



Planning and Urban Design

Natural Heritage Review & Mapping Update

Prepared in Support of the City of Markham Cornell
Centre Secondary Plan Update

September 2024

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1.0 Introduction and Purpose

The following report has been prepared to support the natural heritage component of the Cornell Centre Secondary Plan Update. The Secondary Plan Update is identified in policy direction in the 2014 Markham Official Plan and is being undertaken to bring the Secondary Plan into conformity with current provincial planning direction, the recently approved 2022 York Region Official Plan and Markham's 2014 Official Plan. The review will be providing updated direction to reflect prior development approvals in Cornell Centre, in-process development applications undergoing review and future development anticipated in response to growth and provincial direction for density targets to support higher order transit.

Given that much of the Greenway System in Cornell has been established through previous studies and development approvals in accordance with direction in the Cornell Secondary Plan, the completion of a comprehensive natural heritage study is not required. The natural heritage component of the update is being scoped to ensure that natural heritage elements identified in the 2014 Markham Official Plan and that are not currently identified in the Secondary Plan are mapped and addressed with appropriate policy direction recognizing the established planning direction for Cornell.

The focus of the natural heritage review will ensure that the Natural Heritage Network elements of the Greenway System, including woodlands wetlands and valleylands, are comprehensively mapped taking into account criteria in the Markham Official Plan and previous environmental studies that informed the planning direction for Cornell. Existing naturalized stormwater management facilities are already mapped as Other Greenway System Lands in the 2014 Markham Official Plan and newly constructed stormwater management facilities will be added to the Greenway System through this Secondary Plan update.

The mapping update has been limited to a review of desktop materials, such as online databases, previously completed environmental studies, aerial imagery, site visits to verify natural feature presence and interpretation of vegetation cover and mapped feature limits based on the background review. It does not replace the need for detailed field inventories or environmental impact studies to be undertaken by development proponents to confirm the status or significance of features or the required mitigation to be implemented as part of future development approval processes.

2.0 Background

Cornell is a master planned community in the east end of Markham designed on New Urbanism principles. The land use planning for Cornell began in the late 1980s and construction of the residential subdivisions began in the mid-1990s. Today, the residential neighbourhoods in Cornell are largely built-out.

Cornell Centre is generally located at the south end of the Cornell community along Highway 7 between 9th Line and Reesor Road. It is intended to serve as a mixed-use district with a mix of residential, retail, office and public uses at transit-supportive densities within a Regional Rapid Transit Corridor. Significant portions of Cornell Centre remain undeveloped and an updated Secondary Plan is intended to guide development approvals.

2.1 Land Use Planning Background

The Secondary Plan for Cornell was first approved in the mid-1990s and has been updated in 2008 through Official Plan Amendment 168 to the 1987 Markham Official Plan. A portion of the Cornell Secondary Plan was incorporated into the 2014 Markham Official Plan while the Cornell Centre lands remain subject to the 1987 Official Plan, as amended. Figure 1 below illustrates the boundary for the Cornell Centre Secondary Plan Study Area in relation to the larger Cornell District that was originally established through the Cornell Secondary Plan.



Figure 1. Map of Cornell Centre Secondary Plan Area

2.1.1 Official Plan Amendment 20 (OPA 20)

The Greenway System for Cornell was initially established in 1994 with the adoption of the Secondary Plan for the Cornell Community through Official Plan Amendment 20. Natural heritage features were identified and designated as part of a linked greenway system of parks, open space and protected features. OPA 20 identified three conceptual greenlands corridors to

provide continuity of the open space system and opportunities for recreational and naturalized links to be provided to the proposed Rouge Park, the protection of significant features and restoration of linkages between features. At the time, five significant woodlands were designated. The designation of the greenway system and natural features in Cornell was based on a City-wide Natural Features Study completed in 1993. The City-wide Study informed both the Secondary Plan policy framework for Cornell as well as the broader policy direction for natural heritage for the Markham Official Plan.

2.1.2 Official Plan Amendment 168 (OPA 168)

The Cornell Secondary Plan (OPA 20) was updated and replaced in 2008 through the adoption of OPA 168. At the time, updates to the Cornell Secondary Plan policy framework included adding new lands to the urban service area for employment uses and removing the Rouge Park North Lands in the Greenbelt as these lands had been brought into the provincial Greenbelt through the Greenbelt Act in 2005. The concept of a connected system of parks, open spaces, linkages and other complementary elements of the open space system was retained from OPA 20 in the policies along with the continued designation of significant woodlands in an Environmental Protection Area (EPA) designation with requirements that development proponents undertake environmental impact studies to confirm boundaries and measures to avoid, minimize and mitigate impacts to the EPA designation. The open space and greenway designations were shown schematically in the Secondary Plan (see Figure 2 below). The designations were intended to be confirmed through detailed studies and plans including through preparation of an Environmental Management Study.

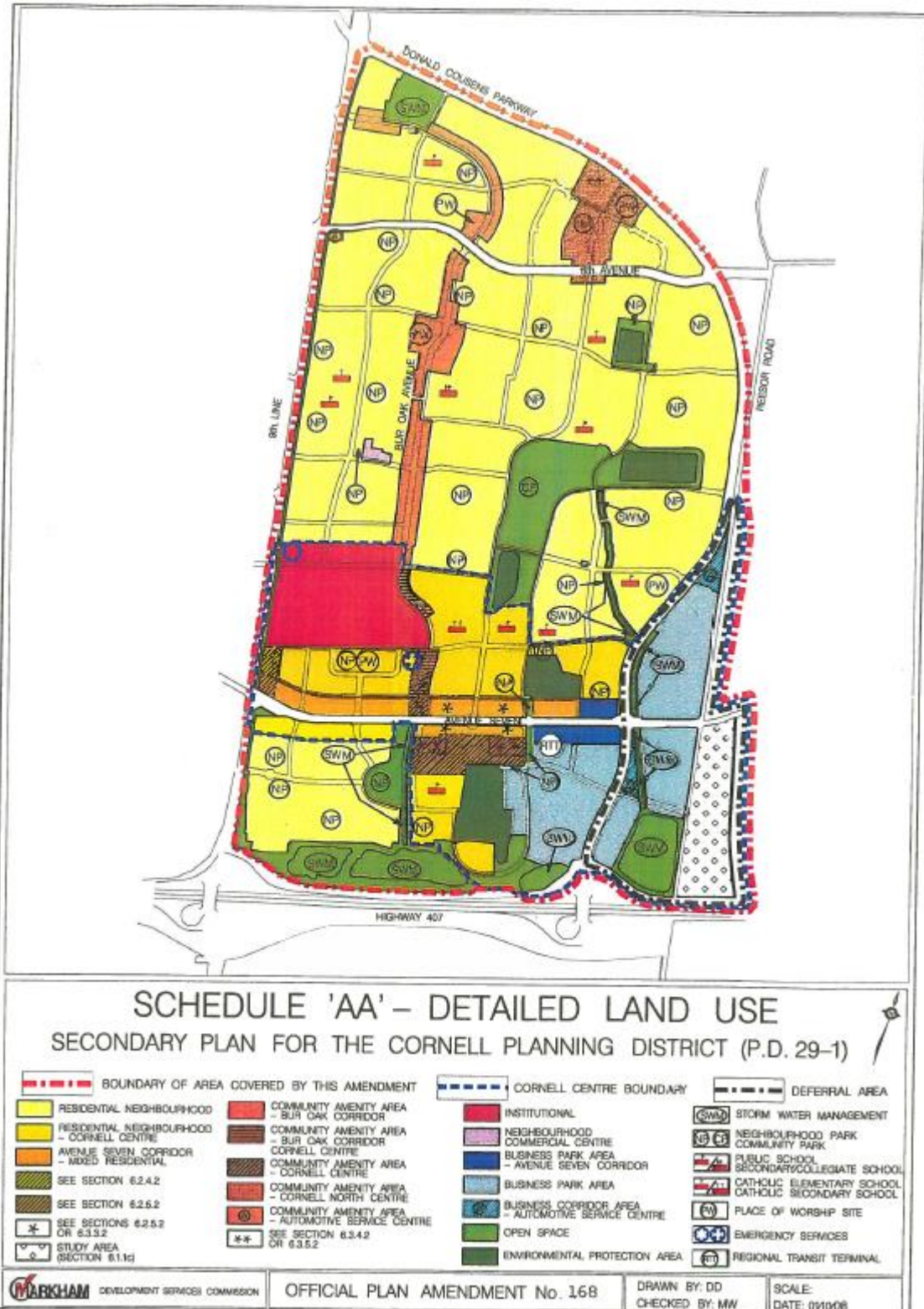


Figure 2. OPA 168 – Schedule 'AA' – Detailed Land Use

2.1.3 City of Markham Official Plan (2014)

Cornell Centre

The Markham Official Plan identifies Cornell Centre as a key development area requiring an updated Secondary Plan. The land use designations in the Markham Official Plan shall be used to inform the updated Cornell Centre Secondary Plan. Until an updated Secondary Plan is approved, the provisions of Official Plan Amendment 168 shall continue to apply to the Cornell Centre lands.

Within Cornell Centre, the Markham Official Plan has identified several natural features for protection. These include: a woodland and open spaces within the Lindwide plan of subdivision; the Cornell Tributary C and stormwater management facility located east of Donald Cousens Parkway; and the woodland located at the southeast corner of Rustle Woods Avenue and William Forster Road. All of these Greenway lands are either in City ownership or will be conveyed as a condition of development approval. The current Greenway land use designation and natural heritage features mapping in the Markham Official Plan are provided in Figures 3 and 4.

