Ontario Field Ornithologists, Environment Canada, Ontario Ministry of Natural Resources. Guelph, ON. 45pp.

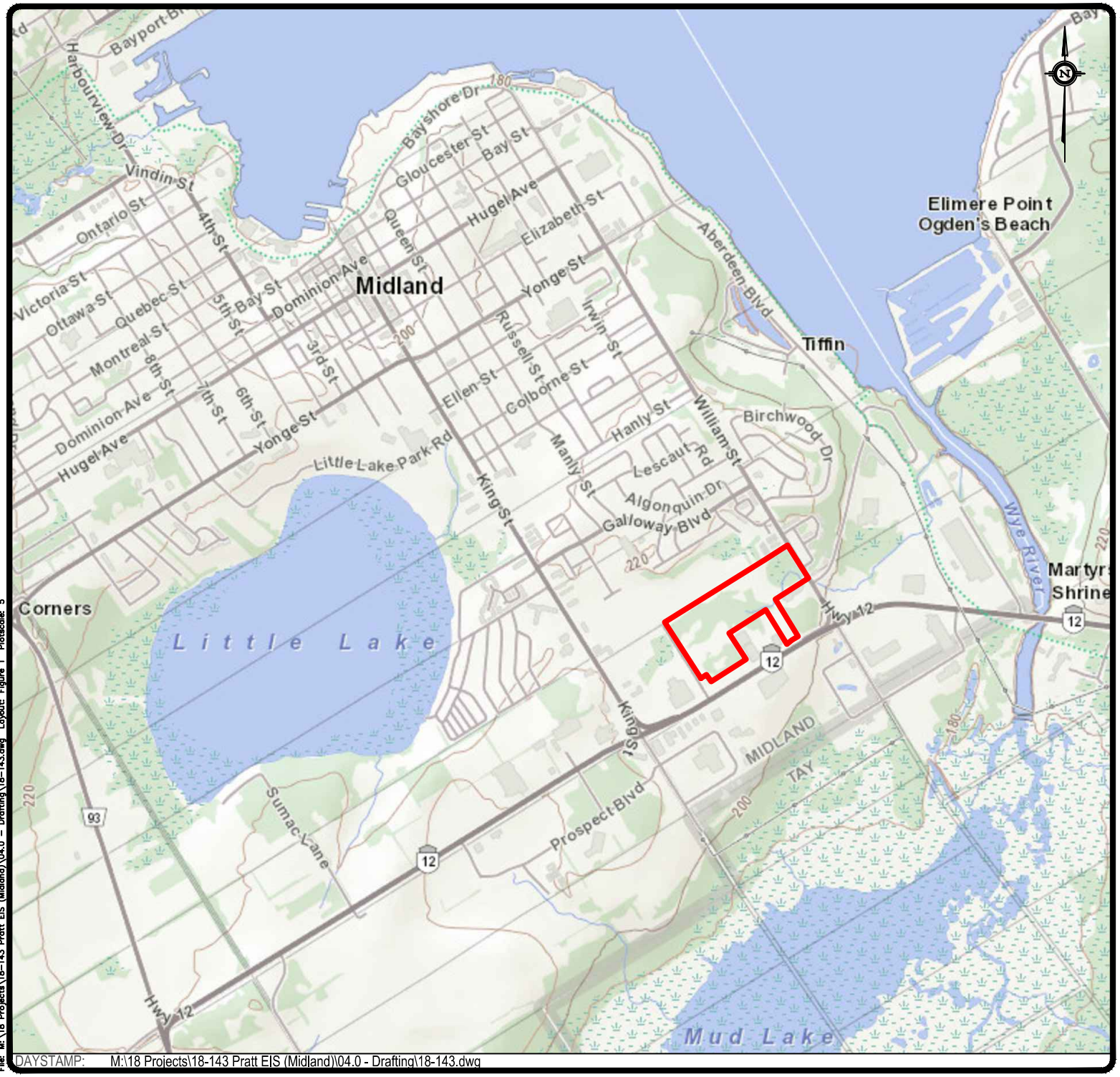
OMNR. 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005 (Second Edition). Ontario Ministry of Natural Resources. Queen's Printer for Ontario. Toronto, ON. 248pp.

OMNR. 2000. Significant Wildlife Habitat Technical Guide. Ontario Ministry of Natural Resources. Queen's Printer for Ontario. Toronto, ON. 139pp + appendices.

PlanB. 2017. Town of Midland Natural Heritage System: Methodology and Approach. Plan B Natural Heritage, The Planning Partnership, Municipal Planning Services, urbanMetrics. Midland Official Plan Review August 2017. 19pp

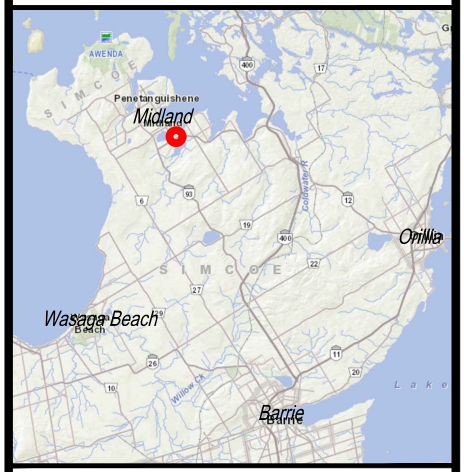
SSEA. 2009. Town of Midland Official Plan Review and Update Project: Natural Heritage System Review. Severn Sound Environmental Association. May 2009. 57pp.

Severn Sound RAP Team. 1993. Severn Sound Remedial Action Plan Stage 2 Report, A Strategy for Restoring The Severn Sound Ecosystem and Delisting Severn Sound as an Area of Concern. Severn Sound RAP Team. April 2009. 273pp.



LEGEND:

Approx. Property Boundary



REG MAP

250m 0 750m

HORIZONTAL SCALE 1: 25,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Study Area Location

Pratt EIS,
Midland, ON

DATE ISSUED: *April 2018*	Figure No.
CREATED BY: *JLM*	
PROJECT NO.: *18-143*	1
REFERENCE: *MNRF*	

DAYSTAMP: M:\18 Projects\18-143 Pratt EIS (Midland)\04.0 - Drafting\18-143.dwg

Plotted by: JMCCARTNEY on May 10, 2018 at 1:22pm
File: M:\18 Projects\18-143 Pratt EIS (Midland)\04.0 – Drafting\18-143.dwg Layout: Figure 1 Plotscale: 5

LEGEND:

- Approx. Property Boundary
- Drainage Features
- Culvert
- (#) Evening Calling Amphibian Point Count Station (white)
- (#) Dawn Bird Point Count Station (ORSI)
- (#) Nocturnal Bird Point Count
- Woodland Edge 2019
- Cleared Area
- Vegetation Communities

CUP3-3	Scotch Pine Coniferous Plantation
CUW1-A3	Native Deciduous Cultural Woodland
FOCM6-3	Dry-Fresh Scotch Pine Naturalized Coniferous Plantation
FODM5-8	Dry-Fresh Sugar Maple-White Ash Deciduous Forest
FODM7-2	Fresh-Moist Green Ash-Hardwood Lowland Forest
MAMM1-2	Cattail Graminoid Mineral Meadow Marsh
MEMM3	Dry-Fresh Mixed Meadow
SWTM5-8	Non-Native Mineral Deciduous Thicket Swamp
THDM2-1	Sumac Deciduous Shrub Thicket
THDM2-6	Buckthorn Deciduous Shrub Thicket
WODM4	Dry-Fresh Deciduous Woodland

25m 0 75m

HORIZONTAL SCALE 1:2,500

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Environmental Features

Pratt EIS,
Midland, ON

DATE ISSUED:	April 2018	Figure No.
CREATED BY:	JLM	2
PROJECT NO.:	18-143	
REFERENCE:	Simcoe County Maps	

DAYSTAMP: M:\18 Projects\18-143 Pratt EIS (Midland)\04.0 - Drafting\18-143.dwg

Plotted by: JMCCARTNEY on July 28, 2020 at 9:48am
File: P:\18 Projects\18-143 Pratt EIS (Midland)\04.0 - Drafting\18-143.dwg Layout: EIS2 Plotscale: 2.5

LEGEND:

- Approx. Property Boundary
- Drainage Features
- Culvert
- Woodland Edge 2019
- Cleared Area
- Vegetation Communities

CUP3-3	Scotch Pine Coniferous Plantation
CUW1-A3	Native Deciduous Cultural Woodland
FOCM6-3	Dry-Fresh Scotch Pine Naturalized Coniferous Plantation
FODM5-8	Dry-Fresh Sugar Maple-White Ash Deciduous Forest
FODM7-2	Fresh-Moist Green Ash-Hardwood Lowland Forest
MAMM1-2	Cattail Graminoid Mineral Meadow Marsh
MEMM3	Dry-Fresh Mixed Meadow
SWTM5-8	Non-Native Mineral Deciduous Thicket Swamp
THDM2-1	Sumac Deciduous Shrub Thicket
THDM2-6	Buckthorn Deciduous Shrub Thicket
WODM4	Dry-Fresh Deciduous Woodland

25m 0 75m

HORIZONTAL SCALE 1: 2,500

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Proposed Development Plan

Pratt EIS,
Midland, ON

DATE ISSUED:	April 2018	Figure No.
CREATED BY:	JLM	4
PROJECT NO.:	18-143	
REFERENCE:	Simcoe County Maps	

DAYSTAMP: M:\18 Projects\18-143 Pratt EIS (Midland)\04.0 - Drafting\18-143.dwg

Plotted by: JMCCARTNEY on July 29, 2020 at 9:25am
File: P:\18 Projects\18-143 Pratt EIS (Midland)\04.0 - Drafting\18-143.dwg Layout: EIS4 Plotscale: 2.5

Table 1. Vegetation Community Descriptions - Orsi Lands (Midland).

System	Community Class	ELC Code	Name	Description
Terrestrial	Forest	FODM5-8	Dry - Fresh Sugar Maple - White Ash Deciduous Forest Type	Canopy (>60% cover) - Sugar Maple>White Ash>American Basswood=American Beech; Sub Canopy/Shrub Layer (25-60% cover) - Sugar Maple>Ironwood>American Beech>White Ash; Ground Cover (25-60%) - Poison Ivy>Self-heal>sedges, Age - mature (forest evident on 1954 air photos).
Terrestrial	Forest	FODM7-2	Fresh - Moist Green Ash - Hardwood Lowland Deciduous Forest Type	Canopy (>60% cover) - White & Green Ash >> American Elm >> Sugar Maple = American Basswood; Sub Canopy/Shrub Layer (25-60% cover) - White & Green Ash > American Elm > Glossy Buckthorn > honeysuckle = Nannyberry>hawthorn; Ground Cover (25-60%) - Poison Ivy>Thicket Creeper-White Avens, Age - mid-age
Terrestrial	Forest	FOCM6-3	Dry - Fresh Scotch Pine Naturalized Coniferous Plantation Type	Canopy (>60% cover) - Trembling Aspen = Scotch Pine>American Ash=American Elm; Sub Canopy/Shrub Layer (25-60% cover) - Glossy Buckthorn > American Elm > Nannyberry = ash (Green & White); Ground Cover (25-60%) - Glossy Buckthorn>Thicket Creeper, Age - mid-age
Terrestrial	Plantation	CUP3-3	Scotch Pine Coniferous Plantation Type	Canopy (>60% cover) - Scotch Pine >>White Ash>American Elm=Trembling Aspen>Eastern White Pine; Sub Canopy/Shrub Layer (25-60% cover) - Scotch Pine>White Ash>Nannyberry=Glossy Buckthorn; Ground Cover (25-60%) - Poison Ivy>Thicket Creeper=Riverbank Grape, Age - mid-age
Terrestrial	Woodland	WODM4	Dry - Fresh Deciduous Woodland Ecosite	Canopy (35-60% cover) - White & Green Ash>>Sugar Maple>Scotch Pine>American Basswood=Trembling Aspen; Shrub Layer (25-60% cover) - White Ash=Glossy Buckthorn>Scotch Pine; Ground Cover (25-60%) - Poison Ivy, Age - young
Terrestrial	Thicket	THDM2-1	Sumac Deciduous Shrub Thicket Type	Canopy (NA); Shrub Layer (25-60% cover) - Staghorn Sumac>>Sugar Maple=White Ash; Ground Cover (25-60%) - Awnless Brome>Canaga Goldenrod>Spreading Dogbane>Wild Carrot=Field Horsetail, Age - pioneer/successional
Terrestrial	Thicket	THDM2-6	Buckthorn Deciduous Shrub Thicket Type	Canopy (NA); Shrub Layer (>60% cover) - Glossy Buckthorn>>>White Elm=willow; Ground Cover (25-60%) - sedges (Stellate>Graceful=Fringed)>>White Avens=Small Enchanter's Nightshade, Age - pioneer/successional
Terrestrial	Meadow	MEMM3	Dry - Fresh Mixed Meadow Ecosite	Canopy (NA), Shrub Layer (<10% cover) - White Ash>American Elm>Glossy Buckthorn; Ground Cover (>60%) - Awnless Brome>>Crown Vetch>Canada Goldenrod, Age - pinoneer/successional
Wetland	Marsh	MAMM1-2	Cattail Graminoid Mineral Meadow Marsh Type	Canopy (NA); Shrub Layer (<10% cover) - Glossy Buckthorn>>willow; Ground Cover (>60%) - cattail>>Reed Canarygrass>Spotted Joe-pye Weed, Age - young
Wetland	Swamp	SWTM5-8	Non-native Mineral Deciduous Thicket Swamp Type	Canopy (NA); Shrub Layer (>60% cover) - Glossy Buckthorn>>>White Elm=willow; Ground Cover (25-60%) - sedges (Fringed=Fox>Tuckerman's)>Reed Canarygrass, Age - pioneer/successional

Table 2. Vascular Plant List - Orsi Lands, Midland.

			Vegetation Community (see Figure 2 for location, Table 1 for descriptions)										Conservation Rank[1]		
FAMILY	**SCIENTIFIC NAME**	**COMMON NAME**	**FODM5-8**	**FODM7-2**	**FOCM6-3**	**CUP3-3**	**WODM4**	**THDM2-1**	**THDM2-6**	**MEMM3**	**MAMM1-2**	**SWTM5-8**	**S RANK**	**G RANK**	**SARO STATUS**
Aceraceae	*Acer negundo*	Manitoba Maple						X	X	X		X	S5	G5	
Aceraceae	*Acer saccharum*	Sugar Maple	X	X	X	X	X						S5	G5	
Anacardiaceae	*Rhus typhina*	Staghorn Sumac		X			X						S5	G5	
Anacardiaceae	*Toxicodendron rydbergii*	Rydberg's Poison Ivy	X	X		X	X						S5	G5	
Apiaceae	*Daucus carota*	Wild Carrot		X			X	X	X	X			SNA	GNR	
Apocynaceae	*Apocynum androsaemifolium*	Spreading Dogbane		X	X	X		X		X			S5	G5	
Asteraceae	*Ambrosia artemisiifolia*	Annual Ragweed						X	X	X			S5	G5	
Asteraceae	*Arctium minus*	Common Burdock						X	X	X			SNA	GNR	
Asteraceae	*Centaurea stoebe*	Spotted Knapweed					X						SNA	GNR	
Asteraceae	*Doellingeria umbellata*	Flat-top White Aster							X			X	S5	G5	
Asteraceae	*Erigeron annuus*	Annual Fleabane					X	X		X			S5	G5	
Asteraceae	*Euthamia graminifolia*	Grass-leaved Goldenrod					X		X		X	X	S5	G5	
Asteraceae	*Eutrochium maculatum*	Spotted Joe Pye Weed							X		X	X	S5	G5	
Asteraceae	*Inula helenium*	Elecampane							X			X	SNA	GNR	
Asteraceae	*Lapsana communis*	Common Nipplewort				X			X				SNA	GNR	
Asteraceae	*Leucanthemum vulgare*	Oxeye Daisy				X	X			X			SNA	GNR	
Asteraceae	*Pilosella officinarum*	Mouse-ear Hawkweed					X						SNA	GNR	
Asteraceae	*Solidago canadensis*	Canada Goldenrod					X	X	X	X			S5	G5	
Asteraceae	*Solidago rugosa*	Northern Rough-leaved Goldenrod		X		X	X		X				S5	G5	
Asteraceae	*Symphyotrichum lateriflorum*	Starved Aster			X				X			X	S5	G5	
Asteraceae	*Symphyotrichum novae-angliae*	New England Aster							X			X	S5	G5	
Asteraceae	*Symphyotrichum urophyllum*	Arrow-leaved Aster				X	X						S4	G4G5	
Asteraceae	*Tanacetum vulgare*	Common Tansy							X				SNA	GNR	
Asteraceae	*Taraxacum officinale*	Common Dandelion		X				X	X	X			SNA	G5	
Balsaminaceae	*Impatiens capensis*	Spotted Jewelweed							X			X	S5	G5	
Berberidaceae	*Caulophyllum giganteum*	Giant Blue Cohosh	X										S4?	G4G5Q	
Betulaceae	*Betula papyrifera*	Paper Birch				X							S5	G5	
Betulaceae	*Ostrya virginiana*	Eastern Hop-hornbeam	X										S5	G5	
Brassicaceae	*Alliaria petiolata*	Garlic Mustard		X									SNA	GNR	
Brassicaceae	*Berteroa incana*	Hoary False-alyssum							X				SNA	GNR	
Brassicaceae	*Hesperis matronalis*	Dame's Rocket							X	X			SNA	G4G5	
Caprifoliaceae	*Lonicera tatarica*	Tartarian Honeysuckle	X			X			X			X	SNA	GNR	
Caprifoliaceae	*Lonicera x bella*	(Lonicera morrowii X Lonicera tatarica)		X			X						SNA	GNA	
Caprifoliaceae	*Viburnum lentago*	Nannyberry	X	X	X	X	X		X			X	S5	G5	
Caprifoliaceae	*Viburnum opulus*	Highbush Cranberry	X	X	X	X	X			X			S5	GNR	
Caryophyllaceae	*Silene vulgaris*	Maiden's Tears						X		X			SNA	GNR	
Caryophyllaceae	*Stellaria graminea*	Grass-leaved Starwort								X			SNA	GNR	
Clusiaceae	*Hypericum perforatum*	Common St. John's-wort				X			X				SNA	GNR	
Cornaceae	*Cornus alternifolia*	Alternate-leaved Dogwood	X	X	X	X							S5	G5	
Cornaceae	*Cornus rugosa*	Roundl-leaved Dogwood				X							S5	G5	
Cornaceae	*Cornus stolonifera*	Red-osier Dogwood				X	X		X	X	X	X	S5	G5	
Cupressaceae	*Juniperus communis*	Ground Juniper					X						S5	G5	
Cyperaceae	*Carex comosa*	Bristly Sedge	X										S5	G5	
Cyperaceae	*Carex crinita*	Fringed Sedge							X			X	S5	G5	
Cyperaceae	*Carex cristatella*	Crested Sedge							X				S5	G5	

			Vegetation Community (see Figure 2 for location, Table 1 for descriptions)										Conservation Rank[1]		
FAMILY	**SCIENTIFIC NAME**	**COMMON NAME**	**FODM5-8**	**FODM7-2**	**FOCM6-3**	**CUP3-3**	**WODM4**	**THDM2-1**	**THDM2-6**	**MEMM3**	**MAMM1-2**	**SWTM5-8**	**S RANK**	**G RANK**	**SARO STATUS**
Cyperaceae	*Carex deweyana*	Dewey's Sedge	X										S5	G5	
Cyperaceae	*Carex gracillima*	Graceful Sedge	X	X		X		X	X	X			S5	G5	
Cyperaceae	*Carex pedunculata*	Long-stalked Sedge	X										S5	G5	
Cyperaceae	*Carex projecta*	Necklace Sedge							X				S5	G5	
Cyperaceae	*Carex radiata*	Stellate Sedge							X				S4	G4	
Cyperaceae	*Carex rosea*	Rosy Sedge	X	X		X							S5	G5	
Cyperaceae	*Carex stipata*	Awl-fruited Sedge							X		X	X	S5	G5	
Cyperaceae	*Carex tuckermanii*	Tuckerman's Sedge							X			X	S4	G4	
Cyperaceae	*Carex vulpinoidea*	Fox Sedge							X		X	X	S5	G5	
Cyperaceae	*Scirpus cyperinus*	Cottongrass Bulrush							X		X	X	S5	G5	
Dennstaedtiaceae	*Pteridium aquilinum*	Bracken Fern	X				X						S5	G5	
Dryopteridaceae	*Dryopteris carthusiana*	Spinulose Wood Fern							X				S5	G5	
Dryopteridaceae	*Dryopteris intermedia*	Evergreen Wood Fern							X				S5	G5	
Dryopteridaceae	*Onoclea sensibilis*	Sensitive Fern							X			X	S5	G5	
Equisetaceae	*Equisetum arvense*	Field Horsetail				X		X	X	X			S5	G5	
Euphorbiaceae	*Euphorbia virgata*	Russian Leafy Spurge								X			SNA	GNR	
Fabaceae	*Medicago lupulina*	Black Medic								X			SNA	GNR	
Fabaceae	*Melilotus albus*	White Sweet-clover					X						SNA	G5	
Fabaceae	*Robinia pseudoacacia*	Black Locust							X				SNA	G5	
Fabaceae	*Trifolium arvense*	Rabbit-foot Clover					X						SNA	GNR	
Fabaceae	*Vicia cracca*	Tufted Vetch				X	X		X	X			SNA	GNR	
Fagaceae	*Fagus grandifolia*	American Beech	X										S4	G5	
Fagaceae	*Quercus rubra*	Northern Red Oak	X			X							S5	G5	
Geraniaceae	*Geranium robertianum*	Herb-Robert		X									S5	G5	
Grossulariaceae	*Ribes cynosbati*	Prickly Gooseberry			X								S5	G5	
Grossulariaceae	*Ribes triste*	Swamp Red Currant	X										S5	G5	
Iridaceae	*Iris germanica*	German (Bearded) Iris							X				SNA	GNR	
Juglandaceae	*Juglans nigra*	Black Walnut		X					X				S4	G5	
Juncaceae	*Juncus effusus*	Soft Rush							X		X	X	S5	G5	
Lamiaceae	*Clinopodium vulgare*	Field Basil					X	X		X			S5	G5	
Lamiaceae	*Lycopus americanus*	American Water-horehound							X		X	X	S5	G5	
Lamiaceae	*Monarda fistulosa*	Wild Bergamot					X						S5	G5	
Lamiaceae	*Prunella vulgaris*	Self-heal		X									SNA	G5	
Liliaceae	*Maianthemum canadense*	Wild Lily-of-the-valley	X										S5	G5	
Liliaceae	*Maianthemum stellatum*	Star-flowered False Solomon's-seal		X									S5	G5	
Liliaceae	*Trillium grandiflorum*	White Trillium	X										S5	G5	
Lythraceae	*Lythrum salicaria*	Purple Loosestrife							X		X	X	SNA	G5	
Malvaceae	*Malva pusilla*	Running Cheeseweed					X						SNA	GNR	
Oleaceae	*Fraxinus americana*	White Ash	X	X	X	X	X	X		X			S4	G5	
Oleaceae	*Fraxinus nigra*	Black Ash		X									S3	G5	
Oleaceae	*Fraxinus pennsylvanica*	Green Ash			X		X		X			X	S4	G5	
Oleaceae	*Ligustrum vulgare*	European Privet			X								SNA	GNR	
Oleaceae	*Syringa vulgaris*	Common Lilac				X							SNA	GNR	
Onagraceae	*Circaea alpina*	Small Enchanter's Nightshade	X	X					X			X	S5	G5	
Orchidaceae	*Epipactis helleborine*	Eastern Helleborine	X										SNA	GNR	
Oxalidaceae	*Oxalis stricta*	European Wood-sorrel							X				S5	G5	
Pinaceae	*Picea glauca*	White Spruce	X										S5	G5	
Pinaceae	*Pinus strobus*	Eastern White Pine					X						S5	G5	

			Vegetation Community (see Figure 2 for location, Table 1 for descriptions)										Conservation Rank[1]		
FAMILY	**SCIENTIFIC NAME**	**COMMON NAME**	**FODM5-8**	**FODM7-2**	**FOCM6-3**	**CUP3-3**	**WODM4**	**THDM2-1**	**THDM2-6**	**MEMM3**	**MAMM1-2**	**SWTM5-8**	**S RANK**	**G RANK**	**SARO STATUS**
Pinaceae	*Pinus sylvestris*	Scotch Pine				X	X						SNA	GNR	
Plantaginaceae	*Plantago lanceolata*	English Plantain					X	X		X			SNA	G5	
Poaceae	*Agrostis gigantea*	Redtop	X						X				SNA	G4G5	
Poaceae	*Bromus inermis*	Awnless Brome						X		X			SNA	G5TNR	
Poaceae	*Dactylis glomerata*	Orchard Grass				X							SNA	GNR	
Poaceae	*Festuca rubra ssp. rubra*	Red Fescue							X	X			SNA	G5T5	
Poaceae	*Glyceria striata*	Fowl Mannagrass			X				X		X	X	S5	G5	
Poaceae	*Lolium perenne*	Perennial Ryegrass					X						SNA	GNR	
Poaceae	*Phalaris arundinacea*	Reed Canary Grass							X		X	X	S5	G5	
Poaceae	*Phleum pratense*	Common Timothy							X				SNA	GNR	
Poaceae	*Poa nemoralis*	Woods Bluegrass	X			X							SNA	G5	
Polygonaceae	*Rumex crispus*	Curly Dock							X			X	SNA	GNR	
Polygonaceae	*Rumex obtusifolius*	Bitter Dock							X				SNA	GNR	
Ranunculaceae	*Anemone virginiana*	Virginia Anemone					X						S5	G5	
Ranunculaceae	*Ranunculus acris*	Tall Buttercup		X					X			X	SNA	G5	
Ranunculaceae	*Ranunculus recurvatus*	Hooked Buttercup							X			X	S5	G5	
Ranunculaceae	*Thalictrum dioicum*	Early Meadow-rue	X										S5	G5	
Rhamnaceae	*Frangula alnus*	Glossy Buckthorn	X	X	X	X	X	X	X	X	X	X	SNA	GNR	
Rhamnaceae	*Rhamnus cathartica*	Common Buckthorn		X	X				X				SNA	GNR	
Rosaceae	*Agrimonia gryposepala*	Hooked Agrimony	X						X				S5	G5	
Rosaceae	*Agrimonia striata*	Woodland Agrimony							X				S4?	G5	
Rosaceae	*Amelanchier arborea*	Downy Serviceberry			X								S5	G5	
Rosaceae	*Crataegus punctata*	Dotted Hawthorn											S5	G5	
Rosaceae	*Fragaria virginiana*	Wild Strawberry				X	X						S5	G5	
Rosaceae	*Geum aleppicum*	Yellow Avens		X					X				S5	G5	
Rosaceae	*Geum canadense*	White Avens		X					X				S5	G5	
Rosaceae	*Malus pumila*	Common Apple					X						SNA	G5	
Rosaceae	*Potentilla recta*	Sulphur Cinquefoil							X	X			SNA	GNR	
Rosaceae	*Prunus serotina*	Wild Black Cherry	X	X			X						S5	G5	
Rosaceae	*Prunus virginiana*	Choke Cherry	X	X	X	X							S5	G5	
Rosaceae	*Rubus allegheniensis*	Alleghany Blackberry	X										S5	G5	
Rosaceae	*Rubus idaeus*	Common Red Raspberry		X					X			X	SNA	G5	
Rosaceae	*Rubus occidentalis*	Black Raspberry		X					X				S5	G5	
Rosaceae	*Sorbus aucuparia*	European Mountain-ash		X									SNA	G5	
Rosaceae	*Spiraea alba*	White Meadowsweet							X			X	S5	G5	
Rubiaceae	*Galium palustre*	Marsh Bedstraw							X		X	X	S5	G5	
Rubiaceae	*Mitchella repens*	Partridge-berry				X							S5	G5	
Salicaceae	*Populus balsamifera*	Balsam Poplar							X			X	S5	G5	
Salicaceae	*Populus tremuloides*	Trembling Aspen			X	X			X			X	S5	G5	
Salicaceae	*Salix bebbiana*	Bebb's Willow							X		X		S5	G5	
Salicaceae	*Salix discolor*	Pussy Willow							X		X	X	S5	G5	
Salicaceae	*Salix eriocephala*	Heart-leaved Willow							X				S5	G5	
Salicaceae	*Salix petiolaris*	Meadow Willow							X			X	S5	G5	
Scrophulariaceae	*Veronica officinalis*	Common Speedwell	X			X							SNA	G5	
Smilacaceae	*Smilax herbacea*	Herbaceous Carrionflower	X										S4	G5	
Solanaceae	*Solanum dulcamara*	Climbing Nightshade							X		X	X	SNA	GNR	
Tiliaceae	*Tilia americana*	American Basswood	X	X		X	X						S5	G5	
Typhaceae	*Typha angustifolia*	Narrow-leaved Cattail									X		SNA	G5	

			Vegetation Community (see Figure 2 for location, Table 1 for descriptions)										Conservation Rank[1]		
FAMILY	**SCIENTIFIC NAME**	**COMMON NAME**	**FODM5-8**	**FODM7-2**	**FOCM6-3**	**CUP3-3**	**WODM4**	**THDM2-1**	**THDM2-6**	**MEMM3**	**MAMM1-2**	**SWTM5-8**	**S RANK**	**G RANK**	**SARO STATUS**
Typhaceae	*Typha latifolia*	Broad-leaved Cattail									X		S5	G5	
Ulmaceae	*Ulmus americana*	American Elm		X	X	X	X	X	X	X		X	S5	G5?	
Vitaceae	*Parthenocissus inserta*	Thicket Creeper		X	X				X				S5	G5	
Vitaceae	*Vitis riparia*	Riverbank Grape	X	X	X	X	X		X		X	X	S5	G5	

[1]Conservation Rank Information from MNRF, NHIC

Table 5. Bird Species List - Orsi Lands, Midland.

