



Jan 26, 2023

Niagara Region
Planning and Development Services
1815 Sir Isaac Brock Way
Thorold, ON
L2V4T7
Attn: Katie Young Development Planner

Re: Regional and Provincial Comments-Proposed Official Plan Amendment, Zoning By-law
Amendment Applications
City Files: OPA 33: Zoning File: 2020-14
Applicant: Lucas Lucchetta and Lucchetta builders Inc.
Agent: Joseph Tomaino
368 Aqueduct Street and 155 Gadsby Avenue City of Welland
Environmental Consultant: 8Trees Inc.

Dear Ms. Young

Thank you for the opportunity to address the Regions' comments regarding the ecological aspects of this development proposal as specified in your letter dated November 18, 2022.

This letter is intended to address the request for a technical memo by providing additional technical information and rationale to confirm the proposal will not have a significant negative impact on the Region's Core Natural Heritage System. Our approach will provide an overall net benefit ecologically.

Please contact me if you have any further questions or concerns.

Regards,

Anne Yagi MSc., EP, CERP

President 8Trees Inc.

Technical Response to Memo dated Nov 18, 2022

Page 3. requesting “a comprehensive assessment of impacts and recommendations or mitigation measures” relating to the latest proposal.

- We completed a comprehensive assessment of impacts expecting a woodland loss of 2400 m² (70.6 % loss; total woodland within subject lands is estimated at 3400 m²; EIS Feb 2021).
- We identified sensitive and non-sensitive areas based on rare species' presence or their expected occurrence (if existing impacts are reduced). We then defined their habitat use and their potential habitat use based on habitat suitability to determine areas of sensitivity (EIS Feb 2021).
- We proposed planning constraint areas (i.e., buffer setbacks and zoning) to protect existing and the potential extent of rare species habitat by protecting the natural vernal pool area plus a 5m buffer (EIS Feb 2021 and Addenda EIS Jan 2022) and a 15m buffer from the adjacent lands' trees within Aqueduct Park (EIS Feb 2021). Further, we recommended an EP zoning designation for the Aqueduct Parks woods and northward and an EC zoning for the buffered areas within the subject land's woodland (EIS Feb 2021).

1.0 IMPACTS

The impacts of this proposal are directed toward non-sensitive edge trees and the removal of hazardous trees within the subject lands. The revised proposal impacts only the edges of the woodland equal to approximately 851m² overall (about 25% loss in woodland area). The total remaining woodland feature is over 2500 m². The total woodland area lost from the proposed apartment building is approximately 446 m² and 405 m² at the Gadsby lot (Fig. 1). The impacts also include the removal of any hazardous trees as deemed by an ecologist and a Registered Professional Forester (RPF). We have counted the trees and estimated which ones are to be removed, however, the final number will also be reviewed on-site by an RPF or arborist (Table 1).

Since an apartment building is different than a housing development, we have reviewed other potential impacts.

1.1 Potential Impacts of an Apartment-Style Building

- The apartment building has a smaller footprint and intrusion into the woodland but is taller than the original proposal.
 - Building height may act to protect the woodland trees from wind damage as the main prevailing winds are southwesterly.
- There is the chance for increased bird collisions especially if the building is composed of high-glare windows.
 - Bird collisions occur in existing and newly developed areas at a similar frequency and with urbanization, they are a growing and cumulative concern worldwide. Making

glass visible to birds is the best solution to this impact. Fewer glass windows in the design, green rooftops, and glass with a frit-dot pattern have shown success (NYC Audubon www.nycaudobon.org). Window screening coverings and low-glare windows will help prevent an increase in bird-related mortalities from collisions with windows (attached info birdsafeca.org).

- An increase in light pollution may also occur with an increase in development. The harmful effect of light pollution is when lights are turned on at night and they cause a change in normal wildlife behavior. Increased light pollution is usually a concern with urban expansions into new rural areas because increased lighting may change nocturnal activity periods for wildlife such as amphibians, mammals, and insects causing displacement. In this case, the entire woodland is surrounded by existing urban light sources.
 - Given that this is already an urban area with existing light pollution, the wildlife that inhabits this area has adapted to this urban condition. Some species benefit from nocturnal lighting others do not. For example, lights attract flying insects, and the concentration of insects provides improved feeding opportunities for some bats and nocturnal birds. However, some predatory birds, if present, may take advantage of a concentration of prey and increased predation of bats may occur.
 - Since maintaining normal light: dark cycles are important for wildlife, plants, and people, converting existing lights to low energy- yellow cast LED lights would reduce existing impacts. LEDs are a longer wavelength warmer light. “Turn your lights off” at night makes sense from an economic and ecological perspective. Window coverings will also mitigate this impact (Birdsafe Webpage <http://audubonportland.org/issues/hazards/buildings>).
- An increased human presence within and adjacent to the woodland is expected. Impacts are, trampling of the understory ground cover, cutting of trees and plants, disturbing wildlife, raking of ground cover, increased stormwater, and dumping of waste (garbage, organic and inorganic).
 - These impacts are existing within and adjacent to the subject lands and Aqueduct Parks woods, today (Addenda EIS Jan 2022). We proposed a Woodland Management Plan including a passive trail system to address the existing and potential increase in human impacts.

2.0 PROPOSED MITIGATION

- Our construction mitigation measures outlined in the original EIS still apply. The protection of the woodland using a limit of work fence combined with sediment fencing added around the perimeter of the woodland area and seasonal limits for any woody vegetation removal.
 - An ecologist will accompany the builders during the placement of the “limit of work” fence.
 - Vegetation removal can occur between Oct 1 to March 1st in any given year.

- There is to be no grading to occur within the woodland except in the Gadsby Rd lot area to correct the grade elevations to match existing adjacent developed areas and to reform the natural catchment area of the vernal pool.
- Protecting tree roots from excessive damage is recommended. Details on protecting individual trees and their root systems were provided in EIS Feb 2021 report.
- Replanting of exposed soil surfaces within the development area should occur asap and within the growing season post-construction.
- There is no development infrastructure to be built under, over, or through the remaining woodland feature.
- See Woodland Management Plan for mitigation and enhancement opportunities (8Trees Letter July 2022)

3.0 OVERALL ECOLOGICAL AND SOCIAL BENEFIT

Our recommendations are to offset negative impacts (existing and potential) and to provide an overall benefit (Fig. 2 and Table 2).

3.1 Within Subject Lands Gains

- Gains in the area can be obtained along the woodland edge within the subject land woods, which is currently being mowed (169 m² and 75 m² respectively) and mowed areas surrounding the new building area can be enhanced by planting a cedar and shrub hedgerow instead of fencing (200 m²).
- Management actions within the remaining woodland include the control and removal of invasives and poison ivy, removing waste and garbage, adding habitat features (nesting, cover, roosting), planting trees, and restoring the understory plant diversity. This is a gain in habitat quality and diversity of 2700m². A preliminary concept was laid out in the Woodland Management Plan (8Trees letter dated July 2022). See attached Table 2 and Fig. 2 for further details on enhancement opportunities.
- The provision of a passive walking trail within the woodland will provide social use and prevent the trampling of the understory.
- Extending a trail from Gadsby Rd to Aqueduct Park will maintain a social connection (To be Determined in consultation with the City of Welland).
- Further, as a discussion point- rooftop gardens incorporated into the architectural design of the apartment building can provide human use and ecological benefit. (Potential increase of 800 m²).

3.2 Within Adjacent Lands Gains (outside Subject Lands)

- With the City's permission other gains in the woodland area are possible along the woodland edge within the Aqueduct Park (east 75 m² and west 287 m²), the addition of a mixed cedar and shrub hedge rows (400-500 m²) and by providing a trail within the woodland to prevent the trampling of the understory.

- With landowner stewardship, a substantial area (> 1000 m²) can be brought back into the woodland feature if the grass lawns beneath the treed canopy were removed and no longer raked and mowed and the understory seed bank restored and allowed to naturalize.
- Upon acceptance of the stewardship approach by the plan review agencies, additional details and discussion will be undertaken.

4.0 OTHER RMON COMMENTS

On pages 3 and 4: requesting an update to the “Tree Preservation Plan” and a quantification of the number of trees proposed for removal.

4.1 Tree Preservation Plan Update

- In our first EIS (Feb 2021) we completed a tree inventory for the subject lands and Aqueduct Park woods (Table x; pages). All trees were measured DBH, species, health, and location ±5m GPS error.
- In our amendment EIS (Jan 2022) we completed an analysis of tree size, age, health, and the presence of hazardous trees in the subject lands as compared to Aqueduct Park Woods. We found a statistically significant difference in hazardous tree formation within the subject lands, and we found the subject land's trees to be smaller and possibly younger or possibly growing poorly.
- Our overall conclusion from all of our studies (over 200 hours of fieldwork) is the Aqueduct Park woods are sensitive and the subject land's woodland is not sensitive (except for the natural vernal pool area).
- We have included the complete inventory of trees and have highlighted trees to be removed or TBD (Table 3).
- Upon acceptance of the plan, an RPF (or Arborist) accompanied by an ecologist will mark the trees for removal. Some cut logs will be used on-site to make benches and create habitat features. Attempts will be made to sustainably use any wood generated from this project (firewood, logs, habitat features).