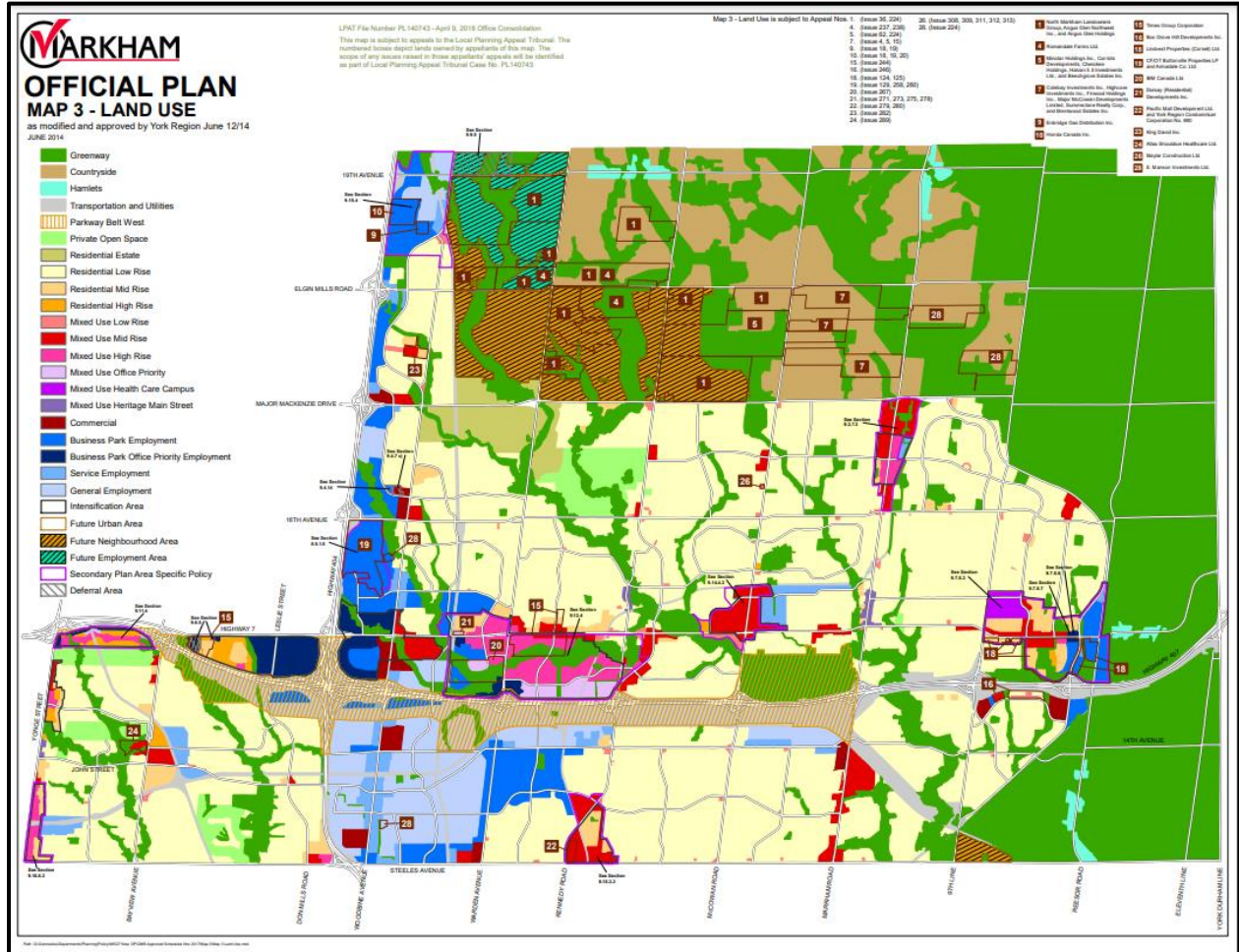


Figure 3. Map 3 – Land Use, Markham Official Plan, 2014

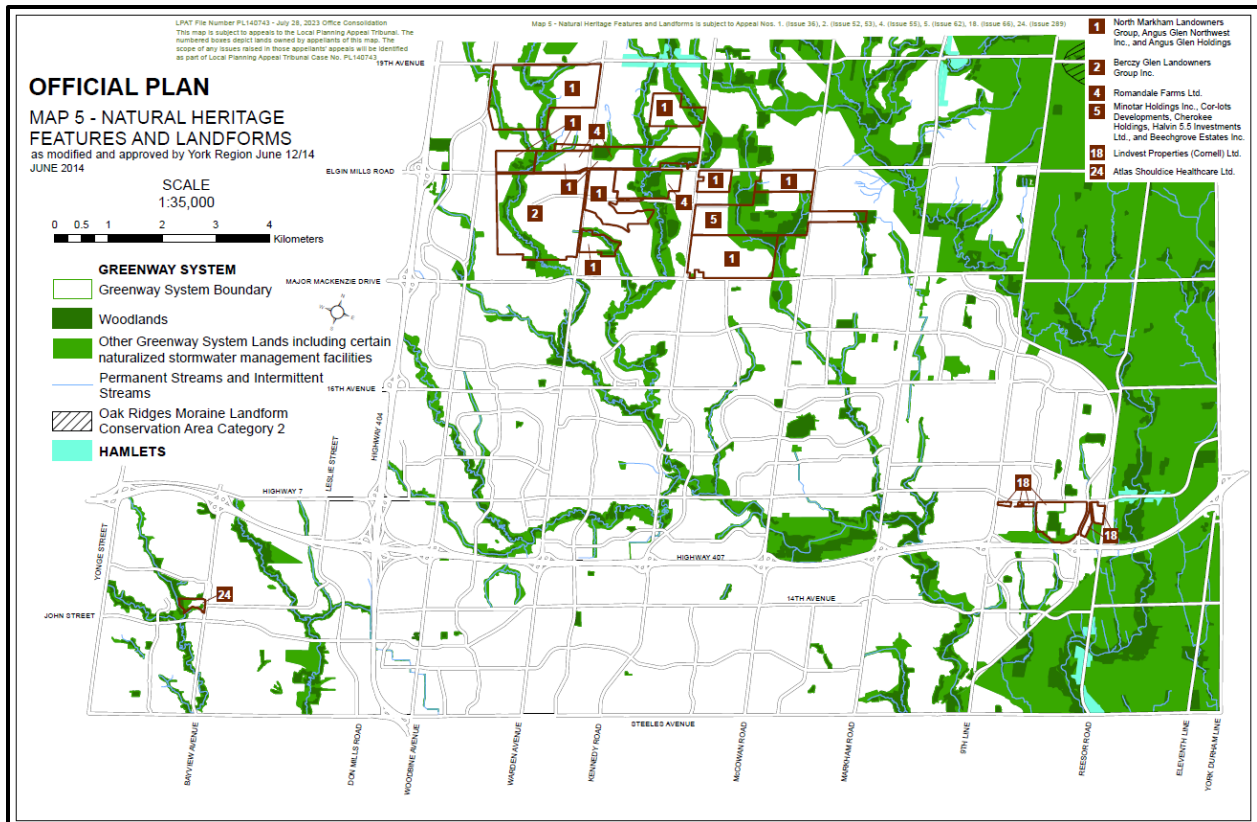


Figure 4. Map 5 – Natural Heritage Features and Landforms – Markham Official Plan, 2014

Balance of the Cornell Lands (Outside of Cornell Centre)

The balance of the Cornell lands are subject to the Markham Official Plan 2014. Official Plan Amendment 168, as it relates to these lands, has been repealed and is no longer in force and effect. These lands do not form part of the study area for this Secondary Plan update and will not be further described in this Study.

2.2 Existing Studies – Master Environmental Servicing Plans (MESPs)

Two MESPs for Cornell Centre North and Cornell Centre South were prepared by the Cornell Landowners Group to provide comprehensive environmental and servicing strategies for Cornell Centre. The MESPs built on initial servicing studies that supported the original planning approval for the Cornell Community. The MESPs characterized existing natural heritage, flora and fauna as well as hydrologic and hydrogeologic conditions, flood hazards, and stormwater drainage for Cornell Centre. The MESPs included impact assessments of proposed development and recommendations to address impacts, including identification of development limits and significant environmental features to be protected and managed in the implementation of the Secondary Plan. Management recommendations addressed historic watercourses draining the Cornell Community and summarized approvals that were implemented to mitigate fish habitat and manage stormwater in an integrated manner. Figure 5 below identifies the boundaries of the two Cornell Centre MESPs.

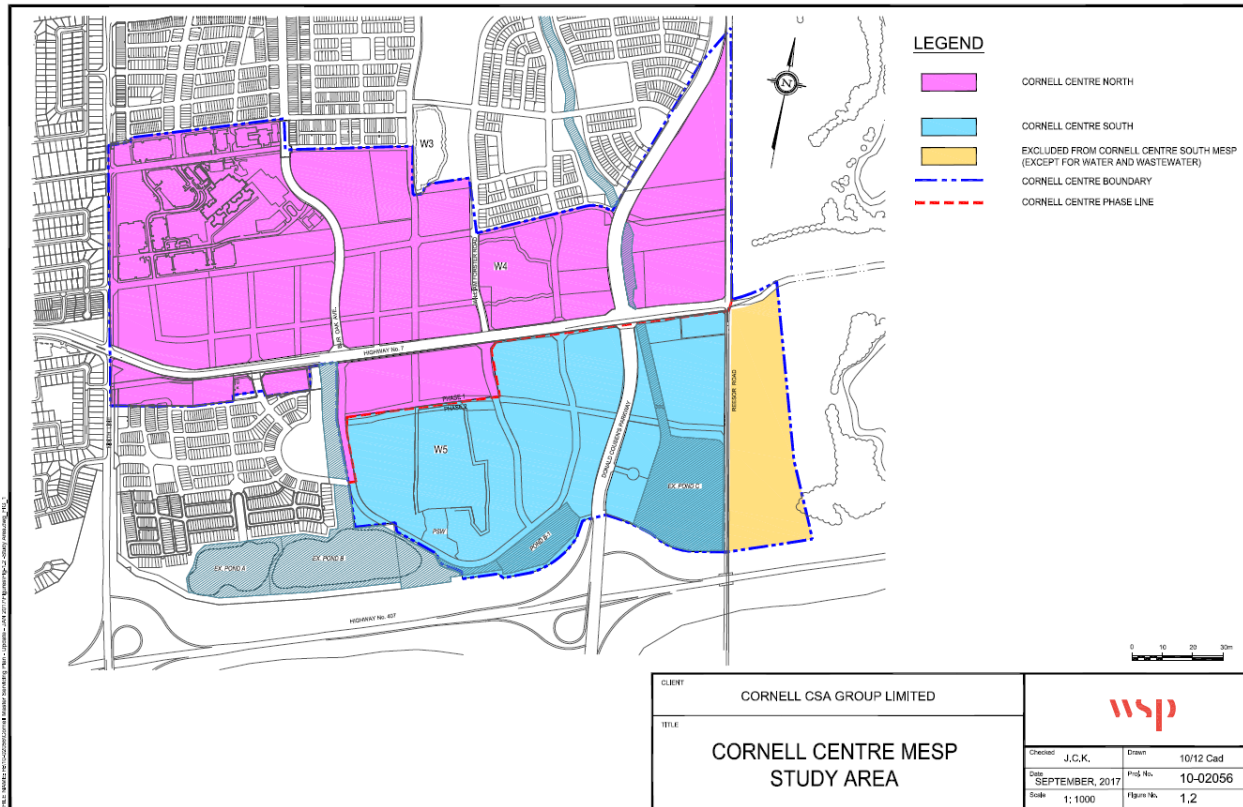


Figure 5. Boundary of MESP

Note: For Cornell Centre South, natural heritage investigations did not include lands east of Donald Cousens Pkwy.

2.2.1 Natural Heritage

Cornell Centre (North) Master Environmental Servicing Plan (2017)

The Cornell Centre (North) MESP was prepared in support of certain lands in Cornell Centre. The MESP provides information on the natural heritage features identified for protection, and only provides limited vegetation analysis for cultural woodlands and hedgerows. At the time, the MESP identified that each individual landowner was expected to identify and address hedgerows and cultural woodlands through their draft plan approval process. Within the MESP study area limits, one significant woodland (Woodland W4) was assessed as a Dry-Fresh Sugar Maple Deciduous Forest, FOD5-1. This woodland including a 10m buffer is owned by the City of Markham.

Cornell Centre South Master Environmental Servicing Plan (2018)

The Cornell Centre South MESP was prepared in support of the Lindwide Plan of Subdivision and provides information on natural heritage features including significant woodland and wetlands. Through the planning review process, the City has provided draft plan approval including the approval of development limits that protect woodlands, wetlands and restoration lands and requires their conveyance into City ownership.

Notwithstanding the MESP study area boundaries identified in Figure 5, the natural environmental investigations did not include any lands east of Donald Cousens Parkway.

The Cornell Centre South MESP proposes that an east-west ecological linkage along the north side of Highway 407 be established (Figure 6). This ecological linkage would connect the Cedar Grove Provincially Significant Wetland Complex and a large Sugar Maple Forest to the valley systems of the Little Rouge Creek and the Rouge National Urban Park. A width of 50 metres is identified to support movement for generalist wildlife species. The first segment of this ecological linkage – from the Cedar Grove wetlands to Donald Cousens Parkway – has been protected and will be conveyed into City ownership.

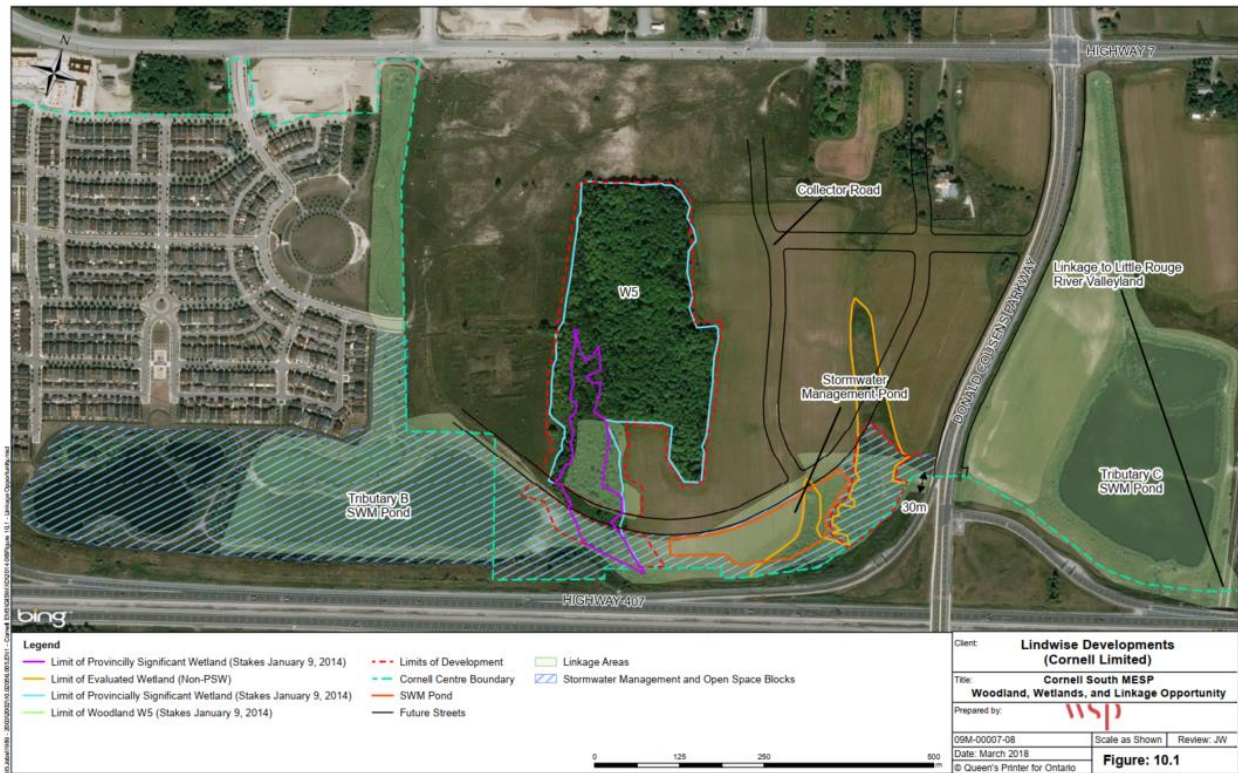


Figure 6. Ecological linkage opportunity excerpt from the Cornell South MESP

2.2.2 Stormwater Management

Cornell Centre is planned to be serviced by four stormwater management facilities located along the north side of Highway 407. Recommendations were included in the Cornell Centre MESP that a separate future stormwater servicing study be prepared for the employment lands east of Reesor Road as the lands were not included in the stormwater catchments studied in the Cornell MESP. It was recommended that stormwater management requirements be determined through a future functional servicing report for these lands.