			Point Count Station									Conservation Rank[2]		
FAMILY	**SCIENTIFIC NAME**	**COMMON NAME**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**Breeding Evidence[1]**	**S RANK**	**G RANK**	**SARO STATUS**
Troglodytidae	*Troglodytes aedon*	House Wren		S,[3]	,S		,S	,S	,S		Possible	S5B	G5	
Parulidae	*Geothlypis trichas*	Common Yellowthroat	,S		,S	S,					Possible	S5B	G5	
Sturnidae	*Sturnus vulgaris*	European Starling	,H		,C				C,		Possible	SNA	G5	
Corvidae	*Corvus brachyrhynchos*	American Crow	C,C					C,		,C	Probable	S5B	G5	
Vireonidae	*Vireo olivaceus*	Red-eyed Vireo	S,S	S,S	S,		S,S	S,		S,S	Probable	S5B	G5	
Corvidae	*Cyanocitta cristata*	Blue Jay		C,						C,	Possible	S5	G5	
Parulidae	*Setophaga ruticilla*	American Redstart	S,S	S,		S,	S,	S,	S,	S,S	Probable	S5B	G5	
Picidae	*Picoides villosus*	Hairy Woodpecker						H,C			Probable	S5	G5	
Columbidae	*Zenaida macroura*	Mourning Dove			S,S	S,					Probable	S5	G5	
Icteridae	*Quiscalus quiscula*	Common Grackle	C,H	C,H	C,		C,H			C,H	Probable	S5B	G5	
Turdidae	*Turdus migratorius*	American Robin	,S		C,S	C,	,S	C,H	H,S		Probable	S5B	G5	
Icteridae	*Agelaius phoeniceus*	Red-winged Blackbird						S,	S,		Possible	S4	G5	
Emberizidae	*Melospiza melodia*	Song Sparrow	S,	,S	,S	S,	S,S	S,	S,	,S	Probable	S5B	G5	
Cardinalidae	*Cardinalis cardinalis*	Northern Cardinal			,S						Possible	S5	G5	
Paridae	*Poecile atricapillus*	Black-capped Chickadee		C,	C,	C,			C,	,S	Possible	S5	G5	
Fringillidae	*Carduelis tristis*	American Goldfinch	,H	C,C	,S	H,	S,C	C,	C,	C,S	Probable	S5B	G5	
Parulidae	*Setophaga petechia*	Yellow Warbler	S,S						S,		Probable	S5B	G5	
Parulidae	*Setophaga pensylvanica*	Chestnut-sided Warbler			,S	S,					Possible	S5B	G5	
Mimidae	*Dumetella carolinensis*	Gray Catbird	S,S	,S							Probable	S4B	G5	
Cardinalidae	*Passerina cyanea*	Indigo Bunting					S,			,S	Possible	S4B	G5	
Tyrannidae	*Myiarchus crinitus*	Great Crested Flycatcher	,C		,C	C,	C,		C,		Possible	S4B	G5	
Phasianidae	*Bonasa umbellus*	Ruffed Grouse	H,		,FY						Confirmed	S4	G5	
Emberizidae	*Spizella passerina*	Chipping Sparrow			,S	S,					Possible	S5B	G5	

Survey Conditions:
Survey 1: Date: June 13, 2018; Time: 06:59 - 08:45 a.m.; Temp.: +22 throughout; C.C.: 90-100%; Wind: B1-B2 (SW); Prec.: nil; Observers J. Broadfoot, A. Pompilio
Survey 2: Date: June 21, 2018; Time: 05:39-08:40a.m; Temp.: +15C throughout; C.C.: 40%; Wind: B1-B3 (NE); Prec.: nil; Observed J. Broadfoot

[1]Highest level of breeding evidence detected based on Ontario Breeding Bird Atlas (OBBA) criteria and Breeding Evidence Codes

[2]Conservation Rank - from Ontario Ministry of Natural Resources & Forestry, Natural Heritage Information Centre and Species at Risk in Ontario Lists
S-rank - S1 - Extremely Rare, S2 - Very Rare, S3 - Rare to Uncommon, S4 - Common, S5 - Very Common
G-Rank - G1 - Critically Imperiled, G2 - Imperiled, G3 - Vulnerable, G4 - Apparently Secure, G5 - Secure
SC - Special Concern
NAR - Not at Risk

[3]Breeding Evidence Codes: Entry examples **S,S** - Singing Male detected during first survey and second survey; **S,** Singing male detected during first survey only **,S** Singing male detected during second survey only

Breeding Evidence	*Breeding Evidence Codes*

None	FO - Species observed Flying Over showing no signs of use of subject or adjacent lands
None	X - Species observed, no evidence of breeding
Possible	H - Species observed in its breeding season in suitable nesting habitat
see Note	S or C - Singing male(s) present (S), or breeding calls heard (C), in suitable nesting habitat in breeding season
Probable	P - Pair observed in suitable nesting habitat in nesting season
Probable	D - Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation.
Probable	V - Visiting probable nest site
Probable	A - Agitated behaviour or anxiety calls of an adult
Probable	B - Brood Patch on adult female or cloacal protuberance on adult male
Probable	N - Nest-building or excavation of nest hole.
Confirmed	DD - Distraction display or injury feigning.
Confirmed	NU - Used nest or egg shells found (occupied or laid within the period of the survey)
Confirmed	FY - Recently fledged young (nidicolous species) or downy young (nidifugous species), including incapable of sustained flight
Confirmed	AE - Adult leaving or entering nest sites in circumstances indicating occupied nest
Confirmed	FS - Adult carying fecal sac.
Confirmed	CF - Adult carying food for young.
Confirmed	NE - Nest containing eggs.
Confirmed	NY - Nest with young seen or heard

Note : Possible if only one observation of S or C, Probable if evidence of S or C in same place on two or more dates a week or more apart

Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E

Table 5.1 Seasonal Concentrations of Areas of Animals

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Waterfowl Stopover and Staging Areas (Terrestrial) **Rationale:** Habitat important to migrating waterfowl.	American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	CUM1 CUT1 Plus evidence of annual spring flooding from melt water or run-off within these Ecosites.	Fields with sheet water during Spring (mid-March to May). • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available. Information Sources • Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. • Reports and other information available from Conservation Authorities • Sites documented through waterfowl planning processes (*e.g.* EHJV implementation plan) • Field Naturalist Clubs • Ducks Unlimited Canada • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • Any mixed species aggregations of 100 or more individuals required. • The flooded field ecosite habitat plus a 100-300m radius area, dependant on local site conditions and adjacent land use is the significant wildlife habitat. • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). • SWHMiST Index #7 provides development effects and mitigation measures.	No flooded agricultural field areas on or adjacent to property. Not Applicable.
Waterfowl Stopover and Staging Areas (Aquatic) **Rationale:** Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback Ruddy Duck	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	• Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). Information Sources • Environment Canada • Naturalist clubs often are aware of staging/stopover areas • OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. • Sites documented through waterfowl planning processes (*e.g.* EHJV implementation plan) • Ducks Unlimited projects • Element occurrence specification by Nature Serve: http://www.natureserve.org • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Areas	Studies carried out and verified presence of: • Aggregations of 100 or more of listed species for 7 days, results in > 700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH. • The combined area of the ELC ecosites and a 100m radius area is the SWH. • Wetland area and shorelines associated with sites identified within the SWHTG Appendix K are significant wildlife habitat. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). • SWHMiST Index #7 provides development effects and mitigation measures.	No ponds, open water marshes, lakes, bays, coastal inlets, etc. on or adjacent to property. No abundance of waterfowl during spring observations. Not Applicable.

Table 7. Significant Wildlife Habitat Assessment, Orsi Lands (Midland).

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Shorebird Migratory Stopover Area **Rationale:** High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	• Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. • Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. • Sewage treatment ponds and storm water ponds do not qualify as a SWH. Information Sources • Western hemisphere shorebird reserve network • Canadian Wildlife Service (CWS) Ontario Shorebird Survey • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Natural Heritage Information Center (NHIC) Shorebird Migratory Concentration Area	Studies confirming: • Presence of 3 or more of listed species and > 1000 shorebird use days during spring or fall migration period. (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #8 provides development effects and mitigation measures.	No suitable shoreline habitat on or adjacent to property. Not Applicable.
Raptor Wintering Area **Rationale:** Sites used by multiple species of individuals and used annually are most significant	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl **Special Concern:** Short-eared Owl Bald Eagle	Hawks/Owls: Combination of ELC Community Series; need to have present one Community Series from each land class; Forest: FOD, FOM, FOC. Upland: CUM; CUT; CUS; CUW. Bald Eagle: Forest community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).	• The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. • Raptor wintering sites (hawk/owl) need to be > 20 ha with a combination of forest and upland. • Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands. • Field area of the habitat is to be windswept with limited snow depth or accumulation. • Eagle sites have open water, large trees and snags available for roosting. Information Sources: • OMNRF Ecologist or Biologist Field Naturalist Clubs • Natural Heritage Information Center (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada • Results of Christmas Bird Counts Reports and other information available from Conservation Authorities.	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One or more Bald Eagles or; At least 10 individuals and two of the listed hawk/owl species. • To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #10 and #11 provides development effects and mitigation measures.	No combination of large fields and woodlands on or adjacent to property. Not Applicable.

Table 7. Significant Wildlife Habitat Assessment, Orsi Lands (Midland).

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Bat Hibernacula **Rationale:** Bat hibernacula are rare habitats in all Ontario landscapes.	Big Brown Bat Tri-coloured Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	• Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. • Active mine sites should not be considered as SWH • The locations of bat hibernacula are relatively poorly known. Information Sources • OMNRF for possible locations and contact for local experts • Natural Heritage Information Center (NHIC) Bat Hibernaculum Ministry of Northern • Development and Mines for location of mine shafts. • Clubs that explore caves (*e.g.* Sierra Club) • University Biology Departments with bat experts.	• All sites with confirmed hibernating bats are SWH. • The habitat area includes a 200m radius around the entrance of the hibernaculum, for most development types and 1000m for wind farms • Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects. • SWHMiST Index #1 provides development effects and mitigation measures.	No mines, karst, etc. on or adjacent to property. Not Applicable.
Bat Maternity Colonies **Rationale:** Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	• Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). • Maternity roosts are not found in caves and mines in Ontario. • Maternity colonies located in Mature deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees. • Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2. • Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred. Information Sources • OMNRF for possible locations and contact for local experts • University Biology Departments with bat experts.	• Maternity Colonies with confirmed use by; o >10 Big Brown Bats o >5 Adult Female Silver-haired Bats • The area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies. • Evaluation methods for maternity colonies should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #12 provides development effects and mitigation measures.	Function of property and adjacent lands assessed – see EIS Section 4.6.4. Not Applicable.
Turtle Wintering Areas **Rationale:** Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Midland Painted Turtle **Special Concern:** Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles; ELC Community Classes; SW, MA, OA and SA, ELC Community Series; FEO and BOO Northern Map Turtle; Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	• For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. • Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen. • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH. Information Sources • EIS studies carried out by Conservation Authorities. • Local field naturalists and experts, as well as university herpetologists may also know where to find some of these sites. • OMNRF Ecologist or Biologist • Field Naturalist clubs • Natural Heritage Information Center (NHIC)	• Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – May) • Congregation of turtles is more common where wintering areas are limited and therefore significant • SWHMiST Index #28 provides development effects and mitigation measures for turtle wintering habitat.	No suitable habitat on or adjacent to property. No turtles observed. Not Applicable.

Table 7. Significant Wildlife Habitat Assessment, Orsi Lands (Midland).

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Reptile Hibernaculum **Rationale:** Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	**Snakes:** Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake **Special Concern:** Milksnake Eastern Ribbonsnake **Lizard:** **Special Concern** (Southern Shield population)**:** Five-lined Skink	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and Ecosites: FOC1 FOC3	• For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. • Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures. <u>Information Sources</u> • In spring, local residents or landowners may have observed the emergence of snakes on their property (*e.g.* old dug wells). • Reports and other information available from Conservation Authorities. • Field Naturalists clubs • University herpetologists • Natural Heritage Information Center (NHIC) • OMNRF ecologist or biologist may be aware of locations of wintering skinks	Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (*e.g.* foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct) • <u>Note:</u> If there are Special Concern Species present, then site is SWH • <u>Note:</u> Sites for hibernation possess specific habitat parameters (*e.g.* temperature, humidity, *etc.*) and consequently are used annually, often by many of the same individuals of a local population (i.e. strong hibernation site fidelity). Other critical life processes (*e.g.* mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30 m radius area is the SWH. • SWHMiST Index #13 provides development effects and mitigation measures for snake hibernacula. • Presence of any active hibernaculum for skink is significant. • SWHMiST Index #37 provides development effects and mitigation measures for five-lined skink wintering habitat.	No snakes observed during multiple visual encounter surveys. No obvious features providing hibernation habitat (fractured rock, stone foundations, etc.) observed. Not Applicable.
Colonially -Nesting Bird Breeding Habitat (Bank and Cliff) **Rationale:** Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow population are declining in Ontario.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles. Cliff faces, bridge abutments, silos, barns. Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	• Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. • Does not include a licensed/permitted Mineral Aggregate Operation. <u>Information Sources</u> • Reports and other information available from Conservation Authorities. • Ontario Breeding Bird Atlas • Bird Studies Canada; *NatureCounts* http://www.birdscanada.org/birdmon/ • Field Naturalist Clubs.	Studies confirming: • Presence of 1 or more nesting sites with 8or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50m radius habitat area from the peripheral nests. • Field surveys to observe and count swallow nests are to be completed during the breeding season. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #4 provides development effects and mitigation measures.	No evidence of bird nesting in fill pile on adjacent lands. No bridges, abutments, silos or barns on or adjacent to property. None of listed species observed during breeding bird surveys. Not Applicable.

Table 7. Significant Wildlife Habitat Assessment, Orsi Lands (Midland).

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Colonially-Nesting Bird Breeding Habitat (Tree/Shrubs) **Rationale:** Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Great Blue Heron Black-crowned Night-Heron Great Egret Green Heron	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	• Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. • Most nests in trees are 11 to 15 m from ground, near the top of the tree. Information Sources • Ontario Breeding Bird Atlas, colonial nest records. • Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNRF). • Natural Heritage Information Center (NHIC) Mixed Wader Nesting Colony • Aerial photographs can help identify large heronries. • Reports and other information available from CAs. • MNRF District Offices • Local naturalist clubs	Studies confirming: • Presence of 5 or more active nests of Great Blue Heron or other listed species. • The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH. • Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells. • SWHMiST Index #5 provides development effects and mitigation measures.	None of listed species observed during breeding bird surveys. No evidence of nesting detected. Not Applicable
Colonially-Nesting Bird Breeding Habitat (Ground) **Rationale:** Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6; MAS1 – 3; CUM CUT CUS	• Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies are found loosely on the ground in low bushes in close proximity to streams and irrigation ditches within farmlands. Information Sources • Ontario Breeding Bird Atlas , rare/colonial species records. • Canadian Wildlife Service • Reports and other information available from CAs. • Natural Heritage Information Center (NHIC) Colonial Waterbird Nesting Area • MNRF District Offices • Field Naturalist clubs	Studies confirming: • Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern. • Presence of 5 or more pairs for Brewer's Blackbird. • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. • The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH. • Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #6 provides development effects and mitigation measures.	No islands in open waters providing suitable gull/tern habitat and no Brewers Blackbirds observed. Not Applicable

Table 7. Significant Wildlife Habitat Assessment, Orsi Lands (Midland).

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Migratory Butterfly Stopover Areas **<u>Rationale:</u>** Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.	Painted Lady Red Admiral <u>Special Concern</u> Monarch	Combination of ELC Community Series; need to have present one Community Series from each land class: <u>Field:</u> CUM CUT CUS <u>Forest:</u> FOC FOD FOM CUP Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario. • The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south. • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat. • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes. <u>Information Sources</u> • OMNRF (NHIC) • Agriculture Canada in Ottawa may have list of butterfly experts. • Field Naturalist Clubs • Toronto Entomologists Association • Conservation Authorities	Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur. • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. • MUD of >5000 **or** >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant. • SWHMiST Index #16 provides development effects and mitigation measures.	The property is not located within 5km of Lake Ontario. Not Applicable.
Landbird Migratory Stopover Areas **<u>Rationale:</u>** Sites with a high diversity of species as well as high numbers are most significant.	All migratory songbirds. Canadian Wildlife Service Ontario website. All migratory songbirds. Canadian Wildlife Service Ontario website:	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	Woodlots need to be >10 ha in size and within 5 km of Lake Ontario. • If multiple woodlands are located along the shoreline those Woodlands <2km from Lake Ontario are more significant. • Sites have a variety of habitats; forest, grassland and wetland complexes. • The largest sites are more significant. • Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5km of Lake Ontario are Candidate SWH . <u>Information Sources</u> • Bird Studies Canada • Ontario Nature • Local birders and naturalist club • Ontario Important Bird Areas (IBA) Program	Studies confirm: • Use of the habitat by >200 birds/day and with >35 spp with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant. • Studies should be completed during spring (Apr./May) and fall (Aug/Oct) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #9 provides development effects.	The property is not located within 5km of Lake Ontario. Not Applicable.

Table 7. Significant Wildlife Habitat Assessment, Orsi Lands (Midland).

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Deer Yarding Areas **<u>Rationale:</u>** Winter habitat for deer is considered to be the main limiting factor for northern deer populations. In winter, deer congregate in "yards" to survive severe winter conditions. Deer yards typically have a long history of annual use by deer, yards typically represent 10-15% of an areas summer range.	White-tailed Deer	Note: OMNRF to determine this habitat. ELC Community Series providing a thermal cover component for a deer yard would include; FOM, FOC, SWM and SWC. Or these ELC Ecosites; CUP2 CUP3 FOD3 CUT	• Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. • The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. • OMNRF determines deer yards following methods outlined in "Selected Wildlife and Habitat Features: Inventory Manual". • Woodlots with high densities of deer due to artificial feeding are not significant.	No Studies Required: • Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. • Deer Yards are mapped by OMNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by OMNRF will be available at local MNRF offices or via Land Information Ontario (LIO). • Field investigations that record deer tracks in winter are done to confirm use (best done from an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will complete these field investigations. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #2 provides development effects and mitigation measures.	Property is not mapped as deeryard by the MNRF. Not Applicable.
Deer Winter Congregation Areas **<u>Rationale:</u>** Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions.	White-tailed Deer	All Forested Ecosites with these ELC Community Series; FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50 ha may also be used.	• Woodlots will typically be >100 ha in size. Woodlots <100ha may be considered as significant based on MNRF studies or assessment. • Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands . • If deer are constrained by snow depth refer to the Deer Yarding Area habitat within Table 1.1 of this Schedule. • Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. • Woodlots with high densities of deer due to artificial feeding are not significant. <u>Information Sources</u> • MNRF District Offices • LIO/NRVIS	Studies confirm: • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF. • Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF. • Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques, ground or road surveys, or a pellet count deer density survey. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #2 provides development effects and mitigation measures.	Assessed as Deer Yarding Area above.

Table 5.2.1 Rare Vegetation Communities

Rare Vegetation Community	Candidate SWH			Confirmed SWH	Assessment
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
Cliffs and Talus Slopes **Rationale:** Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: TAO TAS TAT CLO CLS CLT	A Cliff is vertical to near vertical bedrock >3m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris.	Most cliff and talus slopes occur along the Niagara Escarpment. Information Sources • The Niagara Escarpment Commission has detailed information on location of these habitats. • OMNRF District • Natural Heritage Information Center (NHIC) has location information available on their website • Field Naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes • SWHMiST Index #21 provides development effects and mitigation measures.	No cliffs or talus slopes associated with property or adjacent lands. Not Applicable.
Sand Barren **Rationale;** Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry	ELC Ecosites: SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always ≤ 60%.	Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered, but less than 60%.	A sand barren area >0.5ha in size. Information Sources • MNRF Districts • Natural Heritage Information Center (NHIC) has location information available on their website. • Field Naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Sand Barrens • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic *sp*.) • SWHMiST Index #20 provides development effects and mitigation measures.	No sand barrens associated with property or adjacent lands. Not Applicable..
Alvar **Rationale;** Alvars are extremely rare habitats in Ecoregion 6E. Most alvars in Ontario are in Ecoregions 6E and 7E. Alvars in 6E are small and highly localized just north of the Palaeozoic-Precambrian contact.	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 **Five Alvar Species:** 1) *Carex crawei* 2) *Panicum philadelphicum* 3) *Eleocharis compressa* 4) *Scutellaria parvula* 5) *Trichostema brachiatum* These indicator species are very specific to Alvars within Ecoregion 6E.	An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species. Vegetation cover varies from patchy to barren with a less than 60% tree cover.	An Alvar site > 0.5 ha in size. Information Sources • Alvars of Ontario (2000), Federation of Ontario Naturalists. • Ontario Nature – Conserving Great Lakes Alvars. • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	• Field studies that identify four of the five **Alvar Indicator Species** at a Candidate Alvar site is Significant. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic *sp*.). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses. • SWHMiST Index #17 provides development effects and mitigation measures.	No alvar associated with property or adjacent lands. Not Applicable.

Table 7. Significant Wildlife Habitat Assessment, Orsi Lands (Midland).

Rare Vegetation Community	Candidate SWH			Confirmed SWH	Assessment
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
Old Growth Forest **Rationale:** Due to historic logging practices, extensive old growth forest is rare in the Ecoregion. Interior habitat provided by old growth forests is required by many wildlife species.	Forest Community Series: FOD FOC FOM SWD SWC SWM	Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest. Information Sources • OMNRF Forest Resource Inventory mapping • OMNRF Districts. • Field Naturalist clubs • Conservation Authorities • Sustainable Forestry Licence (SFL) companies will possibly know locations through field operations. • Municipal forestry departments	Field Studies will determine: • If dominant trees species are >140 years old, then the area containing these trees is Significant Wildlife Habitat. • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present). • The area of forest ecosites combined or an eco-element within an ecosite that contains the old growth characteristics is the SWH. • Determine ELC vegetation types for the forest area containing the old growth characteristics. • SWHMiST Index #23 provides development effects and mitigation measures.	No old growth forest associated with property or adjacent lands. Not Applicable.
Savannah **Rationale:** Savannahs are extremely rare habitats in Ontario.	TPS1 TPS2 TPW1 TPW2 CUS2	A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%.	No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	Field studies confirm one or more of the Savannah indicator species listed in Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 6E should be used. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • SWHMiST Index #18 provides development effects and mitigation measures.	No savannah associated with property or adjacent lands. Not Applicable.
Tallgrass Prairie **Rationale:** Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover.	No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	Field studies confirm one or more of the Prairie indicator species listed in Appendix N should be present. Note: Prairie plant spp. list from Ecoregion 6E should be used. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • SWHMiST Index #19 provides development effects and mitigation measures.	No tallgrass prairie associated with property or adjacent lands. Not Applicable.
Other Rare Vegetation Communities **Rationale:** Plant communities that often contain rare species which depend on the habitat for survival.	Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M The OMNRF/NHIC will have up to date listing for rare vegetation communities. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG. • Area of the ELC Vegetation Type polygon is the SWH. • SWHMiST Index #37 provides development effects and mitigation measures.	None provincially rare vegetation communities associated with property or adjacent lands. Not Applicable.

Table 7. Significant Wildlife Habitat Assessment, Orsi Lands (Midland).

5.2.2 Specialized Habitat for Wildlife

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Waterfowl Nesting Area **Rationale;** Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4 **Note: includes adjacency to Provincially Significant Wetlands**	A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur. • Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. Information Sources • Ducks Unlimited staff may know the locations of particularly productive nesting sites. • OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. • Reports and other information available from Conservation Authorities.	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards, or; • Presence of 10 or more nesting pairs for listed species including Mallards. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest. • SWHMiST Index #25 provides development effects and mitigation measures.	Single pair of Mallard observed during nesting season on adjacent lands. None of other listed species observed on or adjacent to property. No paired waterfowl observed on the Orsi lands. Not Applicable.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat **Rationale;** Nest sites are fairly uncommon in Eco-region 6E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey **Special Concern** Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. • Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree’s canopy. • Nests located on man-made objects are not to be included as SWH (*e.g.* telephone poles and constructed nesting platforms). Information Sources • Natural Heritage Information Center (NHIC) compiles all known nesting sites for Bald Eagles in Ontario. • MNRF values information (LIO/NRVIS) will list known nesting locations. Note: data from NRVIS is provided as a point and does not represent all the habitat. • Nature Counts, Ontario Nest Records Scheme data. • OMNRF Districts • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented • Reports and other information available from Conservation Authorities. • Field Naturalists clubs	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area. • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. • For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH, maintaining undisturbed shorelines with large trees within this area is important. • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat. • To be significant a site must be used annually. When found inactive, the site must be known to be inactive for > 3 years or suspected of not being used for >5 years before being considered not significant. • Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid March to mid August. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #26 provides development effects and mitigation measures.	No evidence of Bald Eagle or Osprey utilizing property or adjacent land. Not Applicable.

Table 7. Significant Wildlife Habitat Assessment, Orsi Lands (Midland).

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Woodland Raptor Nesting Habitat **<u>Rationale:</u>** Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by these species.	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3	All natural or conifer plantation woodland/forest stands >30ha with >10ha of interior habitat. Interior habitat determined with a 200m buffer • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers Hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest. <u>Information Sources</u> • OMNRF Districts. • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented. • Check data from Bird Studies Canada. • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of 1 or more active nests from species list is considered significant. • Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha area of habitat is the SWH . (The 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest). • Barred Owl – A 200m radius around the nest is the SWH. • Broad-winged Hawk and Coopers Hawk– A 100m radius around the nest is the SWH. • Sharp-Shinned Hawk – A 50m radius around the nest is the SWH. • Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial. (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. • SWHMiST Index #27 provides development effects and mitigation measures.	No stick nests observed during multiple site-visits. None of the listed species observed on or adjacent to property. Not Applicable.
Turtle Nesting Areas **<u>Rationale;</u>** These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	Midland Painted Turtle <u>Special Concern Species</u> Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. <u>Information Sources</u> • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. • Natural Heritage Information Center (NHIC) • Field Naturalist clubs	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles. • One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependant on slope, riparian vegetation and adjacent land use is the SWH. • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat. • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. • SWHMiST Index #28 provides development effects and mitigation measures for turtle nesting habitat.	No turtles, signs of turtle nesting or suitable habitat (i.e., ponds) detected on or adjacent to the property. Not Applicable.

Table 7. Significant Wildlife Habitat Assessment, Orsi Lands (Midland).

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Seeps and Springs **Rationale;** Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Seeps/Springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system. • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species. Information Sources • Topographical Map • Thermography • Hydrological surveys conducted by Conservation Authorities and MOE. • Field Naturalists clubs and landowners. • Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped.	Field Studies confirm: • Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of a ELC forest ecosite or an ecoelement within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat. • SWHMiST Index #30 provides development effects and mitigation measures.	No seeps or springs observed on or adjacent to property (Note: trickle flow within watercourse not considered seep/spring in context of SWH but rather a watercourse function – see Section 4.4 for drainage feature considerations)**.**
Amphibian Breeding Habitat (Woodland). **Rationale:** These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	• Presence of a wetland, pond or woodland pool (including vernal pools) >500m^2 (about 25m diameter) within or adjacent (within 120m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat. Information Sources • Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records. • Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. • OMNRF District • OMNRF wetland evaluations • Field Naturalist clubs • Canadian Wildlife Service • Amphibian Road Call Survey • Ontario Vernal Pool Association: http://www.ontariovernalpools.org	Studies confirm; • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog species with Call Level Codes of 3. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the wetland area plus a 230m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat. • SWHMiST Index #14 provides development effects and mitigation measures.	As per the results of evening calling amphibian surveys (Table 3, Figure 3) the Orsi lands revealed calling by a single Spring Peeper early in the season. Amphibian activity on adjacent lands was limited to one of the listed species (Spring Peeper) with Call Level Code of 3 in one off-site location. Activity levels indicate no significant function attributable to property or adjacent lands. Not Applicable.

Table 7. Significant Wildlife Habitat Assessment, Orsi Lands (Midland).

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Amphibian Breeding Habitat (Wetlands) **Rationale;** Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (*e.g.* Bull Frog) may be adjacent to woodlands.	• Wetlands>500m^2 (about 25m diameter), supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. • Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. • Bullfrogs require permanent water bodies with abundant emergent vegetation. Information Sources • Ontario Herpetofaunal Summary Atlas (or other similar atlases) • Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. • OMNRF Districts and wetland evaluations • Reports and other information available from Conservation Authorities	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3. **or;** Wetland with confirmed breeding Bullfrogs are significant. • The ELC ecosite wetland area and the shoreline are the SWH. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. • If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #15 provides development effects and mitigation measures.	Assessed as Woodland function above. Not Applicable.
Woodland Area-Sensitive Bird Breeding Habitat **Rationale:** Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren **Special Concern:** Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	• Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. • Interior forest habitat is at least 200 m from forest edge habitat. Information Sources • Local bird clubs. • Canadian Wildlife Service (CWS) for the location of forest bird monitoring. • Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to determine what forests were of greatest value to interior species. • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. • Conduct field investigations in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #34 provides development effects and mitigation measures.	None of listed species detected on or adjacent to property during breeding bird surveys**.** Not Applicable.

Table 7. Significant Wildlife Habitat Assessment, Orsi Lands (Midland).

5.3 Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Marsh Breeding Bird Habitat **Rationale;** Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane Green Heron Trumpeter Swan **Special Concern:** Black Tern Yellow Rail	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites.	• Nesting occurs in wetlands. • All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present. • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water. Information Sources • OMNRF District and wetland evaluations. • Field Naturalist clubs • Natural Heritage Information Center (NHIC) Records. • Reports and other information available from Conservation Authorities. • Ontario Breeding Bird Atlas	Studies confirm: • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or 1 pair of Sandhill Cranes; **or** breeding by any combination of 5 or more of the listed species. • Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. • Area of the ELC ecosite is the SWH. • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #35 provides development effects and mitigation measures.	None of listed species detected on or adjacent to property. Not Applicable.
Open Country Bird Breeding Habitat Sources Defining Criteria **Rationale;** This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow **Special Concern** Short-eared Owl	CUM1 CUM2	Large grassland areas (includes natural and cultural fields and meadows) >30 ha. • Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years). • Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. • The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species. Information Sources • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs. • Ontario Breeding Bird Atlas • Reports and other information available from Conservation Authorities.	Field Studies confirm: • Presence of nesting or breeding of 2 or more of the listed species. • A field with 1 or more breeding Short-eared Owls is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #32 provides development effects and mitigation measures.	No large grasslands associated with property and adjacent lands. None of listed species detected. Not Applicable.
Shrub/Early Successional Bird Breeding Habitat **Rationale;** This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records.	Indicator Spp: Brown Thrasher Clay-coloured Sparrow Common Spp. Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher **Special Concern:** Yellow-breasted Chat Golden-winged Warbler	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species	Large field areas succeeding to shrub and thicket habitats>10ha in size. • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (*i.e.* no row-cropping, haying or live-stock pasturing in the last 5 years). • Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species. • Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. Information Sources • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs • Ontario Breeding Bird Atlas • Reports and other information available from Conservation Authorities.	Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species. • A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat. • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #33 provides development effects and mitigation measures.	No indicator and none of listed common species detected. Not Applicable.

Table 7. Significant Wildlife Habitat Assessment, Orsi Lands (Midland).

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Terrestrial Crayfish **<u>Rationale:</u>** Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	Chimney or Digger Crayfish; (*Fallicambarus fodiens*) Devil Crayfish or Meadow Crayfish; (*Cambarus Diogenes*)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh or swamp ecosites can be used by terrestrial crayfish.	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can't be too moist. Can often be found far from water. • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed. <u>Information Sources</u> • Information sources from "Conservation Status of Freshwater Crayfishes" by Dr. Premek Hamr for the WWF and CNF March 1998.	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. • Area of ELC ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH. • Surveys should be done April to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult. • SWHMiST Index #36 provides development effects and mitigation measures.	No terrestrial crayfish burrows observed on property. Not Applicable.
Special Concern and Rare Wildlife Species **<u>Rationale:</u>** These species are quite rare or have experienced significant population declines in Ontario.	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre.	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites <u>Information Sources</u> • Natural Heritage Information Centre (NHIC) will have Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data. • NHIC Website "Get Information" : http://nhic.mnr.gov.on.ca • Ontario Breeding Bird Atlas • Expert advice should be sought as many of the rare spp. have little information available about their requirements.	Studies Confirm: • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species *e.g.* specific nesting habitat or foraging habitat. • SWHMiST Index #37 provides development effects and mitigation measures.	No Special Concern species detected on or adjacent to property. Black Ash (S3) observed in one vegetation community. Not Applicable - See Section 5.5 for rational.

5.4 Animal Movement Corridors

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria	
Amphibian Movement Corridors **Rationale;** Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Corridors may be found in all ecosites associated with water. • Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1	Movement corridors between breeding habitat and summer habitat. • Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (**Amphibian Breeding Habitat –Wetland)** of this Schedule. Information Sources • MNRF District Office • Natural Heritage Information Center (NHIC) • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs	• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. • Corridors should consist of native vegetation, with several layers of vegetation. • Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant. • Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps <20m. • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat. • SWHMiST Index #40 provides development effects and mitigation measures.	No significant amphibian breeding activity on or adjacent to property. Subject and adjacent lands do not provide characteristics associated with Amphibian Breeding Habitat - Wetlands. Not Applicable.
Deer Movement Corridors **Rationale:** Corridors important for all species to be able to access seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.	White-tailed Deer	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	Movement corridor must be determined when **Deer Wintering Habitat** is confirmed as SWH from Table 1.1 of this schedule. • A deer wintering habitat identified by the OMNRF as SWH in Table 1.1 of this Schedule will have corridors that the deer use during fall migration and spring dispersion. • Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges). Information Sources • MNRF District Office • Natural Heritage Information Center (NHIC). • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs	• Studies must be conducted at the time of year when deer are migrating or moving to and from winter concentration areas. • Corridors that lead to a deer wintering habitat should be unbroken by roads and residential areas. • Corridors should be at least 200m wide with gaps <20m and if following riparian area with at least 15m of vegetation on both sides of waterway. • Shorter corridors are more significant than longer corridors. • SWHMiST Index #39 provides development effects and mitigation measures.	No deer yard associated with property or adjacent lands. Not Applicable.

