

Environmental Impact Study for Magnolia Phase 1 Condo Block: Site Plan Control Application

2026-01-29

Final Report

Submitted To:

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List of Acronyms and Abbreviations

BAA – Black Ash Assessment
BHA – Butternut Health Assessment
BHE – Butternut Health Expert Report
cm – centimeters
CRZ – critical root zone
DFO – Department of Fisheries and Oceans (Fisheries and Oceans Canada)
ECCC – Environment and Climate Change Canada
e.g. – <i>exempli gratia</i>
EIS – Environmental Impact Study
ELC – Ecological Land Classification
ESC – erosion and sediment control
ESA – <i>Endangered Species Act</i>
EWPW – Eastern Whip-poor-will
FWCA – <i>Fish and Wildlife Conservation Act</i>
ha – hectare
HDFA – Headwater Drainage Features Assessment
HDF – Headwater Drainage Feature
i.e. – <i>id est</i>
KAL – Kilgour & Associates Ltd.
km – kilometer



m – meter

MBCA – *Migratory Birds Convention Act*

MECP – Ministry of Environment, Conservation and Parks

MNRF – Ministry of Natural Resources and Forestry

NHIC – Natural Heritage Information Centre

PPS – Provincial Policy Statement

SAR – species at risk

SARA – *Species at Risk Act*

SWH – Significant Wildlife Habitat



1.0 INTRODUCTION

This report is an Environmental Impact Study (EIS) prepared by Kilgour & Associates Ltd. (KAL; Appendix A) on behalf of Caivan (Stittsville South) Inc. and Caivan (Stittsville West) Ltd. (“the Proponent”) in support of a Site Plan Control application for a small portion of the Proponent’s “Magnolia” community currently under development in the south end of Stittsville. The parcel addressed by this report (“the Site”; Figure 1) includes most of 6141 Flewellyn Road and a small area of 6115 Flewellyn Road, Stittsville, Ontario.

This report builds on the previously approved Existing Conditions Report (January 19, 2024), Updated EIS (April 25, 2025) supporting the Zoning By-law and Official Plan Amendment applications, and the EIS dated November 7, 2025, supporting the Draft Plan of Subdivision application for the broader Magnolia development area.

This report identifies natural heritage conditions on and adjacent to the Site, outlines the policy context associated with development plans, assesses the potential impacts of the proposed development on existing features, and recommends mitigation measures to minimize or eliminate identified impacts. The content of this EIS was completed per both the 5993 and 6115 Flewellyn Road and 6070 Fernbank Road Environmental Impact Study Terms of Reference (KAL, 2022), which were developed in consultation with the City staff in 2021/2022 and approved in January 2024, and the Environmental Impact Study Guidelines (City of Ottawa, 2023a).