2.3 Summary of the Status of Natural Heritage Features in the Study Area

Large portions of Cornell Centre are either developed or have planning approvals in place. Based on a review of the site conditions, City staff have identified seven natural heritage features within the study area identified below in Figure 7.



Figure 7. Locations of Natural Heritage Network Features in the Cornell Centre Secondary Plan Study Area

Natural features 1 through 4 are located on lands that have site-specific planning approvals. These natural features have either been protected and conveyed into City ownership or have been approved for removal and compensation.

Natural features A through F are located on vacant lands designated for development within the existing Cornell Secondary Plan (OPA 168). These natural features do not have site-specific planning approvals and only limited assessment of these features were completed within the Cornell Centre MESP.

A summary of the status of each natural feature is provided below in Table 1.

Table 1. Summary of the Status of Natural Heritage Features

Natural Feature	Description	Status
1	Significant Woodlands and Wetlands	Protected and to be conveyed into City ownership
2	Woodlands	Approved for development. Woodland to be removed and compensated
3	Significant Woodlands	Protected and owned by City
4	Valleyland, naturalized stormwater management facility and conveyance channel	Protected and owned by City
A	Candidate woodland.	To be determined in Cornell Centre Secondary Plan update

	- Identified as a cultural woodland in the Cornell Centre North MESP	
B	Candidate woodland and wetland - Identified as a cultural woodland in the Cornell Centre North MESP	To be determined in Cornell Centre Secondary Plan update
C	Candidate woodland - Not assessed in Cornell Centre MESP	To be determined in Cornell Centre Secondary Plan update
D	Candidate wetland - Not assessed in Cornell Centre MESP	To be determined in Cornell Centre Secondary Plan update
E	Candidate wetland and valleyland	To be determined in Cornell Centre Secondary Plan update
F	Candidate wetland	To be determined in Cornell Centre Secondary Plan update

2.4 Natural Hazards in the Study Area

The City of Markham seeks to ensure the protection of public health and safety from natural hazards such as flooding and valley erosion. The Markham Official Plan 2014 directs development and site alteration away from hazardous lands and supports the regulatory interests of the Toronto and Region Conservation Authority (TRCA) in managing natural hazards.

Portions of the study area are regulated by the TRCA due to the presence of watercourse, wetlands and associated flooding and erosion hazards. Through a review of TRCA’s online mapping tool, the following natural hazards have been identified:

- Unevaluated wetlands located northwest of Bur Oak Ave and Highway 7 East. These wetlands have been approved for removal and compensation.
- Floodplain, meanderbelt and Provincially Significant Wetlands within the Lindwide Plan of Subdivision (PLAN 22 154617). The development limits within this subdivision have been approved by the City and the TRCA.
- Floodplain and meanderbelt associated with Tributary C, generally located between Donald Cousens Parkway and Reesor Road. It is noted that this is a stormwater conveyance channel and pond facility that was constructed and conveyed into City ownership.
- Wetlands, meanderbelt and floodplain associated with a tributary of the Little Rouge Creek generally located east of Reesor Road and straddling the Cornell Centre Secondary Plan boundary.

The Cornell Centre MESP has completed floodplain mapping for the majority of the Cornell Centre lands, however it is anticipated that detailed, site-specific studies may be required to address potential slope stability, meanderbelt and wetland matters. The lands east of Reesor Road are not addressed in the MESP and will also require site-specific technical studies.



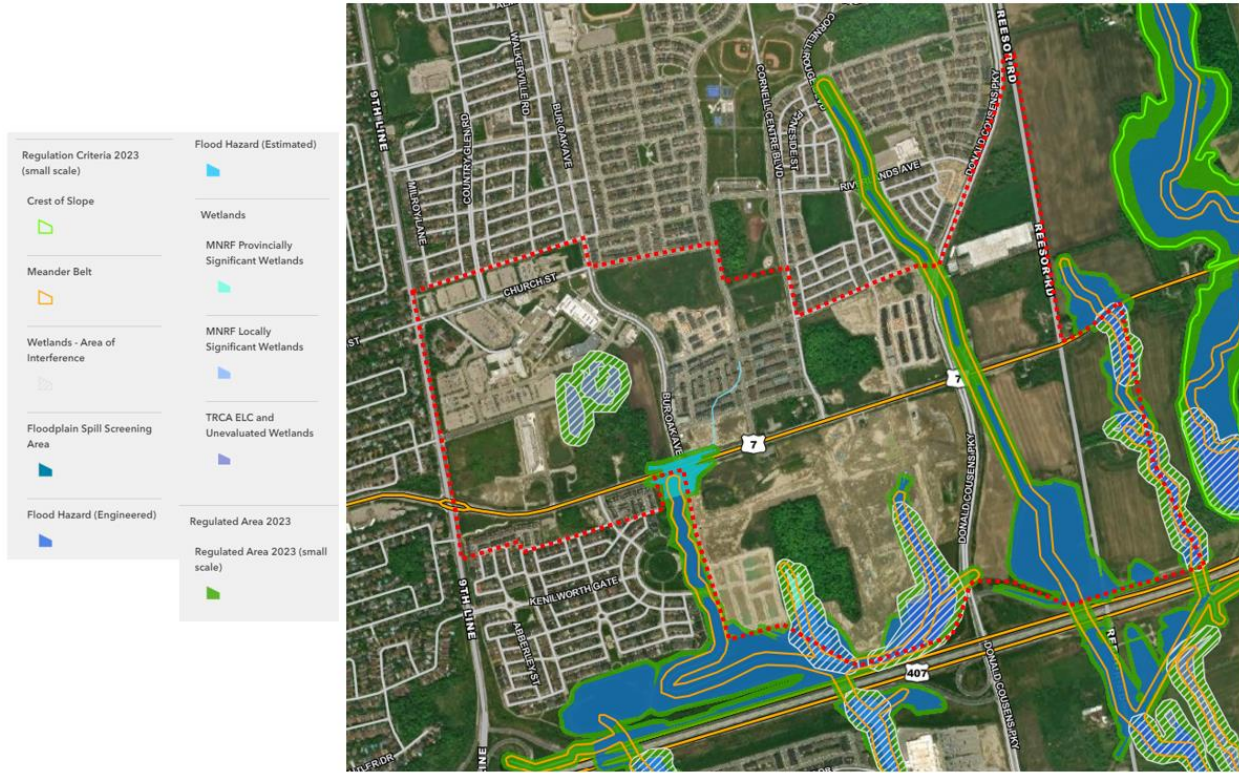


Figure 8. TRCA Regulation Mapping Online Tool, Accessed September 2024

While it is anticipated that natural hazards have been adequately addressed through the identification of a Greenway System and associated Secondary Plan policies, it is noted that the regulation mapping shown on Figure 8 is a screening tool and that the regulated area of the TRCA is determined based on the text of O. Reg. 41/21. Additional features may be encountered and require additional study to address TRCA’s regulatory interests.

Based on TRCA’s staff review, further study may be required for the lands known municipally as 8600 Reesor Road and 7482 Highway 7 East to confirm regulated features, beyond those identified on TRCA’s online mapping tool. Pre-consultation with the TRCA is recommended.

3.0 Natural Feature Study Locations

This Study provides a preliminary screening of available information for natural features A to F as identified in Figure 7. The natural features listed below were identified for initial screening and review within the study area through an interpretation of aerial photography, ground-truthing site visits, and relevant policy analysis, as stated above, to determine if these natural features should be included in the Cornell Centre Secondary Plan Update.

3.1 Site A – 7485 Highway 7 East (Cornell Centre South)

Site A is located at 7485 Highway 7 East in what has been identified in the MESP as Cornell Centre South. The current land use designation in the 2014 Official Plan is “Business Park Employment” with “Highway Commercial” (HC2) Zoning. An approximately 0.46 ha woodland has been identified on site.

Surrounding land uses include residential, agriculture, transportation, and greenway, including Rouge National Urban Park to the east.

The site has a history of disturbance and vegetation removal for agricultural support purposes.



Figure 9. Approximation of Woodland limits at 7485 Hwy 7 East showing the woodland polygon to be approximately 0.46ha of closed canopy trees.

3.2 Site B – 8724 Reesor Road (Cornell Centre North)

Site B is located at 8724 Reesor Road in what has been identified in the MESP as Cornell Centre North. The current land use designation in the 2014 Official Plan is “Business Park Employment” and “Service Employment” (at the northernmost tip of the site) with “Agriculture” (A1) Zoning. An approximately 0.56 ha woodland and an approximately 0.18 ha wetland have been identified on site.

Surrounding land uses include residential, agriculture, transportation, open space, and greenway, including Rouge National Urban Park to the east.

The site has a history of disturbance and vegetation removal for residential and agricultural purposes.



Figure 10. Approximate size and location of the woodland (south) and wetland (north) features identified at 8724 Reesor Road

3.3 Site C – 6881-6921 Highway 7 East

Site C is located on both 6881 and 6921 Highway 7 East. The current land use designation in the 2014 Official Plan is “Residential Mid Rise” across the entirety of both properties. The property at 6881 Highway 7 East is zoned Rural Residential 2 (RR2) and the property at 6921 Highway 7 East is zoned Commercial Amenity 3 (CA3*494H). An approximately 0.56 ha woodland has been identified across both sites, with the majority of it on the 6881 Highway 7 East property.

Surrounding land uses include residential, parks, transportation, industrial, stormwater management, open space, and greenway. Storm drainage flows from the development to the

north, under Highway 7, to a drainage swale immediately east of the woodland, continuing through a concrete pipe south and connecting to a storm pipe below Kalvinster Drive.

The site has a history of disturbance largely related to residential and agricultural purposes.

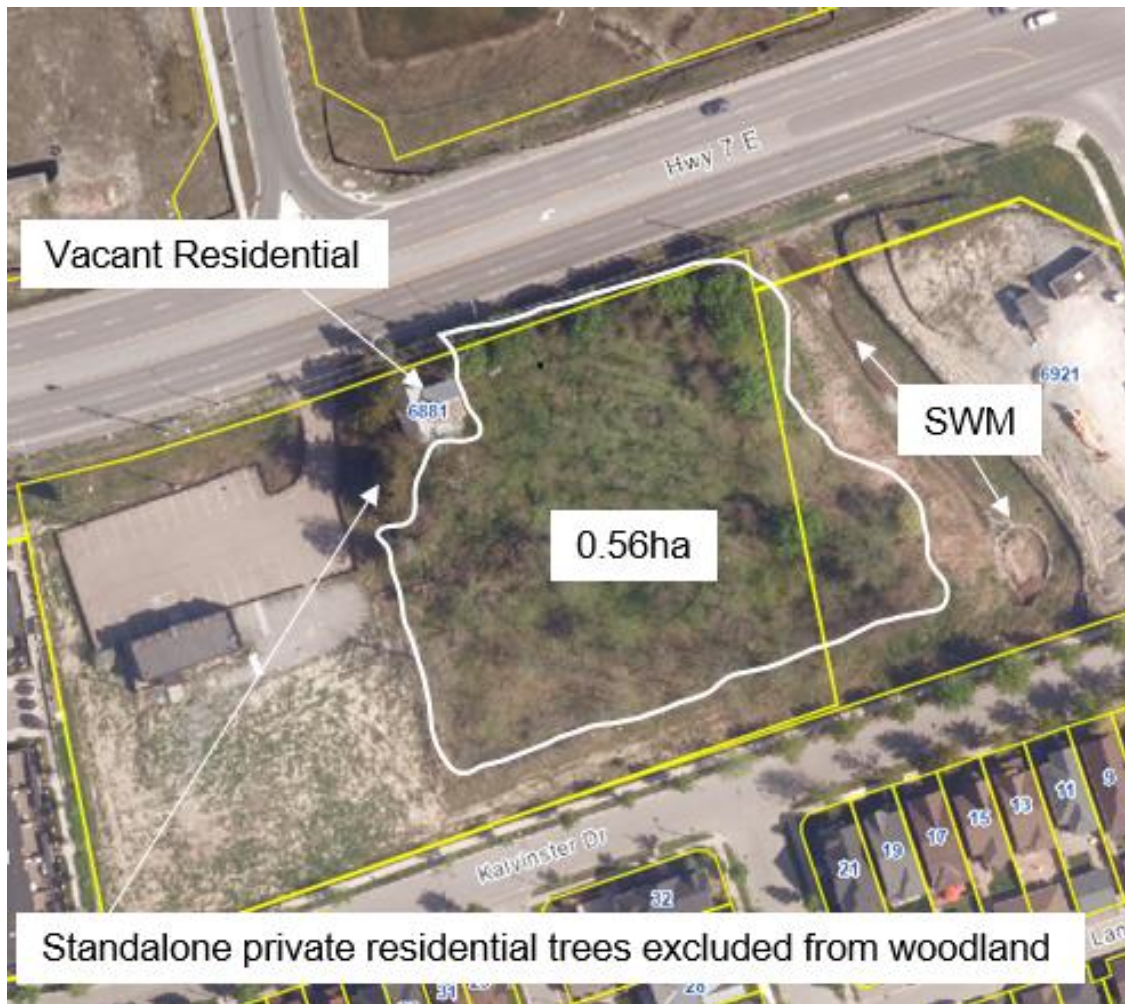


Figure 11. Approximate size and location of the woodland feature on Site C

3.4 Site D – 8724 Reesor Road – SW Corner of Property

Site D is located at 8724 Reesor Road in what has been identified in the MESP as Cornell Centre North. The current land use designation in the 2014 Official Plan is “Business Park Employment” with “Agriculture” (A1) Zoning. An approximately 0.15 ha wetland has been identified on site. This appears to be the result of surface drainage contribution from the northeast of the site. It appears likely that the excess drainage then spills over to the roadside swale flowing southwest on the eastern side of Donald Cousens Parkway which then merges with the Cornell Tributary “C” approximately 255m downstream from where the wetland meets with the swale.