5.5 Exceptions for EcoRegion 6E

EcoDistrict	Wildlife Habitat and Species	Candidate			Confirmed SWH	Assessment
		Ecosites	Habitat Description	Habitat Criteria and Information	Defining Criteria	
6E-14 **Rationale:** The Bruce Peninsula has an isolated and distinct population of black bears. Maintenance of large woodland tracts with mast-producing tree species is important for bears.	**Mast Producing Areas** Black Bear	All Forested habitat represented by ELC Community Series: FOM FOD	• Black bears require forested habitat that provides cover, winter hibernation sites, and mast-producing tree species. • Forested habitats need to be large enough to provide cover and protection for black bears.	Woodland ecosites >30ha with mast-producing tree species, either soft (cherry) or hard (oak and beech). Information Sources Important forest habitat for black bears may be identified by OMNRF.	All woodlands > 30ha with a 50%composition of these ELC Vegetation Types are considered significant: FOM1-1 FOM2-1 FOM3-1 FOD1-1 FOD1-2 FOD2-1 FOD2-2 FOD2-3 FOD2-4 FOD4-1 FOD5-2 FOD5-3 FOD5-7 FOD6-5 SWHMiST Index #3 provides development effects and mitigation measures.	The property is not located on the Bruce Peninsula. Not Applicable.
6E- 17 **Rationale:** Sharp-tailed grouse only occur on Manitoulin Island in Eco-region 6E, Leks are an important habitat to maintain their population	Lek Sharp-tailed Grouse	CUM CUS CUT	• The lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography. • Leks are typically a grassy field/meadow >15ha with adjacent shrublands and >30ha with adjacent deciduous woodland. Conifer trees within 500m are not tolerated.	Grasslands (field/meadow) are to be >15ha when adjacent to shrubland and >30ha when adjacent to deciduous woodland. • Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying) • Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting Information Sources • OMNRF district office • Bird watching clubs • Local landowners • Ontario Breeding Bird Atlas	Studies confirming lek habitat are to be completed from late March to June. • Any site confirmed with sharp-tailed grouse courtship activities is considered significant • The field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the lek habitat • SWHMiST Index #32 provides development effects and mitigation measures	The property is not located on Manitoulin Island. Not Applicable

APPENDICES

Appendix A: **EIA Terms of Reference**
Appendix B: **SAR Info Requests**
Appendix C: **Background Mapping**
Appendix D: **Stream Flow Assessment**
Appendix E: **Site Photos**
Appendix F: **Tree Clearing Correspondence**
Appendix G: **SAR Assessment**
Appendix H: **Woodland Patch Mapping**
Appendix I: **Draft Plan**

APPENDIX A

EIA Terms of Reference

Jim Broadfoot

From: Jim Broadfoot
Sent: June-14-18 3:18 PM
To: wcrown@midland.ca; Michelle Hudolin
Cc: 'Nicola Mitchinson'; kcave_cpm@rogers.com; Michael Gillespie
Subject: FW: Pratt Midland - EIS Revised Terms of Reference

Wes Crown -Director of Planning and Building Services, Town of Midland
Michelle Hudolin, Wetlands & Habitat Biologist, Severn Sound Environmental Association (SSEA)

Hello Wes, Michelle:

It was a pleasure speaking with you today. I trust that the information shared with respect to drainage feature observation under high (April 27) and low (June 13) flow conditions was helpful. As per Azimuth's observations: the perched culverts under William Street present an impassible barrier to fish moving upstream onto the property; under low flow all but the extreme downstream end of the mapped drainage channel dries up; and no fish were observed under high or low flow conditions. As discussed, an aquatic ecologist from Azimuth will be completing a further assessment of drainage features under summer conditions. Azimuth's drainage feature assessment will address the items identified in the Terms of Reference for the EIS listed below. It is our understanding that based on the nature of the drainage features, no additional sampling beyond what has been identified to date is required.

As discussed, by this email I advise the landowner (Pratt Development) that the Town and SSEA seek permission to attend the property to assess existing conditions (Nicola, Ken – please advise the Town/SSEA).

Please do not hesitate to call to discuss.

Thank you,

Jim Broadfoot, Terrestrial Ecologist

Azimuth Environmental
642 Welham Road
Barrie, ON
L4N 9A1
(705) 721-8451 x 206
Mobile (705) 427-3422

Providing services in hydrogeology, terrestrial and aquatic ecology & environmental engineering

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From: Jim Broadfoot
Sent: June-12-18 12:45 PM
To: 'Wes Crown'

Cc: Michelle Hudolin
Subject: RE: Pratt Midland - EIS Revised Terms of Reference

Wes Crown, Director of Planning and Building Services
Town of Midland

Hello Wes:

Would like to discuss provision of findings of early season drainage feature assessment with you. Would you be available for a phone call at 2:00p.m. Thursday (June 14th)? **Please advise**.

Thank you,

J b'foot

Jim Broadfoot, Terrestrial Ecologist

Azimuth Environmental
642 Welham Road
Barrie, ON
L4N 9A1
(705) 721-8451 x 206
Mobile (705) 427-3422

Providing services in hydrogeology, terrestrial and aquatic ecology & environmental engineering

---

From: Wes Crown [mailto:wcrown@midland.ca]
Sent: June-01-18 9:53 AM
To: Jim Broadfoot
Cc: Michelle Hudolin
Subject: RE: Pratt Midland - EIS Revised Terms of Reference

Hi Jim,
It would be helpful to be provided with the findings of the early season assessment of drainage features. This should help determine whether any additional sampling or assessment is required beyond what is outlined in the revised Terms of Reference.

The assessment of drainage features should also include a description of:

- in-stream and riparian vegetative cover (presence and extent) and shading
- in-stream habitat features and structures
- critical habitats (spawning, nursery or rearing grounds)
- groundwater contributions (discharge and upwellings)
- connections with upstream and downstream reaches
- anthropogenic and other disturbances
- rehabilitation/enhancement opportunities

As always, while we have provided input on the ToR the consultant is fully responsible to preparing the report in accordance with standard EIS best practices and addressing the requirements of federal and provincial

legislation and policy guidelines. Town and/or SSEA, on review of the EIS, may identify additional subject matters or fieldwork that may be required based on our review. Subject to the above and this statement, the Town and SSEA find the draft ToR acceptable.

Regards,
WES

Wesley R. Crown, MCIP, RPP
Director of Planning and Building Services
Town of Midland
575 Dominion Avenue,
Midland, Ontario.
L4R 1R2
P 705.526.4275 ext. 2216
F 705.526.9971

Please consider the environment before printing this email.

From: Jim Broadfoot [mailto:Jim@Azimuthenvironmental.Com]
Sent: May 31, 2018 4:22 PM
To: Wes Crown
Cc: Michelle Hudolin
Subject: RE: Pratt Midland - EIS Revised Terms of Reference

Wesley R. Crown, Director of Planning and Building Services
Town of Midland

Hello Wes:

As requested, revised EIS Terms of Reference provided for confirmation follows (revisions in red).

Please do not hesitate to call to discuss.

Thank you,

Jim Broadfoot, Terrestrial Ecologist

Azimuth Environmental
642 Welham Road
Barrie, ON
L4N 9A1
(705) 721-8451 x 206

Revised EIS Terms of Reference (with input from the SSEA)

Hello Mr. Crown:

Azimuth has been retained to complete an Environmental Impact Study (EIS) related to development under consideration for a property located at 16533 Highway 12, Midland (see attached map of subject lands). It is our understanding that the Town of Midland will be relying on the Severn Sound Environmental Association (SSESA) to establish a Terms of Reference for the EIS. To that end, please forward this email to Michelle Hudolin (Wetlands & Habitat Biologist, SSEA) to begin the process.

The property is approximately 16ha in size and for the most part naturally vegetated – mix of tree and shrub cover (see map attached). Simcoe County mapping indicates that "MNR Unevaluated Wetland" has been delineated on a portion of the property. There is a mapped drainage feature on the property. Based on these characteristics we recommend the following scope of work for the EIS:

- Azimuth would be please to accompany SSEA staff should they wish to conduct a site visit during the preparation or review of the EIS, at reasonable times and on reasonable prior notice.
- Submit an Information Request to the Ministry of Natural Resources & Forestry (MNRF) Midhurst District to identify Species at Risk (SAR) of concern in the area and establish if significant natural heritage features or functions have been identified on or adjacent to the property. The EIS will include copies of correspondence with relevant agencies (e.g. MNRF). Note that information on the location of many federal and provincial SAR should be treated as sensitive data, and in these cases, information must be disclosed to the municipality and applicable agencies in a manner that does not make it part of public record (e.g., mapping/ information provided separate from the main report, subject to restricted access);
- Complete a SAR assessment (including work related to bats) based on data provided by the MNRF and available in other background data for the area and as identified through field studies;
- Complete three evening calling amphibian surveys following the methods of the Marsh Monitoring Program (early May [late start to breeding season], mid-May, June 2018);
- Conduct two dawn breeding bird surveys (June, 2018) to determine if the property and adjacent lands function as habitat for SAR;
- Conduct evening surveys in late May/early June (2018) under full to near full moon conditions to address the potential for the following SAR birds that may utilize habitat on or adjacent to the property: Eastern Whip-poor-will (Threatened); Common Nighthawk (Special Concern);
- Map vegetation communities of the property using the protocols of the Ecological Land Classification (ELC) for southern Ontario;
- Conduct two vascular plant surveys (June, late August/September 2018);
- Assess the health of any Butternut trees identified on-site according to provincial Butternut Health Assessment guidelines (June/July 2018);
- In reporting, describe to the following:
    - Date, time, and duration of field work/survey [incl. start time, end time of site investigations]
    - Sampling locations and/or area searched [i.e., identified on a map]
    - Purpose of field work and survey protocol(s) used/ summary of investigation methods

- Relevant temperature and weather conditions during site investigations [cloud cover, wind speed, precipitation (type and amount)]
- Personnel involved [name and qualifications];

- Record all wildlife observations (mammals, reptiles, amphibians & birds) and assess wildlife habitat function of the property according to the Significant Wildlife Habitat Ecoregion 6E Criteria of the MNRF;
- Complete an assessment of drainage features to define seasonal flow characteristics and characterize fish habitat potential. This will include an early season assessment of all drainage features (not just those currently mapped) under high flow (done April 27th) and follow-up assessment of under low flow/summer condition. The assessment will include description of channel characteristics: dimensions (bank full & wetted width, depth); flow; water clarity; substrate. Spot temperatures will be taken during the summer/low flow period to define thermal profile. Barriers to fish passage will be assessed. No fish sampling is proposed.;
- Map vegetation communities and other environmental features (e.g. drainage features, wetlands, areas of ground water discharge, etc.) on an air photo base;
- Assess the potential direct and indirect impacts of development proposed for the property on sensitive or significant environmental features identified in background and site-specific data; and,
- ~~Compile a list of recommendations to avoid and/or mitigate the potential for negative environmental impacts.~~ The EIS will identify recommendations to avoid and/or mitigate the potential for negative environmental impacts on significant features/ecological functions identified, including establishing appropriate buffers to significant natural heritage features based on an ecological rationale that will protect the features and their associated functions from anticipated or potential impacts of development.
- The EIS will also identify permitting requirements in situations where impact avoidance is not possible or mitigatable.

From: Wes Crown [mailto:wcrown@midland.ca]
Sent: May-31-18 11:18 AM
To: Jim Broadfoot
Cc: Michelle Hudolin
Subject: FW: Pratt Midland - EIS

Jim,
We received this today. Please send the revised ToR for confirmation as soon as possible.

Regards,
WES
Wesley R. Crown, MCIP, RPP
Director of Planning and Building Services
Town of Midland
575 Dominion Avenue,
Midland, Ontario.
L4R 1R2
P 705.526.4275 ext. 2216
F 705.526.9971

Please consider the environment before printing this email.

Scent Sensitivity in our Workplace
Exposure to scented products can affect people in the workplace. Please refrain from using and wearing scented products in the workplace. Thank you for your cooperation.

From: Michelle Hudolin
Sent: May 31, 2018 11:01 AM
To: Wes Crown
Subject: RE: Pratt Midland - EIS

Hello Wes,

I have reviewed the proposed Terms of Reference (TOR) provided by Jim Broadfoot of Azimuth Environmental for 16533 Highway 12, Midland.

We would like more details on the timing and methodology planned for fish/aquatic surveys to be included in the Terms of Reference.

I offer the following additional comments/clarification.

1. SSEA staff may wish to conduct a site visit during the preparation or review of the EIS, at reasonable times and on reasonable prior notice.

2. The EIS must identify recommendations to avoid and/or mitigate the potential for negative environmental impacts on any features/ecological functions identified, including establishing appropriate buffers to natural heritage features based on an ecological rationale that will protect the features and their associated functions from anticipated or potential impacts of development.

3. The EIS should include copies of correspondence with relevant agencies (e.g. MNRF). Note that information on the location of many federal and provincial Species At Risk (SAR) should be treated as sensitive data, and in these cases, information must be disclosed to the municipality and applicable agencies in a manner that does not make it part of public record (e.g., mapping/ information provided separate from the main report, subject to restricted access).

Please contact me with any questions. We would be pleased to review a revised Terms of Reference that addresses the comments above.

Best regards,
Michelle

Michelle Hudolin
Wetlands & Habitat Biologist

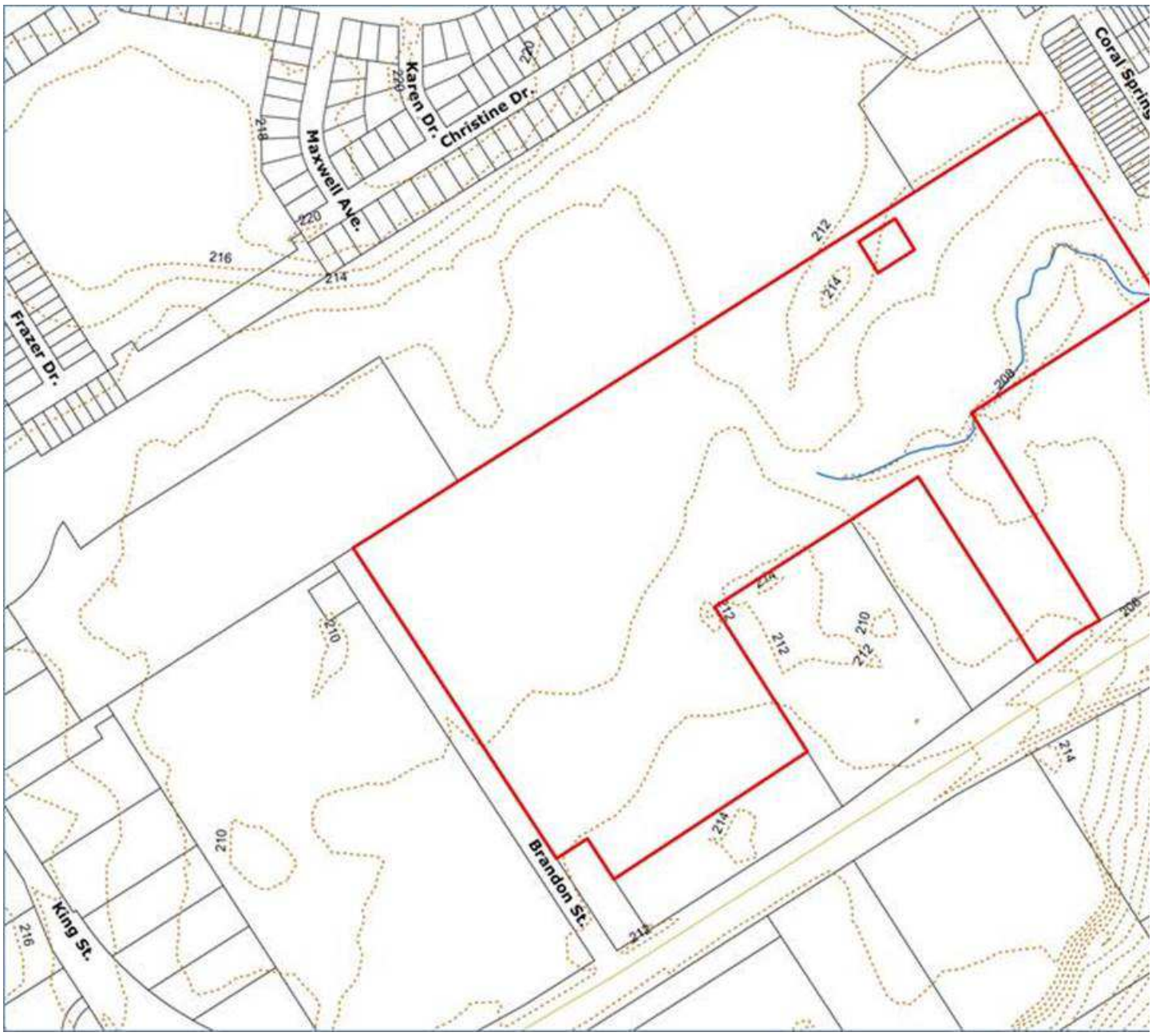
Severn Sound Environmental Association
67 Fourth Street
Midland ON L4R 3S9
Tel: 705-527-5166 ext. 202
Fax: 705-527-5167
Email: mhudolin@midland.ca
Web-site: www.severnsound.ca
Twitter: @SSEA_SSRAP

From: Wes Crown
Sent: May-14-18 10:24 AM
To: Michelle Hudolin
Subject: FW: Pratt Midland - EIS

Hi Michelle,
Pratt Developments is proposing to move its SWM pond from its subdivision lands (Block 129 and Part 11, 51R-32441) to the lands to the south (16533 Highway 12) that it recently purchased. The SWM pond is the only part of the development being relocated and will include an open ditch to the SWM pond and an outlet to the existing watercourse.

We have requested an EIS and draft TOR for same to be submitted to the Town.

I am looking for your comments on the draft ToR from Azimuth and an estimate for the cost for your review of the EIS once submitted. It is my understanding that the water course on the property may be a cold water stream or the stream is classified as cold water on the east side of William Street. I am specifically looking for guidance in respect of the work required (hydrology, aquatic, etc) to appropriate assess the stream itself.



Thanks. Give me a call of you have any questions.

Regards,

WES

Wesley R. Crown, MCIP, RPP
Director of Planning and Building Services
Town of Midland
575 Dominion Avenue,
Midland, Ontario.
L4R 1R2
P 705.526.4275 ext. 2216
F 705.526.9971

Scent Sensitivity in our Workplace

Exposure to scented products can affect people in the workplace. Please refrain from using and wearing scented products in the workplace. Thank you for your cooperation.

From: Jim Broadfoot [mailto:Jim@Azimuthenvironmental.Com]
Sent: May 11, 2018 11:43 AM
To: Wes Crown
Cc: Nicola Mitchinson
Subject: FW: Pratt Midland - EIS

Wes Crown, Director Planning & Development
Town of Midland

Hello Mr. Crown:

Azimuth has been retained to complete an Environmental Impact Study (EIS) related to development under consideration for a property located at 16533 Highway 12, Midland (see attached map of subject lands). It is our understanding that the Town of Midland will be relying on the Severn Sound Environmental Association (SSESA) to establish a Terms of Reference for the EIS. To that end, please forward this email to Michelle Hudolin (Wetlands & Habitat Biologist, SSEA) to begin the process.

The property is approximately 16ha in size and for the most part naturally vegetated – mix of tree and shrub cover (see map attached). Simcoe County mapping indicates that "MNR Unevaluated Wetland" has been delineated on a portion of the property. There is a mapped drainage feature on the property. Based on these characteristics we recommend the following scope of work for the EIS:

- Submit an Information Request to the Ministry of Natural Resources & Forestry (MNRF) Midhurst District to identify Species at Risk (SAR) of concern in the area and establish if significant natural heritage features or functions have been identified on or adjacent to the property;
- Complete a SAR assessment (including work related to bats) based on data provided by the MNRF and available in other background data for the area and as identified through field studies;
- Complete three evening calling amphibian surveys following the methods of the Marsh Monitoring Program (early May [late start to breeding season], mid-May, June 2018);
- Conduct two dawn breeding bird surveys (June, 2018) to determine if the property and adjacent lands function as habitat for SAR;
- Conduct evening surveys in late May/early June (2018) under full to near full moon conditions to address the potential for the following SAR birds that may utilize habitat on or adjacent to the property: Eastern Whip-poor-will (Threatened); Common Nighthawk (Special Concern);
- Map vegetation communities of the property using the protocols of the Ecological Land Classification (ELC) for southern Ontario;
- Conduct two vascular plant surveys (June, late August/September 2018);
- Assess the health of any Butternut trees identified on-site according to provincial Butternut Health Assessment guidelines (June/July 2018);
- In reporting, describe to the following:
    - Date, time, and duration of field work/survey [incl. start time, end time of site investigations]

    - Sampling locations and/or area searched [i.e., identified on a map]
    - Purpose of field work and survey protocol(s) used/ summary of investigation methods
    - Relevant temperature and weather conditions during site investigations [cloud cover, wind speed, precipitation (type and amount)]
    - Personnel involved [name and qualifications];
- Record all wildlife observations (mammals, reptiles, amphibians & birds) and assess wildlife habitat function of the property according to the Significant Wildlife Habitat Ecoregion 6E Criteria of the MNRF;
- Complete an assessment of drainage features to define seasonal flow characteristics and characterize fish habitat potential;
- Map vegetation communities and other environmental features (e.g. drainage features, wetlands, areas of ground water discharge, etc.) on an air photo base;
- Assess the potential direct and indirect impacts of development proposed for the property on sensitive or significant environmental features identified in background and site-specific data; and,
- Compile a list of recommendations to avoid and/or mitigate the potential for negative environmental impacts.

We look forward to your response.

Please do not hesitate to call to discuss.

Thank you,

Jim Broadfoot, Terrestrial Ecologist

Azimuth Environmental
642 Welham Road
Barrie, ON
L4N 9A1
(705) 721-8451 x 206
Mobile (705) 427-3422

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APPENDIX B

SAR Information Requests

Technical Memorandum

To: MIDHURSTINFO (MNRF, Midhurst District)

Re: Information Request – SAR & Fish Species/Thermal Regime

From: Jim Broadfoot, Azimuth Environmental

Project: 18-143

Date: September 6, 2018

Results of Initial Screening (see map):

- Property contains Unevaluated Wetlands and a watercourse (tributary of Wye River)
- No evaluated wetlands or ANSIs on property
- No Provincially Significant Wetlands or ANSIs within 120m of property (nearest approx. 400m to the south)

Results of field studies completed in 2018:

- Property contains forest cover (deciduous, mixed), open old-field and thicket cover
- No Species at Risk (SAR) birds detected on or adjacent to property during dawn bird surveys or nocturnal bird surveys in June
- No areas of surface water accumulation functioning as significant habitat for breeding amphibians, turtles, etc.
- No SAR plants detected during spring and summer surveys
- Flow in watercourse intermittent/storm responsive with sections typically dry during summer, no fish observed, large barrier (perched culvert) at William Street east of the property

Map Legend Items

Show All Legend Items

Imagery Services

Imagery captured in 2016

Topographic Features

Stream

- Intermittent
- Permanent
- Lake, Pond, River or Streams

Land Use Planning

- MNR Unevaluated Wetland
- MNR Evaluated Wetland

ANSI (Area of Natural and Scientific Interest)

- Provincial ANSI
- Regional ANSI

Legend generated using maps.simcoe.ca interactive mapping.

Generated on: Thursday, September 06 - 13:23:15 PM

Midhurst District MNRF
Information Request Form

Ontario

Name:	Jim Broadfoot
Company Name:	Azimuth Environmental Consulting Inc
Email Address:	jim@azimuthenvironmental.com
Phone Number:	705 721-8451 x 206
Project Name:	Pratt (Orsi lands) Midhurst
Property Address:	16533 Highway 12, Midland
Township/Municipality:	Town of Midland
Lot & Concession:	

UTM Coordinates: (NAD83)

590000 Easting (X)

4954270 Northing (Y)

Project Description: Future development of lands within the Town of Midland

Project Type: ☑ **Planning Act** ☐ **Aggregates Resources Act** ☐ **Environmental Assessment Act**

☐ **Other**

Have you previously contacted someone at MNRF for information on this site? Yes ☐ No ☑

If yes, when and who?

Prior to requesting information from MNRF, please review available online information and attach a summary of your initial screening. Please include a list of features/ habitats on site and summary of the species at risk that are reasonable to expect could be present based on the available habitats. Available MNRF species at risk, fisheries and natural heritage data can be found at Make a Natural Heritage Map, Land Information Ontario, and Species at Risk-Ontario

Please indicate in the box below, any additional information required.

Species at Risk information

Significant Wildlife Habitat designated on or adjacent to the property

Fish Species data and thermal regime classification related to tributary of Wye River that traverses a portion of the property and adjacent lands east of William Street (see map attached)

Note: INFO Request Memo provided as attachment to email

Please provide a map of accurate scale to illustrate footprint/study area of the proposed activity in relation to the surrounding landscape (e.g. property boundaries, roads, waterbodies, natural features, towns, and other human landmarks). Use of aerial photography is strongly encouraged. Include scale, north arrow and legend.

Please forward the completed form to: ***MIDHURSTINFO@ontario.ca***
Or send by mail:
Midhurst District, Ministry of Natural Resources and Forestry
2284 Nursery Road, Midhurst, ON L9X 1N8

Jim Broadfoot

From: Shirley, Brent (MNRF) <brent.shirley@ontario.ca>
Sent: September-07-18 10:46 AM
To: Jim Broadfoot
Subject: RE: Information Request - Pratt (Orsi) Lands, 16533 Highway 12, Midland

Hi Jim,

We do not have data for additional occurrences of species at risk beyond what you will find through the NHIC/LIO in the immediate area of your study area. However, as you are likely aware the species at risk records found in the NHIC database are not exhaustive and are based on **known** occurrences only. As a result, although there may be no record (or confirmation) of a species at risk on site it does not mean that they are not present if appropriate habitat exists. Due diligence is therefore still required and would include an appropriate consideration of what species could be present based on available habitat on and adjacent to your study site. Your field work should inform you on what species on the SARO list could possibly be encountered based on available habitats in the area of the study and the possible survey methodologies required during your site assessments.

I have screened the area for species at risk and have the following species for your consideration in your EIS; SAR bats, bank swallow, barn swallow, black tern, Blanding's turtle, bobolink, Canada warbler, Caspian tern, eastern meadowlark, eastern musk turtle, eastern prairie fringed orchid, eastern wood-pewee, least bittern, massasauga, monarch, short-eared owl, snapping turtle, wood thrush and three sensitive reptile species.

In the future, please send me a list of all SAR that you are considering in your EIS based on records in the area and habitat types on the subject lands.

We do not have any information on the watercourse that traverses the subject property.

Best Regards,

Brent Shirley

A/ Management Biologist
Midhurst District Ministry of Natural Resources & Forestry
2284 Nursery Rd
Midhurst, ON
L9X 1N8

Phone- 705-725-7547
Fax- 705-725-7584

From: Jim Broadfoot [mailto:Jim@Azimuthenvironmental.Com]
Sent: September 6, 2018 1:51 PM
To: MIDHURSTINFO (MNRF)
Subject: Information Request - Pratt (Orsi) Lands, 16533 Highway 12, Midland

MNRF Midhurst District

To Whom it May Concern:

Please provide the information requested on the attached form. Note: An IFO Request Memo is provided outlining preliminary findings/results of initial screening.

Please do not hesitate to contact me to discuss.

Jim Broadfoot, Terrestrial Ecologist

Azimuth Environmental
642 Welham Road
Barrie, ON
L4N 9A1
(705) 721-8451 x 206
Mobile (705) 623-1161 (***NOTE: NEW MOBILE #)***

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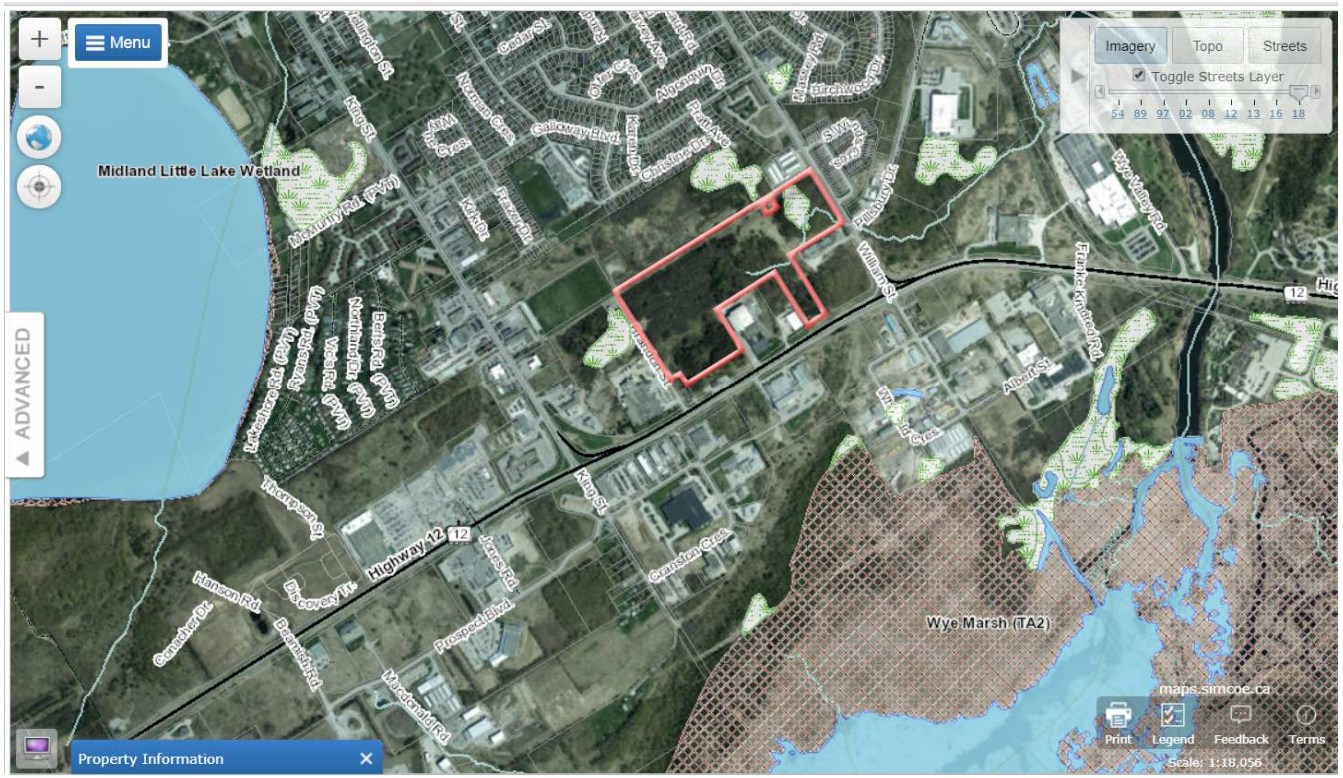
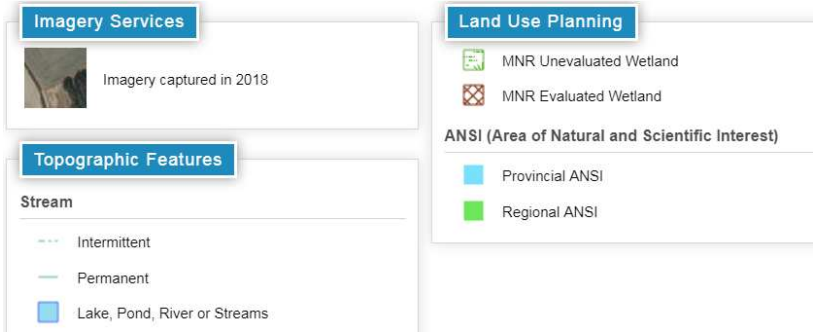
APPENDIX C