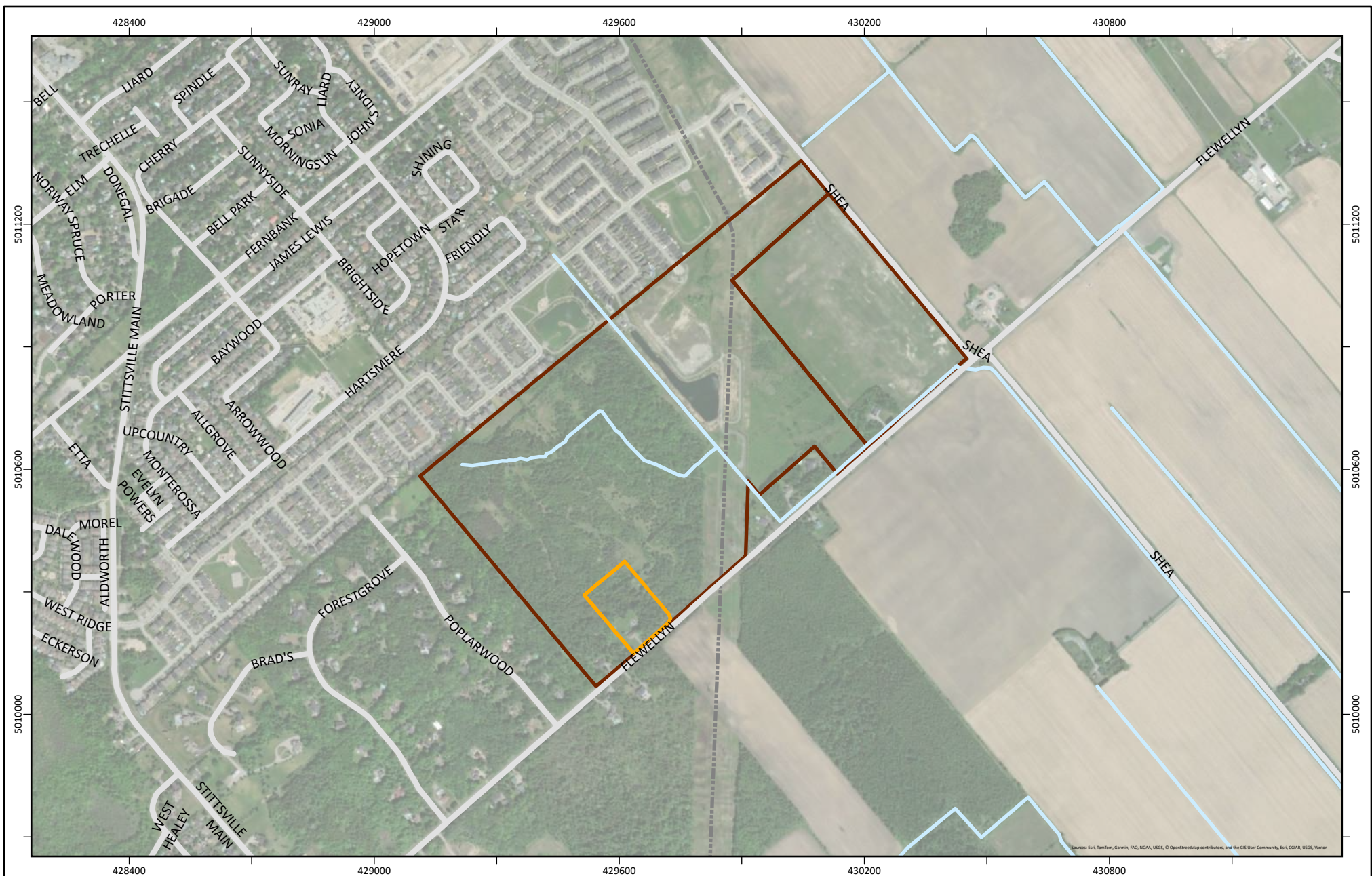
2.0 ENVIRONMENTAL POLICY CONTEXT

2.1 The Provincial Planning Statement, 2024

The Provincial *Policy* Statement, previously issued under Section 3 of the Planning Act (Government of Ontario, 1990b, 2020), was updated to become the Provincial Planning Statement (PPS) on August 20, 2024. The PPS came into effect on October 20, 2024 (MMAH, 2024). Under the PPS, natural features are afforded protection under Section 4. The included protections address the maintenance, restoration, and improved function of diversity, connectivity, ecological function, and biodiversity of natural heritage systems. These protections restrict development and site alteration in significant natural areas (e.g., woodlands, wetlands, wildlife habitat) except where it can be demonstrated that there will be no negative effects on the features and ecological functions of those natural areas. Technical guidance for implementing the natural heritage policies of the PPS is found within the second edition of the Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005 (NHRM; MNR, 2010). This manual recommends the approach and technical criteria for protecting natural heritage features and areas in Ontario.

The current PPS did not meaningfully change earlier versions of the PPS (i.e. the Provincial *Policy* Statement) with respect to Natural Heritage considerations from a policy perspective. Natural heritage and/or project reviews drawn from earlier EIS work supporting the broader site development and included in this report are thus still directly applicable.



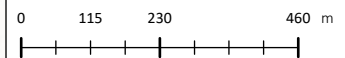


Legend

- Site Boundary
- Study Area
- Watercourse
- Utility Line



Figure 1. Site Context



Spatial Reference:
PCS: WGS 1984 UTM Zone 18N
Map Units: Meter

Project: CAIV 1300
Map File Name: CAIV 1300 ArcGIS
Date Exported: 1/28/2026 4:26 PM



2.2 The City of Ottawa Official Plan (2021)

The City of Ottawa Official Plan (OP; City of Ottawa, 2021) was updated and approved by the Ministry of Municipal Affairs and Housing as part of a comprehensive review. Pursuant to subsections 17(36.5) and (38.1) of the Planning Act, the decision of the Minister of Municipal Affairs and Housing regarding an official plan adopted in accordance with section 26 of the Planning Act is final and not subject to appeal. Accordingly, the new City of Ottawa Official Plan, as approved with modifications by the Minister, came into effect on November 4, 2022. The OP provides a vision for the future growth of the city and a policy framework to guide the city's physical development. With respect to natural heritage considerations addressed under an EIS, the OP provides a framework through which species at risk and other wildlife (and their habitats), forested areas, wetlands and surface water features must be reviewed. Key portions of the OP to be considered include:

The Environmental Impact Study Guidelines (City of Ottawa, 2023a) - which outlines study requirements of the EIS;

OP Schedule C11 – which identifies Natural Heritage Features and Natural Heritage System Core Areas and Linkages as an overlay;

OP Section 4.8.1 - under which the City recognizes the following natural heritage features, as defined in Ottawa's Environmental Impact Study Guidelines:

- a) Significant wetlands;
- b) Habitat for endangered and threatened species;
- c) Significant woodlands;
- d) Significant valleylands;
- e) Significant wildlife habitat;
- f) Areas of Natural and Scientific Interest;
- g) Urban Natural Features;
- h) Natural Environment Areas;
- i) Natural linkage features and corridors;
- j) Groundwater features;
- k) Surface water features, including fish habitat; and
- l) Landform features.

Significant Woodlands: Guidelines for Identification, Evaluation, and Impact Assessment (City of Ottawa, 2022c) - which identifies wooded areas within the urban boundary that are > 0.8 hectares (ha) and have been continuously forested for > 60 years as "Significant Woodland";

OP Section 4.9.3 – which provides policies for development and site alteration near surface water features through the provision of minimum setbacks and directives to retain wetland areas and the requirement to complete headwater drainage feature assessments (HDFA) to provide management recommendations for headwater features; and



The Protocol for Wildlife Protection during Construction (City of Ottawa, 2022b) – which identifies best management practices to be employed through construction to reduce the direct impacts of development on wildlife.

The Upper Poole Creek Rehabilitation Project (Mississippi Valley Conservation Authority, 2019) addresses the nearby Poole Creek Corridor but does not include the Site. The Jock River Reach 2 Subwatershed Study is currently listed as incomplete (City of Ottawa, 2023b) but extends to include the Site. The Jock River Reach 2 Subwatershed Study Existing Conditions Report (Marshall Macklin Monaghan Limited, 2009) identifies measures (e.g. watercourse setbacks) that are either consistent with or directly reiterate measures as provided within the City's Official Plan in place at that time. This EIS thus seeks accordance with the OP.

2.3 Conservation Authorities Act, 1990

Conservation Authorities were created to address erosion, flooding, and drought concerns regionally by managing at the watershed level. Conservation Authorities were given the ability to regulate under Section 28 of the Conservation Authorities Act (CA Act; Government of Ontario, 1990a). The Act obliges Conservation Authorities to implement Ontario Regulation (O.Reg.) 41/24, *Prohibited Activities, Exemptions and Permits* (formerly O.Reg. 174/06, *Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*) under Section 28.1 of the Conservation Authorities Act for relevant works. This project falls under the jurisdiction of the Rideau Valley Conservation Authority (RVCA).

Bill 23, which was passed on November 28th, 2022, and received Royal Assent the same day, introduced a series of legislative and proposed regulatory changes affecting conservation authorities. It is now in effect. Among the changes under Bill 23, the definition of “watercourse” was updated from an identifiable depression to a defined channel having a bed, and banks or sides.

2.4 Species at Risk Act, 2002

The federal Species at Risk Act (SARA; Government of Canada, 2002) is administered by Environment and Climate Change Canada (ECCC) and provides direction to protect and ensure the survival of wildlife species in Canada. The purpose of the SARA is to prevent populations of wildlife from becoming Extirpated, Endangered, or Threatened, provide recovery plans for Endangered or Threatened species, and to manage other species to prevent them from becoming Endangered or Threatened.

All species listed on Schedule 1 of SARA are afforded protection on federal lands. Aquatic species and species of migratory birds protected by the Migratory Birds Convention Act (MBCA; Government of Canada, 1994) and listed as Endangered, Threatened, or Extirpated under Schedule 1 of SARA are protected wherever they occur in Canada, regardless of land ownership. SARA protections for other species do not normally extend to privately owned land. However, the Federal Minister of ECCC can and has imposed SARA protections on private projects where habitat is deemed “...*necessary for the survival or recovery of the species...*” in the area of concern.