There is an estimated total of 158 trees identified within the Subject land’s woods (DBH 4 to 86cm; Table 1). See Addenda EIS for more details.

A) The following is an estimate of the trees that will be removed from within the woodland edge to facilitate the Apartment Building location.

- A total of 14 trees (inside footprint; DBH (8 to 75 cm)
- A total of 16 trees (within 5 m; DBH 7 to 68 cm) may be removed as determined by an RFP or Arborist
- Ten of the above 30 trees are also unhealthy, hazardous, or dead.

B) The following hazardous trees may also need to be removed from within the woodland as determined by Ecologist and RFP or Arborist.

- Total 17 trees (DBH 7 to 74 cm)

- C) The following trees will be removed from Gadsby Rd. lot to facilitate a single-family home and grading to correct the vernal pool catchment area.
- Total of 10 trees (inside footprint; DBH 7 to 58 cm)
 - Total of 2 trees (within 5m; DBH 28 to 29) may need to be removed as determined by an RFP or Arborist.
 - Eight of the above 12 trees are either hazardous, unhealthy, dead, or invasive.
 - In addition, 7 trees within the Gadsby lot are unhealthy or hazardous and will be removed as deemed by an Ecologist and RFP or Arborist.

In total 24 trees must be removed as they are within the building footprints. An additional 18 trees may need to be removed because they are within 5m of the building footprint. Another 6 need further assessment. Their need for removal will be reviewed by an RFP or Arborist. Also, there are another 24 trees that are outside the footprint and may need to be removed if deemed hazardous by an RFP or Arborist (Table 1).

The completion of grading along Gadsby Rd will help define the vernal pool area and protect the remaining adjacent upland trees from prolonged root inundation. Trees will be replanted within the woodland and adjacent areas (Fig. 2). We propose a 2:1 planting regime within the woodland feature (est 100 - 140 trees). All species will be young native tree and shrub species. They will be planted in areas respective to their water tolerances. With the new canopy openings, we expect the natural regeneration process to occur and have allotted space for this process to occur.

- Red Oak, Pin Oak, Silver Maple, Red Maple, Shagbark Hickory, willow sp. dogwood sp. (exact list depends on site suitability and nursery availability)

Planting within a woodlot is different than open spaces and the precise location can not be pre-determined. We recommend that a final report is compiled to indicate actual numbers planted and to show locations. Monitoring of planted trees, woodland regeneration, and vernal pool area extent is recommended for 2 years following the implementation of the management plan.

RMON Comment Page 4: Differences between Site Plan and Woodland Management Plan

- Please see an attached revision to the site plan drawing to show the woodland path that matches the proposed woodland management plan.
- Following the application of the tree preservation and planting and ecological restoration work, an EC zone may be appropriate for the remaining woodland. This is to be determined by the planning authority.

RMON Comment Page 4: Woodland Management Plan and Landscape Plan

- The woodland management plan is ecologically feasible, discussion with City staff will follow acceptance of the plan in principle. See attached Fig. 2 and Table 2 to see where enhancement opportunities exist.

- If the Woodland Management plan is deemed acceptable mitigation, then we will seek all necessary permissions from the city.

RMON Comment Page 4: 155 Gadsby Rd Mitigation

- We understand that the RMON staff offer no objection to the conclusions regarding the vernal pool mitigation (5m setback) and protection of adjacent land's large Oak trees (15 m setback).
- An EC designation may be appropriate for the remaining woodland which includes the buffer setbacks.
- We recommend that the woodland enhancements be completed before transferring lands to the City of Welland for long-term management.

5.0 CONCLUSION

In conclusion, based upon a review of ROP criteria (7.B.1.5), combined with our findings within the EIS (Feb 2021), Addenda EIS (Jan 2022), and letter (July 2022), **the woodland portion within the subject lands does not meet the definition of significant woodland or significant wildlife habitat under existing conditions.**

- There are **no significant or rare species** within the Subject Lands. Bats flying over the vernal pool area does not constitute habitat use. Flying and feeding areas are not specialized functions and are not restricted to this one area in the woods. Habitat use is an ecological function that occurs when the bats roost within the Aqueduct Park tall oak trees for maternity purposes.
- The **woodland is highly impacted** by the ongoing dumping of garbage, soil, organic waste, and uncontrolled stormwater. Stormwater is a serious concern because it has caused the formation of hazardous leaning trees from root rot damage. This does not happen within Aqueduct Park woods because it is naturally higher in elevation.

In addition, the ecological sustainability of the entire remaining woodland is in question because,

- The woodland is small and is decreasing over time, and the woodland size is controlled by the surrounding community with no allowance for natural edge expansion so that younger trees cannot replace older ones. There is no allowance to allow trees to fall over and pull up their roots to naturally create new vernal pools and sustain vernal pool communities over time.
- The woodland is also isolated by urbanization from other natural areas of similar type and is not part of any natural corridor system. This limits the sustainability of species with complex life cycles or large home ranges (i.e., amphibians, reptiles, some plants, insects, and mammals) such that specialized species become increasingly rare and eventually locally extirpated.

Urban woodlands require proper management to sustain ecological functions, and this has not occurred here for some time. Since the subject lands are continuous with Aqueduct Park

there is an inherent value to protecting as much woodland as feasible. Size matters in protecting and promoting sustainable ecological systems. However isolated woodlands less than 1ha in size lack the space needed to retain species with complex life histories such as vernal pool amphibians, reptiles, and rare species. The woodland size is currently below this threshold but retains local values to the community.

We recommend that the improved woodland within the subject lands, be gifted to the city to provide the best opportunity for long-term protection and management. Since the improved woodland within the subject lands is continuous with the Aqueduct Park woods the EP designation would eventually be extended over the entire woodland. This would be the first time in our history that this woodland would receive development planning protection.

This development proposal protects most of the woodland area in a planning context. The woodland will change in appearance with the removal of older hazardous trees and the addition of younger trees. By working with the city staff there is an opportunity to manage the remaining woodland feature as one feature to promote long-term ecological sustainability.