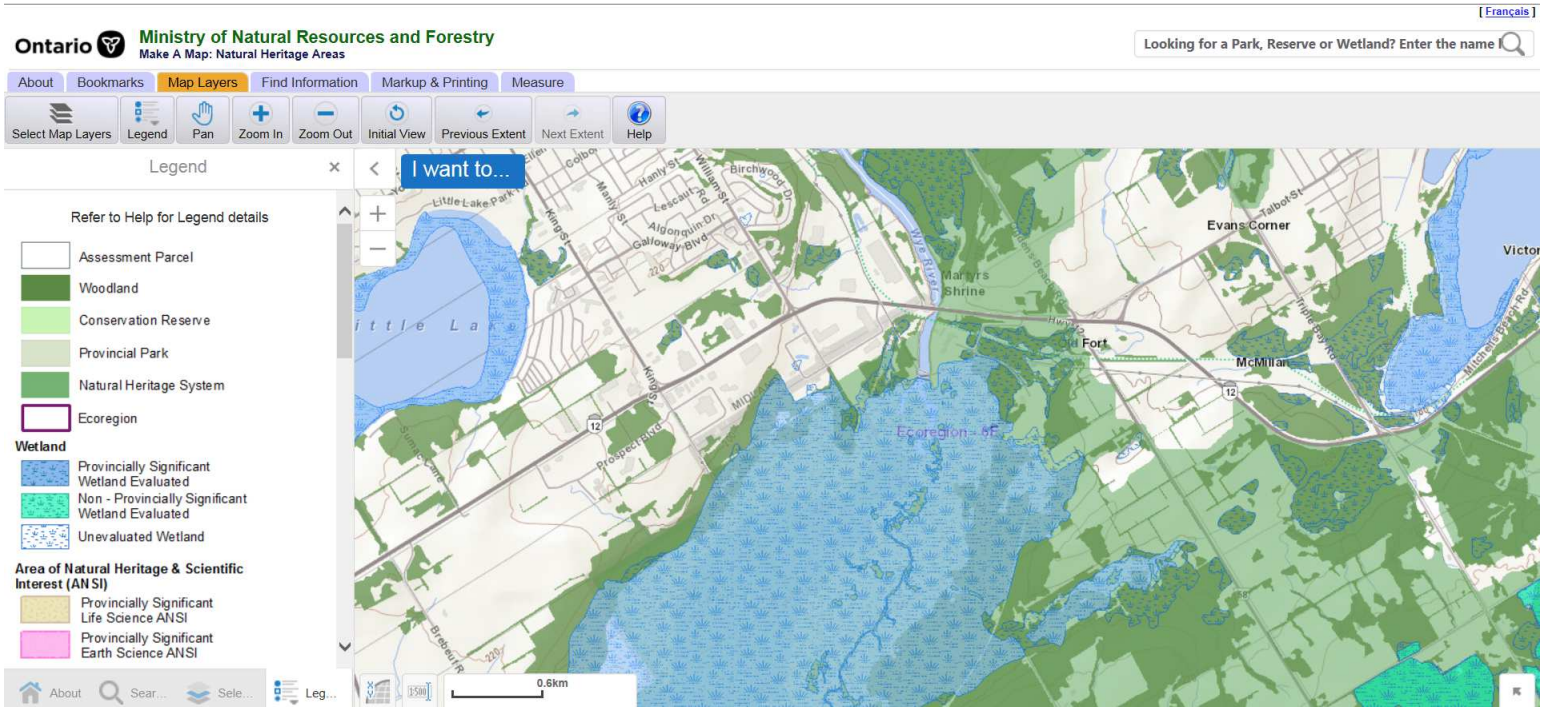
Background Mapping

1954 Air Photos (source https://maps.simcoe.ca/public/)

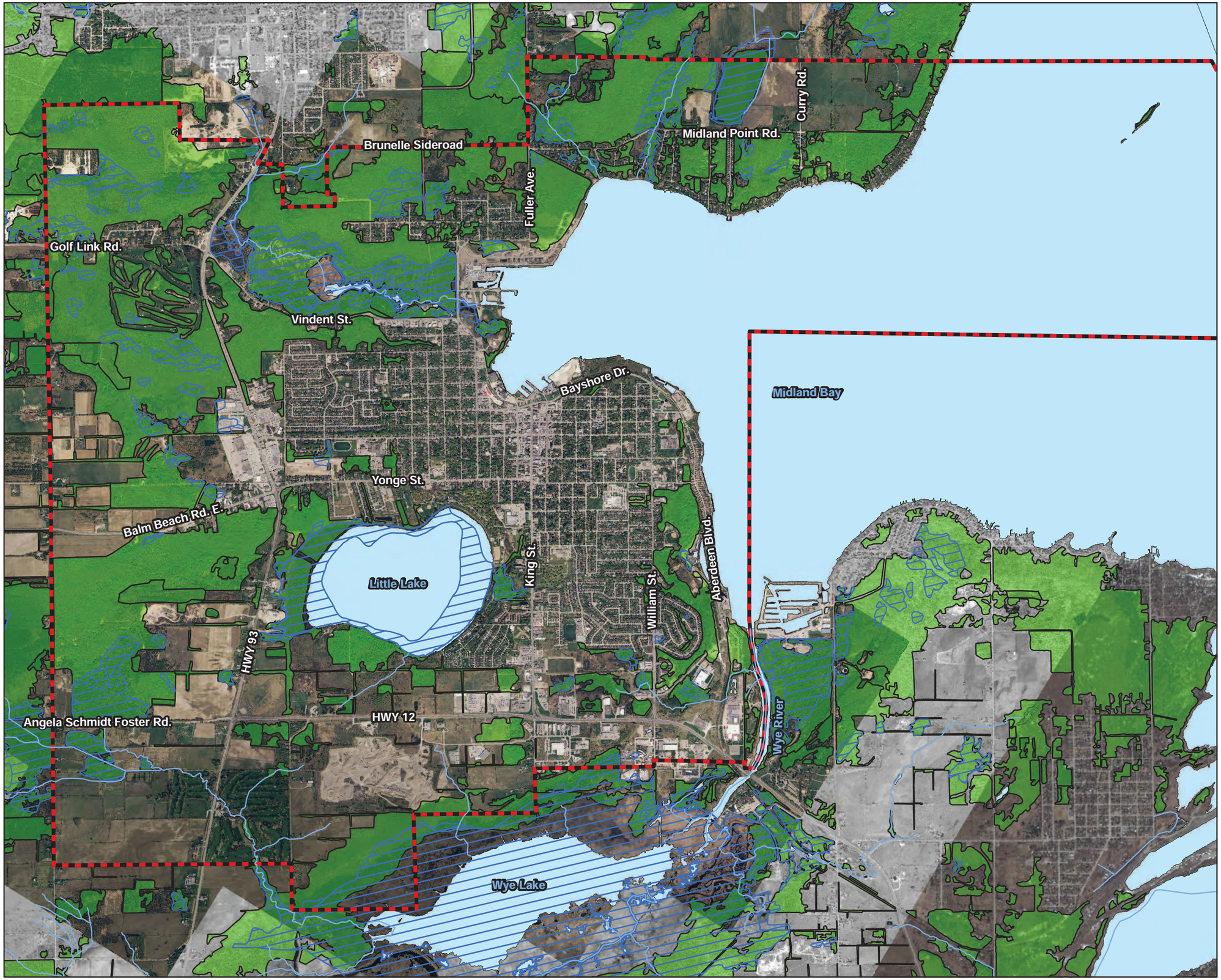




2018 Air Photos & features mapping from Simcoe County GIS (https://maps.simcoe.ca/public/) accessed February 10, 2020



Source -
https://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US
(accessed February 10, 2020)



Legend

- Study Area
- Watercourse
- Woodlands
- Wetland
- Waterbody

0 250 500 1,000 1,500 Meters

Data Source: Town of Midland, LIO

PLAN B Natural Heritage
Landscape Ecology & Natural Heritage Planning
176 Fellowes Crescent
Waterdown, ON
L0R 2H3

Town of Midland
Official Plan Review
Existing Conditions

Project #	2015-115	Figure # 2
Date	January 2016	
Scale	1 : 32,000	
Prepared By: JJJ	Verified By: BDB	

Ontario

Ministry of Natural Resources and Forestry

Make-a-Map: Natural Heritage Areas

Orsi Lands (Midland)

Map created: 7/28/2020

Notes:

Legend

- Assessment Parcel
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System
- Ecoregion

Wetland

- Provincially Significant Wetland Evaluated
- Non - Provincially Significant Wetland Evaluated
- Unevaluated Wetland

Area of Natural Heritage & Scientific Interest (ANSI)

- Provincially Significant Life Science ANSI
- Provincially Significant Earth Science ANSI

Greenbelt Plan

- Boundary
- Greenbelt External Connections

Land Use Designations

- Protected Countryside
- Greenbelt Towns and Villages
- Greenbelt Hamlets
- Urban River Valley
- Greenbelt Specialty Crop Area

Niagara Escarpment Plan (NEP)

- Boundary
- Parks and Open Space System

Land Use Designations

- Escarpment Natural Area
- Escarpment Protection Area
- Escarpment Rural Area
- Mineral Resource Extraction Area
- Escarpment Recreation Area
- Urban Area
- Minor Urban Centre

Oak Ridges Moraine Conservation Plan (ORM)

- Boundary

Land Use Designations

- Natural Core Area
- Natural Linkage Area
- Countryside Area
- Rural Settlement
- Palgrave Estates Residential Community
- Settlement Area

1.3 0 0.65 1.3 Kilometers

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Natural Resources and Forestry(OMNRF) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.

This map may not display all features listed in the legend because the feature layer was not turned on at the time the map was made; the features do not exist in the geographic range; or features have not been mapped. Absence of a feature in the map does not mean they do not exist in this area.

APPENDIX D

Stream Flow Assessment4

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Environmental Assessments & Approvals

July 27, 2020 AEC 18-143

Pratt Development Inc.
27 Clapperton Street
Barrie, Ontario
L4M 3E6

Attention: Don Pratt, President

Re: **Stream Flow Assessment**
16533 Highway12, Town of Midland, Simcoe County

Dear Mr. Pratt:

Azimuth Environmental Consulting, Inc. (Azimuth) is pleased to provide our Stream Flow Assessment Letter for the property located at 16533 Highway 12 within the Town of Midland, County of Simcoe, Ontario (the "Site")(Figure 1). The proposed development at the Site includes the construction of single lot residential homes, town homes and public roads at the north on the Pratt-Galloway Subdivision (approved lands) and industrial lots, roads and and associated storm water management facilities on the Orsi lands (Figure 2). This evaluation focused on the presence of surface water flow within the drainage feature/tributary of Wye River that runs through the east side of the Site.

1.0 BACKGROUND

1.1 Site Conditions

According to local topographic mapping, the Site occurs at an elevation of 206 – 220 metres above sea level (masl). The surrounding area slopes toward the Site from the north and west. As depicted on background mapping, an approximately 430m long drainage feature/tributary of the Wye River traverses the east half of the Site, discharging in the south east corner of the Site to a roadside ditch that conveys flow to two culverts beneath William Street (Figure 2). The channel continues toward the Wye River and empties into

Georgian Bayapproximately 800 m north east of the Site. Characteristics of the downstream drainage feature (alignment, channel openness, flow characteristics, etc.) are not readily evident or reported as part of this assessment.

The drainage feature receives runoff from upland areas to the north and west of the Site via man-made drainage swales/ditches. The Site also contains an existing sanitary sewer line that was historically installed as part of an adjacent development.

1.2 Field Observations -Fish Habitat

As part of work to define existing conditions, Azimuth assessed the fish habitat characteristics of the drainage feature. This included observations of flow patterns throughout the growing season in 2018 and fish sampling (backpack electro-fisher under a license to collect fish) in May of 2019. Field observations in 2018 and 2019 indicated seasonal flow within the drainage feature – periods of continuous flow, intermittent flow (isolated pools), and dry conditions throughout much of channel during summer. Flow in much of the drainage feature appeared responsive to snow melt and heavy rainfall events. Flow within an approximately 150m long reach of the drainage feature on the east side of the Site, contained within woodland cover,was continuous throughout the year. Outside of precipitation events (snow melt, heavy rainfalls) flow in this downstream reach was best described as trickle flow.

Fish sampling was completed under spring flow conditions when the entire reach was wet/flowing. No fish were detected consistent with multiple field observations in 2018 that revealed no observations of fish. The double culverts that convey flow under William Street are perched at the downstream end creating a "step" of approximately one metre. This step imposes an impassible barrier to fish that may occur in downstream reaches below the barrier. Field observations in 2018 and 2019 indicate punctuated and seasonal flow in the reach of the drainage feature downstream of William Street (i.e., periods of continuous flow, intermittent flow (isolated pools), and dry conditions throughout much of channel during summer. The trickle flow in the reach of the drainage feature upstream of William Street does not pass through the culverts, instead infiltrating within riprap placed in the west ditch of William Street up-gradient of the culverts.

Field observations and the results of fish sampling indicates that the drainage feature of the subject lands does not function as direct fish habitat and is inaccessible to fish from downstream reaches/the Wye River. Field observations indicate that the reach of the drainage feature downstream of William Street does not provide continuous flow conditions but rather conveys flow intermittently, along a relatively steep gradient (i.e., no evidence of permanent cold/coolwater fish habitat immediately downstream of

William Street). Therefore, results of field observation and fish sampling indicate that the drainage feature of the Site functions as seasonal indirect fish habitat as surface water is conveyed to direct fish habitat inferred to occur on adjacent lands to the east.

2.0 METHODOLOGY

The purpose of this stream flow assessment is to quantify the seasonal flow dynamics of the drainage feature noted during field studies in 2018 and assess the relative contributions of surface water and baseflow/ground water to various reaches of the drainage feature.

The assessment will also comment on whether the drainage feature is a gaining or loosing feature. A gaining feature is where baseflow (shallow ground water) discharges into a drainage feature. A loosing feature is where surface water from the drainage feature infiltrates into the subsurface.

The stream flow assessment field program was completed between April and November of 2019. Four standpipes were installed along the drainage feature within the Site (SP-1, SP-2, SP-3, SP-4) (Appendix A, Figure 2). The standpipes were machine slotted 2 inch PVC pipes with end caps and were placed within the channel bed using a T-bar anchor. Each standpipe was equipped with a data logger set to record water level measurements (pressure) and temperature every hour. The automatic measurements were supplemented with manual water height measurements monthly.

A Global Water RG200 tipping bucket rain gauge was set up to collect and record hourly precipitation approximately 15 kilometers (km) from the Site. These data were recorded on a data logger and downloaded every 2-3 months during the study duration.

A measurement of stream flow was collected monthly at each of the standpipe locations. This was done using a Swoffer Instruments Inc. Model 3000 velocity and stream discharge reader. When flows were not amenable to measurement with the stream discharge reader a float test was completed on a representative section of the channel in the vicinity of the standpipe. Additional notes were also collected on the stream width and depth. A summary of each monthly visit is provided in Appendix B.

A rating curve was developed for each standpipe location using the following equation:

$$Q = C_r * (H-\alpha)^{\beta}$$

Where:

Q: Flow (L/s)
C_r: Constant (unit less)
H: Water height (m)
α: Highest water height where there is now flow (m)
β: Constant (unit less)

The developed rating curves are attached (Appendix C). The rating curve was developed using the measured flow and water height at each of the monthly visits using regression analysis to determine the two constants. The equation could then be applied to the hourly measurements collected from the automatic transducers to estimate continuous flow data. The calculated average flow and graph of calculated flow against precipitation is included in Appendix D.

3.0 RESULTS

Based on the measurements of water height, stream flow, daily precipitation, and the monthly observations made at the Site, the below results were found:

- Seven Site visits were completed between April and November 2019. The presence/absence of flow was recorded at all locations in April, May, June, September, and November. Flow was present at all locations in April, May, September, and November. Flow was not present at SP-2 and SP-3 in July, or at any location in August.
- In general, the flow within the drainage feature at each location increased following a significant rain event. A rain event in the spring or fall produced a higher stream flow response when compared to a rain event of a similar magnitude in the summer. In the spring, the ground is saturated from rain and snow melt so a higher proportion of rainfall is converted to runoff. In the summer, the dry surficial soil has a higher capacity to absorb water and less rainfall is converted to runoff. This trend was noted at all locations. SP-3 showed the strongest response to rainfall events, while SP-2 showed the weakest response to rainfall events.
- Days that contained an average flow less than 0.1 L/s were considered no flow, and days that contained an average flow less than 0.25 L/s were considered low flow. All locations had periods of no flow and low flow:

Table A: Low Flow Statistics

Parameter	Measure	SP-1	SP-2	SP-3	SP-4
Days with average daily flow less than 0.1 L/s (no flow)	#	22	9	20	53
	%	11%	5%	10%	27%
Days with average daily flow less than 0.25 L/s (low flow)	#	49	117	73	91
	%	25%	60%	38%	47%

- The maximum calculated flow was 59.1 L/s at SP-1, 14.6 L/s at SP-2, 109.6 L/s at SP-3, and 97.6 L/s at SP-4. The highest flow measurements were recorded in early May after snow melt during spring rains, and in early November after heavy periods of rain;
- High flow at SP-1 may not have been accurately measured by the rating curve. Field observations made during a high flow event indicated that the flow overtops the bank and spreads laterally. The sheet flow was noted to be 6m wide and this extra width would not be accounted for within the rating curve;
- The calculated stream flow at SP-3 was typically the highest. This may be due to local inputs from a man made drainage channel that connects to the drainage feature of the subject lands from the south, about halfway between SP-3 and SP-4;
- The drainage feature contains areas where baseflow enters to stream (i.e. gaining stream), and areas where stream flow infiltrated into the ground (i.e. loosing stream):
    - Contribution of baseflow into the feature occurs in a small section of the channel downstream of SP-2, but upstream of SP-1 from April to August;
    - Infiltration of feature flow into the ground occurs between SP-1 and the William Street culverts. There is a decrease in elevation between SP-1 and the downstream end of the William Street culverts by about 2m. During the July Site visit, flow was noted at SP-1, however the channel was dry at the William Street culvert approximately 70 m to the south east (i.e., baseflow was not conveyed through the William Street culverts);
- The baseflow at SP-1 appears to decrease over the monitoring period (i.e., to trickle flow). The average baseflow at SP-1 (when present) is estimated to be 2.0 L/s. There is no apparent baseflow at SP-1 after August, and at any time at SP-2 to SP-4.

4.0 CONCLUSION

The drainage feature of the Site primarily conveys storm runoff from up gradient land. One small section of the stream is supplemented by baseflow (between SP-1 and SP-2) and some sections of the stream contribute to shallow ground water infiltration

(downstream of SP-1). The presence of baseflow at SP-1 was seasonal, with the average baseflow at 2.0 L/s when present in spring and summer months, but limited to only trickle or no flow conditions during the summer. This would suggest that although ground water contributions are present at the Site, they are limited in quantity, as well as spatially across the Site and do not provide a meaningful contribution to flow within this channel relative to the surface water conveyance from upstream lands and that from the Site. It is further noted that this baseflow is not discharged as overland flow to the drainage feature downstream of William Street, further supporting the localized presence of baseflow in the Site channel.

These conditions are also found to correlate with the hydrogeological conditions at the Site as summarized in the Preliminary Hydrogeological Assessment (Azimuth, 2020). The soils were described as finer grained glacial till materials which would support more limited ground water infiltration and flow at the Site, although variability in the soils may be present, which may be contributing to the localized / discontinuous baseflow conditions near SP-1 (i.e. more granular soils)

Yours truly,
AZIMUTH ENVIRONMENTAL CONSULTING, INC.

DRAFT

Jennifer Millington, M.A.Sc., P.Geo.
Hydrogeologist

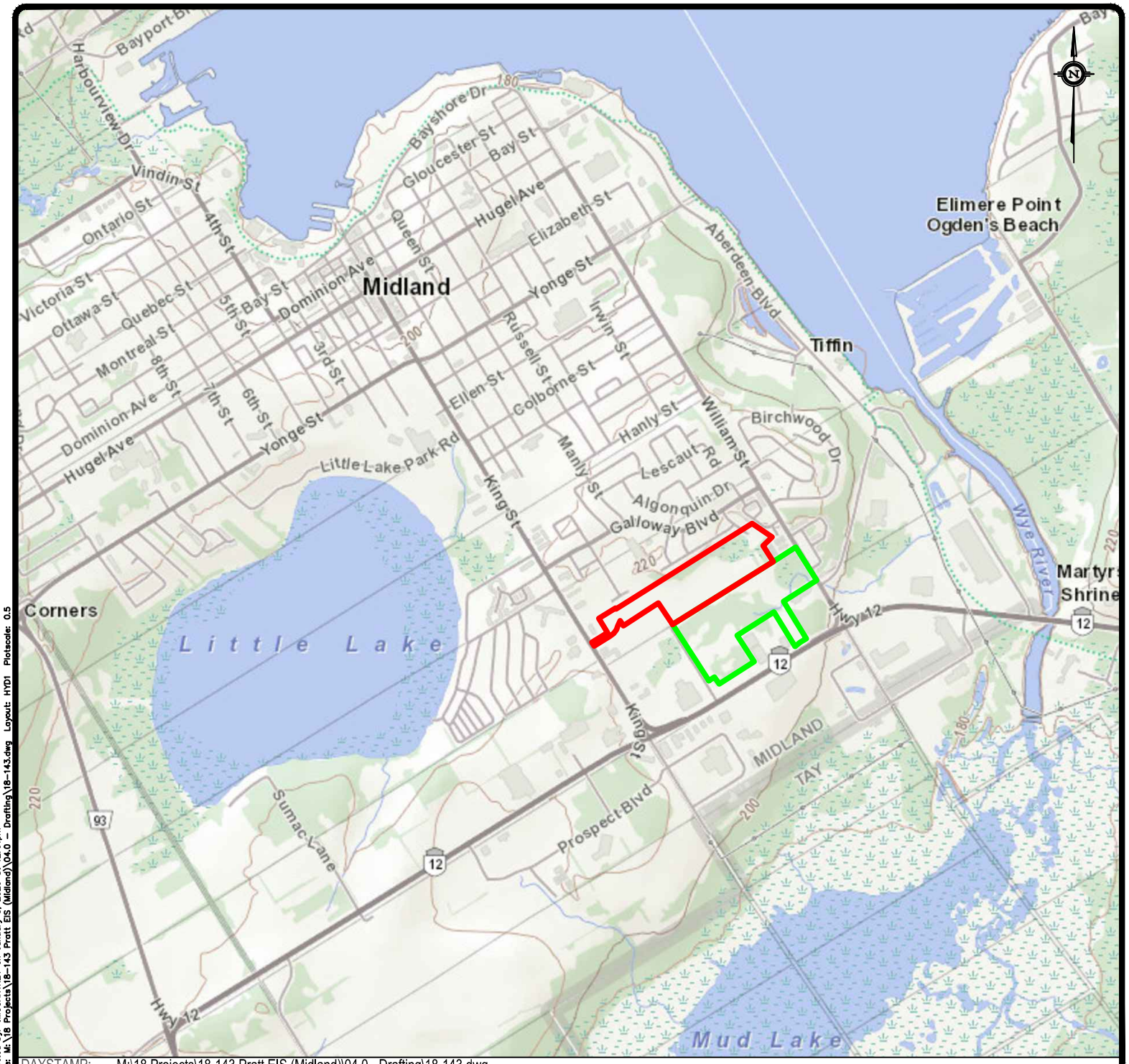
Colin Ross, B.Sc., P.Geo.
Senior Hydrogeologist

APPENDICES

Appendix A: Figures
Appendix B: Summary of Site Visits
Appendix C: Rating Curves
Appendix D: Stream Flow Information

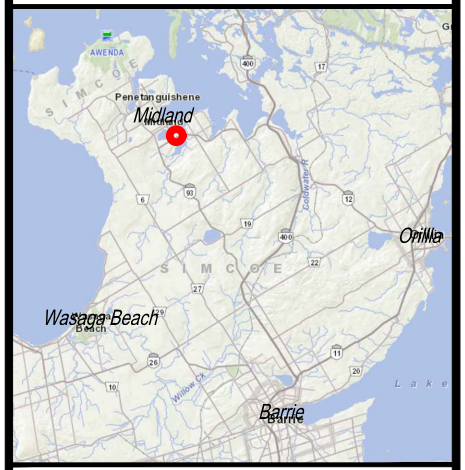
APPENDIX A

Figures



LEGEND:

- Draft Approved Lands
- ORSI Lands



REG MAP

250m 0 750m

HORIZONTAL SCALE 1: 25,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

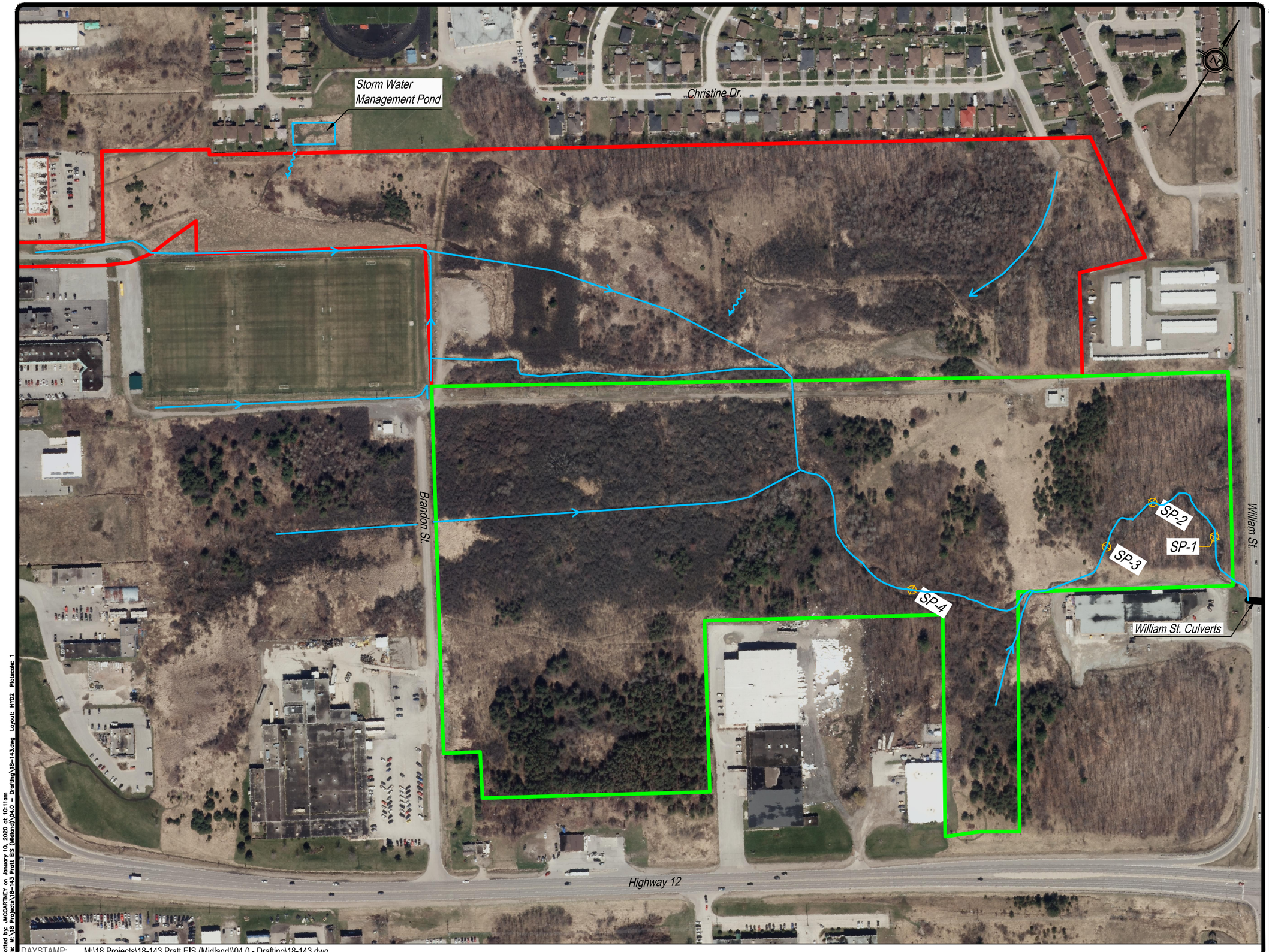
Study Area Location

Pratt SAR,
Midland, ON

DATE ISSUED: *January 2020*	Figure No.
CREATED BY: *JLM*	
PROJECT NO.: *18-143*	1
REFERENCE: *MNRF*	

DAYSTAMP: M:\18 Projects\18-143 Pratt EIS (Midland)\04.0 - Drafting\18-143.dwg

Plotted by: JMCCARTNEY on January 8, 2020 at 12:01pm
File: M:\18 Projects\18-143 Pratt EIS (Midland)\04.0 – Drafting\18-143.dwg Layout: HYD1 Plotscale: 0.5



LEGEND:

- Draft Approved Lands
- ORSI Lands
- Drainage Feature
- Standpipe Locations

50m 0 100m

HORIZONTAL SCALE 1: 3,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Existing Conditions

Pratt Lands,
Midland, ON

DATE ISSUED:	April 2018	Figure No.
CREATED BY:	JLM	2
PROJECT NO.:	18-143	
REFERENCE:	Simcoe County Maps	

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APPENDIX B

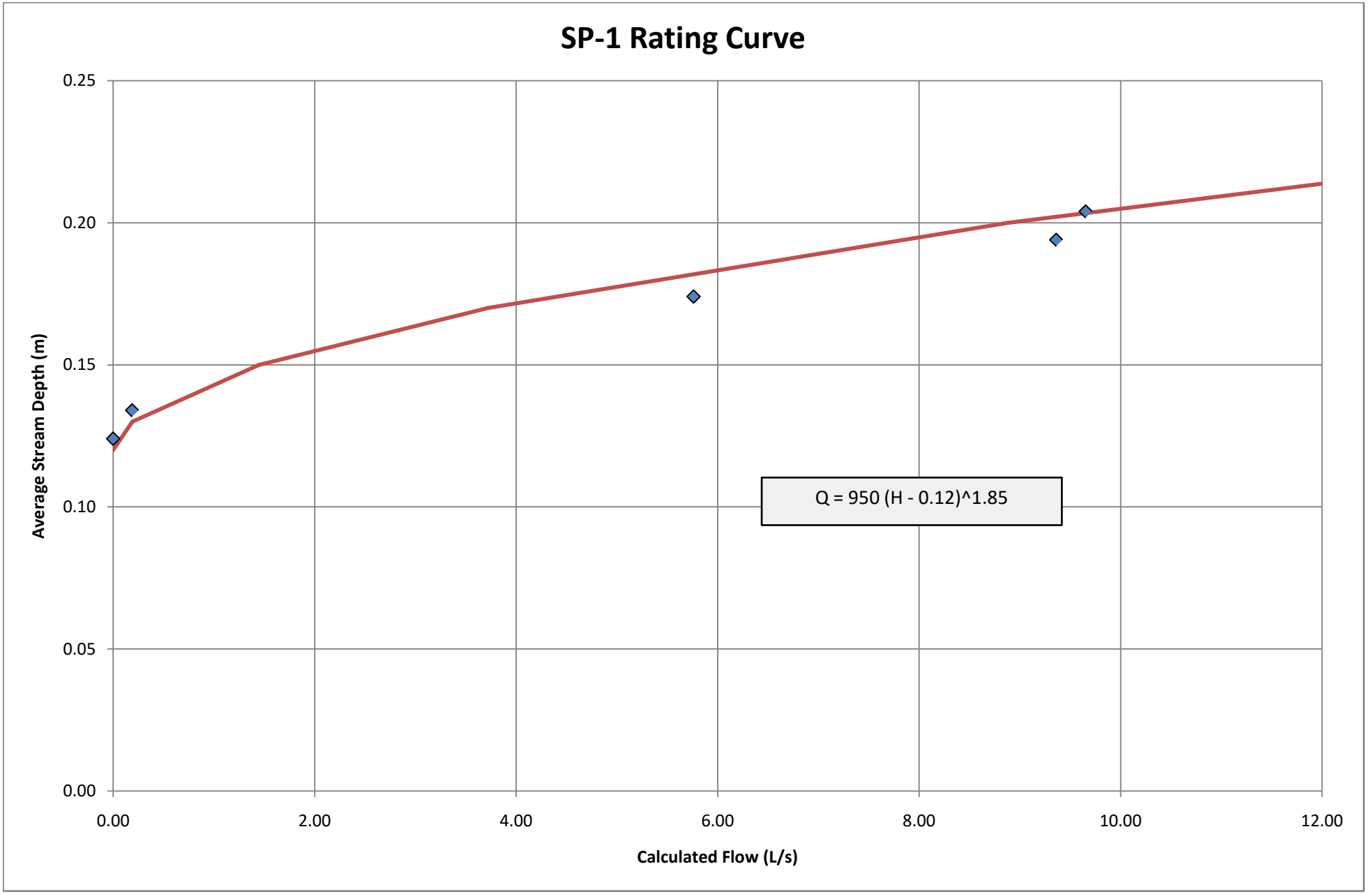
Summary of Site Visits

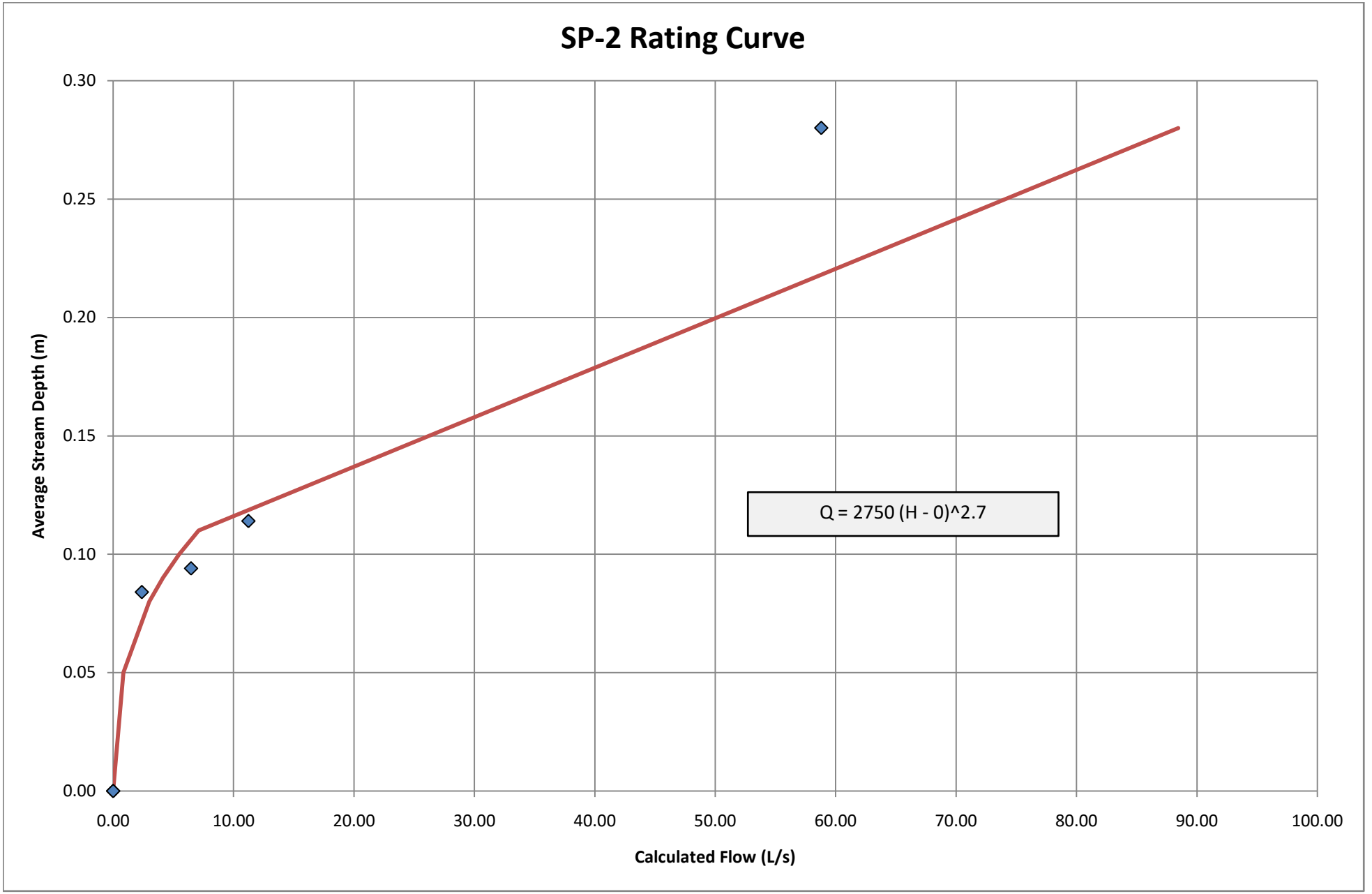
Date	Days Since Last Rain *	Measured Flow (L/s)				Notes (weather conditions and flow observations)
		SP-1	SP-2	SP-3	SP-4	
29-Apr-19	0	Stations set up, flow not recorded				Sunny and 7°C, good flow at all locations
3-May-19	0	-	58.8	114.6	133.8	Overcast and 10 °C, very high flow at all locations including both sides of the William Street culvert. Flow at SP-1 extended out of the stream bed and across low lying forest area and therefore flow measurement unable to be collected.
6-Jun-19	1	9.4	6.5	20.2	13.3	Sunny and 18° C, good flow at all locations
12-Jul-19	14	0.2	0.0	0.0	1.6	Sunny and 28°C, flow only at SP-1 and SP-4. Surface water flow is present upgradient of SP-4 and at SP-4, but not at SP-3 which is dry. Surface water flow is then present half way between SP-2 and SP-1 however the stream is dry at the William Street culvert. Steam is dry through culvert and immediately downstream.
20-Aug-19	0	0.0	0.0	0.0	0.0	Sunny and 27°C, ponded water at SP-1 and SP-4. No flow at either side of the William Street culvert
23-Sep-19	0	5.8	11.2	17.7	7.6	Overcast and rain, 20°C, flow at all locations including both sides of the William Street culvert
8-Nov-19	0	9.7	2.4	1.2	1.5	Sunny and -2 C, flow at all locations including both sides of the William Street culvert