Surrounding land uses include residential, agriculture, transportation, open space, and greenway, including Rouge National Urban Park to the east.

The site has a history of disturbance and vegetation removal for residential, industrial and agricultural purposes. It appears to have been planted with water-tolerant trees in approximately 2012.



Figure 12. Approximate size and location of the wetland feature at Site D is on the left with its drainage path to Tributary “C” shown on the right

3.5 Site E – 8539 Reesor Road

Site E, known as 8539 Reesor Road, is a complex of wetlands that have formed along a tributary of Little Rouge Creek in the Rouge National Urban Park. The tributary begins as a headwater drainage feature north of Highway 7, east of Site B. Only a small portion of the largest wetland component appears to fall within the Cornell Secondary Plan Area. This can be seen on Figure 13 on the property of 8539 Reesor Road. All of the wetlands mapped in this figure have also been mapped by the Ministry of Natural Resources and Forestry (MNR). Wetland vegetation is evident in aerial photography and generally follows the floodplain. A portion of the tributary that drains southerly to the Little Rouge and its associated floodplain also fall within the Cornell Centre Secondary Plan Area. The limits of the floodplain define the valleyland limits in this reach of the watercourse.

The current land use designation in the 2014 Official Plan is “Business Park Employment” and “Greenway” with “Agriculture” (A1) Zoning. A large portion of the feature, east of secondary plan boundary, falls within the Protected Countryside of Provincial Greenbelt Plan Area.

Surrounding land uses include residential, agriculture, transportation, open space, and greenway.

The site has a history of disturbance, primarily for agricultural purposes.

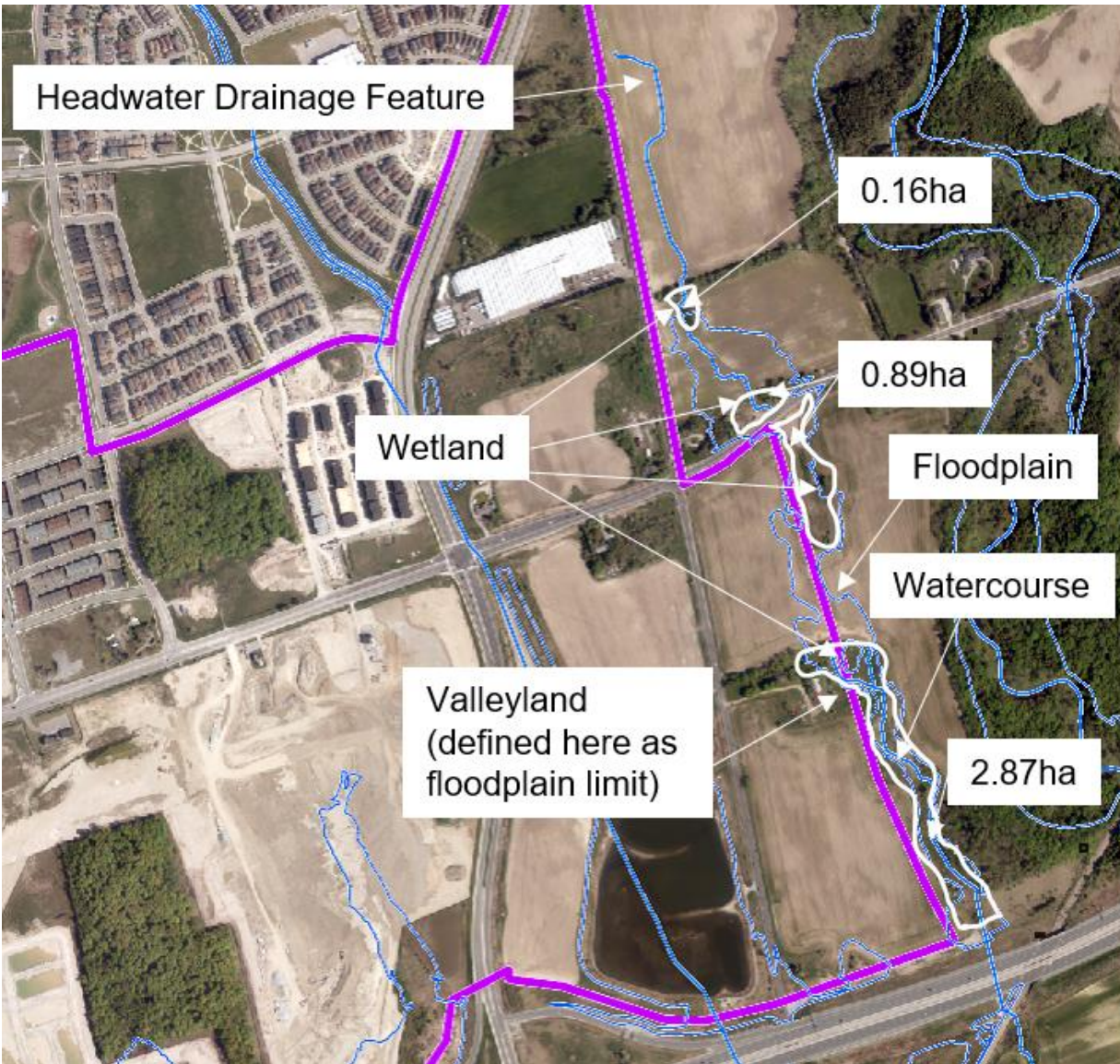


Figure 13. Approximate size and location of the wetland complex at Site E. Also shown is the headwater drainage feature, watercourse, floodplain, and valleyland.

3.6 Site F – 8207 Reesor Road (north of Highway 407)

Site F, known as 8207 Reesor Road, just north of Highway 407, is a small (0.11ha) wetland that appears to be associated with the Tributary C floodplain. The wetland has also been identified in provincial MNRF wetland mapping.

The current land use designation in the 2014 Official Plan is “Business Park Employment” with “Agriculture” (A1) Zoning.

Surrounding land uses include residential, stormwater management, agriculture, transportation, open space, and greenway.

The site has a history of disturbance and alteration, primarily for agricultural and transportation (Highway 407) purposes.

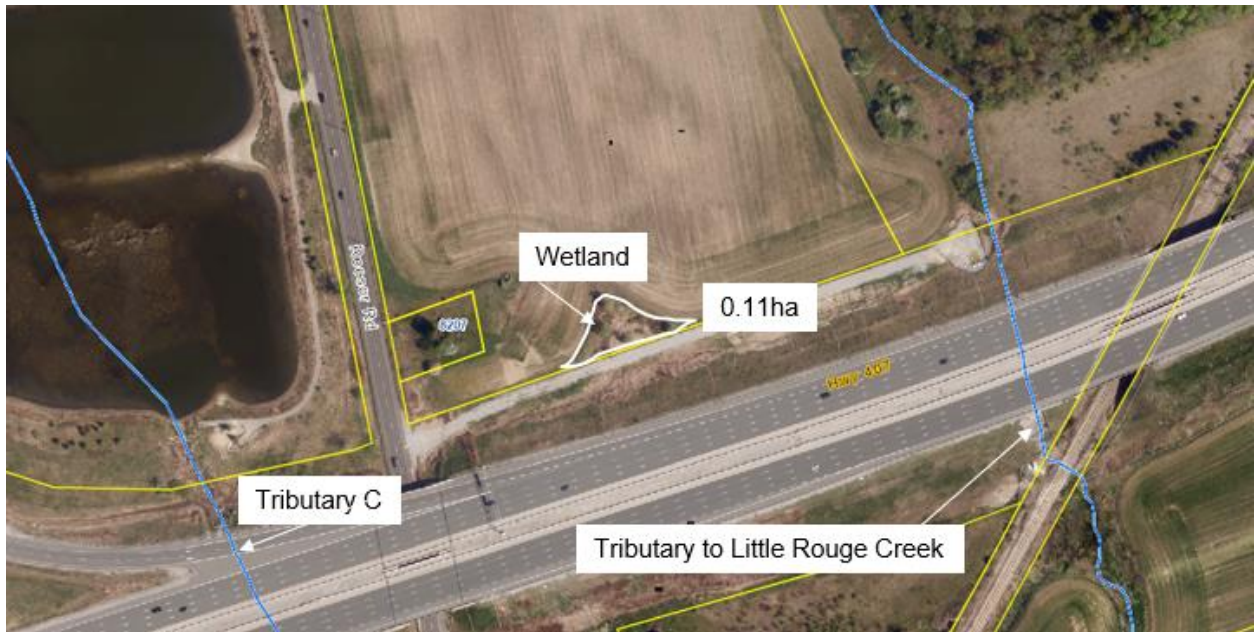


Figure 14. Approximate size and location of the wetland feature found at Site F

4.0 Relevant Policy and Regulatory Framework

4.1 Provincial Policy Statement, 2020

Section 2.0 of Ontario's Provincial Policy Statement (PPS, 2020), titled *Wise Use and Management of Resources* provides provincial planning direction related to the long-term protection of natural heritage systems, features and areas, including:

- Significant Wetlands
- Significant Woodlands
- Significant Valleylands
- Significant Wildlife Habitat (SWH)
- Significant Areas of Natural and Scientific Interest (ANSIs)
- Coastal Wetlands

The *Planning Act* requires that all decisions affecting planning matters to be consistent with policy statements issued under the Act, including the PPS. The PPS provides direction to identify natural heritage systems and protect natural heritage features and areas for the long term. Protection standards for natural heritage features and areas are provided in the PPS. Development and site alteration is not permitted in significant wetlands. In other features, development and site alteration is not permitted unless it can be demonstrated that there will be no negative impacts on the natural features or their ecological functions. The PPS policy direction is further implemented through policy in municipal official plans.

Development or site alteration within or adjacent to fish habitat and/or habitat of endangered or threatened species, is only permitted in accordance with Provincial and Federal requirements, i.e., the *Fisheries Act* and the *Endangered Species Act*.

The Province provides guidelines for municipalities to aid in the identification and determination of significant natural heritage features and habitats, including the *Natural Heritage Reference Manual* (OMNR, 2010), *Significant Wildlife Technical Guide* (OMNR, 2000) and associated *Significant Wildlife Habitat Criteria Schedules* (MNR, 2015).

The PPS policies and relevant provincial guidelines were reviewed and utilized where relevant to confirm criteria for the purposes of the mapping review and update of the Cornell Centre Secondary Plan.

4.2 Provincial Planning Statement, 2024

In 2023, the Province initiated consultation on a draft proposed Provincial Planning Statement that will replace the PPS, 2020 and A Place to Grow: Growth Plan for the Greater Golden Horseshoe. An updated version of the proposed Provincial Planning Statement was released in 2024 based on feedback received. The 2024 Provincial Planning Statement carries forward the current policy framework for natural heritage with substantively the same policies, definitions and standards for the identification and protection of natural heritage features and areas as the 2020 Provincial Policy Statement. The policies are considered minimum standards and municipalities are permitted to establish higher levels of protection in their official plans to address local priorities and objectives. The new PPS, released on August 20, 2024 and proposed to come into effect on October 20, 2024, has been considered in the review to determine if any revisions to the mapping review and refinement for Cornell Centre is required.