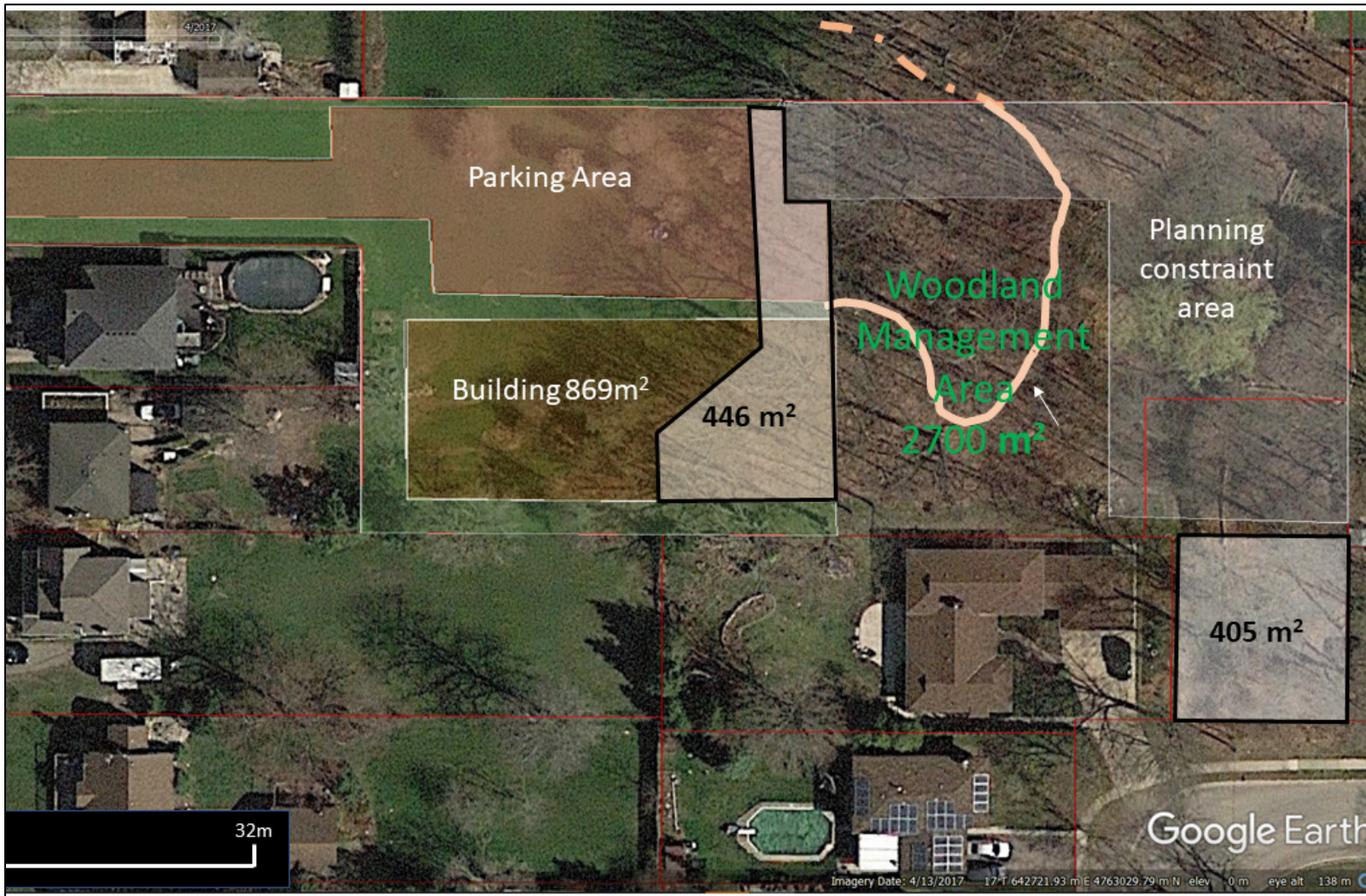


Figure 1. Location of proposed development areas and the corresponding changes in woodland area are indicated. The Woodland Management area and planning constraint areas to be zoned Environmental Conservation following the implementation of enhancements. See Woodland Management Plan for more details.

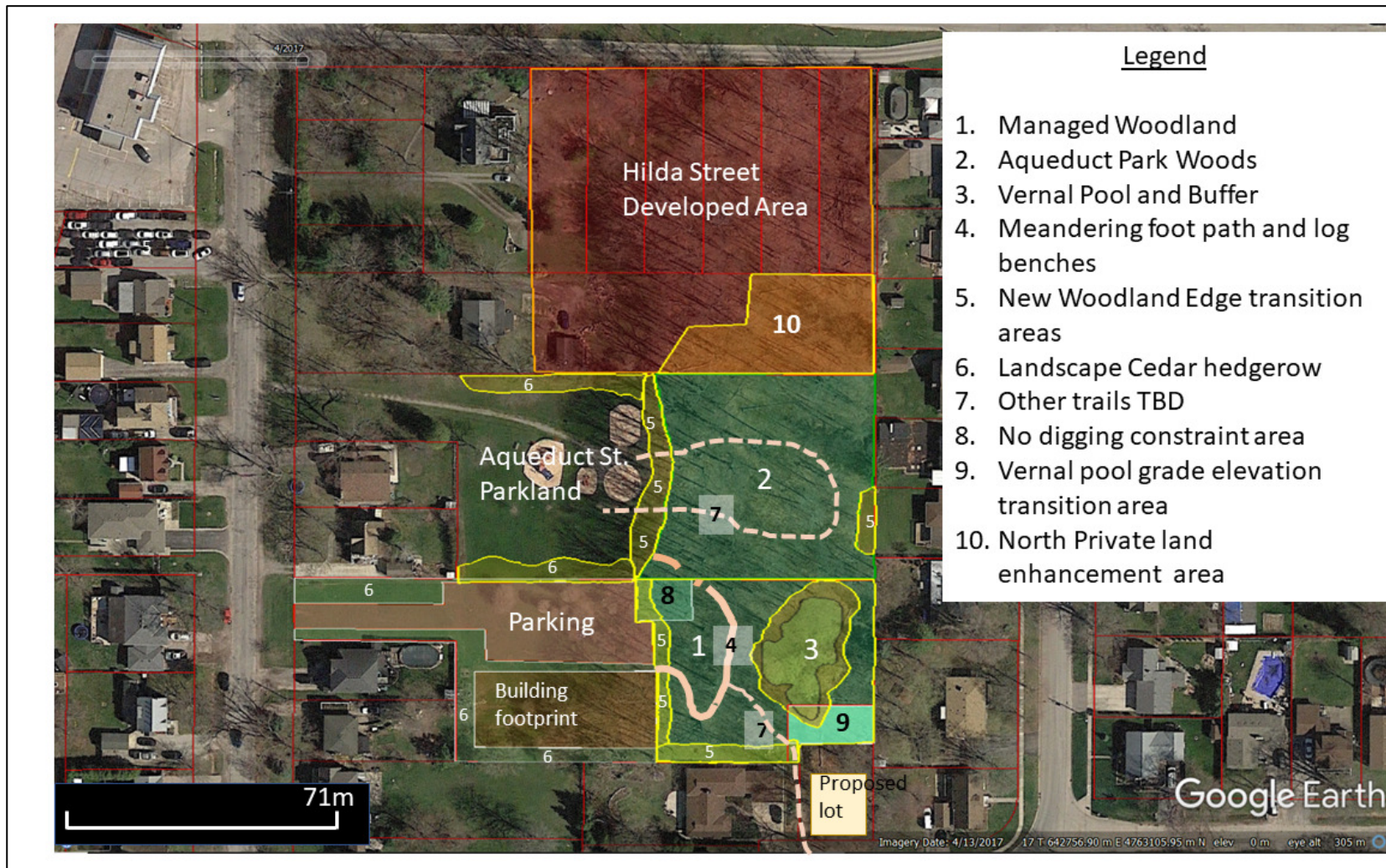


Figure 2. Recommendations for woodland enhancement and improved ecological and social functions. Areas beyond the current property limits are suggestions only, to protect and enhance the overall woodland.

Occ#	Nearby within 5 m	Inside	Aqueduct Lot	Gadsby Lot	outside building area near slough	Hazardous-dead or leaning or invasive	Survey Date	Time (24hr)	Eastings	Northings	Species	Common Name	Scientific Name	Comment
4		X	X				21 Dec 2019	9:55	642711.8	4763028	SWWO	swamp white oak	Quercus bicolor	
3		X	X				21 Dec 2019	9:54	642715.3	4763027	SWWO	swamp white oak	Quercus bicolor	
6		X	X				21 Dec 2019	10:00	642717.9	4763029	SWWO	swamp white oak	Quercus bicolor	
2		X	X				21 Dec 2019	9:51	642718.5	4763034	WHPI	white pine	Pinus strobus	
11		X	X			X	21 Dec 2019	10:10	642729.1	4763030	AMEL	American elm	Ulmus americana	mostly dead
9		X	X			X	21 Dec 2019	10:04	642729.2	4763037	BAWO	basswood	Tilia americana	leaning
103		X	X			X	21 Dec 2019	12:10	642730.2	4763036	IRWO	ironwood	Ostrya virginiana	main stem dead
101		X	X			X	21 Dec 2019	12:07	642731.6	4763034	maple	maple	Acer sp.	dead branches and cavities
10		X	X			X	21 Dec 2019	10:05	642731.9	4763033	REOA	red oak	Quercus rubra	1 stem is dead-sloughing bark
102		X	X			X	21 Dec 2019	12:09	642732.8	4763038	IRWO	ironwood	Ostrya virginiana	dead and leaning
15		X	X				21 Dec 2019	10:19	642734.2	4763030	AMEL	American elm	Ulmus americana	
14		X	X				21 Dec 2019	10:15	642734.7	4763027	Carya sp	hickory	Carya sp	
104		X	X				21 Dec 2019	12:11	642737.9	4763041	REOA	red oak	Quercus rubra	super canopy tree
16		X	X				21 Dec 2019	10:20	642740.4	4763026	REOA	red oak	Quercus rubra	big
33	X	X	X			X	21 Dec 2019	10:46	642774.2	4763029	maple	maple	Acer sp.	Invasive Norway Maple
7	X	X	X			X	21 Dec 2019	10:01	642719	4763025	Maple	maple	Acer sp.	Invasive Norway Maple
8	X	X	X				21 Dec 2019	10:03	642725.8	4763025	SWWO	swamp white oak	Quercus bicolor	
117	X	X	X			X	21 Dec 2019	12:25	642734.9	4763056	Pear	pear	Pyrus sp	mostly dead
116	X	X	X				21 Dec 2019	12:23	642738.3	4763054	AMEL	American elm	Ulmus americana	
5	X	X	X				21 Dec 2019	9:59	642715	4763022	PIOA	pin oak	Quercus palustris	
248	X	X	X				1 May 2020		642730	4763021	SWWO	swamp white oak	Quercus bicolor	
249	X	X	X				1 May 2020		642734.8	4763022	SWWO	swamp white oak	Quercus bicolor	
250	X	X	X				1 May 2020		642738.7	4763022	AMEL	American elm	Ulmus americana	
17	X	X	X				21 Dec 2019	10:21	642741.6	4763026	AMEL	American elm	Ulmus americana	
105	X	X	X				21 Dec 2019	12:12	642741.7	4763042	REOA	red oak	Quercus rubra	
119	X	X	X			possibly	21 Dec 2019	12:28	642746.2	4763060	REOA	red oak	Quercus rubra	some dead branches
18	X	X	X				21 Dec 2019	10:23	642743.6	4763025	AMEL	American elm	Ulmus americana	
106	X	X	X			X	21 Dec 2019	12:13	642744.2	4763038	REOA	red oak	Quercus rubra	leader is dead
19	X	X	X				21 Dec 2019	10:24	642744.3	4763030	Carya sp	hickory	Carya sp	
251	X	X	X				1 May 2020		642744.3	4763022	SBHI	shagbark hickory	Carya ovata	