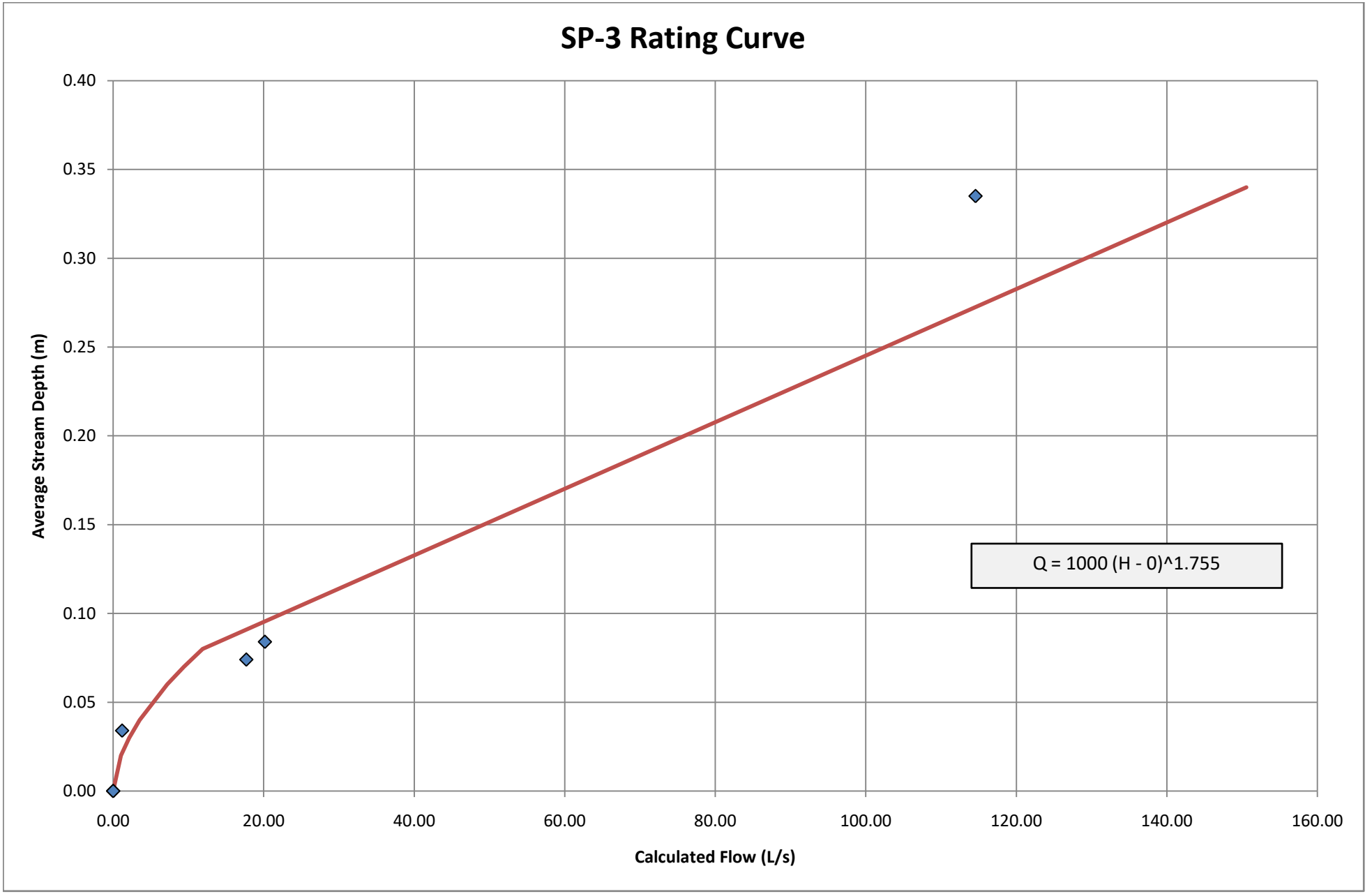
* Precipitation data from an Azimuth tipping bucket rain gauge located approximately 14 km from the Site

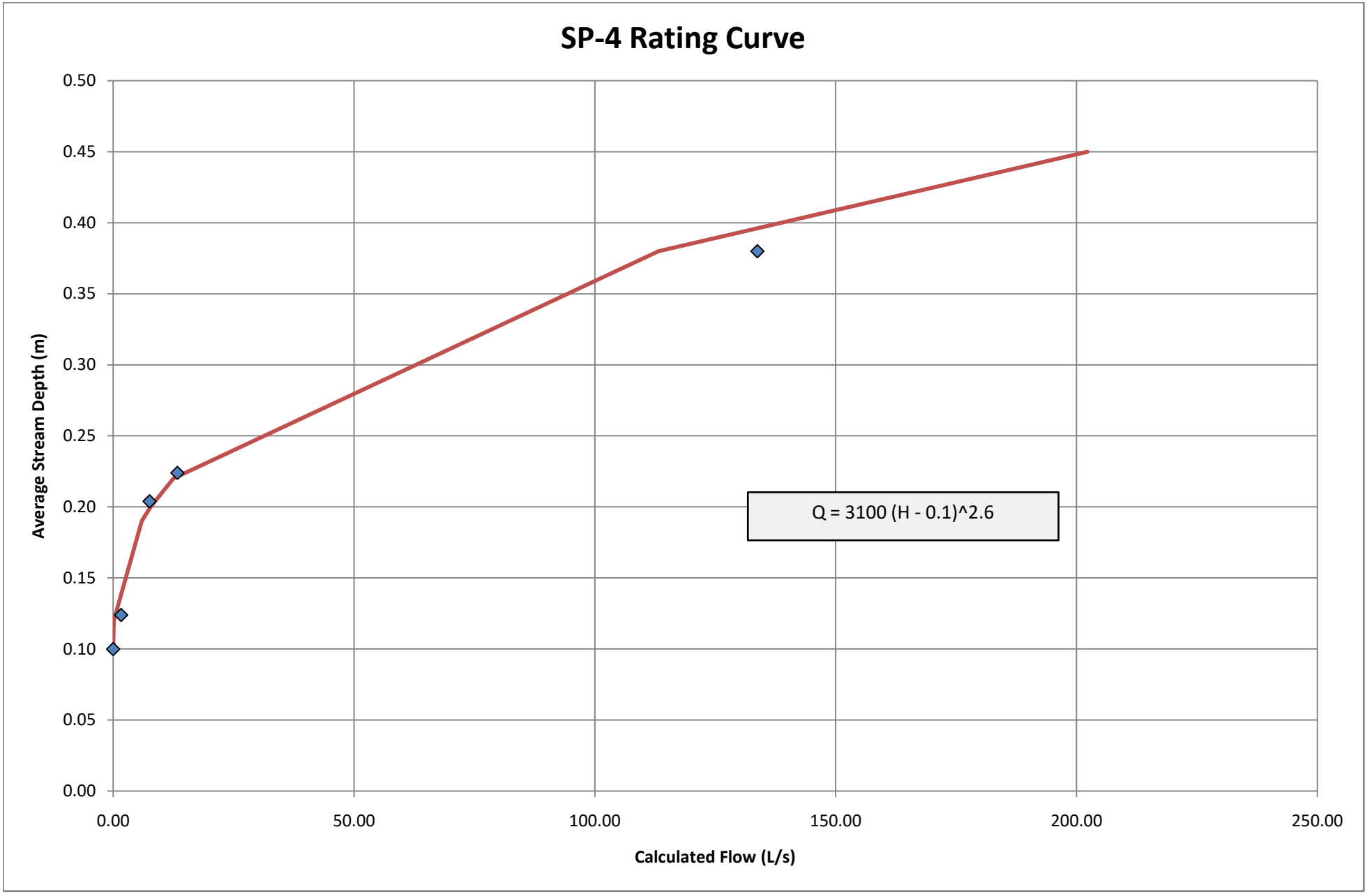
APPENDIX C

Rating Curves


SP-1 Rating Curve
0.25
0.20
0.15
0.10
0.05
0.00
Average Stream Depth (m)
0.00
2.00
4.00
6.00
8.00
10.00
12.00
Calculated Flow (L/s)
Q = 950 (H - 0.12)^1.85

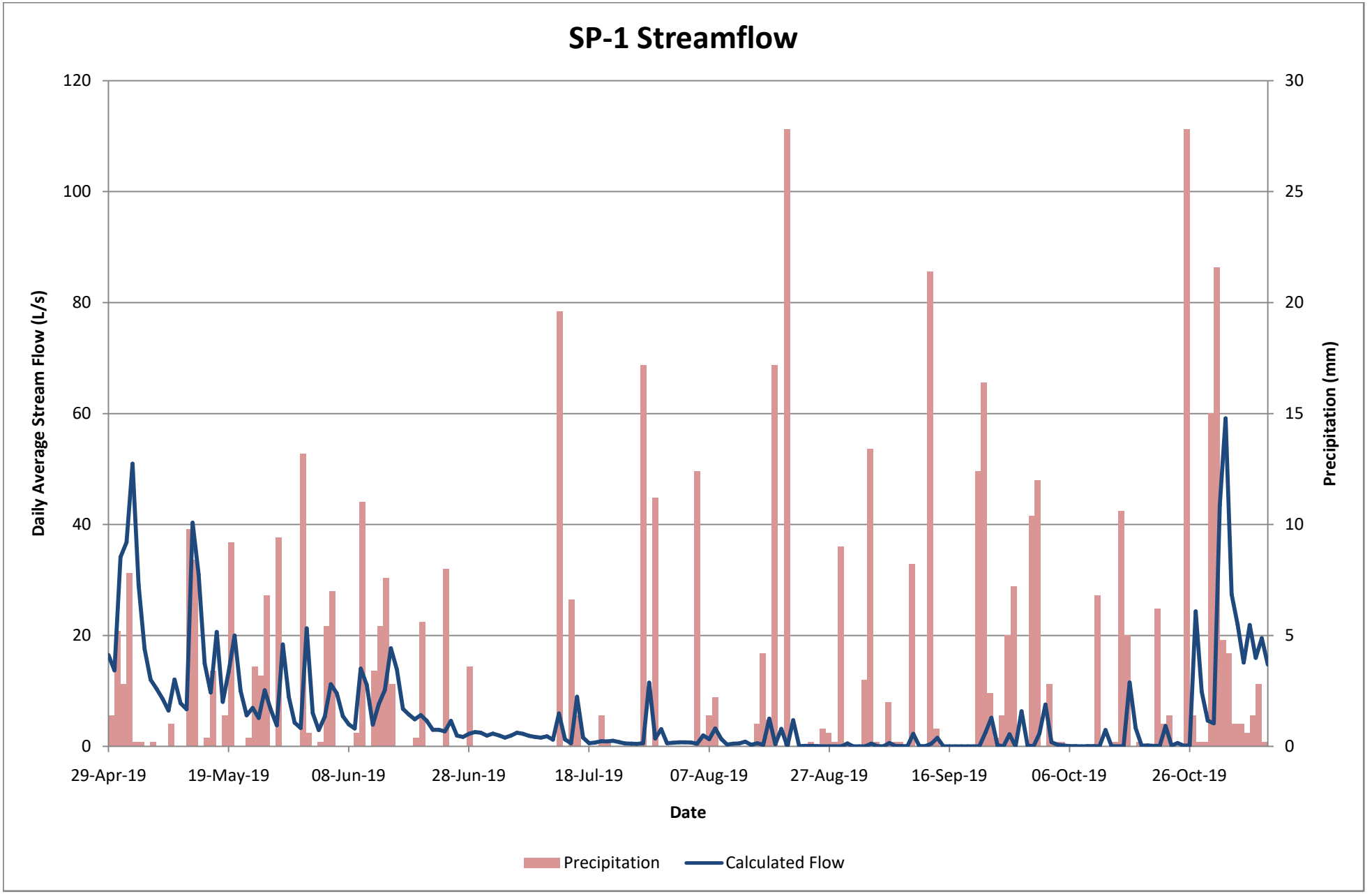

SP-2 Rating Curve
Average Stream Depth (m)
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
Calculated Flow (L/s)
Q = 2750 (H - 0)^2.7

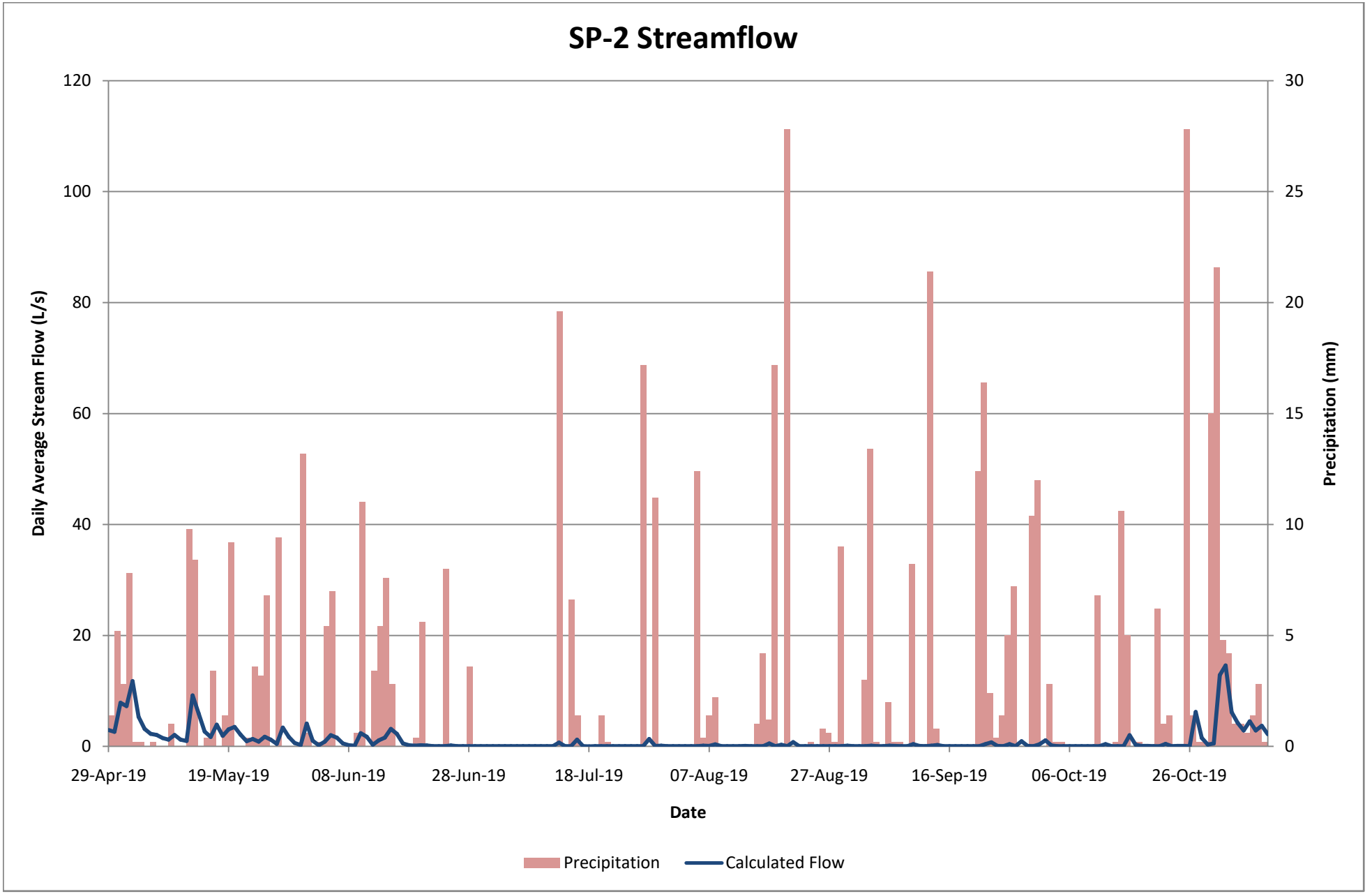

SP-3 Rating Curve
Average Stream Depth (m)
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
Calculated Flow (L/s)
Q = 1000 (H - 0)^1.755

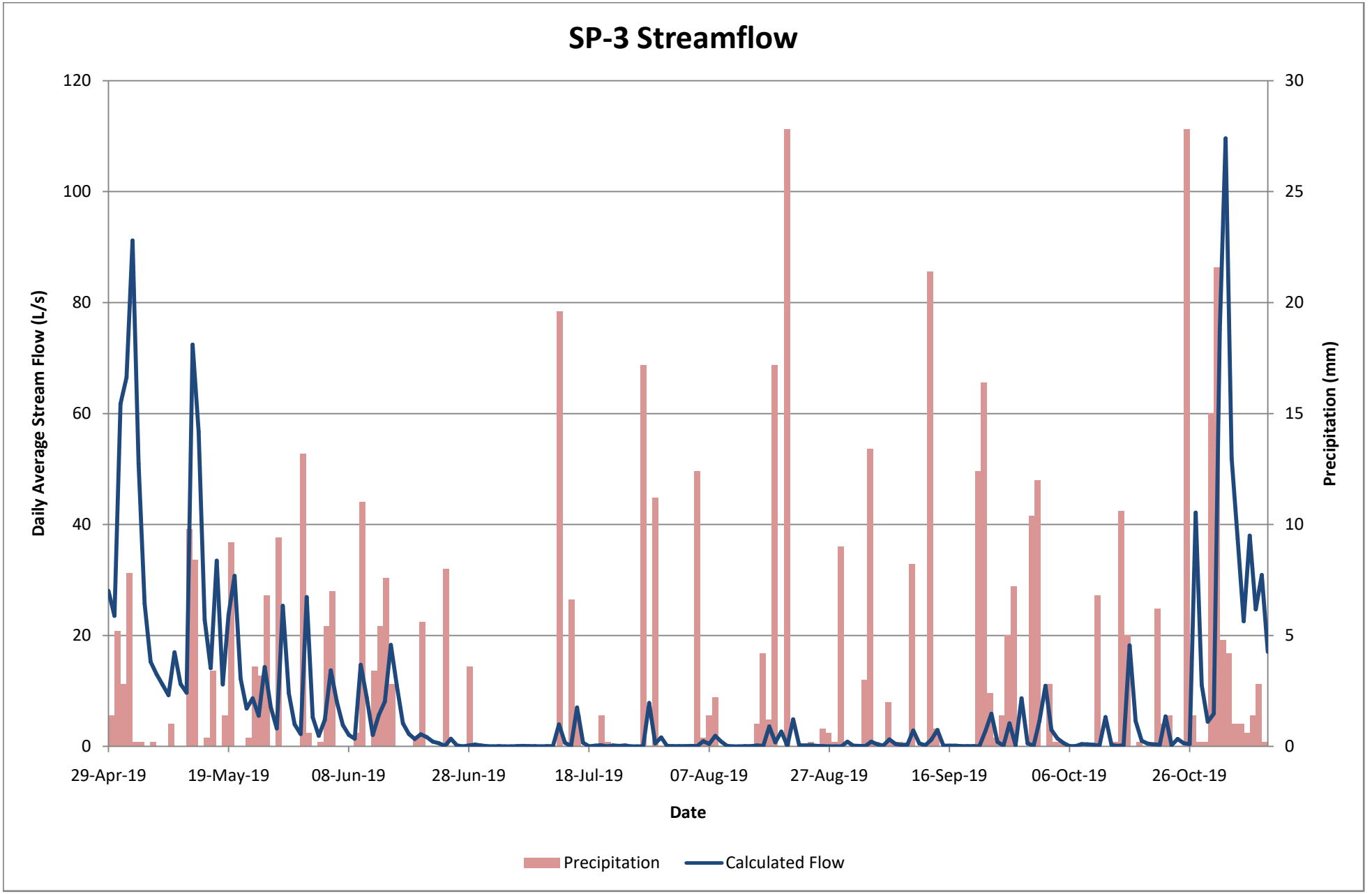

SP-4 Rating Curve
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Average Stream Depth (m)
0.00
50.00
100.00
150.00
200.00
250.00
Calculated Flow (L/s)
Q = 3100 (H - 0.1)^2.6

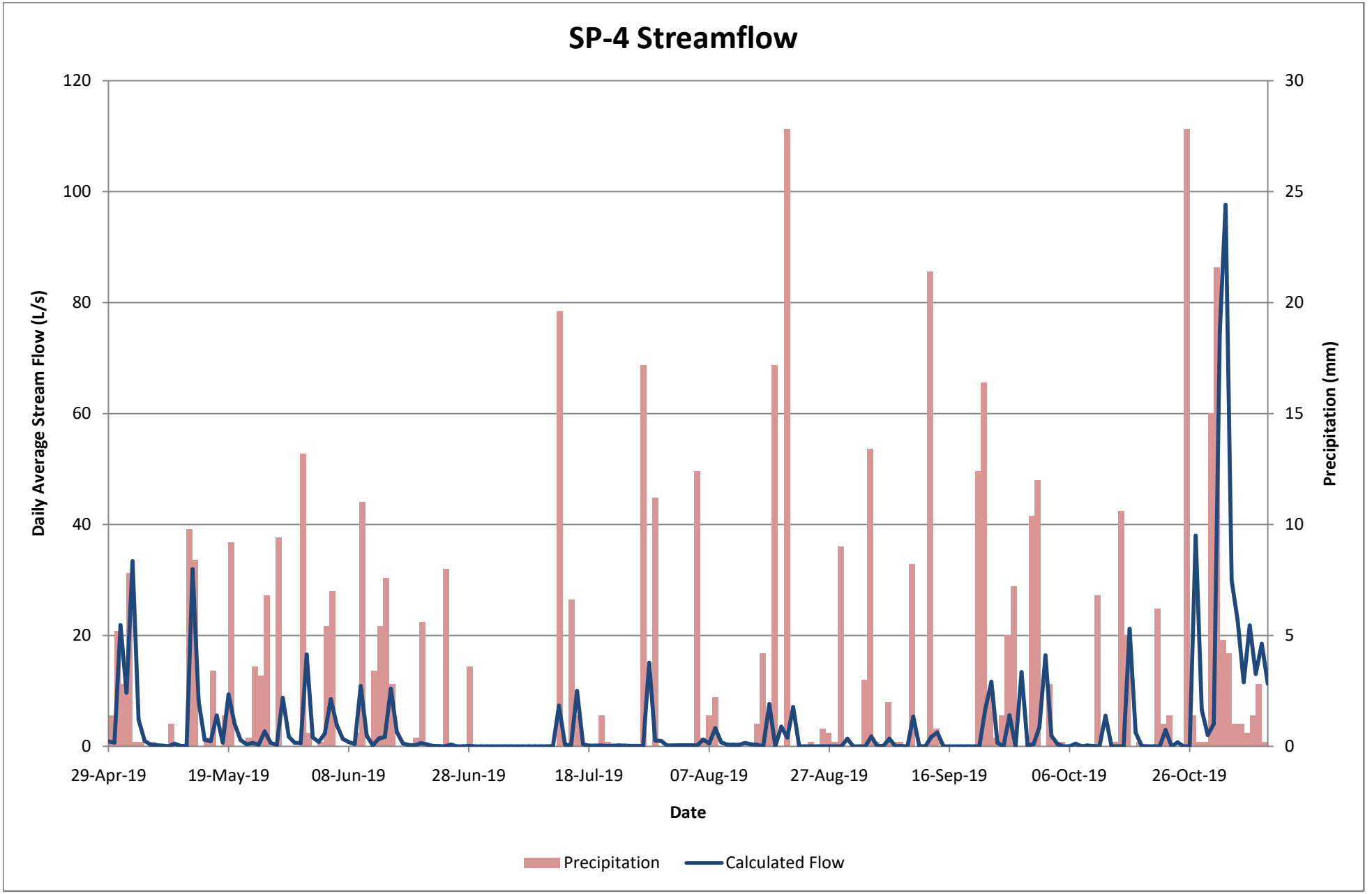
APPENDIX D

Stream Flow Information


SP-1 Streamflow
Daily Average Stream Flow (L/s)
Precipitation (mm)
120
100
80
60
40
20
0
30
25
20
15
10
5
0
29-Apr-19
19-May-19
08-Jun-19
28-Jun-19
18-Jul-19
07-Aug-19
27-Aug-19
16-Sep-19
06-Oct-19
26-Oct-19
Date
Precipitation
Calculated Flow


SP-2 Streamflow
Daily Average Stream Flow (L/s)
Precipitation (mm)
120
100
80
60
40
20
0
30
25
20
15
10
5
0
29-Apr-19
19-May-19
08-Jun-19
28-Jun-19
18-Jul-19
07-Aug-19
27-Aug-19
16-Sep-19
06-Oct-19
26-Oct-19
Date
Precipitation
Calculated Flow


SP-3 Streamflow
Daily Average Stream Flow (L/s)
Precipitation (mm)
120
100
80
60
40
20
0
30
25
20
15
10
5
0
29-Apr-19
19-May-19
08-Jun-19
28-Jun-19
18-Jul-19
07-Aug-19
27-Aug-19
16-Sep-19
06-Oct-19
26-Oct-19
Date
Precipitation
Calculated Flow


SP-4 Streamflow
Daily Average Stream Flow (L/s)
Precipitation (mm)
120
100
80
60
40
20
0
30
25
20
15
10
5
0
29-Apr-19
19-May-19
08-Jun-19
28-Jun-19
18-Jul-19
07-Aug-19
27-Aug-19
16-Sep-19
06-Oct-19
26-Oct-19
Date
Precipitation
Calculated Flow

Calculated Avergae Flow

Date	Calculated Average Flow (L/s)				Precipitation (mm)
	SP-1	SP-2	SP-3	SP-4	
29-Apr-19	16.5	2.9	28.0	0.9	1.4
30-Apr-19	13.7	2.6	23.5	0.7	5.2
01-May-19	34.1	7.8	61.7	21.8	2.8
02-May-19	36.8	7.2	66.5	9.7	7.8
03-May-19	50.9	11.8	91.2	33.4	0.2
04-May-19	29.1	5.3	50.9	4.8	0.2
05-May-19	17.5	3.1	25.7	1.0	0.0
06-May-19	12.0	2.2	15.2	0.3	0.2
07-May-19	10.3	2.0	13.0	0.2	0.0
08-May-19	8.5	1.5	11.1	0.1	0.0
09-May-19	6.4	1.2	9.2	0.0	1.0
10-May-19	12.0	2.0	16.9	0.5	0.0
11-May-19	7.8	1.2	11.2	0.1	0.0
12-May-19	6.7	0.9	9.7	0.0	9.8
13-May-19	40.3	9.2	72.4	31.9	8.4
14-May-19	31.0	5.9	56.7	8.1	0.0
15-May-19	14.9	2.6	22.8	1.2	0.4
16-May-19	9.7	1.7	14.1	0.9	3.4
17-May-19	20.6	3.9	33.5	5.5	0.0
18-May-19	8.0	1.9	11.2	0.7	1.4
19-May-19	13.4	3.0	23.8	9.3	9.2
20-May-19	20.0	3.5	30.7	4.1	0.0
21-May-19	10.0	2.1	12.2	1.1	0.0
22-May-19	5.6	0.9	6.8	0.3	0.4
23-May-19	6.9	1.3	8.7	0.6	3.6
24-May-19	5.1	0.8	5.5	0.3	3.2
25-May-19	10.1	1.7	14.3	2.7	6.8
26-May-19	6.6	1.2	7.1	0.6	0.0
27-May-19	3.8	0.4	3.2	0.3	9.4
28-May-19	18.3	3.4	25.3	8.7	0.0
29-May-19	8.9	1.7	9.5	1.7	0.0
30-May-19	4.2	0.6	3.9	0.6	0.0
31-May-19	3.3	0.2	2.2	0.6	13.2
01-Jun-19	21.2	4.1	26.9	16.5	0.6
02-Jun-19	6.0	1.0	5.2	1.6	0.0
03-Jun-19	2.9	0.2	1.9	0.8	0.2
04-Jun-19	5.4	0.9	4.7	2.3	5.4
05-Jun-19	11.2	2.0	13.7	8.5	7.0
06-Jun-19	9.5	1.6	8.0	3.8	0.0
07-Jun-19	5.4	0.5	3.8	1.3	0.0
08-Jun-19	3.9	0.2	2.0	0.7	0.0
09-Jun-19	3.2	0.1	1.4	0.4	0.6
10-Jun-19	14.0	2.4	14.7	10.9	11.0
11-Jun-19	11.0	1.7	8.8	1.9	0.0
12-Jun-19	3.9	0.3	2.0	0.1	3.4
13-Jun-19	7.6	1.1	5.6	1.4	5.4
14-Jun-19	10.1	1.6	8.0	1.7	7.6
15-Jun-19	17.7	3.1	18.3	10.4	2.8
16-Jun-19	13.8	2.2	10.9	2.6	0.0
17-Jun-19	6.8	0.5	4.1	0.5	0.0
18-Jun-19	5.7	0.2	2.2	0.2	0.0