4.3 Provincial Greenbelt Plan, 2017

Ontario's provincial Greenbelt was introduced in 2005 as an overarching plan to support land use planning in the Greater Golden Horseshoe. It includes lands within the Growth Plan, the Oak Ridges Moraine Conservation Plan, and the Niagara Escarpment Plan. The plan identifies where urbanization should not occur so that it may provide protection to important agricultural lands and environmentally sensitive lands. The lands in the Greenbelt are some of the most ecologically and hydrologically significant environments in Canada. The Greenbelt Plan also supports several other provincial and federal level initiatives, including the Rouge National Urban Park and Management Plan.

Lands governed by the Greenbelt Plan include the Niagara Escarpment Plan Area, the Oak Ridges Moraine Conservation Plan Area and the Parkway Belt West Plan Area, lands designated Protected Countryside within the Greenbelt and Urban River Valley lands connecting the Greenbelt to the Great Lakes. The Protected Countryside is made up of an Agricultural System and a Natural System, and a series of settlement areas, known as town/villages and hamlets. The Urban River Valley policies apply to publicly owned lands that were not in the Greenbelt at the time the Plan was approved in 2005. These lands assist in recognizing the importance of protecting connections to Lake Ontario and other areas in southern Ontario.

It is the role of municipalities in Ontario to support and implement the requirements of Provincial Plans. Section 3.1.5 of Markham's Official Plan identifies the policies of Council to protect and manage lands within the Greenbelt Plan Area. Portions of Cornell Centre about the Greenbelt Protected Countryside north of Donald Cousins Parkway and east of Reesor Road. In this location, development within the Protected Countryside is subject to a Natural Heritage System overlay and protection standards and criteria for key natural heritage and key hydrologic features.

4.4 Conservation Authorities Act: Ontario Regulation 41/24

The Conservation Authorities Act was created in 1946 in response to Provincial concerns around erosion and drought, recognizing that these and other natural resource initiatives are best managed on a watershed basis. On April 1, 2024, amendments to the Conservation Authorities Act came into force, ultimately revoking the Toronto and Region Conservation Authority's (TRCA) previously in-force Ontario Regulation 166/06 and replacing it with a new province-wide regulation (Ontario Regulation 41/24) that is now in effect.

Pursuant to the recent amendments, permits from the TRCA are now approved and issued under Section 28.1 of the Conservation Authorities Act. The new regulation addresses certain matters related to permits, with other matters being addressed under Section 28.1. Section 28(1) of the CA Act sets out the activities (e.g., development, interference in any with a wetland or a watercourse, etc.) that are prohibited within regulated areas without first obtaining a permit from a conservation authority. This approach is consistent with the previous legislation and regulation.

TRCA updated their regulation mapping in 2024 to align with the new regulation. Under Section 2(3) of Ontario Regulation 41/24, the distance conservation authorities now regulate around all wetlands is 30 metres. TRCA's regulation mapping update incorporated this change, resulting in a reduction in the 120-metre regulated area around Provincially Significant Wetlands and all

wetlands on the Oak Ridges Moraine as was previously set out in TRCA's Ontario Regulation 166/06.

Regulated areas and features are present within the Cornell Centre Secondary Plan Area and are subject to Ontario Regulation 41/24. TRCA regulated areas mapping was utilized to inform the natural heritage mapping review for Cornell Centre.

4.5 York Region Official Plan, 2022

The York Region Official Plan, 2022, lays a foundation for the direction of growth and development for municipal implementation. The York Region Official Plan (YROP) was adopted in June 2022 and approved by the Minister of Municipal Affairs and Housing in November 2022. Effective July 1, 2024, the York Region Official Plan is now deemed to be an Official Plan of the City of Markham for all lands within the City. Chapter 3.0, *A Sustainable Natural Environment*, provides direction on planning for natural systems, the Regional Greenlands System, water resource system, natural features, and natural hazards.

The Regional Greenlands System consists of cores, corridors and linkages, including Natural Core Area and Natural Linkage Area designations in the Oak Ridges Moraine Conservation Plan; the Natural Heritage System of the Greenbelt Plan; the Natural Heritage System of the Growth Plan; and approved local natural heritage systems, key natural heritage features and key hydrologic features. Key natural heritage features and key hydrologic features of the Regional Greenlands System, relevant to the review of natural heritage features mapping within the Cornell Centre Secondary Plan Study Area include:

- Habitat of endangered and threatened species
- Wetlands
- Significant woodlands
- Significant wildlife habitat
- Permanent and intermittent streams
- Seepage areas and springs

YROP Map 2 Regional Greenlands System, Map 4 Key Hydrologic Features and Map 5 Woodlands identify key natural heritage and key hydrologic features mapped in the Regional Plan within the Cornell Centre Secondary Plan Study Area. Criteria for the identification and significance of key features are provided in Section 3.4 and the Definitions of the YROP. Criteria for key natural heritage and key hydrologic features included in the YROP and relevant to reviewing mapping updates for the Cornell Centre Secondary Plan Update are addressed in Appendix C of the report.

Additional policies in the YROP provided below area also relevant to the Cornell Centre Secondary Plan Update including:

3.2.2 That within Urban Areas and Town and Villages as identified on Map 1, refinements to the boundaries of the Regional Greenlands System may occur through approved planning applications supported by appropriate technical studies including subwatershed studies, master environmental servicing plans and environmental impact studies in accordance with the applicable Provincial plans and policies of the Plan. These refinements will be incorporated into the Plan through periodic updates by York Region and will not require an amendment to the Plan.

3.2.5 That notwithstanding policy 3.2.3, within the Regional Greenlands System, some uses may be permitted subject to meeting requirements of the applicable Provincial plans such as:

a. Legally existing or permitted land uses, that conform with in-force local official plans, zoning by-laws and Ministerial Zoning Orders, at the time the Plan is approved, may be permitted to continue to the extent provided for in local official plans, zoning by-laws and Ministerial Zoning Orders;

3.4.7 That key natural heritage features and key hydrologic features shall be precisely delineated on a site-by-site basis using procedures established by the Province or other authorities, where applicable. Such delineation shall occur through the approval of Planning Act applications supported by appropriate technical studies such as master environmental servicing plans or environmental impact study(ies). Where such delineation refines boundaries shown on related maps within the Plan, updates to these maps can occur without an amendment to the Plan.

As noted in the background section of the report, planning direction for development within designated land uses in Cornell Centre is provided in the 2014 Markham Official Plan and Cornell Secondary Plan on the basis of previous studies that supported the adoption of the Secondary Plan as well as studies, including Master Environmental Servicing Plans, that supported subsequent site-specific planning approvals.

4.6 City of Markham Official Plan, 2014

The City of Markham 2014 Official Plan was adopted by Markham Council on December 10, 2013, and approved by York Region Council on June 12, 2014. Portions are currently under appeal (site specific) but the Greenway System policies are now in force City-wide. It is a policy of the City of Markham to identify, protect and enhance the Greenway System. Components of the Greenway System include Natural Heritage Network lands including the following key natural heritage features and key hydrologic features:

- wetlands;
- habitat of threatened and endangered species;
- significant portions of the habitat of:
 - i. special concern species in the Oak Ridges Moraine Conservation Area and Greenbelt Plan Area; and
 - ii. provincially rare species in the Oak Ridges Moraine Conservation Plan Area;
- fish habitat;
- Life Science Areas of Natural and Scientific Interest;
- significant valleylands;
- significant woodlands;
- significant wildlife habitat;
- sand barrens, savannahs and tallgrass prairies;
- permanent streams and intermittent streams; and
- seepage areas and springs.

Definitions and criteria for identifying the individual features and components of the Greenway System are provided in the Markham Official Plan. Where mapping data is available, individual features and areas are mapped in the Official Plan and in Secondary Plans based on the policies, criteria and definitions of the Plan. As the Greenway System policies apply City-wide,

not all components of the Greenway System are present in all areas of the City. Also, as noted previously, the Greenway System within Cornell has largely been established through the Secondary Plans, previous studies and prior development approvals. The mapping update will be scoped to ensure that features expected to be present in Cornell are included in the update. Relevant criteria for the updating of mapping of the Natural Heritage Network components of the Greenway System for Cornell Centre are provided in Section 7.0 and Appendix C.

5.0 Methodology

Background research and field visits for the natural heritage review were undertaken by City of Markham Natural Heritage staff in Spring and Summer of 2024. Mapped datasets and aerial imagery were reviewed to identify natural heritage features not currently included on mapping in the 2014 Markham Official Plan or Cornell Secondary Plan for field verification and review utilizing mapping criteria identified in Appendix C – Criteria for Mapping Greenway System Natural Heritage Network Features. In total, seven features were identified for further review, including three woodlands and three wetlands and a wetland complex bordering Cornell Centre to the east of the boundary with the Rouge National Urban Park. Given the constraint of private property access, roadside site visits were undertaken to observe leaf-off and leaf-on conditions for accessible sites (A, B, C, D). The natural features were then analyzed using desktop resources, including provincial wetland mapping datasets, aerial imagery, and Google Earth images. Details of the research methods are provided in greater detail below.

5.1 Desktop Analysis

5.1.1 Aerial Imagery

Aerial imagery was interpreted from GoogleEarth, YorkMaps, the City of Markham's GeoLogic Map Viewer, the Provincial MNRF Land Information Ontario (LIO) Application ("Make a Map"), and the TRCA's online regulated area viewer.

GoogleEarth provided roadside images of the features and allowed for analysis and interpretation of the natural features on site from aerial and roadside view perspectives. The roadside view aided the identification of on-site plant species.

YorkMaps provided historical context and land use of the sites, with images dating back to 1954. This aided in determining the potential origin of features, historical impacts, and whether any regeneration occurred at the sites.

GeoLogic Map Viewer data included 2023 aerial imagery, spatial mapping data layers including Ecological Land Classification (ELC) land cover, parcel fabric and planning policy designations applying to features identified in aerial imagery. ELC mapping provided comprehensive Community Series vegetation cover information for the City of Markham recently updated by the City of Markham. ELC mapping was utilized to inform the interpretation of vegetation cover.

5.1.2 Feature Delineation

Natural features were delineated using a combination of field observations and aerial imagery, as noted above.

Woodland features were delineated to the outer dripline of the woodlands based on field observations and aerial imagery of naturally treed areas with closed canopies, excluding hedgerows.

Wetland features were delineated using a combination of Ministry of Natural Resources and Forestry wetland data, field observations, contour lines, and historical and present-day aerial images.

5.2 Vegetation

Vegetation was analyzed through a combination of aerial imagery and roadside site visits, in both leaf-off and leaf-on conditions, in 2024. Observations were made by walking the roadside

of each accessible edge of the features, identifying and noting native and invasive species and site characteristics, and taking photographs. Photographs were analyzed a second time in the office to confirm observed species and conditions.

5.3 Criteria for Identifying Natural Heritage Network Features

The Greenway System's Natural Heritage Network features are identified and mapped in the City of Markham Official Plan map schedules and appendices based on policy, definitions and criteria provided in the Official Plan. Relevant criteria for mapping natural heritage and water resource system features in the Cornell Centre Secondary Plan are summarized in Appendix C as the basis for determining whether features that are not currently mapped in the Official Plan or Secondary Plan should be included and identified in the Secondary Plan along with the findings of the natural heritage review and methodology undertaken to support the Secondary Plan Update. The 2014 City of Markham Official Plan and 2022 York Regional Official Plan criteria were reviewed to ensure the recommended mapping criteria in Appendix B did not conflict and that relevant mapping standards were referenced. Recommendations for identification and classification of Natural Heritage Network features are provided in Section 7.0 of the report.

6.0 Existing Site Conditions

6.1 Site A – 7485 Highway 7 East

Feature Type	Community Description	Notable Observations <i>April 2024 & May 2024 Site Visits</i>
Woodland	Cultural Woodland	<p>Top canopy: Primarily comprised of black locust with scattered maples and willows.</p> <p>Mid canopy: cedars, junipers, willows, dogwoods, and scattered fruit trees, likely apple.</p> <p>Ground cover: farm grasses, reed canary grass, goldenrod, dame's rocket.</p>
Anthropogenic	<ol style="list-style-type: none"> 1. Hydro Corridor 2. Residence and landscape features 3. Herbaceous understory and portions of maintained lawn 4. Bounded by Highway 7 East and Reesor Road 5. Agricultural Field 	<ol style="list-style-type: none"> 1. Two hydro poles exist on the northern portion of the woodlot. This continues along Highway 7 East at 7469 Highway 7 East. Ground disturbance from installation. 2. Residence is on site to the east. Evidence of log piling to the east of woodlot and a berm running north-south through the woodlot. Old vehicle storage uses by the residence abuts the woodlot in the southwest. 3. Potential trail through woodlot, portions of maintained and overgrown lawn throughout the property. 4. Active transportation routes to the north and east. 5. Large agricultural field abuts the woodland to the south.
Rouge National Urban Park	<ol style="list-style-type: none"> 1. Agriculture 2. Provincially significant Wetland 3. Woodland 4. Watercourse 5. Valleyland 	The Rouge National Urban Park is immediately adjacent the site, across Reesor Road, to the east.