Occ#	Nearby within 5 m	Inside	Aqueduct Lot	Gadsby Lot	outside building area near slough	Hazardous-dead or leaning or invasive	Survey Date	Time (24hr)	Eastings	Northings	Species	Common Name	Scientific Name	Comment
162					X	TBD	1 May 2020		642763.7	4763067	UNKN	dead snag	unk	dead but not hazardous
55					X	TBD	21 Dec 2019	11:18	642765.8	4763056	REMA	red maple	Acer rubrum	some cavities
67					X	TBD	21 Dec 2019	11:32	642766.1	4763056	IRWO	ironwood	Ostrya virginiana	dead branches on top
72					X	TBD	21 Dec 2019	11:37	642767.2	4763049	REMA	red maple	Acer rubrum	dead branches misshapen
57					X	TBD	21 Dec 2019	11:20	642773.2	4763059	PIOA	pin oak	Quercus palustris	leader is broken
118					X	X	21 Dec 2019	12:26	642742.7	4763057	REOA	red oak	Quercus rubra	leaning
125					X	TBD	21 Dec 2019	12:40	642750.2	4763057	REOA	red oak	Quercus rubra	die back main branches
97					X	X	21 Dec 2019	12:03	642755.8	4763036	REOA	red oak	Quercus rubra	slight lean
126					X	X	21 Dec 2019	12:41	642756.1	4763061	AMEL	American elm	Ulmus americana	leaning
92					X	X	21 Dec 2019	11:59	642759.6	4763040	AMEL	American elm	Ulmus americana	leaning
82					X	X	21 Dec 2019	11:48	642760.8	4763036	REOA?	red oak	Quercus rubra	leaning
68					X	X	21 Dec 2019	11:33	642761.4	4763061	AMBE	American beech	Fagus grandifolia	but rot
75					X	X	21 Dec 2019	11:42	642764	4763047	Carya sp	hickory	Carya sp	leaning
77					X	X	21 Dec 2019	11:44	642770.2	4763046	Carya sp	hickory	Carya sp	leaning
65					X	X	21 Dec 2019	11:30	642772.7	4763065	AMBE	American beech	Fagus grandifolia	dead at top
66					X	X	21 Dec 2019	11:30	642774.3	4763067	AMBE	American beech	Fagus grandifolia	leaning
56					X	X	21 Dec 2019	11:19	642774.5	4763061	REOA	red oak	Quercus rubra	leaning
124					X		21 Dec 2019	12:37	642743.3	4763055	UNKN	unknown shrub	unk	
115					X		21 Dec 2019	12:22	642744.5	4763052	SBHI	shagbark hickory	Carya ovata	
123					X		21 Dec 2019	12:36	642745.1	4763053	BLBE	blue beech	Carpinus caroliniana	
114					X		21 Dec 2019	12:21	642745.4	4763047	SWWO	swamp white oak	Quercus bicolor	
122					X		21 Dec 2019	12:35	642746	4763052	REOA	red oak	Quercus rubra	
12					X		21 Dec 2019	10:11	642735.5	4763027	shrub sample	unk	unk	
100					X		21 Dec 2019	12:05	642736.9	4763032	REOA	red oak	Quercus rubra	
13					X		21 Dec 2019	10:11	642737.4	4763028	Carya sp	hickory	Carya sp	
20					X		21 Dec 2019	10:27	642748.2	4763026	Carya sp	hickory	Carya sp	
99					X		21 Dec 2019	12:04	642748.6	4763038	AMEL	American elm	Ulmus americana	
107					X		21 Dec 2019	12:14	642749.2	4763037	AMEL	American elm	Ulmus americana	
120					X		21 Dec 2019	12:30	642749.2	4763056	AMEL	American elm	Ulmus americana	
113					X		21 Dec 2019	12:20	642750	4763046	Carya sp	hickory	Carya sp	

Occ#	Nearby within 5 m	Inside	Aqueduct Lot	Gadsby Lot	outside building area near slough	Hazardous-dead or leaning or invasive	Survey Date	Time (24hr)	Eastings	Northings	Species	Common Name	Scientific Name	Comment
121					X		21 Dec 2019	12:32	642750.2	4763052	REMA	red maple	Acer rubrum	
98					X		21 Dec 2019	12:04	642750.4	4763037	SBHI	shagbark hickory	Carya ovata	
112					X		21 Dec 2019	12:20	642751.3	4763049	Fraxinus sp	ash	Fraxinus sp	
21					X		21 Dec 2019	10:28	642751.6	4763030	REOA	red oak	Quercus rubra	
253					X		1 May 2020		642752	4763022	AMEL	American elm	Ulmus americana	
22					X		21 Dec 2019	10:30	642752.4	4763026	REOA	red oak	Quercus rubra	
111					X		21 Dec 2019	12:19	642753	4763049	Fraxinus sp	ash	Fraxinus sp	
109					X		21 Dec 2019	12:17	642753.5	4763044	maple	maple	Acer sp.	
108					X		21 Dec 2019	12:16	642753.7	4763043	REOA	red oak	Quercus rubra	
110					X		21 Dec 2019	12:18	642756.7	4763051	REOA	red oak	Quercus rubra	
254					X		1 May 2020		642757	4763022	REOA	red oak	Quercus rubrum	
24					X		21 Dec 2019	10:34	642757.8	4763026	Maple	maple	Acer sp.	
127					X		21 Dec 2019	12:42	642758.3	4763057	Carya sp	hickory	Carya sp	
96					X		21 Dec 2019	12:02	642758.5	4763034	maple	maple	Acer sp.	
95					X		21 Dec 2019	12:01	642759	4763039	Carya sp	hickory	Carya sp	
70					X		21 Dec 2019	11:35	642759.1	4763058	IRWO	ironwood	Ostrya virginiana	
94					X		21 Dec 2019	12:01	642759.4	4763040	REOA?	red oak	Quercus rubra	
84					X		21 Dec 2019	11:52	642759.8	4763036	REOA	red oak	Quercus rubra	
83					X		21 Dec 2019	11:51	642760.2	4763033	maple	maple	Acer sp.	
81					X		21 Dec 2019	11:47	642760.6	4763037	REMA	red maple	Acer rubrum	
27					X		21 Dec 2019	10:36	642761.7	4763032	Maple	maple	Acer sp.	
80					X		21 Dec 2019	11:47	642762.1	4763038	REMA	red maple	Acer rubrum	
93					X		21 Dec 2019	12:00	642762.4	4763036	REOA	red oak	Quercus rubra	
78					X		21 Dec 2019	11:45	642763.7	4763043	PIOA	pin oak	Quercus palustris	
85					X		21 Dec 2019	11:53	642764.1	4763037	AMEL	American elm	Ulmus americana	
28					X		21 Dec 2019	10:38	642764.3	4763029	REOA	red oak	Quercus rubra	
161					X		1 May 2020		642764.6	4763065	AMBE	American beech	Fagus grandifolia	
69					X		21 Dec 2019	11:34	642764.6	4763062	IRWO	ironwood	Ostrya virginiana	
74					X		21 Dec 2019	11:40	642766	4763049	Carya sp	hickory	Carya sp	
79					X		21 Dec 2019	11:46	642766.1	4763039	Fraxinus sp	ash	Fraxinus sp	