Calculated Avergae Flow

Date	Calculated Average Flow (L/s)				Precipitation (mm)
	SP-1	SP-2	SP-3	SP-4	
19-Jun-19	4.9	0.1	1.3	0.2	0.4
20-Jun-19	5.6	0.2	2.2	0.5	5.6
21-Jun-19	4.6	0.1	1.6	0.3	0.0
22-Jun-19	3.0	0.0	0.8	0.0	0.0
23-Jun-19	2.9	0.0	0.6	0.0	0.0
24-Jun-19	2.7	0.0	0.1	0.0	8.0
25-Jun-19	4.6	0.2	1.4	0.3	0.0
26-Jun-19	1.9	0.0	0.2	0.0	0.0
27-Jun-19	1.7	0.0	0.0	0.0	0.0
28-Jun-19	2.3	0.0	0.2	0.1	3.6
29-Jun-19	2.6	0.0	0.3	0.0	0.0
30-Jun-19	2.4	0.0	0.2	0.0	0.0
01-Jul-19	1.9	0.0	0.0	0.0	0.0
02-Jul-19	2.3	0.0	0.0	0.0	0.0
03-Jul-19	2.0	0.0	0.0	0.0	0.0
04-Jul-19	1.5	0.0	0.0	0.0	0.0
05-Jul-19	1.9	0.0	0.0	0.0	0.0
06-Jul-19	2.4	0.0	0.0	0.0	0.0
07-Jul-19	2.3	0.0	0.1	0.0	0.0
08-Jul-19	1.9	0.0	0.0	0.0	0.0
09-Jul-19	1.7	0.0	0.0	0.0	0.0
10-Jul-19	1.6	0.0	0.0	0.0	0.0
11-Jul-19	1.8	0.0	0.0	0.0	0.0
12-Jul-19	1.2	0.0	0.0	0.0	0.0
13-Jul-19	5.9	0.7	3.9	7.3	19.6
14-Jul-19	1.2	0.0	0.6	0.3	0.0
15-Jul-19	0.5	0.0	0.0	0.1	6.6
16-Jul-19	8.9	1.2	7.0	10.0	1.4
17-Jul-19	1.5	0.0	0.6	0.3	0.0
18-Jul-19	0.6	0.0	0.0	0.1	0.0
19-Jul-19	0.7	0.0	0.1	0.1	0.0
20-Jul-19	0.9	0.0	0.2	0.2	1.4
21-Jul-19	0.9	0.0	0.0	0.1	0.2
22-Jul-19	1.0	0.0	0.1	0.1	0.0
23-Jul-19	0.8	0.0	0.1	0.1	0.0
24-Jul-19	0.5	0.0	0.1	0.1	0.0
25-Jul-19	0.5	0.0	0.0	0.1	0.0
26-Jul-19	0.4	0.0	0.0	0.1	0.0
27-Jul-19	0.5	0.0	0.0	0.0	17.2
28-Jul-19	11.5	1.3	7.8	15.0	0.0
29-Jul-19	1.4	0.1	0.5	1.0	11.2
30-Jul-19	3.1	0.1	1.6	0.9	0.0
31-Jul-19	0.6	0.0	0.1	0.2	0.0
01-Aug-19	0.6	0.0	0.0	0.2	0.0
02-Aug-19	0.7	0.0	0.0	0.2	0.0
03-Aug-19	0.7	0.0	0.0	0.2	0.0
04-Aug-19	0.7	0.0	0.1	0.2	0.0
05-Aug-19	0.4	0.0	0.0	0.1	12.4
06-Aug-19	1.9	0.1	0.9	1.2	0.4
07-Aug-19	1.3	0.1	0.4	0.5	1.4
08-Aug-19	3.2	0.4	1.9	3.3	2.2

Calculated Avergae Flow

Date	Calculated Average Flow (L/s)				Precipitation (mm)
	SP-1	SP-2	SP-3	SP-4	
09-Aug-19	1.3	0.0	0.8	0.7	0.0
10-Aug-19	0.3	0.0	0.1	0.3	0.0
11-Aug-19	0.5	0.0	0.0	0.3	0.0
12-Aug-19	0.5	0.0	0.0	0.3	0.0
13-Aug-19	0.8	0.1	0.0	0.6	0.0
14-Aug-19	0.3	0.0	0.0	0.3	0.0
15-Aug-19	0.6	0.0	0.2	0.3	1.0
16-Aug-19	0.2	0.0	0.0	0.0	4.2
17-Aug-19	5.0	0.5	3.6	7.6	1.2
18-Aug-19	0.4	0.0	0.7	0.0	17.2
19-Aug-19	3.1	0.3	2.7	3.5	0.0
20-Aug-19	0.0	0.0	0.1	1.6	27.8
21-Aug-19	4.7	0.7	4.9	7.1	0.0
22-Aug-19	0.0	0.0	0.2	0.0	0.0
23-Aug-19	0.1	0.0	0.2	0.0	0.0
24-Aug-19	0.1	0.0	0.2	0.0	0.2
25-Aug-19	0.0	0.0	0.1	0.0	0.0
26-Aug-19	0.0	0.0	0.0	0.0	0.8
27-Aug-19	0.0	0.0	0.0	0.0	0.6
28-Aug-19	0.0	0.0	0.0	0.0	0.2
29-Aug-19	0.0	0.0	0.0	0.0	9.0
30-Aug-19	0.5	0.1	0.8	1.4	0.0
31-Aug-19	0.0	0.0	0.1	0.0	0.0
01-Sep-19	0.0	0.0	0.1	0.0	0.0
02-Sep-19	0.0	0.0	0.0	0.0	3.0
03-Sep-19	0.5	0.1	0.8	1.8	13.4
04-Sep-19	0.0	0.0	0.3	0.0	0.2
05-Sep-19	0.0	0.0	0.1	0.1	0.0
06-Sep-19	0.6	0.1	1.3	1.4	2.0
07-Sep-19	0.1	0.0	0.4	0.0	0.2
08-Sep-19	0.0	0.0	0.2	0.0	0.2
09-Sep-19	0.0	0.0	0.3	0.0	0.0
10-Sep-19	2.2	0.4	2.8	5.4	8.2
11-Sep-19	0.0	0.1	0.5	0.0	0.0
12-Sep-19	0.0	0.0	0.2	0.0	0.0
13-Sep-19	0.5	0.1	1.2	1.7	21.4
14-Sep-19	1.5	0.2	2.9	2.5	0.8
15-Sep-19	0.0	0.0	0.1	0.0	0.0
16-Sep-19	0.0	0.0	0.1	0.0	0.0
17-Sep-19	0.0	0.0	0.1	0.0	0.0
18-Sep-19	0.0	0.0	0.0	0.0	0.0
19-Sep-19	0.0	0.0	0.0	0.0	0.0
20-Sep-19	0.0	0.0	0.0	0.0	0.0
21-Sep-19	0.0	0.0	0.0	0.0	12.4
22-Sep-19	2.4	0.4	2.7	6.8	16.4
23-Sep-19	5.1	0.7	5.9	11.6	2.4
24-Sep-19	0.2	0.1	0.8	0.6	0.4
25-Sep-19	0.0	0.0	0.1	0.0	1.4
26-Sep-19	2.2	0.4	4.1	5.6	5.0
27-Sep-19	0.0	0.0	0.2	0.0	7.2
28-Sep-19	6.3	0.9	8.6	13.4	0.0

Calculated Avergae Flow

Date	Calculated Average Flow (L/s)				Precipitation (mm)
	SP-1	SP-2	SP-3	SP-4	
29-Sep-19	0.1	0.1	0.5	0.1	0.0
30-Sep-19	0.0	0.0	0.1	0.4	10.4
01-Oct-19	2.3	0.3	4.5	3.4	12.0
02-Oct-19	7.5	1.1	10.9	16.4	0.0
03-Oct-19	0.8	0.2	2.9	1.9	2.8
04-Oct-19	0.3	0.0	1.4	0.4	0.2
05-Oct-19	0.2	0.0	0.6	0.0	0.2
06-Oct-19	0.0	0.0	0.0	0.0	0.0
07-Oct-19	0.0	0.0	0.0	0.5	0.0
08-Oct-19	0.0	0.0	0.4	0.0	0.0
09-Oct-19	0.0	0.0	0.3	0.1	0.0
10-Oct-19	0.0	0.0	0.3	0.0	0.0
11-Oct-19	0.0	0.0	0.1	0.0	6.8
12-Oct-19	2.9	0.4	5.3	5.5	0.0
13-Oct-19	0.0	0.0	0.2	0.0	0.0
14-Oct-19	0.0	0.0	0.1	0.0	0.2
15-Oct-19	0.0	0.0	0.2	0.0	10.6
16-Oct-19	11.5	2.0	18.2	21.2	5.0
17-Oct-19	3.3	0.3	4.5	2.5	0.0
18-Oct-19	0.1	0.0	1.0	0.0	0.2
19-Oct-19	0.2	0.0	0.5	0.0	0.0
20-Oct-19	0.1	0.0	0.3	0.0	0.0
21-Oct-19	0.1	0.0	0.3	0.0	6.2
22-Oct-19	3.6	0.4	5.4	2.9	1.0
23-Oct-19	0.1	0.0	0.2	0.0	1.4
24-Oct-19	0.6	0.1	1.3	0.7	0.0
25-Oct-19	0.1	0.0	0.6	0.0	0.0
26-Oct-19	0.1	0.0	0.4	0.0	27.8
27-Oct-19	24.3	6.2	42.1	38.0	1.4
28-Oct-19	9.8	1.5	11.0	6.6	0.2
29-Oct-19	4.6	0.3	4.4	2.1	0.2
30-Oct-19	4.1	0.5	5.9	4.1	15.0
31-Oct-19	43.5	12.8	75.1	74.8	21.6
01-Nov-19	59.1	14.6	109.6	97.6	4.8
02-Nov-19	27.4	6.1	51.9	29.9	4.2
03-Nov-19	21.9	4.2	37.4	22.7	1.0
04-Nov-19	15.1	2.8	22.6	11.6	1.0
05-Nov-19	21.9	4.5	38.0	21.8	0.6
06-Nov-19	15.9	2.8	24.7	13.0	1.4
07-Nov-19	19.5	3.7	30.9	18.5	2.8
08-Nov-19	14.7	2.1	17.0	11.3	0.2
Maximum	59.1	14.6	109.6	97.6	
Minimum	0.0	0.0	0.0	0.0	
Number of days with no flow (less than 0.1 L/s)	**22**	**9**	**20**	**53**	
% Number of days with no flow (less than 0.1 L/s)	**11%**	**5%**	**10%**	**27%**	
Number of days with flow at or below 0.25 L/s	**49**	**117**	**73**	**91**	
% Number of days with flow at or below 0.25 L/s	**25%**	**60%**	**38%**	**47%**	

APPENDIX E

Site Photos

Photo 1. Looking west toward King Street below culvert discharging to Galloway lands (April 27, 2018)

Photo 2. View of Park Ave. SWM Pond that discharges to Galloway lands (April 27, 2018)

Photo 3. Discharge culvert south of Christine Dr. and Maxwell Ave. intersection that discharges to Galloway lands (April 27, 2018)

Photo 4. Discharge culvert south of Pratt Ave. that discharges to Galloway lands (April 27, 2018)

Photo 5a. Upstream view of linear ditch on Orsi lands toward Brandon St. (April 27, 2018)

Photo 5b. Downstream view of linear ditch on Orsi lands (June 13, 2018)

Photo 6. View of convergence of ditch flow on Galloway lands up-gradient of culvert conveying flow to Orsi lands (April 27, 2018)

Photo 7. View of Orsi lands mapped drainage feature downstream of access road culvert (April 27, 2018)

Photo 8a. Looking downstream along Orsi lands mapped drainage feature, mid property (April 27, 2018)

Photo 8b. Looking downstream along Orsi lands mapped drainage feature, east side of property (April 27, 2018)

Photo 8c. Looking downstream along Orsi lands mapped drainage feature mid property (June 13, 2018)

Photo 8d View of Orsi lands mapped drainage feature mid property (August 16, 2019)

Photo 9a. Looking downstream along reach of mapped drainage feature located in woodland on east side of Orsi lands (April 27, 2018)

Photo 9b. Looking downstream along reach of mapped drainage feature located in woodland on east side of Orsi lands (June 21, 2018)

Photo 10a. Downstream view of flow within west ditch of William St at double culverts conveying flow under William St. to the east (April 27, 2018)

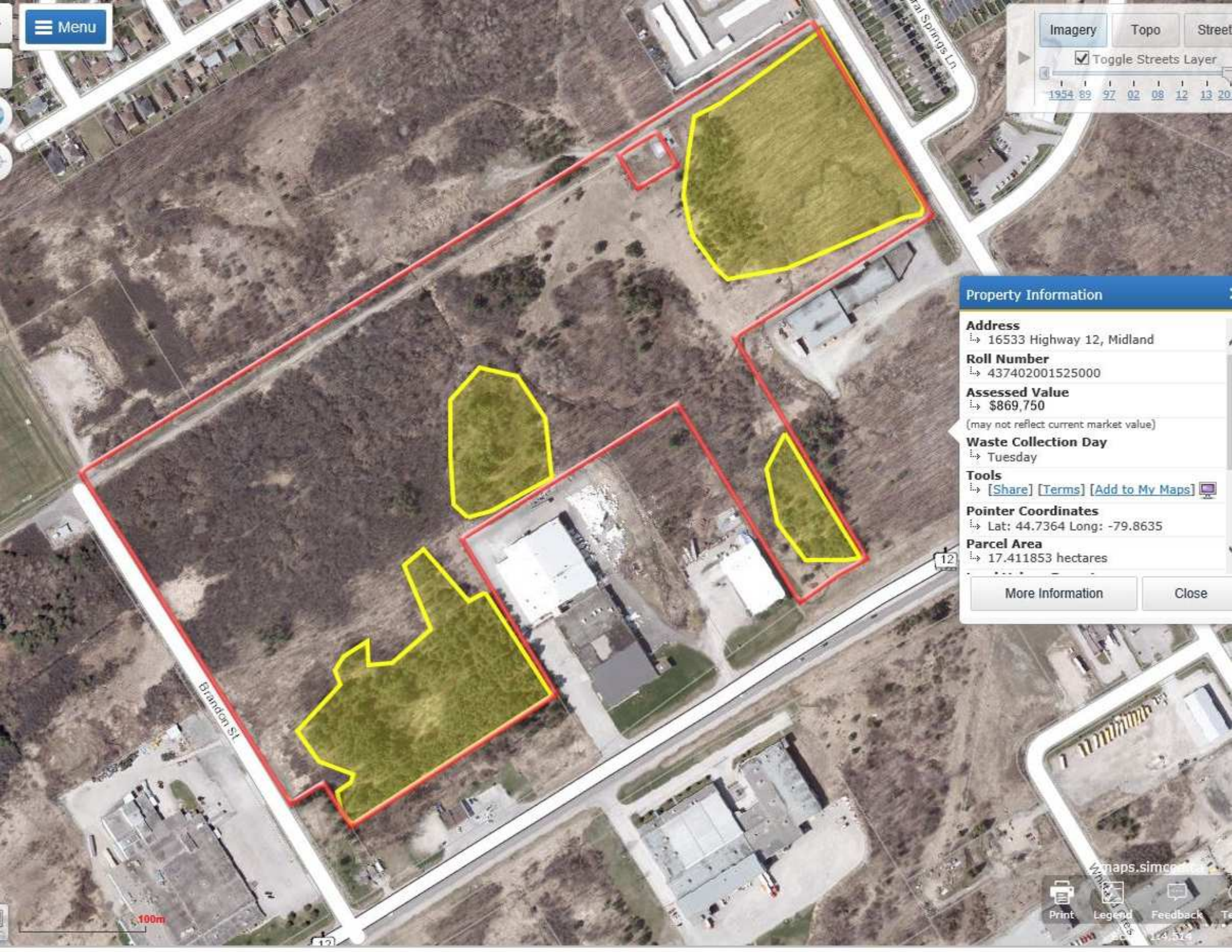
Photo 10b. Downstream view west ditch of William St at double culverts (June 13, 2018)

Photo 11. View of double culverts at outlet east of William St (April 27, 2018)

Photo 12. Upstream view of mapped drainage feature on adjacent lands east of William St. (August 16, 2019)

APPENDIX F

Tree Clearing Correspondence


Menu
Imagery
Topo
Street
Toggle Streets Layer
1954 89 97 02 08 12 13 20
Property Information
Address
16533 Highway 12, Midland
Roll Number
437402001525000
Assessed Value
$869,750
(may not reflect current market value)
Waste Collection Day
Tuesday
Tools
[Share] [Terms] [Add to My Maps]
Pointer Coordinates
Lat: 44.7364 Long: -79.8635
Parcel Area
17.411853 hectares
More Information
Close
Brandon St
12
100m
Print
Legend
Feedback

Jim Broadfoot

From: KEN CAVE <kcave_cpm@rogers.com>
Sent: January-30-20 10:26 AM
To: Jim Broadfoot
Subject: Fw: Brush Clearing - 16533 Highway 12, Midland

Jim,
Here is my e-mail exchange with Wes Crown regarding brushing that may be carried out during 2019/2020.
Ken

----- Forwarded Message -----
From: Wes Crown <wcrown@midland.ca>
To: Ken Cave <kcave_cpm@rogers.com>
Cc: Jim Reichheld <jreichheld@midland.ca>; 'Larry Barrette (Larry.Barrette@simcoe.ca)' <Larry.Barrette@simcoe.ca>; Andy Campbell <acampbell@midland.ca>
Sent: Thursday, September 26, 2019, 12:52:41 p.m. EDT
Subject: RE: Brush Clearing - 16533 Highway 12, Midland

Ken,

We don't have a tree cutting by-law and I believe you confirmed with the County areas were clearing could occur without the need for a permit (as they did not qualify as trees). I have no issues with you continuing that work in line with the approvals/clearance you received from the County. As you indicated there are areas that have been identified as woodland and those will not be cleared.

Regards,

WES

Wesley R. Crown, MCIP, RPP

Director of Planning and Building Services

Town of Midland

575 Dominion Avenue,

Midland, Ontario.

L4R 1R2

P 705.526.4275 ext. 2216

F 705.526.9971

From: KEN CAVE <kcave_cpm@rogers.com>
Sent: September 24, 2019 11:11 AM
To: Wes Crown <wcrown@midland.ca>

Subject: Fw: Brush Clearing - 16533 Highway 12, Midland

Wes,
As you are aware, brushing was carried out on the lands at 16533 Highway 12, Midland in the fall of 2018 and early spring of 2019. Unfortunately, the brushing has not been completed on the portion of the property that extends out to Highway 12 because of inclement weather and the end of March 2019. Pratt Development intends on having the brushing completed in this area commencing in November keeping in mind that there is an area that has been designated as woodland by the County that will not be touched. Please confirm that you are in agreement with this going forward.
Ken

----- Forwarded Message -----

From: Wes Crown <wcrown@midland.ca>

To: Barrette, Larry <Larry.Barrette@simcoe.ca>; KEN CAVE <kcave_cpm@rogers.com>

Cc: Jim Reichheld <jreichheld@midland.ca>

Sent: Friday, August 24, 2018, 8:46:46 a.m. EDT

Subject: RE: Brush Clearing - 16533 Highway 12, Midland

Thanks Larry, clarifies things for me.

Regards,
WES
Wesley R. Crown, MCIP, RPP
Director of Planning and Building Services
Town of Midland
575 Dominion Avenue,
Midland, Ontario.
L4R 1R2
P 705.526.4275 ext. 2216
F 705.526.9971

-----Original Message-----
From: Barrette, Larry [mailto:Larry.Barrette@simcoe.ca]
Sent: August 23, 2018 4:30 PM
To: Wes Crown; KEN CAVE
Cc: Jim Reichheld
Subject: RE: Brush Clearing - 16533 Highway 12, Midland

Hello,
Thanks for the input Wes. To be clear, I should have specified 'the area we inspected' would not be considered woodland due to the invasive species that have basically choked out the native tree species. As we discussed, the area was to be opened-up using a backhoe-mounted scarifier that would allow access for the studies required. There would be no other site alteration (roots excavated) which would allow regrowth if left alone afterwards.
I have attached a map indicating (in yellow) areas that were not to be disturbed as they may be considered woodland. As I understand, the scarifier would not be disturbing these areas. Also, we agreed that any natural growing tree would be avoided in the process.
Provided the scarification only occurs within the invasive shrub area, there would be no woodland disturbance and no permit would be required from this office. Other studies/approvals regarding Natural Heritage or Environmental issues may be required.

I hope this clears it up. My apologies regarding any misunderstandings.

Larry Barrette
Municipal Law Enforcement Officer
Forest Conservation
County of Simcoe, Forestry Department
1110 Highway 26, Midhurst, Ontario L9X 1N6
Phone: 705-726-9300 Ext. 1175 Fax: 705- 726-9832
E-mail: larry.barrette@simcoe.ca

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-----Original Message-----
From: Wes Crown [mailto:wcrown@midland.ca]
Sent: Thursday, August 23, 2018 3:17 PM
To: KEN CAVE <kcave_cpm@rogers.com>; Barrette, Larry <Larry.Barrette@simcoe.ca>
Cc: Jim Reichheld <jreichheld@midland.ca>
Subject: RE: Brush Clearing - 16533 Highway 12, Midland

Ken,

I thought I would weigh in. The Town does not have a tree cutting by-law and as such the County's By-law applies. Midland generally supports limited and required brush and tree clearing for site investigations like geotechnical and/or archaeological studies without having to get development approvals. Fully removing all trees of any size from the property is not part of our position and clear cutting a property should not occur until all necessary studies, approval and agreements are in place.

My understanding of the County By-law is, and Larry can correct me if I am wrong, that where development approvals and agreements are in place from the local municipality (e.g. subdivision or site plan) that tree clearing is exempt from the County By-law.

I hope this helpful and Larry if I have misunderstood this chain of emails don't hesitate to correct my understanding.

Regards,
WES
Wesley R. Crown, MCIP, RPP
Director of Planning and Building Services Town of Midland
575 Dominion Avenue,
Midland, Ontario.
L4R 1R2
P 705.526.4275 ext. 2216
F 705.526.9971

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Exposure to scented products can affect people in the workplace. Please refrain from using and wearing scented products in the workplace. Thank you for your cooperation.

-----Original Message-----
From: KEN CAVE [mailto:kcave_cpm@rogers.com]
Sent: August 23, 2018 1:11 PM
To: LarryBarrette
Cc: Wes Crown
Subject: Re: Brush Clearing - 16533 Highway 12, Midland

Larry,

Thank you for your quick reply. Am I to assume that the owner of the former Orsi lands that were the subject of your inspection can remove all trees from the property? Right now the owner is contemplating removing the brush, however, in the future the owner may wish to remove trees as well.
Ken

On Wed, 8/15/18, Barrette, Larry <Larry.Barrette@simcoe.ca> wrote:

Subject: Brush Clearing - 16533 Highway 12, Midland
To: '"KEN CAVE"' <kcave_cpm@rogers.com>
Cc: '"Wes Crown"' <wcrown@midland.ca>
Date: Wednesday, August 15, 2018, 1:28 PM

Ken Cave
Cave Project
Management
Re: Site
Visit, August 10, 2018 Request for brush/tree removal to allow archaeological assessment at 16533 Highway 12 and 823 King Street, Midland, ON

Hello Ken,
Further to our site
meeting at the above location, please be advised that the County of Simcoe has determined that the area in question is not considered a 'woodland' according to the definition in the Forest Conservation By Law 5635. The majority of wooded plants are invasive or do not identify as a tree species. Although there are trees present, the area is not a 'woodland' and the Simcoe County By Law 5635 does not apply.
Thank you for contacting
this office for clarification.
Regards,

Larry
Barrette

Municipal Law Enforcement
Officer

Forest Conservation

County of Simcoe, Forestry
Department

1110 Highway 26, Midhurst,
Ontario
L9X 1N6

Phone: 705-726-9300 Ext.
1175 Fax: 705- 726-9832

E-mail:
larry.barrette@simcoe.ca

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APPENDIX G

SAR Assessment

Jim Broadfoot

From: Scheifley, Jody (MECP) <jody.scheifley@ontario.ca>
Sent: July-16-19 9:37 AM
To: Jim Broadfoot
Subject: RE: MECP Review of SAR Assessment Required (Midland)

Hi Jim,

Based upon your field work and conclusions, I concur that no permitting/authorization under the ESA will be required to develop these lands if tree removal is conducted between October 15 – April 1st.

Jody Scheifley
Management Biologist | Permissions and Compliance Section, Species at Risk Branch
Ministry of Environment, Conservation and Parks
519-371-8422
1450 7TH Avenue East Owen Sound, Ontario, N4K 2Z1

From: Jim Broadfoot <Jim@Azimuthenvironmental.Com>
Sent: July 15, 2019 11:46 AM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Cc: nicola.mitchinson@sympatico.ca
Subject: MECP Review of SAR Assessment Required (Midland)

MECP SAR Branch

To Whom it May Concern,

Our firm was retained by Pratt Development Inc. to complete a SAR assessment for two adjoining properties it owns in Midland (SAR Assessment for Pratt Lands January 2019 attached). The Severn Sound Environmental Association (SSEA) was retained by the Town of Midland to review the SAR assessment (SSEA comments letter May 2019 attached). The SSEA recommends that "*the MECP should be contacted to confirm the findings and conclusions of the SAR Assessment, particularly with respect to SAR bat habitat*" (Point 1b of SSEA letter). Therefore, we are submitting the SAR assessment to the MECP for its review and input.

We look forward to receiving confirmation from the MECP that SAR Branch staff have been assign the task of review and await MECP's assessment of the conclusions of the SAR assessment that the subject and adjacent lands do not provide habitat for Endangered or Threatened species and hence that no permitting/authorizations issued under Ontario's ESA are required related to development of the lands.

Please do not hesitate to contact the undersigned to discuss.

Thank you,

Jim Broadfoot, Terrestrial Ecologist

Azimuth Environmental
642 Welham Road
Barrie, ON
L4N 9A1
(705) 721-8451 x 206
Mobile (705) 623-1161 (***NOTE: NEW MOBILE #)***

Providing services in hydrogeology, terrestrial and aquatic ecology & environmental engineering

Species at Risk Assessment

Pratt Residential Draft Approved
Plan of Subdivision MD-T-0108 (823 King St.)
And
Pratt Vacant Industrial Lands
(16533 Hwy 12 – former "Orsi Lands")
Town of Midland

Prepared for:
Pratt Development Inc.

Prepared by:
Azimuth Environmental
Consulting, Inc.

January 2019

AEC 18-143

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Environmental Assessments & Approvals

January 19, 2019

AEC 18-143

Pratt Development Inc.
27 Clapperton Street
Barrie, ON
L4M 3E6

Attention: Don Pratt, President

Re: **Species at Risk Assessment**
Pratt Residential Draft Approved Plan of Subdivision MD-T-0108 (823 King St.) and Pratt Vacant Industrial Lands (16533 Highway 12 - former "Orsi Lands"), Town of Midland, County of Simcoe

Dear Mr. Pratt:

As requested, we have completed a Species at Risk assessment related to the residential Draft Approved plan of subdivision and the vacant industrial property (former "Orsi Lands") located in the Town of Midland. The following report explains our methods and findings.

The subject and adjacent lands do not provide habitat for Endangered, Threatened or Special Concern species.

If you have questions or require additional information please do not hesitate to contact the undersigned.

Yours truly,

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Jim Broadfoot, H. B.Sc.
Terrestrial Ecologist

Attach:

cc: Nicola Mitchinson, MITCHINSON Planning & Development Consultants Inc.
Ken Cave, Project Manager

M:\18 Projects\18-143 Pratt EIS (Midland)\05.0 - Reporting\SAR Assessment\FINAL SAR Assessment\18-143 Pratt SAR Assessment Midland Lands FINAL January 18, 2018 text.docx

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List of Appendices

1.0 INTRODUCTION

Azimuth Environmental Consulting Inc. (Azimuth) was retained by Pratt Development Inc. to complete a Species at Risk (SAR) assessment for two adjacent landholdings located within Part of Lot 102, Concession 2 (Geographic Township of Tay), Town of Midland, County of Simcoe. The subject landholdings are comprised of approximately 13ha of lands Draft Approved for residential development on April 27, 2009 (File No. MD-T-0108: refer to Appendix A for Draft Plan) and approximately 17ha of vacant, industrial land abutting to the south, known as the "Orsi Lands". The properties are located between King and William Streets, north of Highway 12 and abutting existing residential development associated with Christine Drive to the north (Figure 1).

2.0 EXISTING CONDITIONS

The subject lands contain no buildings or other structures. Historic air photos (1954) indicate that the lands were substantially cleared in the past and farmed.

The lands are traversed by several un-official walking trails linking areas of residential/institutional development to the north with commercial and industrial developments to the west and south.

Adjacent lands to the south contain a mix of commercial and industrial developments. Adjacent lands to the north contain residential development and a school. The lands abut a municipal soccer pitch.

Several constructed drainage features traverse the properties directing surface water from adjacent roadways/developed areas in a general northwest to southeast direction.

The lands are located more than 350m from adjacent natural heritage features (Wye River and Wye Marsh) and are disconnected from these features by intervening development (industrial, commercial, residential) associated with Highway 12 and William Street/Pillsbury Drive.

The lands cover approximately 30ha and contain successional woodland (Cultural Woodland, Deciduous Forest, Mixed Forest, Deciduous Swamp, Cultural Plantation/Coniferous Forest), shrubland (Cultural Thicket/Thicket Swamp) and open meadow habitat (Cultural Meadow/Mineral Meadow Marsh) as shown on Figure 2. Woodlands cover includes approximately 10.5ha of the subject lands.

3.0 STUDY APPROACH

Azimuth compiled a list of SAR to assess based on information provided by Ministry of Natural Resources and Forestry (MNRF) Midhurst District as part of the Official Plan Review process as reported by Plan B *et al.* (2017) and in response to a SAR information request to the MNRF submitted by Azimuth to acquire a current list of SAR of concern related to development proposed in the area (Appendix B). Though Ontario's *Endangered Species Act*, 2007 (ESA) does not afford protection to individuals or habitat of Special Concern (SC) species, this SAR assessment considers SC species.

Given the nature of habitat on and adjacent to the lands approved/proposed for development, and SAR identified in and around Midland, Azimuth completed the following field studies related to SAR:

- Bat snag surveys and follow-up acoustic monitoring given the availability of mature woodland cover on the lands;
- Dawn breeding bird surveys;
- Nocturnal breeding bird surveys;
- Evening calling amphibian surveys;
- Ground searches for reptiles; and,
- Vascular plant surveys, including searches for Butternut trees, saplings and seedlings.

3.1 Bat Surveys

3.1.1 Methods

Given that mature woodland cover occurred on the properties, Azimuth completed snag density surveys within areas of mature woodland cover following the plot based sampling method of the MNRF's *Technical Note Species at Risk Bats* protocol (see Appendix C for snag survey plot locations). Data were collected under leaf-off conditions on April 27 and 28, 2018 (S. Casutt, A. Pompilio). Data revealed that mature woodland cover of the Draft Approved (FOD4, FOD/SWD) and Orsi Lands (FOD1 & 2) provided > 10 snag trees/ha – the threshold density the MNRF considers woodlands to have potential function as summer/maternity roost habitat. As the woodlands noted above provided > 10 snag trees/ha (*i.e.*, trees having diameter at breast height > 25cm with cavities, peeling bark or other suitable cover elements for bats) Azimuth deployed four acoustic monitors in locations shown in Appendix C over a 10 day period (June 1 – June 11, 2018; S. Casutt, B. Baker) to sample for bats. The monitors were installed in in proximity to clusters of high quality snag trees where bat activity would likely be concentrated.

3.1.2 Results

Snag Tree Assessment

Deciduous Forest communities (FOD) of the Draft Approved and Orsi Lands contain mature Sugar Maple, White Ash, American Basswood and Red Oak. Snag tree density within the FOD communities of the Draft Approved Lands were estimated at between 40 and 51.5/ha with 11.4 to 13.3 high quality snag trees/ha (*i.e.*, trees > 25cm dbh in decay classes 1-3 providing snag features [holes, cracks, loose bark] above 10m). The FOD/SWD community of the Draft Approved Lands provided lower density of snag trees overall (25.5/ha) with 9.1 high quality snag trees/ha. Snag tree density within the FOD communities of the Orsi Lands were estimated at between 26.6 and 57.5/ha with 0 to 5 high quality snag trees/ha (*i.e.*, trees > 25cm dbh in decay classes 1-3 providing snag features [holes, cracks, loose bark] above 10m). The highest quality snag trees on the Orsi Lands were associated with the FOD2 community located on the east side adjacent to William Street.

Acoustic Monitoring

The results of acoustic monitoring (Appendix C) revealed 321 recordings over the 10 day sampling period attributable to bats of various species – 32.1 bat passes per evening on average. Of these, 13 (12 Little Brown Myotis [END] and 1 *Myotis* sp.) recordings were attributable to *Myotis* bat species – 1.3 passes per evening on average. Little Brown Myotis were not detected during all evenings sampled. None of the passes attributable to Little Brown Myotis occurred at times indicative of exiting/returning to roost habitat (*i.e.*, none associated with sunset when bats leave roosts to begin foraging). The low frequency of detection of Little Brown Myotis per evening indicates no maternity roost in the area as travels to/from roost habitat to tend to young generate large numbers of recordings/passes. For comparative purposes, active roosts may generate up to 80 passes per evening (Azimuth, unpublished data). Therefore, given that there were only 1.3 recordings of Myotis bats per evening and none associated with sunset when bats leave roosts, data indicate that there is an extremely low likelihood that the subject lands are being used as maternity roost habitat. Regardless, we recommend that trees are not felled during the active bat roost season typically assumed to extend from May 1 through to the end of October to mitigate the potential for direct impact/mortality.

3.2 Bird Surveys

3.2.1 Methods

Dawn bird surveys were completed as a combined point count and roving survey following the sampling methods of the Ontario Breeding Bird Survey (BSC 2000) on June 13 and June 21, 2018. Six point count stations were established across the Draft Approved Lands, eight across the Orsi Lands to provide full sampling of all habitat (Figure 2). Point count sampling duration was 5 minutes per station. All bird species

seen or heard on or adjacent to the properties were recorded. Results of the survey and observation conditions (dates, times, weather conditions, observers) are reported in Appendix D.