6.2 Site B – 8724 Reesor Road

Feature Type	Community Description	Notable Observations <i>April 2024 & May 2024 Site Visits</i>
Woodland	Black Walnut Lowland Deciduous Forest	<p>Top canopy: spruce, maple, prominent black walnut.</p> <p>Mid canopy: buckthorn, raspberry, red osier dogwood and willow.</p> <p>Ground cover: farm grasses, day lily, wild grape, Virginia creeper</p> <ul style="list-style-type: none"> • Several snags observed • Overgrown trail through woodlot; access blocked with cement barrier
Wetland	Mixed swamp	Standing water observed north of the main woodlot on both site visits; thin buffer with grasses and shrubs, scattered deciduous trees; wetland species difficult to determine without access.
Cultural successional meadow/savannah	Cultural meadow	Sumac, agricultural grasses, scattered young trees
Anthropogenic	<ol style="list-style-type: none"> 1. Residential 2. Agriculture 3. Transportation 	Surrounding land uses include residential, agriculture, and transportation.
Rouge National Urban Park	<ol style="list-style-type: none"> 1. Agriculture 2. Provincially Significant Wetland 3. Woodland 4. Watercourse 5. Valleyland 	The Rouge National Urban Park is immediately adjacent the site, across Reesor Road, to the east.

6.3 Site C – 6881-6921 Highway 7 East

Feature Type	Community Description	Notable Observations <i>June 2024 Site Visit</i>
Woodland	Black Walnut Deciduous Forest	<p>Top Canopy: Dominant black walnut with maple, red oak, white pine species along northern property boundary</p> <p>Mid-Canopy: Willow, Manitoba maple, poplar, spruce Virginia creeper</p> <p>Ground cover: goldenrod, grasses, Virginia creeper, clover, honey suckle, wild grape, buttercup, vetch</p>

Anthropogenic	<ol style="list-style-type: none"> 1. Vacant Residential 2. Stormwater Management 3. Residential Community 4. Transportation 	<ol style="list-style-type: none"> 1. Storm drainage flows from the development to the north, under Highway 7, to a drainage swale immediately east of the woodland, continuing through a concrete pipe south and connecting to a storm pipe below Kalvinster Drive. It is characterized with native cattails and shrubs.
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6.4 Site D – 8724 Reesor Road – SW Corner of Property

Feature Type	Community Description	Notable Observations <i>June 2024 Site Visit</i>
Wetland	Deciduous Swamp	MNRF wetland mapping and aerial interpretation of contours and historic photos indicate wetland conditions on site. Trees appear to have been planted and consist mostly of silver maples, poplars, and black walnuts. Silver maple is a swamp wetland indicator species. Understory vegetation includes reed canary grass.
Anthropogenic	<ol style="list-style-type: none"> 1. Agriculture 2. Stormwater Management – swale 3. Hedgerow 4. Commercial 5. Transportation 6. Residential Community 	<ol style="list-style-type: none"> 1. Agricultural field to the northeast 2. Feature appears to drain to a roadside swale along the east side of Donald Cousins Parkway that eventually drains to Cornell Trib. “C”. 3. Remnant historical hedgerow to the west includes willows and maples. A separate hedgerow bounds the southern portion of the property. 4. A garden centre and greenhouse operates on the property to the south (8636) 5. Donald Cousens Parkway runs on the western portion of the wetland 6. Residential communities exist west of Donald Cousens Parkway
Rouge National Urban Park	<ol style="list-style-type: none"> 1. Agriculture 2. Provincially significant Wetland 3. Woodland 4. Watercourse 5. Valleyland 	The RNUP is approximately 210m east, across Reesor Road.

6.5 Site E – East of Reesor Road - North and South of Highway 7

Feature Type	Community Description	Notable Observations
Wetland Complex	Meadow Marsh	The portion of the wetland complex within the secondary plan area appears to be a meadow marsh

		based on aerial photography and ELC data. The site was not accessible for a roadside site visit.
Headwater Drainage Feature	Headwaters of tributary flowing through agricultural field	The headwater drainage feature in Site E makes up the headwaters of the watercourse found south of Highway 7 that flows through the wetland complex before draining to Little Rouge Creek. The surrounding landscape is agricultural.
Watercourse	Tributary draining to Little Rouge Creek	A defined watercourse begins south of Highway 7, flowing through the wetland complex and agricultural field, crossing Highway 407 through a culvert before meeting up with Tributary C and draining to Little Rouge Creek.
Valleyland	Valleyland of tributary draining to Little Rouge Creek. Identified by floodplain limits.	The Valleyland of the tributary draining to Little Rouge Creek. Features in the valley include wetland and agriculture field as well as woodland to the east. The limits are defined by the floodplain.
Woodland	Fresh Moist Mixed Forest	This woodland was observed in aerial imagery and is ecologically connected on the eastern side of the wetland complex and valleyland system of Site E. It is outside of the Cornell Secondary Plan boundary.
Anthropogenic	Residential	A single-family dwelling exists at 8539 Reesor Road.

6.6 Site F – East of Reesor Road – North of Highway 407

Feature Type	Community Description	Notable Observations
Wetland	Marsh	Identified in MNRF wetland mapping. Aerial imagery indicates reed canary grass and willow shrubs. A floodplain associated with Tributary C surrounds the wetland.

7.0 Recommendations and Next Steps

7.1 Identification of Natural Heritage Features within Cornell Centre

The Markham Official Plan identifies all natural heritage features based on the best available information. Mapping of natural heritage features are generally updated through Official Plan Reviews and Secondary Plan studies as more detailed information becomes available. It is expected that further refinements to natural feature boundaries will occur through the development approval process as environmental impact studies are reviewed by the City.

Based on the results of this study, it is recommended that the following natural heritage features be identified and managed within the Cornell Centre Secondary Plan based on the classifications identified below in Table 2 and mapping criteria in Appendix C.

Table 2. Recommended Greenway System Classification of Natural Heritage Features within the Cornell Centre Secondary Plan Study Area.

Site #	Natural Feature Description	Greenway System Classification
1	Significant Woodlands and Wetlands	Greenway <ul style="list-style-type: none"> - Natural Heritage Network <ul style="list-style-type: none"> o Woodlands o Wetlands
2	Woodlands: approved for removal	Not in Greenway System
3	Significant Woodlands	Greenway <ul style="list-style-type: none"> - Natural Heritage Network <ul style="list-style-type: none"> o Woodlands
4	Naturalized stormwater management facility and conveyance channel	Greenway <ul style="list-style-type: none"> - Natural Heritage Network <ul style="list-style-type: none"> o Valleylands - Other Greenway System Lands including naturalized stormwater management facilities
A	Woodland	Greenway <ul style="list-style-type: none"> - Natural Heritage Network <ul style="list-style-type: none"> o Woodlands
B	Woodland and Wetland	Greenway <ul style="list-style-type: none"> - Natural Heritage Network <ul style="list-style-type: none"> o Woodlands o Wetlands
C	Woodland	Greenway <ul style="list-style-type: none"> - Natural Heritage Network <ul style="list-style-type: none"> o Woodlands
D	Wetland	Greenway <ul style="list-style-type: none"> - Natural Heritage Network <ul style="list-style-type: none"> o Wetlands
E	Wetland and Valleyland	Greenway <ul style="list-style-type: none"> - Natural Heritage Network <ul style="list-style-type: none"> o Valleylands

		○ Wetlands
F	Wetland	Greenway - Natural Heritage Network ○ Wetlands

* Refer to Figures 15 and 16 for maps of natural features

7.2 Site-specific Secondary Plan Policy Considerations for Natural Heritage Features

Based on the identified natural heritage features in section 7.1, this section provides a discussion on the recommended Secondary Plan policy considerations.

7.2.1 Considerations for Sites 1, 3 and 4

Sites #1, 3 and 4 are owned by the City of Markham. The City will be responsible for their ongoing protection and maintenance. No site-specific policies are recommended.

7.2.2 Considerations for Site 2

Site #2 is a woodland approved for removal and compensation. This woodland will not be mapped as part of the Greenway System. The details of the compensation will be finalized through the draft plan of subdivision process. No site-specific policies are recommended.

7.2.3 Considerations for Site A – 7485 Highway 7 East

Site A is a small, isolated woodland feature that is approximately 0.46 hectares in size. The canopy is largely comprised of Black Locust trees and the understory has minimal regeneration. The woodland appears to be altered by historical anthropogenic activities. While it is separated by Reesor Road, Site A is somewhat connected through agricultural fields to significant natural corridors in the Rouge National Urban Park and the Little Rouge Creek. The woodland does not appear to meet the size threshold for significance as it is less than 0.5 hectares.

The woodland is recommended to be mapped as part of the Greenway System with site-specific policies to require further study. It is recommended that an Environmental Impact Study be prepared at the time of a development application. The Environmental Impact Study will characterize natural heritage features and ecological function, evaluate feature significance and complete an impact assessment.

It is the intent of the City to protect all woodlands. However, if this woodland is found not to be significant, then the City may consider removal in limited circumstances where section 3.1.2.17 of the Official Plan is met.

7.2.4 Considerations for Site B – 8724 Reesor Road

Site B contains approximately 0.7 hectares of woodland and wetland features. It consists of a lowland deciduous forest and a mixed swamp community. The woodland appears to be larger than 0.5 hectares and abuts a wetland feature, and therefore is considered a candidate significant woodland.

The woodland and wetland features are recommended to be mapped as part of the Greenway System with site-specific policies to require further study. It is recommended that an Environmental Impact Study be prepared at the time of a development application. The Environmental Impact Study will characterize natural heritage features and ecological function, evaluate feature significance and complete an impact assessment.

It is the intent of the City to protect all wetlands and woodlands as follows:

- If the woodland is confirmed to be a significant woodland, then the woodland and wetland features are recommended to be protected in-situ.
- If the woodland is confirmed to not be a significant woodland, then the City may consider removal of the woodland and wetland in limited circumstances where sections 3.1.2.17 and 3.1.2.20 of the Official Plan are met.
 - The wetland feature is regulated by the TRCA and the management of the wetland shall also be subject to TRCA regulatory and policy interests.

7.2.5 Considerations for Site C – 6881-6921 Highway 7 East

Site C is a small, isolated woodland feature that is approximately 0.56 hectares in size. The canopy is dominated by black walnut. The woodland does not appear to meet the threshold for significance based on its size and adjacent natural features.

The woodland feature is recommended to be mapped as part of the Greenway System with site-specific policies to require further study. The portion of the woodland on 6921 Highway 7 East is already zoned for development and would not be mapped as part of the Greenway System. It is recommended that an Environmental Impact Study be prepared at the time of a development application. The Environmental Impact Study will characterize natural heritage features and ecological function, evaluate feature significance and complete an impact assessment.

It is the intent of the City to protect all woodlands. However, if this woodland is found not to be significant, then the City may consider removal in limited circumstances where section 3.1.2.17 of the Official Plan is met.

7.2.6 Considerations for Site D – 8724 Reesor Road – Southwest Corner of Property

Site D is a small, isolated wetland that is approximately 0.15 hectares in size. Based on its size and distance to other wetlands, this wetland feature does not appear to meet the threshold for significance. Confirmation of significance will occur through the development approvals process and in accordance with provincial guidelines.

The wetland feature is recommended to be mapped as part of the Greenway System with site-specific policies to require further study. It is recommended that an Environmental Impact Study be prepared at the time of a development application. The Environmental Impact Study will characterize natural heritage features and ecological function, evaluate feature significance and complete an impact assessment.

It is the intent of the City to protect all wetlands. However, if this wetland is found not to be significant, then the City may consider removal in limited circumstances where section 3.1.2.20 of the Official Plan is met. The wetland feature is regulated by the TRCA and the management of the wetland shall also be subject to TRCA regulatory and policy interests.

7.2.7 Considerations for Site E – East of Reesor Road, North and South of Highway 7

Site E is a riparian wetland that is approximately 3.92 hectares in size. The wetlands are primarily located within the Greenbelt Plan area with a small portion of the wetlands extending into the Cornell Centre Secondary Plan area. As such, the wetlands are considered a key natural heritage feature of the Greenbelt Plan and City of Markham Official Plan.

The wetland feature is recommended to be mapped as part of the Greenway System with site-specific policies to require further study. It is recommended that an Environmental Impact Study be prepared at the time of a development application. The Environmental Impact Study will

characterize natural heritage features and ecological function, evaluate feature significance and complete an impact assessment.