Occ#	Nearby within 5 m	Inside	Aqueduct Lot	Gadsby Lot	outside building area near slough	Hazardous-dead or leaning or invasive	Survey Date	Time (24hr)	Eastings	Northings	Species	Common Name	Scientific Name	Comment
71					X		21 Dec 2019	11:36	642768.2	4763057	Maple	maple	Acer sp.	
86					X		21 Dec 2019	11:54	642769.2	4763037	AMEL	American elm	Ulmus americana	
29					X		21 Dec 2019	10:40	642770	4763022	REOA	red oak	Quercus rubra	
30					X		21 Dec 2019	10:41	642770.2	4763027	REOA	red oak	Quercus rubra	
73					X		21 Dec 2019	11:39	642770.3	4763050	REOA	red oak	Quercus rubra	
76					X		21 Dec 2019	11:44	642770.6	4763046	AMEL	American elm	Ulmus americana	
31					X		21 Dec 2019	10:42	642771.3	4763030	AMEL	American elm	Ulmus americana	
87					X		21 Dec 2019	11:54	642773.2	4763034	REOA	red oak	Quercus rubra	
88					X		21 Dec 2019	11:55	642774.4	4763035	SBHI	shagbark hickory	Carya ovata	
128					X		21 Dec 2019	12:46	642777.4	4763026	PIOA	pin oak	Quercus palustris	
36					X		21 Dec 2019	10:52	642778.9	4763026	Maple	maple	Acer sp.	
38					X		21 Dec 2019	10:54	642782.3	4763026	PIOA	pin oak	Quercus palustris	
41					X		21 Dec 2019	10:58	642782.7	4763026	Maple	maple	Acer sp.	
37					X		21 Dec 2019	10:53	642782.1	4763027	PIOA	pin oak	Quercus palustris	
39					X		21 Dec 2019	10:57	642780.3	4763028	PIOA?	oak	Quercus sp	
129					X		21 Dec 2019	12:47	642777.7	4763029	REOA	red oak	Quercus rubra	
45					X		21 Dec 2019	11:02	642788.6	4763030	REOA?	oak	Quercus sp	
40					X		21 Dec 2019	10:58	642785.8	4763034	AMEL	American elm	Ulmus americana	
50					X		21 Dec 2019	11:08	642793.8	4763036	Maple	maple	Acer sp.	
54					X		21 Dec 2019	11:15	642778.9	4763043	Salix sp	willow	Salix sp	
1					X	X	21 Dec 2019	9:35	642776	4763045	maple?	maple	Acer sp.	Hollow- habitat feature
53					X		21 Dec 2019	11:13	642783.5	4763045	Salix sp	willow	Salix sp	
52					X		21 Dec 2019	11:12	642784.8	4763046	Salix sp	willow	Salix sp	
59					X		21 Dec 2019	11:22	642781.8	4763065	PIOA	pin oak	Quercus palustris	
58					X	X	21 Dec 2019	11:21	642775.3	4763066	Fraxinus sp	ash	Fraxinus sp	dead
176					X	X	1 May 2020		642785	4763066	REMA	red maple	Acer rubrum	sloughing bark
62					X		21 Dec 2019	11:25	642787.6	4763066	AMEL	American elm	Ulmus americana	
173					X		1 May 2020		642784.8	4763067	REOA	red oak	Quercus rubrum	
61					X	X	21 Dec 2019	11:25	642788.6	4763067	AMEL	American elm	Ulmus americana	cracking bark
177					X		1 May 2020		642794.8	4763066	AMEL	American elm	Ulmus americana	

Occ#	Nearby within 5 m	Inside	Aqueduct Lot	Gadsby Lot	outside building area near slough	Hazardous-dead or leaning or invasive	Survey Date	Time (24hr)	Eastings	Northings	Species	Common Name	Scientific Name	Comment
51					X	X	21 Dec 2019	11:10	642794.8	4763042	MAMA	Manitoba maple	Acer negundo	leaning
49					X		21 Dec 2019	11:07	642795.1	4763033	maple	maple	Acer sp.	
63					X	X	21 Dec 2019	11:26	642796.2	4763066	Maple	maple	Acer sp.	dead branches
146		X		X		X	21 Dec 2019	13:07	642785.6	4763004	NOMA	Norway maple	Acer platinoides	invasive, clump, split bark
137		X		X		X	21 Dec 2019	12:57	642788.6	4763009	PIOA	pin oak	Quercus palustris	leaning
138		X		X			21 Dec 2019	12:59	642793.6	4763011	AMEL	American elm	Ulmus americana	
142		X		X		X	21 Dec 2019	13:01	642778.4	4763016	maple	maple	Acer sp.	dead branches, cracking trunk
132		X		X		X	21 Dec 2019	12:49	642784	4763016	PIOA	pin oak	Quercus palustris	
136		X		X			21 Dec 2019	12:56	642794	4763016	REOA?	red oak	Quercus rubra	
139		X		X			21 Dec 2019	13:00	642784.5	4763017	AMEL	American elm	Ulmus americana	
134		X		X			21 Dec 2019	12:54	642789.8	4763017	PIOA	pin oak	Quercus palustris	
133		X		X		X	21 Dec 2019	12:50	642783.6	4763018	PIOA	pin oak	Quercus palustris	crown dieback
91		X		X		X	21 Dec 2019	11:57	642775.9	4763034	REOA?	red oak	Quercus rubra	leaning
256	X			X			1 May 2020		642774.9	4763022	SBHI	shagbark hickory	Carya ovata	
34	X			X		X	21 Dec 2019	10:49	642776.9	4763024	SBHI	shagbark hickory	Carya ovata	peeling bark
140				X	X	X	21 Dec 2019	13:00	642780.3	4763019	AMEL	American elm	Ulmus americana	dead main trunk
135				X	X		21 Dec 2019	12:55	642791.3	4763019	Carya sp	hickory	Carya sp	
90				X	X		21 Dec 2019	11:57	642776.4	4763034	REOA	red oak	Quercus rubra	
147				X	X		21 Dec 2019	13:10	642788.4	4762999	Carya sp	hickory	Carya sp	
258				X	X		1 May 2020		642777.4	4763001	PIOA	pin oak	Quercus palustris	
259				X	X		1 May 2020		642777.3	4763003	PIOA	pin oak	Quercus palustris	
145				X	X		21 Dec 2019	13:05	642777.7	4763010	AMEL	American elm	Ulmus americana	
144				X	X		21 Dec 2019	13:02	642776.4	4763018	AMEL	American elm	Ulmus americana	
141				X	X	X	21 Dec 2019	13:01	642778.3	4763019	maple	maple	Acer sp.	dead branches, cracking trunk
143				X	X		21 Dec 2019	13:02	642775	4763020	SWWO	swamp white oak	Quercus bicolor	
131				X	X	X	21 Dec 2019	12:48	642787.2	4763023	PIOA	pin oak	Quercus palustris	cavities
35				X	X	X	21 Dec 2019	10:50	642778.4	4763024	Maple	maple	Acer sp.	dead, cracking
43				X	X		21 Dec 2019	11:00	642791.3	4763027	PIOA	pin oak	Quercus palustris	
130				X	X		21 Dec 2019	12:47	642781.9	4763028	REOA	red oak	Quercus rubra	
46				X	X		21 Dec 2019	11:05	642790.5	4763029	AMEL	American elm	Ulmus americana	

Occ#	Nearby within 5 m	Inside	Aqueduct Lot	Gadsby Lot	outside building area near slough	Hazardous-dead or leaning or invasive	Survey Date	Time (24hr)	Eastings	Northings	Species	Common Name	Scientific Name	Comment
48				X	X		21 Dec 2019	11:06	642791.9	4763029	REOA	red oak	Quercus rubra	
42				X	X		21 Dec 2019	11:00	642788.4	4763030	AMEL	American elm	Ulmus americana	
44				X	X		21 Dec 2019	11:01	642788.5	4763031	AMEL	American elm	Ulmus americana	
32				X	X	X	21 Dec 2019	10:44	642777.7	4763032	REOA	red oak	Quercus rubra	leaning
47				X	X		21 Dec 2019	11:05	642790.1	4763034	PIOA	pin oak	Quercus palustris	
89				X	X		21 Dec 2019	11:55	642775.6	4763035	REMA	red maple	Acer rubrum	

Table 2. Proposed Woodland Management Plan Details, location description, target, and expected outcomes.

Map Area Fig.2	Area Name	Existing Condition	Proposed New Area (m2)	Retained Existing Area (m2)	Target	Expected Outcome
Within Subject Lands						
1, 3	Interior Woodland and vernal pool area	non-sensitive ground cover, some hazardous trees, dumping area for waste and garbage Poison Ivy dominate Garbage, organic waste, and soil dumping hazardous trees and open bare ground		2700	new meandering footpath Control Poison Ivy Remove and dispose of garbage as per regional waste guidelines remove hazardous trees, plant suitable trees, and shrubs	social trail with logs to sit on Enhance ground cover diversity, trilliums, Jack n Pulpit, spring ephemerals, etc... enhanced ground cover and seed bank regeneration Enhanced biological assimilation and evapotranspiration of stormwater, improved habitat for local wildlife
4	New woodland pathway	trampled ground			new pathway from apartment to park	meandering pathway with places to sit, logs and to experience the woodland amenities
5	South woodlot boundary	Mowed lawn	169		plant trees and shrubs, groundcover	transition to woodland
5	Western Edge Boundary of Development	Tree/shrub Edge	164		plant trees and shrubs, groundcover	transition to woodland
6	South Apartment Boundary	Mowed Lawn some planted trees	100		cedar hedge row	visual enhancement, bird winter cover, and woodland connection
6	West Apartment Boundary		100		cedar hedge row	visual enhancement, bird winter cover, and woodland connection
7	pathway extension from Gadsby (to be determined)	depressed and compacted trail exists through the Gadsby lot to Aqueduct Park			create an improved trail along the lot boundary and connect it to the pathway	maintain and enhance trail function and community connectivity
8	No digging constraint area	woodland edge (not sensitive)			protect AQ Park tree root systems	part of the edge transition area
9	Vernal pool grading constraint area	vernal pool larger than natural due to improper grading from past development			reform the edge of the vernal pool to match the natural contours	an improved sustainable function that does not create hazardous trees and is to be replanted in shrubs and trees that are tolerant to water.