Nocturnal bird surveys were completed in association with full moon cycles during the breeding season on May 23, June 26 and June 29, 2018 following guidelines of the Eastern Whip-poor-will roadside survey in Ontario (BSC 2014) and recommended surveys windows for 2018. Two point count stations were established to provide full coverage of the subject and adjacent lands. Observation conditions (dates, times, weather conditions, observers) are reported in Appendix D.

3.2.2 Results

Dawn surveys revealed no END, Threatened (THR) or SC species utilizing habitat of the subject or adjacent lands.

Nocturnal surveys revealed no Eastern Whip-poor-will (THR) or Common Nighthawk (SC) utilizing habitat of the subject or adjacent lands. Sampling elsewhere (near Orr Lake) revealed that Eastern Whip-poor-will were calling on the same evenings sampled indicating that lack of detection on/adjacent to the subject lands was not due to environmental conditions affecting survey results.

3.3 Reptile Surveys

3.3.1 Methods

There are no ponds or other aquatic features providing permanent/near-permanent surface water accumulations providing potential habitat for turtles and hence targeted turtle surveys were not completed. Regardless, during all daytime site visits, Azimuth searched for evidence of turtle use of the area (direct encounters, evidence of nesting [nest predation, *etc.*]).

Azimuth searched for snakes and signs of snake use of the property (shed skins, *etc.*) during all daytime site visits (n = 6) April 23, April 27, June 13, June 21, August 1, and September 11, 2018. Observation conditions (dates, times, weather conditions, observers) are reported in Appendix E.

Azimuth completed evening calling amphibian surveys following the methods of the Marsh Monitoring Program (BSC 2008) on May 3, May 23 and June 26, 2018 to establish if the subject and adjacent lands provide a forage base supportive of SAR snake species identified in the general area. Results of the survey and observation conditions (dates, times, weather conditions, observers) are reported in Appendix E.

3.3.2 Results

No snakes or turtles or signs of snake or turtle use of the subject lands was observed during multiple site visits completed at times and under conditions were reptiles would have been active and hence detectable.

The subject and adjacent lands do not provide an abundance of frogs or toads and hence do not represent significant foraging habitat for SAR snakes identified in the general area. As urban lands with a history of disturbance and being disconnected from adjacent natural areas by heavily travelled roadways – the lands have limited potential to function as viable habitat for snakes owing to anticipated high levels of mortality and lack of connectivity to facilitate dispersal into the area to compensate for mortality.

3.4 Plant Surveys

3.4.1 Methods

Reconnaissance surveys were completed on April 23, April 27, June 13, August 1, and September 11, 2018 with the specific objective of detecting SAR plants. In addition to searching for Butternut, surveys were timed to detect herbaceous SAR plant species reported for the general area based on their phenology as a way to enhance probability of detection.

3.4.2 Results

No SAR plants were detected on the property during multiple searches completed specific to the task.

4.0 SAR ASSESSMENT

Table 1 provides a list of SAR identified in the area and a summary of habitat requirements of each. The table also presents and assessment of the potential of the property and adjacent lands to function as habitat for the listed SAR and evidence of use of the lands based on field data.

5.0 CONCLUSION

The subject and adjacent lands do not provide habitat for END, THR or SC species. Therefore, no permitting issued under Ontario's ESA is required related to the approved development or future development contemplated for the Draft Approved or Orsi Lands.

6.0 REFERENCES

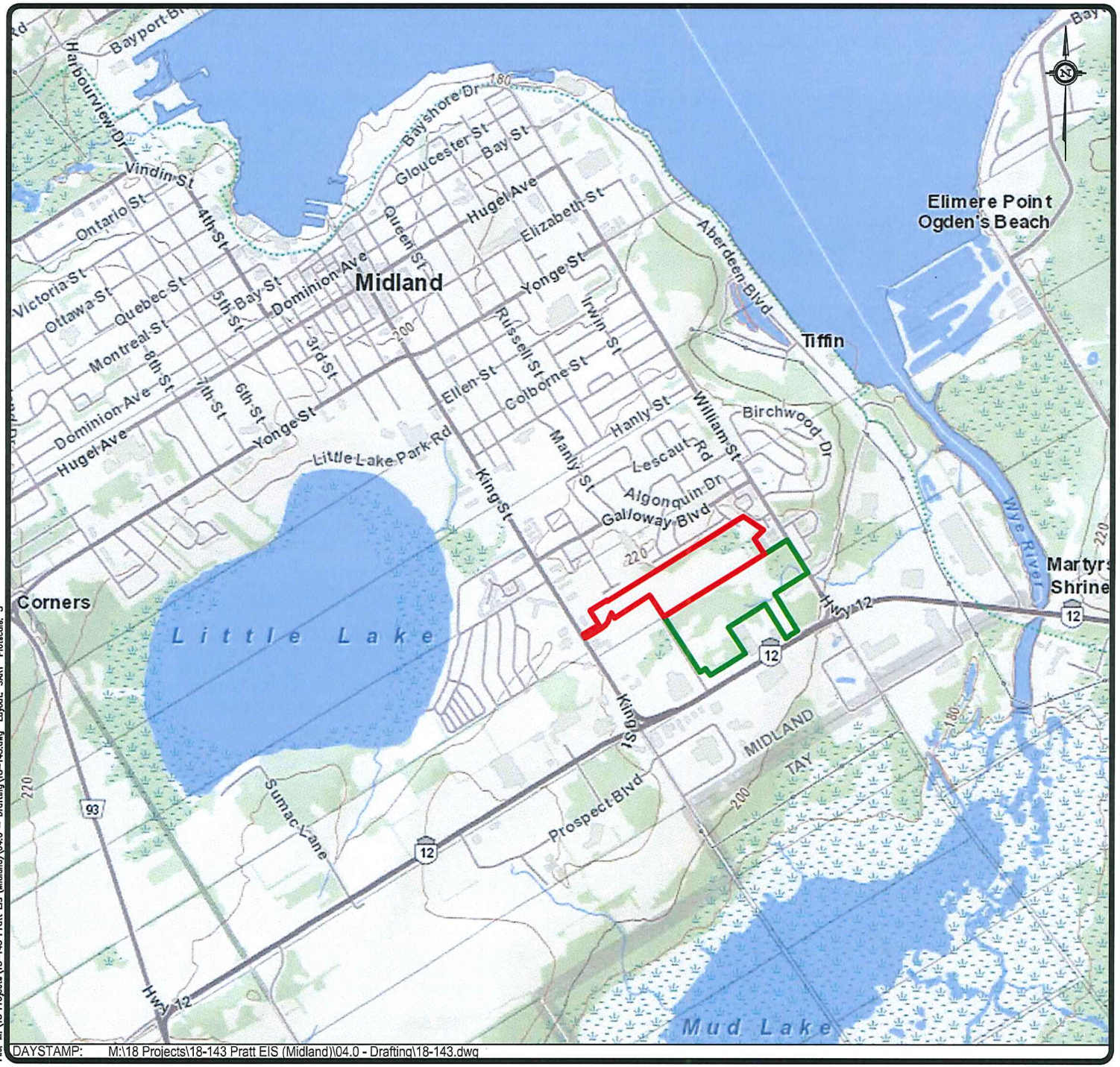
BSC. 2014. Guidelines for conducting Eastern Whip-poor-will roadside surveys in Ontario. Bird Studies Canada, 12 May 2014. 12pp.

BSC. 2016. Ontario Whip-poor-will Survey windows 2016-2020. Bird Studies Canada – Table.

BSC. 2008. Marsh Monitoring Program.

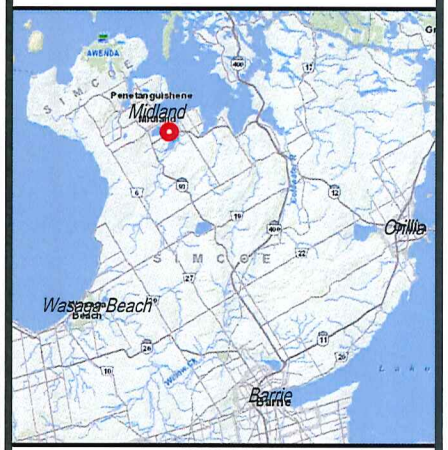
BSC. 2000. Ontario Breeding Bird Atlas – Participants Guide.

Plan B *et al.* 2017. Town of Midland Natural Heritage System: methodology and approach. Plan B Natural Heritage, The Planning Partnership, Municipal Planning Services, and Urban Metrics - August 2017



LEGEND:

- *Draft Approved Lands*
- *ORSI Lands*



REG MAP

250m 0 750m

HORIZONTAL SCALE 1:25,000

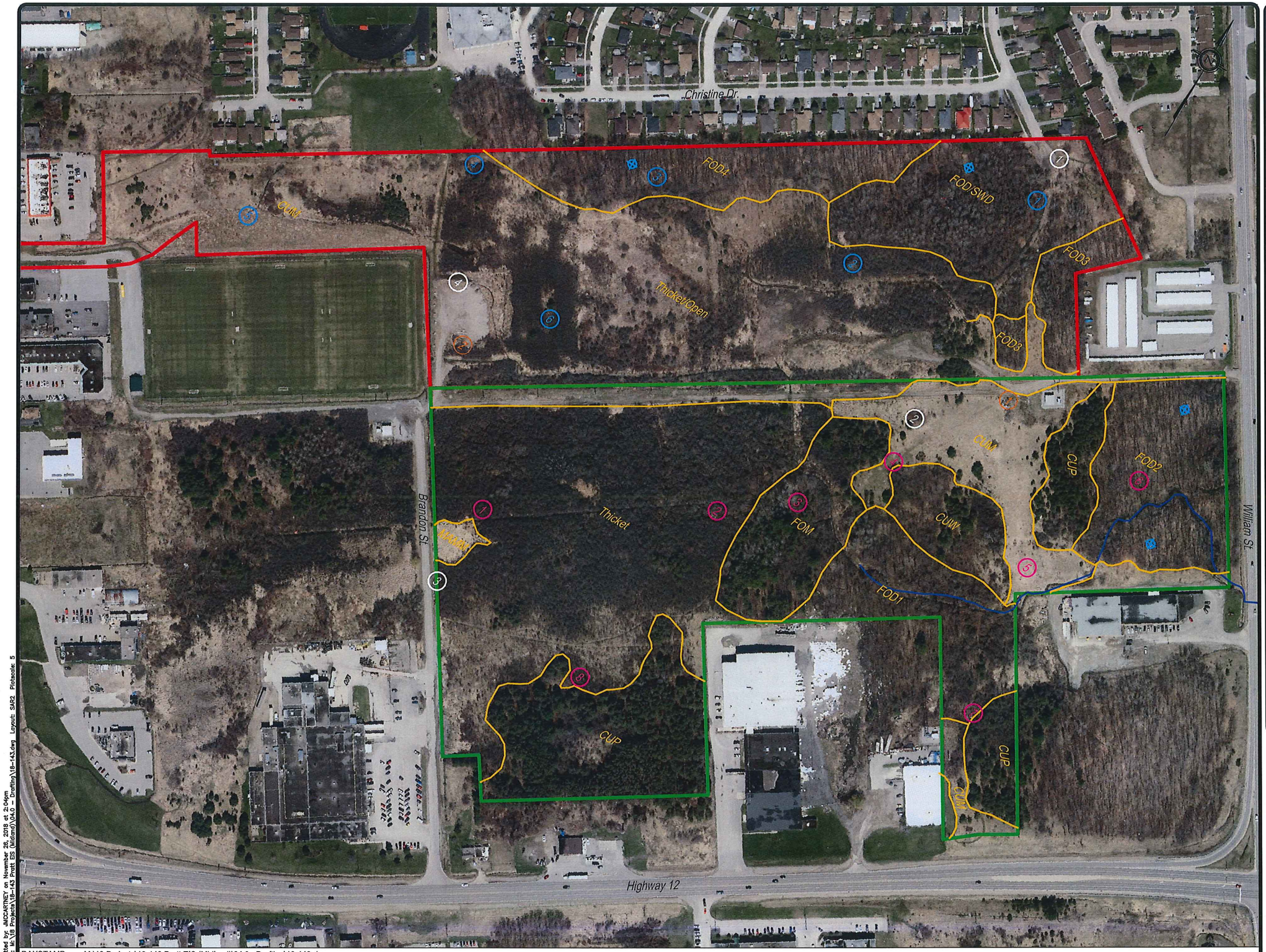
AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Study Area Location

Pratt SAR,
Midland, ON

DATE ISSUED: *November 2018*	Figure No.
CREATED BY: *JLM*	
PROJECT NO.: *18-143*	1
REFERENCE: *MNRF*	

Plotted by: JMCCARTNEY on November 26, 2018 at 11:23am
File: M:\18 Projects\18-143 Pratt EIS (Midland)\04.0 – Drafting\18-143.dwg Layout: SAR1 Plotscale: 5



LEGEND:

- Draft Approved Lands
- ORSI Lands
- Watercourse (as per background mapping)
- Bat Acoustic Monitor
- Evening Calling Amphibian Point Count Station (white)
- Dawn Bird Point Count Station (Draft approved)
- Dawn Bird Point Count Station (ORSI)
- Nocturnal Bird Point Count

Vegetation Communities

CUM	Meadow
CUP	Coniferous Plantation/Forest
CUW	Woodland
FOD	Deciduous Forest
FOM	Mixed Forest
MAM	Mineral Meadow Marsh
SWD	Deciduous Swamp

50m 0 100m

HORIZONTAL SCALE 1:3,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Existing Conditions

Pratt Lands,
Midland, ON

DATE ISSUED:	April 2018	Figure No.
CREATED BY:	JLM	2
PROJECT NO.:	18-143	
REFERENCE:	Simcoe County Maps	

DAYSTAMP: M:\18 Projects\18-143 Pratt EIS (Midland)\04.0 - Drafting\18-143.dwg

Plotted by: JMCCARTNEY on November 20, 2018 at 2:04pm
File: M:\18 Projects\18-143 Pratt EIS (Midland)\04.0 - Drafting\18-143.dwg Layout: SAR2 Plotscale: 5

Table 1. Species at Risk Assessment, Draft Approved & Orsi Lands, Midland, 2018.

Taxa	Common Name[1]	ESA Status	Habitat Requirements	Habitat on or Adjacent to Lands?	Observed?	Issue Related to Development?
Bird	Bank Swallow	THR	Nest in burrows it constructs in sand banks associated with valleylands and in fill piles/gravel pits having near vertical faces.	No	No	No
Bird	Barn Swallow	THR	Build nests in manmade structures like sheds, barns, etc. and under bridges/in culverts, etc.	Yes-adjacent buildings/structures	No	No
Bird	Bobolink	THR	Large grasslands	No	No	No
Bird	Cerulean Warbler	THR	Large mature forests	No	No	No
Bird	Chimney Swift	THR	Build nests in chimneys and/or on walls of built structures (barns, houses, churches, etc.)	Yes-adjacent buildings/structures	No	No
Bird	Eastern Meadowlark	THR	large grasslands	No	No	No
Bird	Least Bittern	THR	Marsh wetlands with mix of open water and emergent vegetation (cattails)	No	No	No
Bird	Whip-poor-will	THR	Open woodlands, disturbed areas	Yes	No	No
Fish	Lake Sturgeon	THR	Georgian Bay and accessable reaches of large connecting rivers (spawning)	No	No	No
Mammal	Little Brown Myotis	END	Mature woodlands (snag/cavity trees) and buildlings (churches, older homes with attics, etc.)	Yes	Yes	No, see discussion in Section 3.1.2 of SAR Assessment Report
Mammal	Northern Myotis	END	Mature woodlands (snag/cavity trees)	Yes	No	No
Mammal	Tri-coloured Bat	END	Mature woodlands (snag/cavity trees) and occasionally in barns or other buildlings	Yes	No	No
Plant	American Ginseng	END	Mature deciduous forests	Yes	No	No
Plant	Butternut	END	Forests, woodlands, fencerows, open lands	Yes	No	No
Plant	Eastern Prairie Fringed Orchid	END	Wetlands including fens, swamps and tallgrass prairie	Yes	No	No
Plant	Forked Three-awned Grass	END	Disturbed sites with open, bare ground/sparsely-covered grassy areas, often in bare spots between patches of other species of grasses	Yes	No	No
Reptile	Blanding's Turtle	THR	Wetlands with standing water	No	No	No
Reptile	Eastern Foxsnake	THR	Georgian Bay shoreline	No	No	No
Reptile	Eastern Hog-nosed Snake	THR	Forests, woodlands, fencerows, open lands with sandy soils and wetlands providing an abundance of breeding amphibians (particularly American Toad)	No	No	No
Reptile	Eastern Massasauga Rattlesnake	THR	Forests, woodlands, fencerows, wetlands	Yes	No	No
Reptile	Spotted Turtle	END	Ponds, marshes, bogs ditches with slow-moving, unpolluted water and an abundant supply of aquatic vegetation	No	No	No
Reptile	Wood Turtle	END	Clear rivers, streams or creeks with a slight current and sandy or gravelly bottom with woodlands nearby. Over winter in flowing streams.	No	No	No
Bird	Bald Eagle	SC	Forest habitat generally nesting along Georgian Bay shoreline	No	No	NA[2]
Bird	Black Tern	SC	Large wetlands with open water and emergent vegetation	No	No	NA
Bird	Canada Warbler	SC	Mature forests	Yes	No	NA
Bird	Common Nighthawk	SC	Open woodlands	Yes	No	NA
Bird	Eastern Wood-Pewee	SC	Forests	Yes	No	NA
Bird	Golden-winged Warbler	SC	Shrublands	Yes	No	NA
Bird	Grasshopper Sparrow	SC	Large grasslands	No	No	NA

Bird	Olive-sided Flycatcher	SC	Forests	Yes	No	NA
Bird	Red-headed Woodpecker	SC	Open woodlands, forests	Yes	No	NA
Bird	Short-eared Owl	SC	Large grasslands	No	No	NA
Bird	Wood Thrush	SC	Mature forests	Yes	No	NA
Fish	Northern Brook Lamprey	SC	Georgian Bay and accessable reaches of large connecting rivers (spawning)	No	No	NA
Insect	Monarch	SC	Open lands with abundant milkweed	No	No	NA
Reptile	Eastern Musk Turtle	SC	Wetlands with permanent standing water/lakes	No	No	NA
Reptile	Northern Map Turtle	SC	Lakes	No	No	NA
Reptile	Snapping Turtle	SC	Wetlands with permanent standing water/lakes/slow moving rivers	No	No	NA

[1]List compiled based on MNRF response to Information Request and input to Official Plan Review process - see Appendix B of SAR Assessment Report

[2]Not Applicable - Ontario's *Endangerd Species Act* , 2007 does not afford individual or habitat protection to species listed as Special Concern

APPENDICES

Appendix A:	**Approved Draft Plan**
Appendix B:	**SAR Background Information**
Appendix C:	**Bat Data**
Appendix D:	**Bird Data**
Appendix E:	**Herpetofauna Survey Observation Conditions & Results**

APPENDIX A

Approved Draft Plan

PLAN OF SURVEY OF
PART OF THE LOT 102
CONCESSION 2
GEOGRAPHIC TOWNSHIP OF TAY
TOWN OF MIDLAND
COUNTY OF SIMCOE
SCALE 1 : 1000
0 10 20 30 40 50 100 metres
CDN LAND SURVEYORS INC.

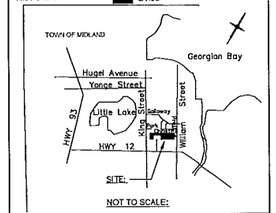
OWNER'S CERTIFICATE
I, THE UNDERSIGNED, EDPG THE REGISTERED OWNER OF THE SUBJECT LANDS, HEREBY AUTHORIZE MITCHINSON PLANNING AND DEVELOPMENT CONSULTANTS INC., TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND TO SUBMIT THE SAME TO THE TOWN OF MIDLAND FOR APPROVAL.

DATE: _____ _____
PRATT DEVELOPMENT INC.
DON PRATT, PRESIDENT

SURVEYOR'S CERTIFICATE
I HEREBY CERTIFY THAT THE BOUNDARY OF THE LAND TO BE SUBDIVIDED ON THIS PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LAND ARE ACCURATELY AND CORRECTLY SHOWN.

DATE: _____ _____
RANDY MAY - O.L.S.
CDN LAND SURVEYORS INC.

KEY PLAN — SUBJECT LANDS



NOT TO SCALE:

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT (R.S.O. 1990)

A. AS SHOWN	B. AS SHOWN	C. AS SHOWN
D. RESIDENTIAL	E. AS SHOWN	F. AS SHOWN, ESAWEWEW LOWE
G. AS SHOWN	H. MUNICIPAL WATER SUPPLY (PRES)	
J. AS SHOWN	K. ALL SERVICES AS REQUIRED	L. AS SHOWN

AREA SCHEDULE

LAND USE	LOTS/BLOCKS	UNITS	AREA (ha)
SINGLE DETACHED			
12 M. LOTS	LOTS 1 - 57, 59 - 63, 94 - 98	67	2.670ha
15M. LOTS	LOTS 58, 64 - 93, 99 - 105	38	2.467ha
FUTURE DEVELOPMENT LOTS	BLOCKS 106 TO 111	6	0.188ha
TOWNHOUSES	BLOCKS 112 TO 124	91	2.832ha
ROADS	(PRATT AVE. STREETS A, B & C		3.040ha
6m WALKWAY	BLOCK 125		0.027ha
10m WALKWAY	BLOCK 126		0.030ha
3m WALKWAY	BLOCK 127		0.010ha
0.3M RESERVES	BLOCKS 128 & 130		0.001ha
SWM POND	BLOCK 129		1.135ha
TOTAL		202	12.499ha

NOTES: 1) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE NOTED
2) ALL LOT FRONTAGES AND DEPTHS SHOWN TO NEAREST METRE.
3) SURVEY INFORMATION PROVIDED BY CDN LAND SURVEYORS INC.

SCHEDULE OF REVISIONS

DATE	DESCRIPTION	DRAWN
Jan 27'09	DELETED PARKLAND BLOCK 132 & ADDED TOWNHOUSE BLOCKS 121 & 131 AND 10M. WALKWAY & PARK ACCESS BLOCK 135	SAD
FEB 24'09	CHANGES TO THE MOVEMENT OF TOWNHOUSE BLOCKS, 121 AND 122 LOTS, CREATION OF NEW BLOCK IN SOUTHEAST CORNER.	SAD
MAR. 2'09	RE NUMBERING OF THE WHOLE SUBD, CHANGES TO AREA SCHEDULE REMOVED BLOCK IN SOUTHEAST CORNER.	SAD
APRIL 6'09	ADDED 0.3M RESERVE BLOCK 130, FINAL REVISION	SAD

DATED : APRIL 7th, 2009

RICHARDSON FOSTER LTD.
CONSULTING ENGINEERS
PHONE: (705) 726-9331 TOLL FREE (1-877) 239-2461 FAX: (705) 737-7774
4 CEDAR POINT DRIVE, UNIT L BARRIE, ONTARIO L4N 5R7

MITCHINSON PLANNING & DEVELOPMENT CONSULTANTS INC.
57 HIGHLAND AVE.
BARRIE ONTARIO
L4M-1N2
(705) 739-7175 (705) 739-8118- FAX

CDN LAND SURVEYORS INC.
Ontario Land Surveyors
88 BIG BAY POINT ROAD
BARRIE, ONTARIO L4M 4M5 (705) 733-3645
E-MAIL MAIL@CDNLANDSURVEYORS.COM

DRAWN BY: SAD | CHECK BY: RM | FILE No. 8011 MAR 2'09

APPENDIX B

SAR Background Information

Appendix A: Species-at-Risk previously recorded from the Town of Midland (Source: MNRF *Make-a-Map: Natural Heritage Areas* data base). SC = Special Concern, THR = Threatened.

Species at Risk	**Status**
Snapping Turtle	SC
Eastern Musk Turtle	SC
Northern Map Turtle	SC
Blanding's Turtle	THR
Milksnake	SC
Bobolink	THR
Eastern Meadowlark	THR
Black Tern	SC
Peregrine Falcon	SC
Least Bittern	THR
Lake Sturgeon	THR

Appendix B

Town of Midland – Potential Species-at-Risk based on Broad Habitat Types (Source: MNRF Midhurst District)

Forest Habitats	**Wetland Habitats**	**Cultural Fields, Pastures, & Edge Habitats**	**Aquatic Habitats**
Butternut (END) American Ginseng (END) Little Brown Bat (END) Northern Long-eared Bat (END) Tri-coloured Bat (END) Eastern Hog-nosed Snake (THR) Eastern Massasauga Rattlesnake (THR) Whip-poor-will (THR) Cerulean Warbler (THR) Canada Warbler (SC) Olive-sided Flycatcher (SC) Red-headed Woodpecker (SC) Wood Thrush (SC) Eastern Wood-Pewee (SC)	Blanding's Turtle (THR) Northern Map Turtle (SC) Snapping Turtle (SC) Least Bittern (THR) Short-eared Owl (SC) Canada Warbler (SC)	Butternut (END) Forked Three-awned Grass (END) Bobolink (THR) Eastern Meadowlark (THR) Barn Swallow (THR) Whip-poor-will (THR) Grasshopper Sparrow (SC) Short-eared Owl (SC) Golden-winged Warbler (SC) Eastern Wood-Pewee (SC) Monarch (SC)	Lake Sturgeon (THR) Northern Brook Lamprey (SC) Eastern Musk Turtle (SC) Northern Map Turtle (SC) Snapping Turtle (SC)
Georgian Bay Shoreline	**Anthropogenic Features – Buildings, Barns**	**Species-at-Risk Status**	
Eastern Foxsnake (THR) Eastern Massasauga Rattlesnake (THR) Eastern Hog-nosed Snake (THR) Northern Map Turtle (SC) Eastern Musk Turtle (SC) Snapping Turtle (SC) Bald Eagle (SC) Common Nighthawk (SC) Bank Swallow (THR)	Little Brown Bat (END) Chimney Swift (THR) Barn Swallow (THR) Eastern Foxsnake (THR)	(END) Endangered (THR) Threatened (SC) Special Concern	

Midhurst District MNRF
Information Request Form

Ontario

Name:	Jim Broadfoot
Company Name:	Azimuth Environmental Consulting Inc
Email Address:	jim@azimuthenvironmental.com
Phone Number:	705 721-8451 x 206
Project Name:	Pratt (Orsi lands) Midhurst
Property Address:	16533 Highway 12, Midland
Township/Municipality:	Town of Midland
Lot & Concession:	

UTM Coordinates (NAD83): 590000 Easting (X) 4954270 Northing (Y)

Project Description: Future development of lands within the Town of Midland

Project Type: ☑ **Planning Act** ☐ **Aggregates Resources Act** ☐ **Environmental Assessment Act**

☐ **Other**

Have you previously contacted someone at MNRF for information on this site? Yes ☐ No ☑

If yes, when and who?

Prior to requesting information from MNRF, please review available online information and attach a summary of your initial screening. Please include a list of features/ habitats on site and summary of the species at risk that are reasonable to expect could be present based on the available habitats. Available MNRF species at risk, fisheries and natural heritage data can be found at Make a Natural Heritage Map, Land Information Ontario, and Species at Risk-Ontario

Please indicate in the box below, any additional information required.

Species at Risk information

Significant Wildlife Habitat designated on or adjacent to the property

Fish Species data and thermal regime classification related to tributary of Wye River that traverses a portion of the property and adjacent lands east of William Street (see map attached)

Note: INFO Request Memo provided as attachment to email

Please provide a map of accurate scale to illustrate footprint/study area of the proposed activity in relation to the surrounding landscape (e.g. property boundaries, roads, waterbodies, natural features, towns, and other human landmarks). Use of aerial photography is strongly encouraged. Include scale, north arrow and legend.

Please forward the completed form to: ***MIDHURSTINFO@ontario.ca***
Or send by mail:
Midhurst District, Ministry of Natural Resources and Forestry
2284 Nursery Road, Midhurst, ON L9X 1N8

Technical Memorandum

To: MIDHURSTINFO (MNRF, Midhurst District)

Re: Information Request – SAR & Fish Species/Thermal Regime

From: Jim Broadfoot, Azimuth Environmental

Project: 18-143

Date: September 6, 2018

Results of Initial Screening (see map):

- Property contains Unevaluated Wetlands and a watercourse (tributary of Wye River)
- No evaluated wetlands or ANSIs on property
- No Provincially Significant Wetlands or ANSIs within 120m of property (nearest approx. 400m to the south)

Results of field studies completed in 2018:

- Property contains forest cover (deciduous, mixed), open old-field and thicket cover
- No Species at Risk (SAR) birds detected on or adjacent to property during dawn bird surveys or nocturnal bird surveys in June
- No areas of surface water accumulation functioning as significant habitat for breeding amphibians, turtles, etc.
- No SAR plants detected during spring and summer surveys
- Flow in watercourse intermittent/storm responsive with sections typically dry during summer, no fish observed, large barrier (perched culvert) at William Street east of the property

Map Legend Items

Show All Legend Items

Imagery Services

Imagery captured in 2016

Topographic Features

Stream

- Intermittent
- Permanent
- Lake, Pond, River or Streams

Land Use Planning

- MNR Unevaluated Wetland
- MNR Evaluated Wetland

ANSI (Area of Natural and Scientific Interest)

- Provincial ANSI
- Regional ANSI

Legend generated using maps.simcoe.ca interactive mapping

Generated on: Thursday, September 06 - 13:23:15 PM

Jim Broadfoot

From: Shirley, Brent (MNRF) <brent.shirley@ontario.ca>
Sent: September-07-18 10:46 AM
To: Jim Broadfoot
Subject: RE: Information Request - Pratt (Orsi) Lands, 16533 Highway 12, Midland

Hi Jim,

We do not have data for additional occurrences of species at risk beyond what you will find through the NHIC/LIO in the immediate area of your study area. However, as you are likely aware the species at risk records found in the NHIC database are not exhaustive and are based on **known** occurrences only. As a result, although there may be no record (or confirmation) of a species at risk on site it does not mean that they are not present if appropriate habitat exists. Due diligence is therefore still required and would include an appropriate consideration of what species could be present based on available habitat on and adjacent to your study site. Your field work should inform you on what species on the SARO list could possibly be encountered based on available habitats in the area of the study and the possible survey methodologies required during your site assessments.

I have screened the area for species at risk and have the following species for your consideration in your EIS; SAR bats, bank swallow, barn swallow, black tern, Blanding's turtle, bobolink, Canada warbler, Caspian tern, eastern meadowlark, eastern musk turtle, eastern prairie fringed orchid, eastern wood-pewee, least bittern, massasauga, monarch, short-eared owl, snapping turtle, wood thrush and three sensitive reptile species.

In the future, please send me a list of all SAR that you are considering in your EIS based on records in the area and habitat types on the subject lands.

We do not have any information on the watercourse that traverses the subject property.

Best Regards,

Brent Shirley

A/ Management Biologist
Midhurst District Ministry of Natural Resources & Forestry
2284 Nursery Rd
Midhurst, ON
L9X 1N8

Phone- 705-725-7547
Fax- 705-725-7584

From: Jim Broadfoot [mailto:Jim@Azimuthenvironmental.Com]
Sent: September 6, 2018 1:51 PM
To: MIDHURSTINFO (MNRF)
Subject: Information Request - Pratt (Orsi) Lands, 16533 Highway 12, Midland

MNRF Midhurst District

To Whom it May Concern:

Please provide the information requested on the attached form. Note: An IFO Request Memo is provided outlining preliminary findings/results of initial screening.

Please do not hesitate to contact me to discuss.