It is the intent of the City to protect all wetlands. In accordance with section 3.4.14 of the York Region Official Plan, the entire wetland feature shall be protected with a 30-metre vegetation protection zone.

7.2.8 Considerations for Site F – East of Reesor Road, North of Highway 407

Site F is a small, isolated wetland that is approximately 0.11 hectares in size. Based on its size and distance to other wetlands, this wetland feature does not appear to meet the threshold for significance. Confirmation of significance will occur through the development approvals process and in accordance with provincial guidelines. Site F is located within the recommended Ecological Linkage.

The wetland feature is recommended to be mapped as part of the Greenway System with site-specific policies to require further study. It is recommended that an Environmental Impact Study be prepared at the time of a development application. The Environmental Impact Study will characterize natural heritage features and ecological function, evaluate feature significance and complete an impact assessment.

As further described in Section 7.3, the exact width and location of an Ecological Linkage along the north side of the Highway 407 right-of-way will need to be confirmed through subsequent environmental studies. The retention of existing vegetation communities within the confirmed Ecological Linkage shall be encouraged.

It is the intent of the City to protect all wetlands. However, if this wetland is found not to be significant, then the City may consider removal in limited circumstances where section 3.1.2.20 of the Official Plan is met. The wetland feature is regulated by the TRCA and the management of the wetland shall also be subject to TRCA regulatory and policy interests.

7.3 Secondary Plan Policy Considerations for Ecological Linkage

Policies and mapping should be included in the Cornell Centre Secondary Plan to identify and require the establishment of an ecological linkage along the north side of Highway 407 to connect the Greenway System features in Cornell Centre to the Little Rouge Creek and Rouge National Urban Park in accordance with recommendations in the Cornell Centre South Master Environmental Servicing Plan. The Cornell Centre Secondary Plan should identify the approximate alignment of the linkage in the Schedules. Figure 15 provides the recommended location of the Ecological Linkage Enhancement Area for the linkage. It is recommended that the following considerations be addressed in the Secondary Plan policies:

- The width of the ecological linkage shall generally be 50 metres from the right-of-way of Highway 407. Minor reductions to the width of the ecological linkage may be considered subject to technical justification and mitigation in an Environmental Impact Study
- The protection or establishment of native vegetation and trees shall be promoted within the ecological linkage
- Existing natural heritage features, natural hazards and associated setbacks and buffers shall be incorporated into the landscape design of the ecological linkage
- Potentially compatible uses such as multi-use trails and stormwater management infrastructure may be permitted subject to an environmental impact study that demonstrates that the connectivity function is not negatively impacted

- At the time of a major roadway expansion or rehabilitation, a review of any necessary wildlife crossings such as signage or warnings should be completed.

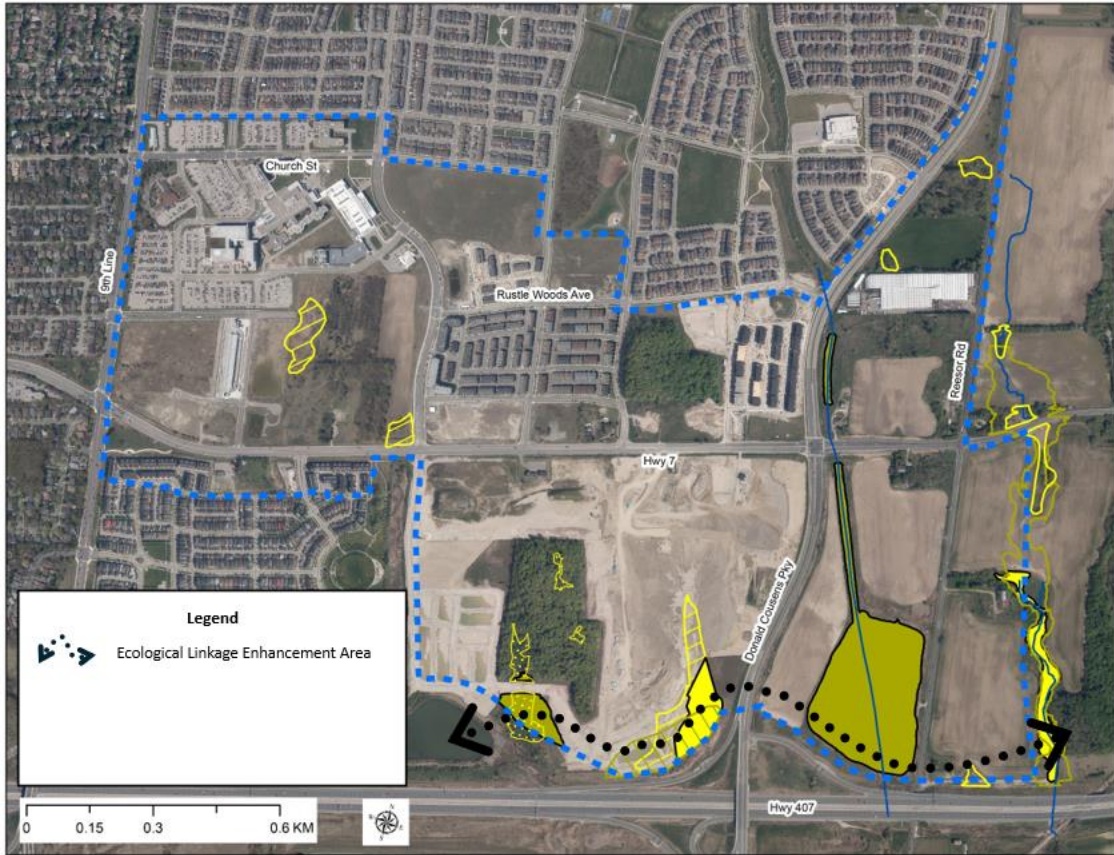


Figure 15. Ecological Linkage Area recommended to provide ecological linkage from Cornell Centre to the Rouge National Urban Park

7.4 Mapping of Natural Heritage Features within Cornell Centre

This study has identified existing Natural Heritage Network features within the Cornell Centre Secondary Plan Study Area and made recommendations for the addition of eight Natural Heritage Network features to be mapped in the Secondary Plan. These features are outlined below in Figures 16 and 17 and this report will be used to inform the Environmental System section of the Secondary Plan.



Figure 16. Woodlands in the Cornell Centre Secondary Plan Study Area to remain, to be added and to be removed

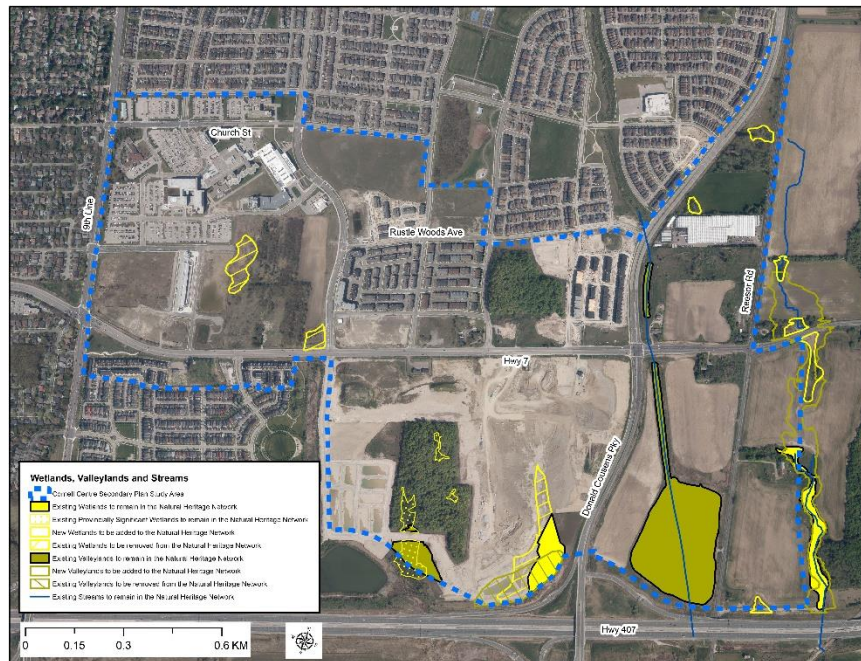




Figure 17. Wetlands, Valleylands and Streams in the Cornell Centre Secondary Plan Study Area to remain, to be added and to be removed

8.0 References

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Appendix A – Site Photos

Site A

Leaf-off	Leaf-on
 A photograph taken from inside a vehicle, showing a landscape with bare trees and dry, yellowish-brown grass under a cloudy sky. The view is framed by the car's interior.	 A photograph of the same site in summer, showing lush green trees and tall green grass. A large log is visible in the foreground.

Site B

Leaf-off



Leaf-on



Site C

East Side	West Side	Stormwater Management Pond
		

Site D

Treed Wetland SW Corner of 8724 Reesor Road – Facing South



Treed Wetland SW Corner of 8724 Reesor Road – Facing North



Site E

Wetland North Side of Highway 7 and Upstream Reach of Watercourse Feature	Wetland North Side of Highway 7 East of Reesor Road	Wetland and Watercourse Continuation South Side of Highway 7 east of Reesor Road
		

Site F

Roadside view sourced from GoogleEarth.



Appendix B – External Mapping Resources

Ministry of Natural Resources Wetland Mapping



Toronto and Region Conservation Authority Regulation Mapping 2023

TRCA Regulation 2023

[Open in Map Viewer Classic](#)

Legend

TRCA Regulation 2023

Regulation Criteria 2023 (small scale)

Wetlands - Area of Interference

Wetlands

- MNRF Provincially Significant Wetlands
- MNRF Locally Significant Wetlands
- TRCA ELC and Unevaluated Wetlands

Shoreline Hazard



Appendix C – Criteria for Mapping Greenway System Natural Heritage Network Features

Natural Heritage Network Component	Definition	Criteria for Identification/Significance*	Criteria for Mapping in Cornell Centre Secondary Plan Update
Wetlands	<p>City of Markham Official Plan</p> <p>Wetlands: means lands that are seasonally or permanently covered by shallow water or have the water table close to or at the surface. In either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic plants or water tolerant plants. The four major types of <i>wetlands</i> are swamps, marshes, bogs and fens. Periodically soaked or wetlands being used for agricultural purposes, which no longer exhibit wetland characteristics, are not considered to be <i>wetlands</i> for the purposes of this definition.</p> <p>Provincially significant wetlands: means an area identified as provincially significant by the Ministry of Natural Resources and Forestry using evaluation procedures established by the</p>	<p>All wetlands that have been evaluated using standard provincial procedures and wetlands that have yet to be evaluated. Both evaluated and unevaluated wetlands identified in Ministry of Natural Resources and Forestry and Toronto and Region Conservation Authority datasets are included in the City of Markham Official Plan.</p> <p>The wetlands shown in the Official Plan on Map 6 – Hydrologic Features are mapped using the best available information based on existing data sources from the City of Markham, Region of York, Ministry of Natural Resources and Forestry and Toronto and Region Conservation Authority and are subject to refinement through an environmental impact study or equivalent study. Data sources include TRCA Regulated Areas mapping (wetlands layer) and MNR Provincial Land Information Ontario (LIO) wetland datasets. Not all wetlands in the City are shown on Map 6 – Hydrologic Features.</p> <p>Criteria for identifying significant wetlands are established by the Province. The Ontario Wetland</p>	Wetlands identified in TRCA Regulated Areas mapping (wetlands layer) and MNR Provincial Land Information Ontario (LIO) wetland datasets are recommended to be mapped in the Cornell Centre Secondary Plan.