Table 2. Proposed Woodland Management Plan Details, location description, target, and expected outcomes.

Map Area Fig.2	Area Name	Existing Condition	Proposed New Area (m2)	Retained Existing Area (m2)	Target	Expected Outcome
Aqueduct Park Woods (To Be Determined)						
2	Interior woods	sensitive woodland aster community, dumping of organic and inorganic waste, raking of ground cover, disturbance of sensitive ground flora, removal of fallen logs		2900	create signage to educate about woodland asters, and reduce the impact of trampling by limiting access to the short trail (TBD)	enhanced woodland aster community
5	East Woodland Edge	Mowed lawn	75		plant trees and shrubs, groundcover	transition to woodland
5	West Woodland Edge	Mowed lawn	287		plant trees and shrubs, groundcover	transition to woodland
6	South Park boundary	Mowed lawn	200		plant trees and shrubs, groundcover	visual enhancement, bird winter cover, and woodland connection
6	North Park Boundary	Mowed lawn	200		plant trees and shrubs, groundcover	visual enhancement, bird winter cover, and woodland connection
Private lands North of the Park (To be Determined)						
10	North of Park woods toward Hilda St.	Mowed and raked under story some canopy remains	1100		Remove mowed grass, stop raking ground and re-establish natural groundcover, plant trees	enhanced habitat for woodland aster community
Total			2395	5600		

EXTRA INFORMATION AND MATERIALS

Technical Summary of Background Information from all EIS work

Our work on the subject lands began in November 2019 and continued until July 2022. We initially submitted a preliminary screening report to the Region in Dec 2020. A screening report is commonly a desktop exercise that involves literature searches and correspondence with agencies to collect background environmental information for the site. This was used to establish a scoped EIS terms of reference (TOR) for my client. The TOR required rare species surveys (bats, birds, plants). In total 8Trees staff have spent more than 220 hours over multiple years and multiple seasons assessing the ecological functions of the woodland within the subject lands and Aqueduct Park. We also completed woodland aster surveys, incidental wildlife observations, and breeding bird surveys within a nearby reference site known as Woodlawn Park to provide additional local context. Reference sites are not normally used in EIS work; however, we find them useful in this case because the woodland habitat and ecological communities are similar at both sites. Then we can test a hypothesis that there is no difference between sites. In other words, we expect to find similar rare species occurrences provided the impacts or stressors operating on each woodland is the same. The results of ecological studies indicated that both sites had a similar number of breeding bird species, but the species were different with more rare and sensitive species present within Woodlawn Park. Woodlawn Park also had greater amphibian diversity and rare species (Eastern wood-peewee- SC; Addenda EIS Jan 2022).

We submitted a scoped EIS in Feb 2021. And recommended EP protection of the Aqueduct Park woodland including the entire FODM2-4 community. To mitigate impacts from the proposed development we recommended the protection of the adjacent tall oak trees within Aqueduct Park and their root systems, the correction of grading for the vernal pool north of Gadsby Rd, and the protection of the vernal pool feature within the subject lands. We also recommended reducing the area of woodland loss by either swapping land with the city and/or by reducing the development footprint as much as possible. This recommendation resulted in changes to the original development proposal and the protection of 0.1 ha or approx.. 30 % of the woodland within the subject lands.

Following our first EIS submission, almost half of the overall woodland north of Aqueduct Park was lost to housing developments along Hilda Street. We requested a copy of the EIS that supported the development and were told by the Region and the City that there was no EISs completed for the woodland. When we started our work, the woodland was a continuous feature from Gadsby Rd to Hilda Street of approximately 1.1 ha. Although we did not access the private woodland north of Aqueduct Park, the woodland aster community was visible and extended northward within the private woodlands. In 2021, we estimated the woodland to be 0.82 ha, however by 2022, the remaining woodland was further reduced to approximately 0.63 ha (0.29 City and 0.34 subject lands). Determining the presence of rare species when adjacent areas are continuously disturbed is challenging which is why we also conducted concurrent studies at reference sites. The woods have declined in size by nearly 50% since we started our fieldwork. It

remains unclear as to why an EIS was required by our client and not for the other Aqueduct and Hilda Street developments.

In our next technical report, the EIS addenda report dated Jan 5, 2022, the woodland north of Aqueduct Park was either completely cleared or the understory was converted to mowed lawns. The addendum allowed us the opportunity to assess the ongoing impacts on the woodland from the adjacent urbanized lands. Based upon recommendations from our first EIS (Feb 2021) which was to protect as much of the woodland as possible and from information within this addenda report, my client reduced the footprint of the development substantially and contracted 8Trees to submit a woodland stewardship concept to the city for their consideration (8Trees Letter July 2022). We asked that the proposed picnic area within the woods be removed and replaced with a meandering walking path with benches that link to Aqueduct Park (Fig. 1; 8Trees Letter July 2022). We provided our letter of support for the smaller development footprint, which protects most of the remaining woodland within the subject lands 0.27 ha or 79.4 % of the original subject land's woodland.

With over 40 years of experience as a biologist-ecologist in this region, I know that a loss of a few edge and hazardous trees constitutes negligible harm within a woodland that is already highly impacted. This development offers an opportunity to correct the ongoing impacts on the woodland. Trees are renewable resources, and the removal of hazardous and/or edge trees will stimulate the seed bank in the remaining forest floor (0.27 ha), and planting younger healthy trees will improve ecological functions overall. Younger trees adapt better to change and the addition of younger trees either through natural regeneration or via planting will provide a more balanced age class structure such that an overall benefit in ecological functions and woodland sustainability can be achieved over time.

Our initial recommendation for woodland protection is the first ever planning recommendation put forward to protect this woodland feature that is over 100 years old (EIS Feb. 2021). However, protectionism is not the correct ecological answer to ensure ecological functions are sustained in the long term. This is because the woodland is very small, highly impacted by urbanization, and is completely disconnected from any Natural Heritage System (Addendum EIS Jan 2022). The woodland requires proper management.

Summary of Biological Surveys

Our initial Terms of Reference (TOR-provided in consultation with the Region and landowner) were to establish whether Species at Risk or rare species are present within the subject lands and if present to map the suitable habitat and explain how they will be protected throughout the development process. In the initial TOR, there was no requirement to study the ecological functions of the vernal pool area. This was completed following the first public meeting and peer review by the Region and a local consultant.

Finding rare species requires adopting methods that extend beyond the minimum standards normally required for an EIS (Region EIS Guidelines). 8Trees are experts at finding species at

risk and have published articles regarding innovative methods for detecting and quantifying the presence of cryptic and rare species (Yagi and Tattersall, 2018¹, Yagi et al., 2018², Yagi et al., 2020³).

Bats

No species at risk or rare species (S1 to S3) were found within the subject lands except for a single, Little Brown Bat (*Myotis lucifugus*) that was observed flying in an opening over the vernal pool area (EIS Feb 2021). This observation was confirmed using echolocation that was subsequently checked by bat echolocation experts (both private consultants and provincial biologists). Using a bat's echolocation signature, we tracked the bats to roosting trees. We found species at risk bats (*Myotis* sp.) roosting in some very tall oak trees within Aqueduct Park woodlands. We used the bats' echolocations and two biologists equipped with mobile echolocation equipment to follow the echolocation signatures of specific trees. By employing this tracking technique, we confirmed species at risk bats *Myotis* sp. were not roosting within the subject lands (EIS date).

Outcome: We recommended the protection of the Aqueduct Park trees and their root system by employing a 15m buffer outward from each oak tree within Aqueduct Park (EIS Feb 2021). We also recommended the protection of the vernal pool because the continued presence of the vernal pool will continually provide an opening in the treed canopy to continue the ecological functions provided for bat flying-feeding. A 5m buffer was added to the summer feature limits (i.e., June) to protect this function.