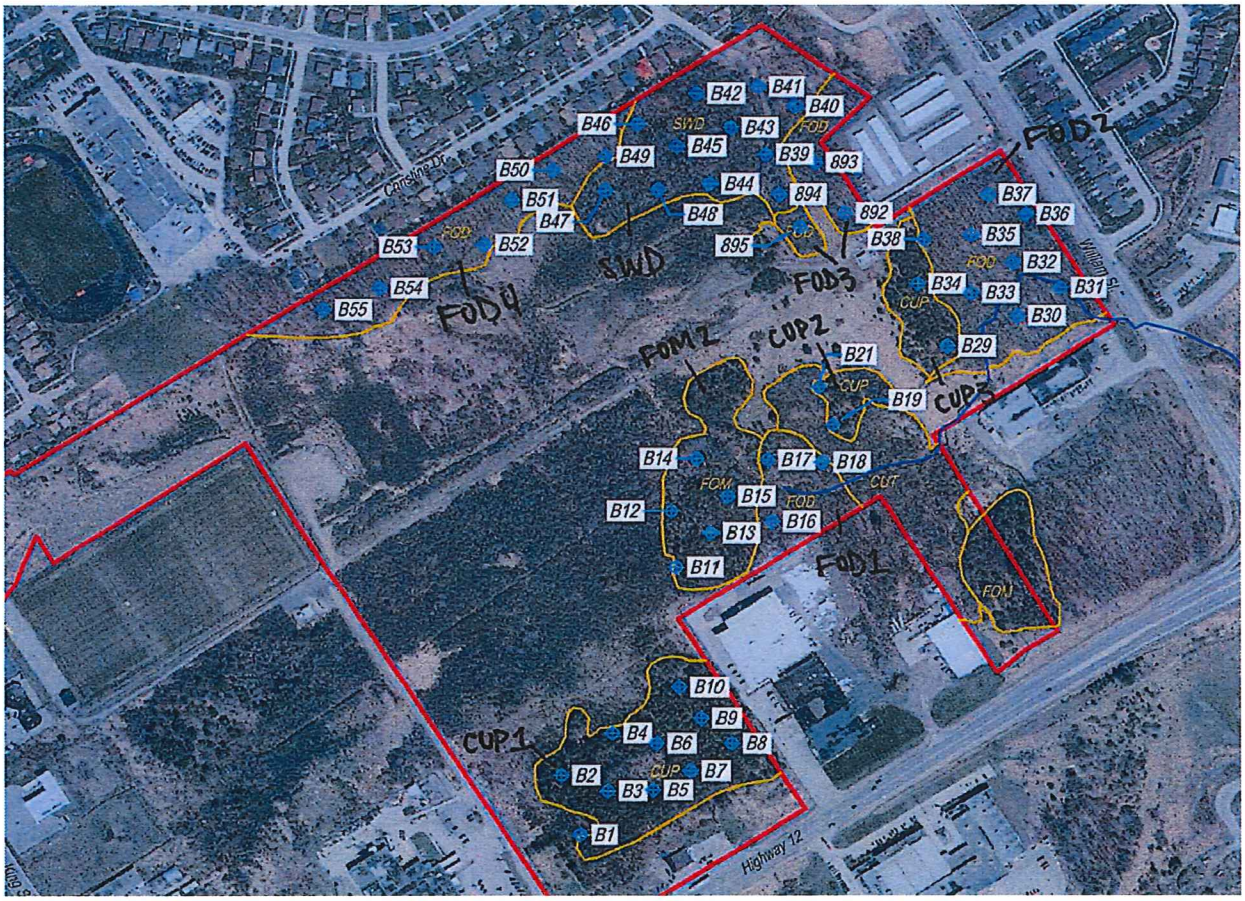
Jim Broadfoot, Terrestrial Ecologist

Azimuth Environmental
642 Welham Road
Barrie, ON
L4N 9A1
(705) 721-8451 x 206
Mobile (705) 623-1161 (***NOTE: NEW MOBILE #)***

Providing services in hydrogeology, terrestrial and aquatic ecology & environmental engineering

APPENDIX C

Bat Data



Bat Snag Tree plot locations. Data collected April 27& 28, 2018 (A. Pompilio, S. Casutt).

Locations of bat acoustic monitors deployed June 1 – June 11, 2018 (S. Casutt, B. Baker)

18-413 Midland (Pratt)
SM3674
06/01/18 - 06/11/18
Sunset Time: 8:57PM
Sunrise Time: 5:37AM

TIMES	21:00-21:30	21:30-22:00	22:00-22:30	22:30-23:00	23:00-23:30	23:30-12:00	12:00-12:30	12:30-1:00	1:00-1:30	1:30-2:00	2:00-2:30	2:30-3:00	3:00-3:30	3:30-4:00	4:00-4:30	4:30-5:00	5:00-5:30	5:30-6:00	TOTAL
SPECIES																			
MYLU																			0
MYSE																			0
MYOTIS																			0
PESU																			0
EPFU																			0
LANO																			0
EPFULANO							1			1									2
LACI													2	1					3
LABO																			0
LowF																			0
HighF																			0
TOTAL	0	0	0	0	0	0	1	0	0	1	0	0	2	1	0	0	0	0	5
																		TOTAL SAR	0

18-413 Midland (Pratt)
SM5687
06/01/18 - 06/11/18
Sunset Time: 8:57PM
Sunrise Time: 5:37AM

TIMES	21:00-21:30	21:30-22:00	22:00-22:30	22:30-23:00	23:00-23:30	23:30-12:00	12:00-12:30	12:30-1:00	1:00-1:30	1:30-2:00	2:00-2:30	2:30-3:00	3:00-3:30	3:30-4:00	4:00-4:30	4:30-5:00	5:00-5:30	5:30-6:00	TOTAL
SPECIES																			
MYLU																			0
MYSE																			0
MYOTIS								1											1
PESU																			0
EPFU																			0
LANO																			0
EPFULANO								1											1
LACI								1		1									2
LABO																			0
LowF																			0
HighF																			0
TOTAL	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	0	4
																		TOTAL SAR	1

18-413 Midland (Pratt)
SM5714
06/01/18 - 06/11/18
Sunset Time: 8:57PM
Sunrise Time: 5:37AM

TIMES	21:00-21:30	21:30-22:00	22:00-22:30	22:30-23:00	23:00-23:30	23:30-12:00	12:00-12:30	12:30-1:00	1:00-1:30	1:30-2:00	2:00-2:30	2:30-3:00	3:00-3:30	3:30-4:00	4:00-4:30	4:30-5:00	5:00-5:30	5:30-6:00	TOTAL
SPECIES																			
MYLU		1	1							1	2			1					6
MYSE																			0
MYOTIS																			0
PESU																			0
EPFU																			0
LANO																			0
EPFULANO		4	1			2	23	17	66	26	9								148
LACI							1		1										2
LABO																			0
LowF																			0
HighF																			0
TOTAL	0	5	2	0	0	2	24	17	67	27	11	0	0	1	0	0	0	0	156

** MYLU recorded on 06/01/18, 06/02/18, 06/03/18, and 06/06/18

TOTAL SAR 6

18-413 Midland (Pratt)
SM5720 - control
06/01/18 - 06/11/18
Sunset Time: 8:57PM
Sunrise Time: 5:37AM

TIMES	21:00-21:30	21:30-22:00	22:00-22:30	22:30-23:00	23:00-23:30	23:30-12:00	12:00-12:30	12:30-1:00	1:00-1:30	1:30-2:00	2:00-2:30	2:30-3:00	3:00-3:30	3:30-4:00	4:00-4:30	4:30-5:00	5:00-5:30	5:30-6:00	TOTAL
SPECIES																			
MYLU		1	1							1	2			1					6
MYSE																			0
MYOTIS																			0
PESU																			0
EPFU																			0
LANO																			0
EPFULANO		4	1			2	23	17	62	30	9								148
LACI							1		1										2
LABO																			0
LowF																			0
HighF																			0
TOTAL	0	5	2	0	0	2	24	17	63	31	11	0	0	1	0	0	0	0	156

** MYLU recorded on 06/02/18, 06/04/18, and 06/07/18

6

SAR Bats
SWH Bats

Species ID		Groupings		Minimum Frequency Range of Species	
MYLU	Myotis lucifugus	MYOTIS	Myotis sp.	MYLU	40 - 45kHz
MYSE	Myotis septentrionalis	EPFULANO	Eptesicus fuscus/Lasionycteris noctivagans	MYSE	40 - 45kHz
PESU	Perimyotis subflavus	LowF	Low Frequency Bat (<35kHz Fmin)	PESU	35 - 40kHz
EPFU	Eptesicus fuscus	HighF	High Frequency Bat (>35kHz Fmin)	EPFU	25 - 30kHz
LANO	Lasionycteris noctivagans			LANO	25 - 30kHz
LACI	Lasiurus cinereus			LACI	<25kHz
LABO	Lasiurus borealis			LABO	30 - 35kHz
MYLE	Myotis leibii			MYLE	40 - 45kHz

APPENDIX D

Bird Data

Nocturnal Bird Survay Observation Conditions, Pratt Development Approved Lands Midland, 2018

Survey Window	Full Moon Date	Preferred Timing	Survey Date	Start Time	Weather Conditions	Observer
Early Window (good, early breeding season)	29-May	21 May - 29 May	23-May	9:35p.m.	Air Temp. +12C, Wind B0, Cloud Cover < 5%, Precipitation Nil, Moon - high, bright, central	J. Broadfoot
Mid-season Window (good, mid-breeding season)	28-Jun	20 June - 28 June	26-Jun	11:40p.m.	Air Temp. +17C, Wind B0, Cloud Cover 50%, Precipitation Nil, Moon - high, central	J. Broadfoot
Mid-season Window (good, mid-breeding season)	28-Jun	20 June - 28 June	29-Jun	1:55a.m	Air Temp. +18C, Wind variable B0-B2 (W), Cloud Cover <5%, Precipitation Nil, Moon - high, central, bright	J. Broadfoot

Bird Species List - Draft Approved Lands, Midland 2018.

			Point Count Station							Conservation Rank[2]		
FAMILY	**SCIENTIFIC NAME**	**COMMON NAME**	**1**	**2**	**3**	**4**	**5**	**6**	**Breeding Evidence[1]**	**S RANK**	**G RANK**	**SARO STATUS**
Troglodytidae	*Troglodytes aedon*	House Wren	,S[3]	S,S	,S			,S	Probable	S5B	G5	
Parulidae	*Geothlypis trichas*	Common Yellowthroat	S,	S,		S,S	S,S	S,	Probable	S5B	G5	
Sturnidae	*Sturnus vulgaris*	European Starling		H,		H,H	H,H	H,	Probable	SNA	G5	
Corvidae	*Corvus brachyrhynchos*	American Crow	C,C	C,C	,C	C,	,C		Probable	S5B	G5	
Vireonidae	*Vireo olivaceus*	Red-eyed Vireo	S,		S,S	S,		,C	Probable	S5B	G5	
Corvidae	*Cyanocitta cristata*	Blue Jay	,C		C,	C,		C,	Possible	S5	G5	
Parulidae	*Setophaga ruticilla*	American Redstart	S,S	S,	S,S	S,	S,	S,	Probable	S5B	G5	
Picidae	*Picoides villosus*	Hairy Woodpecker		C,H					Probable	S5	G5	
Columbidae	*Zenaida macroura*	Mourning Dove	S,				S,	,S	Possible	S5	G5	
Icteridae	*Quiscalus quiscula*	Common Grackle	C,	,H	H,	H,H		H,	Probable	S5B	G5	
Turdidae	*Turdus migratorius*	American Robin	S,S	S,S	S,S	,S	,C		Probable	S5B	G5	
Icteridae	*Agelaius phoeniceus*	Red-winged Blackbird		S,C		,C	,C	,C	Probable	S4	G5	
Emberizidae	*Melospiza melodia*	Song Sparrow		S,	S,S	S,S	S,S	S,S	Probable	S5B	G5	
Cardinalidae	*Cardinalis cardinalis*	Northern Cardinal		S,	S,	S,		S,	Possible	S5	G5	
Paridae	*Poecile atricapillus*	Black-capped Chickadee		S,	C,S				Probable	S5	G5	
Fringillidae	*Carduelis tristis*	American Goldfinch	,C	C,C		C,H	H,C	,C	Probable	S5B	G5	
Parulidae	*Setophaga petechia*	Yellow Warbler			S,	S,S	S,	S,	Probable	S5B	G5	
Tyrannidae	*Sayornis phoebe*	Eastern Phoebe				S,			Possible	S5B	G5	
Parulidae	*Setophaga pensylvanica*	Chestnut-sided Warbler			S,S		,S	S,S	Probable	S5B	G5	
Mimidae	*Dumetella carolinensis*	Gray Catbird	,S					S,S	Probable	S4B	G5	
Picidae	*Colaptes auratus*	Northern Flicker				,C			Possible	S4B	G5	
Cardinalidae	*Passerina cyanea*	Indigo Bunting		,S					Possible	S4B	G5	

Survey Conditions:
Survey 1: Date: June 13, 2018; Time: 05:38 - 06:48 a.m.; Temp.: +18 throughout; C.C.: 100%; Wind: B1-B2 (SW); Prec.: nil; Observers J. Broadfoot, A. Pompilio
Survey 2: Date: June 21, 2018; Time: 06:40-7:48a.m; Temp.: +15C throughout; C.C.: 10% to 25%; Wind: B1-B3 (NE); Prec.: nil; Observed J. Broadfoot

[1]Highest level of breeding evidence detected based on Ontario Breeding Bird Atlas (OBBA) criteria and Breeding Evidence Codes

[2]Conservation Rank - from Ontario Ministry of Natural Resources & Forestry, Natural Heritage Information Centre and Species at Risk in Ontario Lists
S-rank - S1 - Extremely Rare, S2 - Very Rare, S3 - Rare to Uncommon, S4 - Common, S5 - Very Common SC - Special Concern
G-Rank - G1 - Critically Imperiled, G2 - Imperiled, G3 - Vulnerable, G4 - Apparently Secure, G5 - Secure NAR - Not at Risk

[3]Breeding Evidence Codes: Entry examples **S,S** - Singing Male detected during first survey and second survey; **S,** Singing male detected during first survey only **,S** Singing male detected during second survey only

Breeding Evidence	*Breeding Evidence Codes*
None	FO - Species observed Flying Over showing no signs of use of subject or adjacent lands

None	X - Species observed, no evidence of breeding
Possible	H - Species observed in its breeding season in suitable nesting habitat
see Note	S or C - Singing male(s) present (S), or breeding calls heard (C), in suitable nesting habitat in breeding season
Probable	P - Pair observed in suitable nesting habitat in nesting season
Probable	D - Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation.
Probable	V - Visiting probable nest site
Probable	A - Agitated behaviour or anxiety calls of an adult
Probable	B - Brood Patch on adult female or cloacal protuberance on adult male
Probable	N - Nest-building or excavation of nest hole.
Confirmed	DD - Distraction display or injury feigning.
Confirmed	NU - Used nest or egg shells found (occupied or laid within the period of the survey)
Confirmed	FY - Recently fledged young (nidicolous species) or downy young (nidifugous species), including incapable of sustained flight
Confirmed	AE - Adult leaving or entering nest sites in circumstances indicating occupied nest
Confirmed	FS - Adult carying fecal sac.
Confirmed	CF - Adult carying food for young.
Confirmed	NE - Nest containing eggs.
Confirmed	NY - Nest with young seen or heard

Note : Possible if only one observation of S or C, Probable if evidence of S or C in same place on two or more dates a week or more apart

Bird Species List - Orsi Lands, Midland 2018.

			Point Count Station									Conservation Rank[2]		
FAMILY	**SCIENTIFIC NAME**	**COMMON NAME**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**Breeding Evidence[1]**	**S RANK**	**G RANK**	**SARO STATUS**
Troglodytidae	*Troglodytes aedon*	House Wren		S,[3]	,S		,S	,S	,S		Possible	S5B	G5	
Parulidae	*Geothlypis trichas*	Common Yellowthroat	,S		,S	S,					Possible	S5B	G5	
Sturnidae	*Sturnus vulgaris*	European Starling	,H		,C				C,		Possible	SNA	G5	
Corvidae	*Corvus brachyrhynchos*	American Crow	C,C					C,		,C	Probable	S5B	G5	
Vireonidae	*Vireo olivaceus*	Red-eyed Vireo	S,S	S,S	S,		S,S	S,		S,S	Probable	S5B	G5	
Corvidae	*Cyanocitta cristata*	Blue Jay		C,						C,	Possible	S5	G5	
Parulidae	*Setophaga ruticilla*	American Redstart	S,S	S,		S,	S,	S,	S,	S,S	Probable	S5B	G5	
Picidae	*Picoides villosus*	Hairy Woodpecker						H,C			Probable	S5	G5	
Columbidae	*Zenaida macroura*	Mourning Dove			S,S	S,					Probable	S5	G5	
Icteridae	*Quiscalus quiscula*	Common Grackle	C,H	C,H	C,		C,H			C,H	Probable	S5B	G5	
Turdidae	*Turdus migratorius*	American Robin	,S		C,S	C,	,S	C,H	H,S		Probable	S5B	G5	
Icteridae	*Agelaius phoeniceus*	Red-winged Blackbird						S,	S,		Possible	S4	G5	
Emberizidae	*Melospiza melodia*	Song Sparrow	S,	,S	,S	S,	S,S	S,	S,	,S	Probable	S5B	G5	
Cardinalidae	*Cardinalis cardinalis*	Northern Cardinal			,S						Possible	S5	G5	
Paridae	*Poecile atricapillus*	Black-capped Chickadee		C,	C,	C,			C,	,S	Possible	S5	G5	
Fringillidae	*Carduelis tristis*	American Goldfinch	,H	C,C	,S	H,	S,C	C,	C,	C,S	Probable	S5B	G5	
Parulidae	*Setophaga petechia*	Yellow Warbler	S,S						S,		Probable	S5B	G5	
Parulidae	*Setophaga pensylvanica*	Chestnut-sided Warbler			,S	S,					Possible	S5B	G5	
Mimidae	*Dumetella carolinensis*	Gray Catbird	S,S	,S							Probable	S4B	G5	
Cardinalidae	*Passerina cyanea*	Indigo Bunting					S,			,S	Possible	S4B	G5	
Tyrannidae	*Myiarchus crinitus*	Great Crested Flycatcher	,C		,C	C,	C,		C,		Possible	S4B	G5	
Phasianidae	*Bonasa umbellus*	Ruffed Grouse	H,		,FY						Confirmed	S4	G5	
Emberizidae	*Spizella passerina*	Chipping Sparrow			,S	S,					Possible	S5B	G5	

Survey Conditions:
Survey 1: Date: June 13, 2018; Time: 06:59 - 08:45 a.m.; Temp.: +22 throughout; C.C.: 90-100%; Wind: B1-B2 (SW); Prec.: nil; Observers J. Broadfoot, A. Pompilio
Survey 2: Date: June 21, 2018; Time: 05:39-08:40a.m; Temp.: +15C throughout; C.C.: 40%; Wind: B1-B3 (NE); Prec.: nil; Observed J. Broadfoot

[1]Highest level of breeding evidence detected based on Ontario Breeding Bird Atlas (OBBA) criteria and Breeding Evidence Codes

[2]Conservation Rank - from Ontario Ministry of Natural Resources & Forestry, Natural Heritage Information Centre and Species at Risk in Ontario Lists
S-rank - S1 - Extremely Rare, S2 - Very Rare, S3 - Rare to Uncommon, S4 - Common, S5 - Very Common
G-Rank - G1 - Critically Imperiled, G2 - Imperiled, G3 - Vulnerable, G4 - Apparently Secure, G5 - Secure
SC - Special Concern
NAR - Not at Risk

[3]Breeding Evidence Codes: Entry examples **S,S** - Singing Male detected during first survey and second survey; **S,** Singing male detected during first survey only **,S** Singing male detected during second survey only
Breeding Evidence Breeding Evidence Codes

None	FO	Species observed Flying Over showing no signs of use of subject or adjacent lands
None	X	Species observed, no evidence of breeding
Possible	H	Species observed in its breeding season in suitable nesting habitat
see Note	S or C	Singing male(s) present (S), or breeding calls heard (C), in suitable nesting habitat in breeding season
Probable	P	Pair observed in suitable nesting habitat in nesting season
Probable	D	Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation.
Probable	V	Visiting probable nest site
Probable	A	Agitated behaviour or anxiety calls of an adult
Probable	B	Brood Patch on adult female or cloacal protuberance on adult male
Probable	N	Nest-building or excavation of nest hole.
Confirmed	DD	Distraction display or injury feigning.
Confirmed	NU	Used nest or egg shells found (occupied or laid within the period of the survey)
Confirmed	FY	Recently fledged young (nidicolous species) or downy young (nidifugous species), including incapable of sustained flight
Confirmed	AE	Adult leaving or entering nest sites in circumstances indicating occupied nest
Confirmed	FS	Adult carying fecal sac.
Confirmed	CF	Adult carying food for young.
Confirmed	NE	Nest containing eggs.
Confirmed	NY	Nest with young seen or heard

Note : Possible if only one observation of S or C, Probable if evidence of S or C in same place on two or more dates a week or more apart

APPENDIX E

Herpetofauna Survey Observation Conditions & Results

Technical Memorandum

To: Don Pratt, Pratt Development

Re: Evening Calling Amphibian Surveys – Draft Approved & Orsi Lands, Midland

From: Jim Broadfoot

Project: 18-143

Date: November 20, 2018

Evening Calling Amphibian Surveys were completed on the above noted properties in Midland from four point count station locations strategically placed to provide sampling coverage of all areas of both properties (see Figure 2 of SAR Assessment Report for sampling locations).

Methods

Data were collected according to the methods of the Marsh Monitoring Program (BSC 2008) on May 3 (early), May 23 (middle) and June 26 (late), 2018. Weather conditions, survey times, observers are reported below.

Observations were recorded as follows. All species of amphibians (frogs, toads) heard calling during a 3 minute sampling period were recorded and calling intensity by species was scored as follows: Call Code 3 (full chorus, individuals of a species could not be counted); Call Code 2 - # (overlapping calls, number [#] of individuals by species could be counted); and Call Code 1 - # (single calls, individuals by species easily counted [#]). A two minute extended listing period was added to the sampling in an attempt to detect additional species of calling amphibians.

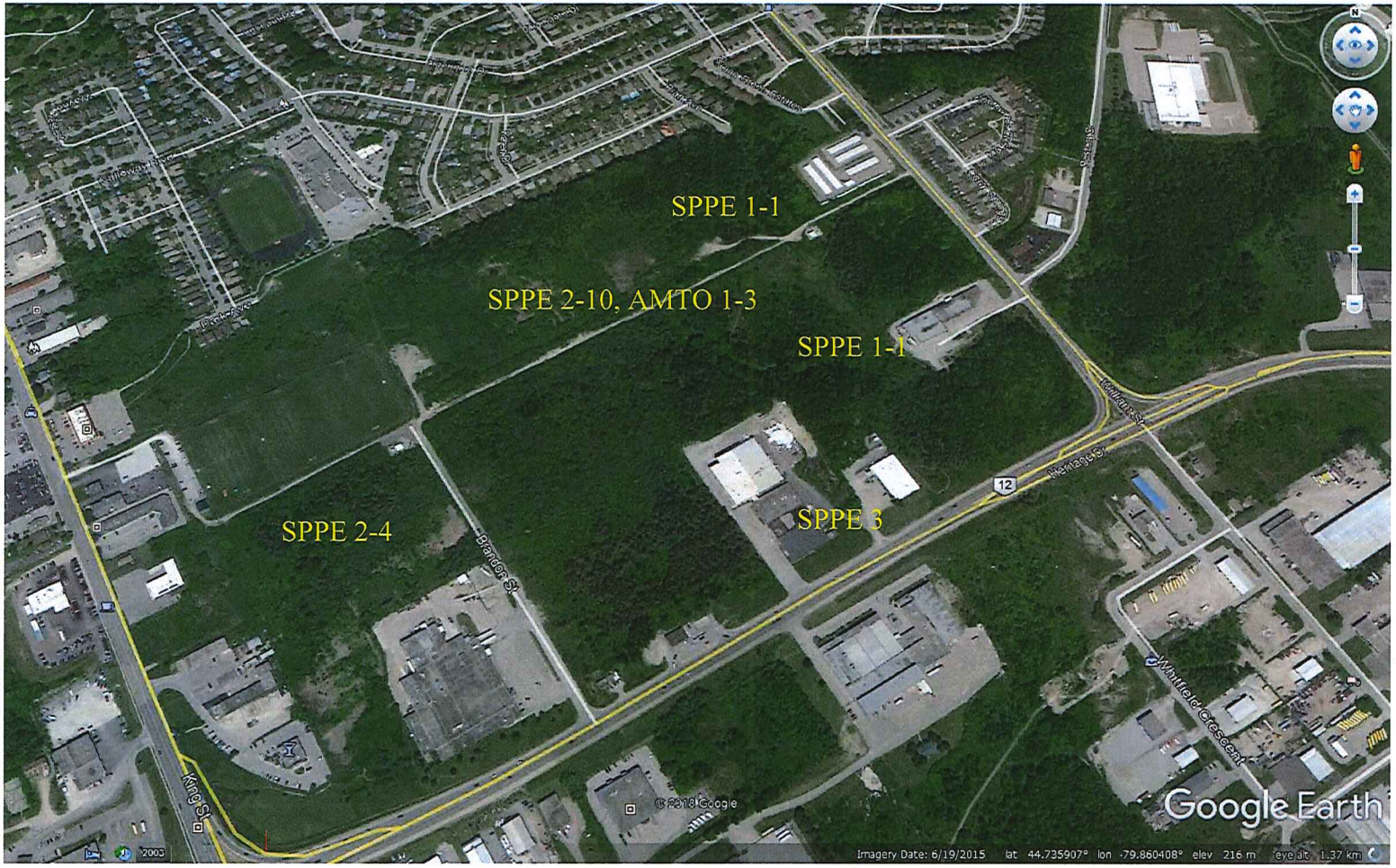
Results

Observation Conditions

Date	Start Time/End Time	Air Temp.	Cloud	Wind	Precip.	Observers
May 3, 2018	8:50p.m./9:30p.m.	+8 C	0%	B0	Nil	S. Casutt, B. Baker
May 23, 2018	9:35p.m./10:40p.m.	+12 C	<5%	B0	Nil	J. Broadfoot
June 26, 2018	11:30p.m./12:00a.m.	+16 C	50-80%	B0	Nil	J. Broadfoot

Results

Station	Date	Species (Call Code)	Comment
1	May 3	None	
	May 23	Spring Peeper (SPPE) (1-1)	
	June26	None	
2	May 3	SPPE (2-10)	
	May 23	SPPE (2-3), American Toad (AMTO) (1-2)	
	June 26	None	
3	May 3	None	
	May 23	SPPE (2-4, Adjacent West)	Adjacent land west of Brandon Street
	June 26	None	
4	May 3	SPPE (3, Adjacent South)	Ponds on adjacent lands to south in industrial area
	May 23	SPPE (2-4), AMTO (1-1)	
	June 26	None	



Distribution of Calling Amphibians (general location & highest level of breeding evidence)

Severn Sound Environmental Association
489 Finlayson St, PO Box 460, Port McNicoll ON L0K 1R0
Phone (705) 534-7283 | **Fax** (705) 534-7459
Email: MHudolin@severnsound.ca **Website**: www.severnsound.ca

May 31, 2019

Wes Crown
Director of Planning and Building Services
Town of Midland
575 Dominion Avenue
Midland ON L4R 1R2

Dear Mr. Crown,

RE: Species At Risk Assessment for Pratt Lands
- 823 King Street and 16533 Highway 12, Town of Midland

In response to your request on March 28, 2019, the Severn Sound Environmental Association (SSEA) has reviewed the *Species At Risk Assessment for the Pratt Residential Draft Approved Plan of Subdivision MD-T-0108 (823 King St.) and Pratt Vacant Industrial Lands (16533 Hwy 12 – former "Orsi Lands")*, prepared by Azimuth Environmental Consulting Inc., dated January 2019.

The following comments on the Species At Risk (SAR) Assessment are offered. A summary of these comments was provided to you via personal communication in mid-April 2019.

1. The SAR Assessment provides details regarding bat surveys, bird surveys, reptile surveys, amphibian surveys, and plant surveys.
    a. The time of year, weather conditions and methodology/protocols for early morning and nocturnal breeding bird surveys, plant surveys, amphibian surveys, and snag tree assessment were appropriate.
    b. The SAR Assessment provides details on acoustic monitoring for bats and an evaluation/analysis of bat habitat on the subject lands. The SSEA defers to the Province on SAR and the Endangered Species Act, including SAR bats; the responsible agency was the Ministry of Natural Resources and Forestry (MNRF) until April 2019, and is now the Ministry of Environment, Conservation and Parks (MECP). The MECP should be contacted to confirm the findings and conclusions of the SAR Assessment, particularly with respect to SAR bat habitat.

2. The SSEA was consulted on a Terms of Reference for an Environmental Impact Study (EIS) for 16533 Highway 12 in May 2018. The EIS for that property was to include a SAR assessment, as well as additional information, including an assessment of any potential Significant Wildlife Habitat (SWH) and recommendations to avoid or mitigate for potential negative environmental impacts. The SSEA may have additional natural heritage comments to provide upon reviewing the full EIS, once it is submitted to the Town for review.

If you have any questions, please contact me.

Sincerely,

Michelle Hudolin
Wetlands & Habitat Biologist

APPENDIX H

Woodland Patch Mapping

Woodland Patch 1 = 2.3ha

Woodland Patch 2 = 6.3ha

Woodland Patch 3 = 2.4ha

Image Source Simcoe County GIS (https://maps.simcoe.ca/public/) 2018 air photo

APPENDIX I

Draft Plan

PROPOSED RESIDENTIAL DEVELOPMENT (ADJACENT LANDS OWNED BY APPLICANT)

PRATT AVE.

S. WINDS CRES.

WILLIAM STREET

CORAL SPRINGS LN.

EXISTING RESIDENTIAL (RT-5)

EXISTING RESIDENTIAL (RT-5)

EXISTING RESIDENTIAL (RT-5)

EXISTING OPEN SPACE (OS)

EXISTING INDUSTRIAL (M1)

PILLSBURY DR.

BRANDON STREET

BLOCK 22
SWM INLET CHANNEL
0.15ha

N57°37'00"E 181.47m

N57°37'00"E 245.85m

N57°37'00"E 73.17m

N57°37'00"E 175.70m

EXISTING SANITARY EASEMENT

EXISTING HYDRO EASEMENT

08 0.63ha | **09** 0.53ha | **10** 0.53ha | **11** 0.54ha | **12** 0.54ha | **13** 0.54ha | **14** 0.70ha | **15** 0.46ha | **16** 0.45ha

N32°33'30"W

STREET 'A'

STREET 'A'

N32°10'35"W

06 0.50ha | **07** 0.40ha

BLOCK 21
SWM POND
3.17ha

18 0.60ha | **17** 0.79ha

BLOCK 20
SWM BY-PASS
0.40ha

SWM BY-PASS EASEMENT

SWM BY-PASS EASEMENT 113.5m

N31°38'50"W 8.75m

N57°23'00"E 182.84m

BLOCK 22
DRAINAGE
0.02ha

05 0.57ha

04 0.53ha

STREET 'B'

03 1.06ha

01 0.67ha | **02** 0.55ha

N57°23'30"E 200.92m

N22°26'05"W

N32°37'40"W

N31°46'15"W

19 1.44ha

N57°24'40"E 30.46m

N57°16'40"E 192.15m

SWM BY-PASS EASEMENT 75.4m

N53°19'45"E 37.21m

N60°31'50"E 25.58m

EXISTING INDUSTRIAL (M1)

EXISTING INDUSTRIAL (M1)

EXISTING INDUSTRIAL (M1)

VACANT (HC)

VACANT (HC)

VACANT (M1)

HIGHWAY 12

LEGAL DESCRIPTION

16533 HIGHWAY 12
PART OF LOT 101, CONCESSION 2
GEOGRAPHIC TOWNSHIP OF TAY
TOWN OF MIDLAND
COUNTY OF SIMCOE

OWNER'S CERTIFICATE

I HEREBY AUTHORIZE MACNAUGHTON HERMSEN BRITTON CLARKSON PLANNING LIMITED TO SUBMIT THIS PLAN FOR APPROVAL.

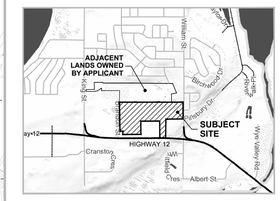
DATE: _____ _____

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED ON THIS PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE: _____ _____

KEY PLAN



REVISION No.	DATE	ISSUED / REVISION	BY

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT R.S.O. 1990 C.P.13 AS AMENDED

A. AS SHOWN
B. AS SHOWN
C. AS SHOWN
D. INDUSTRIAL/COMMERCIAL
E. AS SHOWN
F. AS SHOWN
G. AS SHOWN
H. MUNICIPAL
I. TO BE DETERMINED
J. AS SHOWN
K. MUNICIPAL
L. AS SHOWN

113 COLLIER STREET
BARRIE, ON, L4M 1H2
P: 705 728 0045 F: 705 728 2010
WWW.MHBCPLAN.COM

PLANNING
URBAN DESIGN
& LANDSCAPE
ARCHITECTURE
MHBC PLANNING

STAMP

DATE JULY 22, 2020

FILE No. 12162G

SCALE 1:1,250 (ARCH D)

DRAWN BY M.M.

CHECKED BY K.C.

OTHER

PROJECT

PRATT INDUSTRIAL
PRATT HOMES INC.

NORTH

FILE NAME DRAFT PLAN OF SUBDIVISION

DWG No. 1 of 1

SCALE BAR

0 6 12 18 24 30 45 60 90 120m

MEASUREMENTS SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

N:\Brian\12162G Pratt- Industrial Draft Plan of Subdivision\Drawings\Draft Plan\CAD\12162G - Draft Plan - 2020-07-22.dwg