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	Province, as amended from time to time.	<p>Evaluation System, Southern Manual, 4th Edition, (MNR, 2022) is the official provincial document utilized to evaluate wetlands in Southern Ontario to confirm their status and significance.</p> <p>Currently, there is no minimum size threshold for mapping wetlands in the Markham Official Plan.</p>	
fHabitat of threatened and endangered species	<p>Provincial Policy Statement, 2020</p> <p>Habitat of endangered species and threatened species: means habitat within the meaning of Section 2 of the Endangered Species Act, 2007.</p> <p>City of Markham Official Plan</p> <p>Habitat of endangered and threatened species means:</p> <p>a) with respect to a species listed on the Species at Risk in Ontario List as endangered or threatened species for which a regulation made under Clause 55(1)(a) of the</p>	<p>Criteria for the identification of the habitat of endangered species and threatened species is determined in accordance with the habitat regulations of the <i>Endangered Species Act</i> (2007).</p> <p>Habitat of endangered and threatened species is not mapped in the City of Markham Official Plan or broader level Secondary Plans.</p> <p>When required, habitat mapping is completed at the time of a development application through an environmental impact study in accordance with recommended field inventory protocols when preliminary screening has indicated that an endangered or threatened species or their habitat exist or are likely to exist in a location and would be potentially impacted by the proposal or activity.</p>	<p>If required, habitat mapping will be completed at the time of a development application through an environmental impact study in accordance with recommended field inventory protocols when preliminary screening indicates that endangered or threatened species or their habitat exist or are likely to exist in a location and would be potentially impacted by the proposal or activity.</p>

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	<p>Endangered Species Act, 2007, is in force, the area prescribed by the regulation as the habitat of the species; or</p> <p>b) with respect to any other species listed on the Species at Risk in Ontario List as an endangered or threatened species, an area on which the species depends, directly or indirectly, to carry on its life processes, including life processes such as reproduction, rearing, hibernation, migration or feeding, as approved by the Ministry of Natural Resources and Forestry; and</p> <p>places in the areas described in a) or b), whichever is applicable, that are used by members of the species as dens, nests, hibernacula or other residences.</p>		
<p>Significant portions of the habitat of:</p> <p>i. special concern species in the</p>	<p>N/A - does not apply to Cornell Centre.</p>	<p>N/A</p>	<p>N/A</p>

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ii. Oak Ridges Moraine Conservation Area and Greenbelt Plan Area; and provincially rare species in the Oak Ridges Moraine Conservation Plan Area			
Fish habitat	N/A – Fisheries Act authorizations were previously obtained for development within and adjacent to watercourses in the Cornell Secondary Plan Area.	N/A	N/A
Life Science Areas of Natural and Scientific Interest	N/A - does not apply to Cornell Centre.	N/A	N/A
Valleylands	City of Markham Official Plan Valleylands means a natural area occurring in a valley or other landform depression that has water flowing through or standing for some period of the year. For the purposes of this Plan they include well or	All valley and stream corridors having well or ill-defined valley morphology (e.g., landform feature with flowing or standing water, valley slopes, floodplains, etc.) are mapped to the greater limit of 1) the interpreted top of bank or, where detailed mapping is available, defined long term stable top of bank, 2) the outermost limit of the floodplain, or 3) other overlapping	N/A The watercourses and valleylands associated with Tributaries A, B and C originally draining Cornell Centre have either been removed through prior approvals or reconfigured and channelized as components

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	<p>ill-defined depressional features associated with a river or stream, whether or not they contain a watercourse in which a flow of water regularly or continuously occurs.</p>	<p>natural heritage feature, where field data is available.</p> <p>Significant valleylands include valleylands which are ecologically important in terms of features, functions, representation or amount, and contribute to the quality and diversity of an identifiable geographic area or natural heritage system as determined using guidelines/procedures developed by the Province.</p> <p>Criteria recommended in the Ontario Ministry of Natural Resources' Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second Edition may be utilized to determine the significance of valley landform features such as the presence of surface and groundwater features and functions, rare communities or species, endangered or threatened species, and degree of naturalness of the valley.</p>	<p>of the stormwater system serving the Secondary Plan.</p> <p>The watercourses and associated valleys in Cornell Centre are identified on Maps 3, 4, 5 and 6 in the 2014 City of Markham Official Plan as "Greenway", "Natural Heritage Network", "Permanent and Intermittent Streams", "Valleylands" and "Other Greenway System Lands including certain naturalized stormwater management facilities".</p> <p>It is proposed that the existing mapped valleyland and watercourse designations be retained in the Cornell Secondary Plan with revisions to reflect their approved limits.</p>
Woodlands	<p>City of Markham Official Plan</p> <p>Woodland means an area of land of at least 0.2 hectares and includes at least:</p>	<p>The woodlands identified in the Official Plan on Map 5 – Natural Heritage Features and Landforms are mapped using the best available information based on existing data sources from the City of Markham, York Region and</p>	<p>All woodlands greater than 0.2 hectares in size and meeting either of the following criteria are recommended to be mapped in the Cornell Centre Secondary Plan:</p>

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	<p>a) 1,000 <i>trees</i> of any size, per hectare; b) 750 <i>trees</i> measuring over 5 centimetres diameter at breast height, per hectare; c) 500 <i>trees</i> measuring over 12 centimetres diameter at breast height, per hectare; or, d) 250 <i>trees</i> measuring over 20 centimetres diameter at breast height, per hectare,</p> <p>but does not include a cultivated fruit or nut orchard, a plantation established and used for the purpose of producing Christmas trees or nursery stock. For the purposes of defining a <i>woodland</i>, treed areas separated by more than 20 metres will be considered a separate <i>woodland</i>. When determining a <i>woodland</i>, continuous agricultural hedgerows and <i>woodland</i> fingers or narrow <i>woodland</i> patches will be considered part of the <i>woodland</i> if they have a</p>	<p>Toronto and Region Conservation Authority and are subject to confirmation as <i>significant woodlands</i> or <i>woodlands</i> in the field.</p> <p>Significant woodlands are defined in the York Region Official Plan and mean woodlands that meet any one of the following criteria:</p> <p>a) is 0.5 hectares or larger and: i. directly supports globally or provincially rare plants, animals or communities as assigned by the Natural Heritage Information Centre; or ii. directly supports threatened or endangered species; iii. is within 30 metres of a <i>provincially significant wetland</i> or <i>wetland</i>, <i>waterbody</i>, <i>permanent stream</i> or <i>intermittent stream</i>;</p> <p>b) is 2 hectares or larger and: i. is located outside the urban area and is within 100 metres of a Life Science Area of Natural and Scientific Interest, a <i>wetland</i>, <i>significant</i></p>	<p>a) woodlands currently designated for protection in the City of Markham Official Plan and Cornell Secondary Plan; and b) woodlands not currently identified in the City of Markham Official Plan or Cornell Secondary Plan that require further evaluation through an environmental impact study.</p> <p>Woodlands will be identified utilizing existing woodland mapping datasets or delineated through air photo interpretation and confirmed with site visits.</p>

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	<p>minimum average width of at least 40 metres and narrower sections have a length to width ratio of 3:1 or less. Undeveloped clearings with <i>woodland</i> patches are generally included within a <i>woodland</i> if the total area of each clearing is no greater than 0.2 hectares. In areas covered by Provincial Plan policies, <i>woodland</i> includes treed areas as further described by the Ministry of Natural Resources. For the purposes of determining densities for <i>woodlands</i> outside of the Provincial Plan areas, the following species are excluded: staghorn sumac, European buckthorn, common lilac.</p>	<p><i>valleyland, or fish habitat, or</i></p> <ul style="list-style-type: none"> ii. is located within the Regional Greenlands System; c) is 4 hectares or larger; d) on the Oak Ridges Moraine the woodland will be evaluated for significance based on the requirements of the Oak Ridges Moraine Conservation Plan and associated technical papers; e) on land in the Greenbelt Natural Heritage System, the woodland will be evaluated for significance based on the requirements of the Greenbelt Plan and associated technical papers. <p>Policy 3.1.2.17 That development, <i>redevelopment</i> and <i>site alteration</i> may be considered in <i>woodlands</i>, that are not <i>significant woodlands</i>, where all of the requirements below have been addressed through an environmental impact study as described in Section 3.5 to the satisfaction of the City in consultation with agencies as appropriate:</p> <ul style="list-style-type: none"> a) <i>habitat of endangered or threatened species</i> has been 	

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		<p>addressed in accordance with provincial and federal requirements;</p> <p>b) they have minimal function and are not functionally connected to other <i>natural heritage and hydrologic features</i> in the Greenway System;</p> <p>c) they are difficult to restore and/or manage in an urban setting; and</p> <p>d) they have been in existence for generally less than 25 years.</p>	
Wildlife habitat	<p>Provincial Policy Statement, 2020</p> <p>Wildlife habitat means areas where plants, animals and other organisms live, and find adequate amounts of food, water, shelter and space needed to sustain their populations. Specific wildlife habitats of concern may include areas where species concentrate at a vulnerable point in their annual or life cycle; and areas which are important to migratory or nonmigratory species.</p>	<p>City of Markham Official Plan</p> <p>Wildlife habitat is not comprehensively mapped in the City of Markham Official Plan or broader level Secondary Plans.</p> <p>Significant wildlife habitat is identified in accordance with the Ministry of Natural Resources and Forestry's Significant Wildlife Habitat Technical Guide and associated Criteria Schedules for Ecoregions 6E and 7E.</p> <p>If required, wildlife habitat mapping is completed at the time of a development application through an environmental impact study in accordance with recommended field inventory protocols when preliminary</p>	<p>If required, wildlife habitat mapping will be completed at the time of a development application through an environmental impact study in accordance with recommended field inventory protocols when preliminary screening indicates that wildlife species or their habitat exist or are likely to exist in a location and be potentially impacted by the proposal or activity.</p>

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		<p>screening has indicated that wildlife species or their habitat exist or are likely to exist in a location and be potentially impacted by the proposal or activity.</p> <p>Significant wildlife habitat means areas where plants, animals and other organisms live, and find adequate amounts of food, water, shelter and space needed to sustain their populations. Specific wildlife habitats of concern may include areas where species concentrate at a vulnerable point in their annual or life cycle; and areas that are important to migratory or non-migratory species. Significant wildlife habitat includes those areas that are ecologically important in terms of features, functions, representation or amount, and contribute to the quality and diversity of an identifiable geographic area or natural heritage system.</p>	
Sand barrens, savannahs and tallgrass prairies	N/A - does not apply to Cornell Centre.	N/A	N/A
Permanent streams and intermittent streams	City of Markham Official Plan	Permanent and intermittent streams are mapped in the City of Markham Official Plan using the best available information based on data sources	Available permanent and intermittent stream datasets will be used and updated, as needed, to reflect approved

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	<p>Permanent Stream means a stream which continually flows in an average year.</p> <p>Intermittent stream means a stream-related watercourse that contains water or is dry at times of the year that are more or less predictable, generally flowing during wet seasons of the year but not the entire year, and where the water table is above the stream bottom during parts of the year.</p>	<p>from the Ministry of Natural Resources and Forestry, Toronto and Region Conservation Authority (TRCA) and City of Markham.</p> <p>Data sources include the Ontario Hydro Network (OHN) – Watercourse dataset available from Land Information Ontario, the City of Markham Small Streams Study and TRCA regulated areas mapping data.</p> <p>Field studies conducted to confirm the presence and status of permanent streams, intermittent streams and headwater drainage features are required to follow relevant provincial and conservation authority protocols and guidelines including the TRCA’s Evaluation, Classification and Management of Headwater Drainage Features Guidelines and MNRF’s Ontario Stream Assessment Protocol.</p>	<p>limits for the Cornell Centre Secondary Plan.</p> <p>It is recommended that additional investigation of headwater drainage features be undertaken in locations that do not have site specific planning approvals at the time of a development application to confirm if headwater drainage features are present and determine their recommended protection as may be required in accordance with the City of Markham Official Plan and policy direction in the Secondary Plan.</p>
Seepage areas and springs	<p>City of Markham Official Plan</p> <p>Seepage areas and springs are sites of emergence of groundwater where the water table is present at the ground surface. Seepage areas are areas where groundwater</p>	<p>City of Markham Official Plan</p> <p>Seepage areas and springs are not comprehensively mapped in the City of Markham Official Plan or broader level Secondary Plans.</p> <p>Seepage areas and springs are identified in accordance with</p>	<p>The characterization of groundwater conditions in Cornell Centre, including seepage areas and springs, are described in the Cornell Centre Master Environmental Servicing Plans. Available information will be referenced to identify areas of potential or</p>

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	<p>emerges from the ground over a diffuse area. Springs are points of natural, concentrated discharge of groundwater. For the purpose of this definition, seepage areas and springs include altered features but not features created and maintained by artificial means (City of Markham 2014 Official Plan).</p> <p>Seepage areas and springs means sites of emergence of groundwater where the water table is present at the ground surface (Greenbelt Plan, 2017).</p>	<p>recommended mapping and field inventory protocols and may include use of topographic surveys, visual field investigations, assessment of vegetation, observation of surface water and groundwater conditions and modelling to identify sites of emergence of groundwater where the water table is present at the ground surface.</p> <p>Identification of seepage areas and springs may be undertaken as part of subwatershed scale studies, master environmental servicing plans, or site specific environmental impact studies.</p>	<p>known emergence of groundwater.</p> <p>It is recommended that additional investigation of the potential for seepage areas and springs in locations that do not have site specific planning approvals be undertaken at the time of a development application to confirm if seepage areas and springs are present and determine their recommended protection as may be required in accordance with the City of Markham Official Plan and policy direction in the Secondary Plan.</p>

* Criteria for mapping Natural Heritage Network components outside the Greenbelt Plan and Oak Ridges Moraine Conservation Plan (ORMCP) and in locations within the Greenbelt Plan and ORMCP where municipal criteria apply. Within the Greenbelt Plan and ORMCP, reference should be made to the relevant provincial plan policies, technical papers and criteria issued by the Province for those Plans.