Ecological Rationale: Using our roving bat survey technique across the Niagara Region we continue to find SAR bat echolocation signatures in most woodland and hedgerow survey features during the maternity roosting season (80% occurrence; 8Trees unpublished data). Tracking animals is an unbiased approach to assessing habitat use and we found SAR bats during the maternity roosting season in 80% of the places we looked. Therefore, this type of habitat is not limiting the population of SAR bats in this region. Resident bats are in decline internationally due to White Nose Syndrome, which is a fungal disease occurring within hibernation sites See EIS Feb 2021 for details). Natural hibernation sites are within caves, which are more commonly found along the escarpment and the Niagara River valley slopes. Since bats such as the Little Brown Bat also are known to hibernate in the attics of human residences, they are very adapted to urban

¹ Yagi, A. R. and Tattersall, G. J. 2018. "Please Don't Step on the Hummocks": Summer Refugia for Massasauga Rattlesnakes." *The Canadian Herpetologists/L'Herpetologiste Canadien* 8(1): 22-24.

² Yagi, A.R., et al. 2018. Managing an Ecological trap in a Partially Mined Peatland on the Resident Reptile Community which includes Five Species at Risk; [Data Sensitive]. Final Report for 2018-19. Species at Risk Stewardship Fund, Ontario Ministry of Natural Resources and Forestry.

³ Yagi, A. R., R. J. Jon Planck, K. T. Yagi, and G. J. Tattersall. 2020. A long-term study on Massasaugas (*Sistrurus catenatus*) Inhabiting a partially mined peatland: A standard method to characterize snake overwintering habitat. *Journal of Herpetology*, 54: 235–244.

areas. Therefore, it is feasible that they will persist in this area with or without development provided the bats continue to survive hibernation.

Woodland Aster Community

White Wood Aster (*Eurybia divaricata*; status threatened) was identified as occurring within Aqueduct Park Woodland in 2018 (See EIS Feb 2021 and Addenda EIS Jan 2022 for details). However, the aster was never confirmed within the subject lands after two years of seasonally appropriate searches by both 8Trees staff and also by a local botanist expert (2020 and 2021; Email, EIS 2021 and Addenda 2022). In addition, the White Wood Aster was not confirmed within Aqueduct Park Woods. However, Schreber's Aster (*Eurybia schreberi*) was confirmed as present within Aqueduct Park woods which is an S2 species currently not regulated by the Endangered Species Act (ESA).

Outcome: We mapped the amount of potentially suitable habitat for the White Wood Aster to include the maximum extent of the upland woods (FODM2-4 community) within Aqueduct Park and northward within the remaining upland woods (Fig x; EIS 2021). This maximum extent of suitable habitat for the White Wood Aster corresponds with the maximum extent of well-draining soils (See EIS Feb 2021 and Addenda Jan 2022 for details). We recommend the protection of the Aqueduct Park woods and northward by designating the park woods for Environmental Protection (EPA).

Ecological Rationale: Since the occurrence of a threatened species was not confirmed after two years of seasonally appropriate searches, there were obvious impacts on the woodland that may have limited their occurrence. For example, half the woodlot was removed to accommodate development along Hilda St. including increased drainage. Therefore, a precautionary approach was applied to protect the remaining existing suitable habitat for this species which is the remaining upland woods within Aqueduct Park and to the north toward Hilda Street (Fig. 8; EIS 2021; Fig. 6 Addenda EIS 2022).

Vernal Pool

Following concerns raised in the first public meeting, we completed an amendment report to verify the extent of the vernal pool (Addenda EIS Jan 5, 2022). We used a laser level-stadia bar system to map the catchment area of the vernal pool. We also verified that adjacent developed lands are much higher in elevation along Gadsby Rd and were contributing an excessive stormwater contribution into the vernal pool area (Addenda EIS Jan 5, 2022). When the homes were developed along Gadsby Rd. the land surface was graded, filled, and elevated. However, the grading stopped abruptly at the edge of the Gadsby lot leaving the lot area about 3 ft lower in elevation and thereby creating a receptacle for excess stormwater to accumulate and flow into the vernal pool. This in turn caused water to sit in areas extending up a gradient into the root system of older trees that cannot tolerate water around their roots for extended periods. The outcome is the formation of root rot and hazardous or leaning trees in the Gadsby Rd Lot and the woodland area surrounding the vernal pool.

The addenda work also revealed the ongoing impacts on the woodland and the relationship between hazardous tree formation and the dumping of excessive stormwater into the vernal pool area from adjacent developed lands. Based upon this amendment we were able to analyze the significant differences in the forest community between the Aqueduct Park portion of the woodland and the Subject lands. Therefore, in our latest correspondence, we put forward a woodland stewardship plan to address the impacts of urbanization on the remaining woodland feature (July 2022).

Studying the vernal pool ecology was not a requirement in the original or subsequent changes to the Terms of Reference. Nevertheless, we completed several site visits from the early spring to fall season to document the extent of the vernal pool and to record observations of amphibian use. We found Chorus frogs (1 or 2) calling in the spring. In addition, the adjacent residents reported American toads in the woodland however we did not confirm their presence. Both species are considered common in the Niagara area (S4 or S5). However, the ecological function of the vernal pool in supporting sustainable amphibian communities is very poor. This is not because of hydroperiod concerns. The lack of sustainable ecological functions is because of the dispersal limitations of the existing site. There are no other vernal pools within proximity to support the dispersal needs of these species. Therefore, the number of Chorus Frogs will continue to decline under existing conditions and eventually become extirpated from the site. This happens whenever small natural areas become isolated and fragmented from other natural areas with similar habitats. This is the case for this woodland which is surrounded by urban infrastructure (i.e., roads, sidewalks, stormwater sewers) and the adjacent lands are maintained as mowed lawns by the surrounding community.

Outcome: We mapped the natural limits of the vernal pool. We added the 5m buffer width from the summer vernal pool extent. We also maintained a development constraint area within the Gadsby lot to facilitate the completion of proper grading of the edge of the vernal pool.

In addition, we prepared a woodland stewardship plan to address the existing impacts and improve the quality of the woodland on the subject lands by removing hazardous leaning trees, addressing the dumping of garbage and extraneous organic matter, addressing the additions of extraneous stormwater due to improper grading of the adjacent developed lands with rooftop connections. In addition, a stewardship approach is recommended to address private land areas and the conversion of the woodland feature into mowed areas that have extended the yards of the surrounding landowners.

Ecological Rationale: The occurrence of a vernal pool within proximity to dry upland features provides a seasonal water source that promotes biological diversity at a local level. We confirmed the presence of the vernal pool maintains an opening in the forest canopy which is used as a flying-feeding area for SAR bats. However, by not addressing the stormwater management issue (both land surface grading and uncontrolled sources), the quality of the woodland within the subject lands is poor. Evidence is the occurrence

of leaning hazardous trees due to the formation of root rot. A Woodland stewardship approach will help restore ecological functions, increase the sustainability of the woodland feature, increase biodiversity, and reduce the formation of hazardous trees.

Other Surveys

We completed 4 seasonally appropriate breeding bird surveys (3 daytime, 1 nighttime) and found no rare or at-risk breeding birds using the woodland feature (Aqueduct Park + subject lands). Incidental surveys from our numerous site visits also did not reveal the presence of rare breeding birds. In contrast, the Eastern Wood-peewee (SC) was confirmed within the Woodlawn Park reference site (Table 3; Addenda EIS page 29).

We also completed a full tree inventory (species, location, dbh, condition) for the subject lands and Aqueduct Parks woods. This data was used to inform the potential habitat features for bats and to inform on the quality of trees, the presence of root rot, and the differences between the trees in Aqueduct Park and the subject lands (EIS Feb 2021 and Addenda EIS Jan 2022).

Environmental Policy Review (Table 4, page 33; Addenda EIS Jan 2022)

Although the remaining overall woodland meets one of the checkboxes for significance (7.B.1.5 a), there is also a significant distinction in ecological quality and function between Aqueduct Park Woods and the woods within the Subject Lands (Addenda EIS Jan 2022). By simply applying the planning policy check box definitions alone without applying the knowledge gained from the EIS work, the result is the automatic protection of degraded natural areas. By ignoring the significant differences in woodland quality within the subject lands, the planning policies act to perpetuate the degradation of our environment. This development is an opportunity to correct these long-standing environmental issues and to provide the community with an improved functioning woodland with social amenities (i.e., woodland path).



Rentable Area Legend

- 1 Bedroom (3)
- 2 Bedroom A (12)
- 2 Bedroom B (9)
- Corridor
- Elev.
- Stairs

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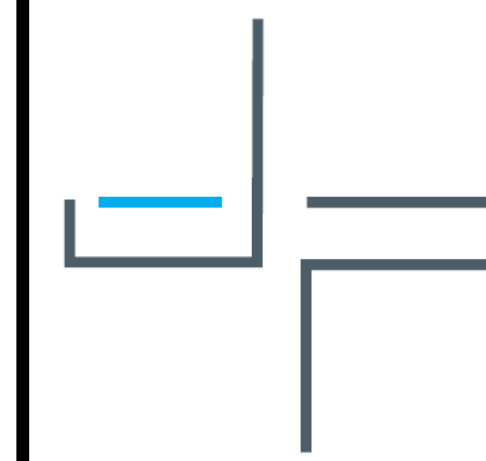
Lucchetta Builders
368 Aqueduct Street

No.	Description	Date
A	Issued for Z.B.A.	2022-11-22

Concept

SHEET TITLE:
FLOOR PLANS

DRAWN BY: J.P. DATE: 2023-01-23
9:36:55 AM
SCALE: 1: 100 JOB #: Project Number
SHEET NO: A102 B



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2 SOUTH ELEVATION (Rear)
 1 : 100



3 WEST ELEVATION (Right Side)
 1 : 100



4 EAST ELEVATION (Left Side)
 1 : 100



1 NORTH ELEVATION (Front)
 1 : 100

Lucchetta Builders

368 Aqueduct Street

No.	Description	Date
A	Issued for Z.B.A.	2022-11-22

Concept

SHEET TITLE:

ELEVATIONS

DRAWN BY: *Author* DATE: 2023-01-23
 9:37:00 AM
 SCALE: 1 : 100 JOB #: Project Number
 SHEET NO: A104



1 SITE PLAN
1:250

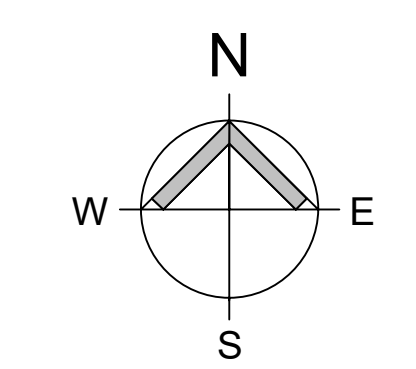


3 VIEW FROM NORTH WEST

Site Plan and Building Statistics

Development Proposal:	New Multifamily Condominium Apartment			
Project Name:	New Multifamily Condominium Apartment			
Owner:	.			
Municipal Address:	368 Aqueduct Street			
Municipality:	Welland, Ontario			
Legal Description:	Part 2 of plan 59R-13040			
Official Plan Designation:	Zoned RL1			
Lot Area :	4259.48 m ² (45850 FT ²)			
Zoning By-Law Requirements	Required RL1	Required RM	Provided (Metric)	Provided (Imperial)
Lot Frontage (Min.):	12m to 15m +7.5 /dwelling	45m	16.127m	52.9 ft
Required Lot Area (Min.):	300m ² per dwelling	780 m ²	177.5m ² / unit or 4259m ²	1910ft ² / unit or 45,850ft ²
Interior Side Yard Setback (south)	1.2m	3m	3.97 m	13.02 ft
Interior Side Yard Setback (North)	1.2m	3m	21.98m	72.11 ft
Front Yard Setback (West)	4.5m	0 m	47.07m	155.8 ft
Rear Yard Setback (East)	7.5 m	7.5m	30.20m	75.1 ft
Building Height (Max):	11m (3 storeys)	20m (6 storeys)	11m (3 storeys)	36.09ft (3 storeys)
Gross Floor Area:	N.A.	N.A.	+/- 2605 m ²	28,041 ft ²
Building Area:	xx m ²	xx ft ²	871.62 m ²	9,382 ft ²
Lot Coverage (Max):	45 %	55 %	22.6%	
Landscaped Open Space (Min.):	20%	20%	47.1%	
Parking - Minimum Number of Space Required:	1 space / unit = 24	1 space / unit = 24	26 (including barrier free spaces)	
Barrier Free Spaces Required	10-50 standard spaces require 1 B.F. Space	10-50 standard spaces require 1 B.F. Space	2 barrier free spaces	

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Lucchetta Builders

368 Aqueduct Street

No.	Description	Date
A	Issued for Z.B.A.	2022-11-22
B	Walking trail	2023-01-23

Concept

SHEET TITLE:
SITE PLAN

DRAWN BY: J.P. DATE: 2023-01-23
 9:37:06 AM
 SCALE: As indicated JOB #: Project Number
 SHEET NO: **SP-1 B**

NOTE: This is not an exhaustive list of options. Google Bird safe windows and other web sites are available.

[Bird-Safe Window Options – BirdSafe](https://birdsafewindows.com/)

<https://birdsafewindows.com/>



Integral applications: Frit and acid-etched patterns

Ceramic frit or acid-etched designs on the first surface (the outermost surface) of the glass can be bird-safe if they meet current bird-safe standards (i.e., CSA standard). These methods are useful primarily for new construction or replacement of entire panes and are generally available in a variety of attractive patterns. Before selecting a product, ensure it has a reasonable warranty.

These are a few glass manufacturers that offer first surface applications.

First surface acid-etched patterns

Walker Glass: AviProtek®

Guardian Glass: Guardian Bird1st™ Etch

Skyline Design: Surface One Eco-etch®

First surface ceramic frit

Goldray Glass: First Surface Ceramic Frit

GlasPro: Bird Safe – Ceramic Frit Pattern Glass

Bendheim: Lumi Frit™ | Projectable Surface 1 Frit Glass

Applied coverings: Patterns or window films

Glass can have an image or pattern applied to the exterior glass surface. Markers can be of any shape or pattern, but they must meet current bird-safe standards (i.e., [CSA standard](#)). Any exterior treatments must withstand exposure to the elements and window cleaning. Before selecting a product, ensure it has a reasonable warranty.

These are some types of bird-safe applications that you may consider in building retrofits or new builds, many of which offer custom designs.

Markers

Feather Friendly® window markers



Perforated (one-way) window film

Note: avoid transparent or clear products as they will not be effective at reducing bird collisions

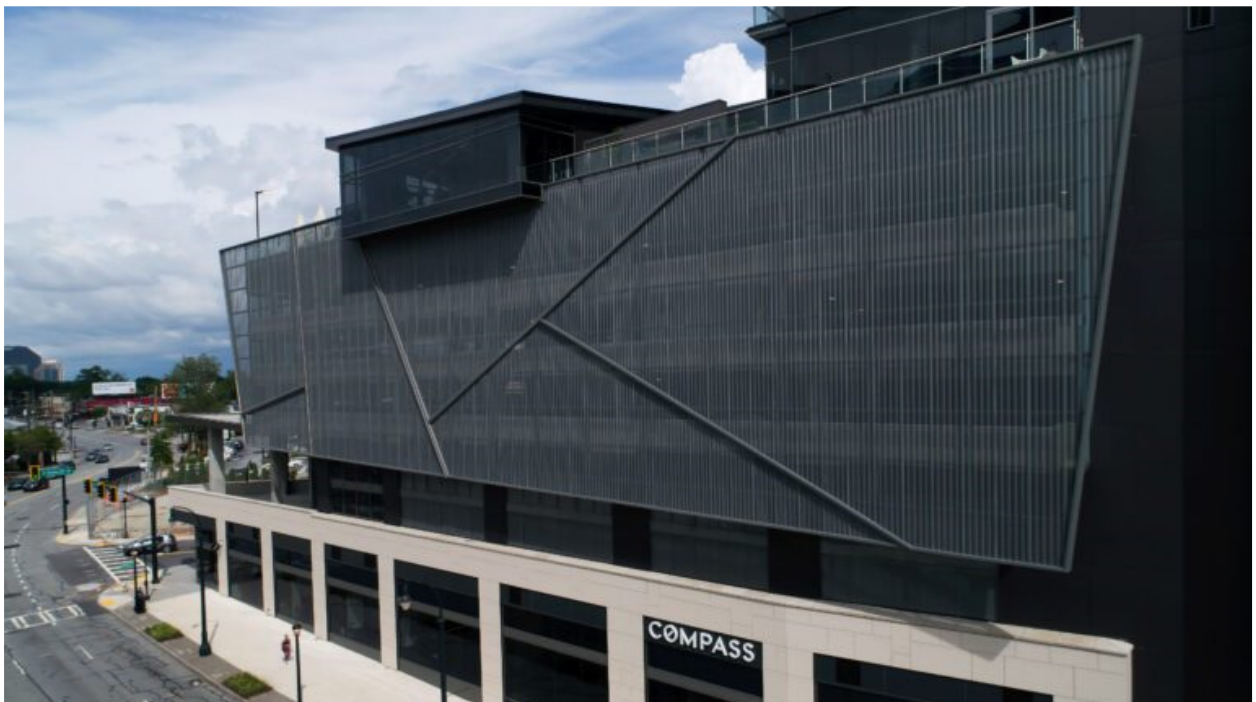
3M Perforated Window Films

CollidEscape Guaranteed – White

Patterned window films

SOLYX® Bird Safety Window Films

External coverings such as grilles, shutters, exterior shades, or perforated aluminum panels



Unique and attractive architectural design elements can provide the visual cues that birds need to avoid a collision, while enhancing the overall aesthetics of the building. Some measures can also aid in climate and lighting control and increase privacy.