2.5 Endangered Species Act, 2007

The provincial Endangered Species Act (ESA; Government of Ontario, 2007) is administered by the Ministry of Environment, Conservation, and Parks (MECP) and provides protection for species at risk (SAR) and their



habitat. The ESA states that it is illegal to harm the habitat of species listed as Extirpated, Endangered, and Threatened. It is also illegal to kill, harm, harass, possess, transport, buy, or sell Extirpated, Endangered, and Threatened species, whether it is living or dead. Species listed as Endangered, Threatened, or Extirpated and their habitats (e.g., areas essential for breeding, rearing, feeding, hibernation, and migration) are automatically afforded legal protection under the ESA. The ESA include provisions that may authorize development activities to proceed where the impacts of such development on protected species and/or their habitat would otherwise be prohibited. The associated permitting processes typically work to limit the potential for harm to the subject species through mitigation measures and to achieve an overall net benefit for the species through offsetting measures.

Significantly, Ontario's Bill 5: *Protect Ontario by Unleashing our Economy Act, 2025*, was enacted on June 5, 2025. This Act introduced numerous changes to the ESA, including altering the definition of "habitat" for various species groups. At the time of writing for this EIS, however, many standing policies managing the implementation of the ESA have not yet been updated. As such, recommendations within this ECR related to the ESA consider existing ESA-related policies but also recognize upcoming changes to the extent feasible. Such changes will eventually include the full replacement of the ESA with the *Species Conservation Act*, likely in early 2026. While the *Species Conservation Act* was enacted as part of Bill 5, is not yet in force as of the date of this EIS. However, it must be recognized that, if permitting processes were to be required/employed to ensure a net benefit for SAR under future site works, they may ultimately be managed under the *Species Conservation Act* rather than the ESA.

2.6 Fisheries Act, 1985

The federal Fisheries Act (Government of Canada, 1985) is administered by Fisheries and Oceans Canada (DFO) and provides protections to fish, fish habitat, and fisheries. Specifically, the Fisheries Act in its current version provides protection for all fish and fish habitat, and prohibits the harmful alteration, disruption, or destruction of fish habitat.

Projects with a scope that does not fall within DFO's defined standards and codes of practice require submission of a request for review to DFO.

2.7 Migratory Birds Convention Act, 1994

Nesting migratory birds are protected under the MBCA (Government of Canada, 1994). No work is permitted that would result in the destruction of active nests (nests with eggs or young birds) or the wounding or killing of bird species protected under the MBCA and/or associated regulations (e.g., SARA).

2.8 Fish and Wildlife Conservation Act, 1997

The provincial Fish and Wildlife Conservation Act (FWCA; Government of Ontario, 1997) governs the hunting and trapping of a variety of wildlife including mammals, birds, reptiles, amphibians, and fish in Ontario, thereby facilitating the protection of wildlife and their habitat. The FWCA outlines the prohibition of hunting or trapping specially protected species and the requirement for provincially issued licenses for the hunting or trapping of "furbearing" or "game" animals. Examples of specifically protected animals include, for example, Southern Flying Squirrel (*Glaucomys volans*), Northern Harrier (*Circus cyaneus*), American Kestrel (*Falco sparverius*), Blue Jay (*Cyanocitta cristata*), Midland Painted Turtle (*Chrysemys picta marginata*),



Northern Watersnake (*Nerodia sipedon*), and Gray Treefrog (*Hyla versicolor*). In particular, raptors that are not protected under the MBCA (including Peregrine Falcon) are protected under the FWCA.

3.0 PROPERTY IDENTIFICATION

The Site (Figure 1) associated with the Phase 1 Condo Block development includes most of 6141 Flewellyn Road and a small southern portion of 6115 Flewellyn Road. The Site is 2.37 ha in size. The Site is currently zoned RU – Rural, with a Zoning By-law Amendment application submitted concurrently with the Draft Plan of Subdivision submission for the broader development area.

The Site is bordered by:

- Forested lands to the north, and a community of R1 to R3 density residential (single homes);
- Country estate lots to the west;
- Hydro corridor, Shea Road, and agricultural lands to the east; and
- Flewellyn Road and agricultural lands to the south.

The broader development area, including the Site, subject to past development applications and discussed in the aforementioned EIS reports includes four major parcels (5993 and 6115 Flewellyn Road, 6070 Fernbank Road, and a 14.2 ha field on the northwest corner of Shea Road and Flewellyn Road), and several other associated parcels. There is the Faulkner Stormwater Management (SWM) pond (addressed as 59 Aridus Cres.), and a hydro corridor that diagonally crosses the southern end of 6070 Fernbank Road. The hydro corridor is currently cultural thicket, however, is subject to occasional mowing (every ~3-5 years). The SWM area includes a sanitary pump station at its north end but is otherwise comprised almost entirely of the open pond, though the banks are sparsely vegetated. A recreational pathway extends around the east side of the SWM pond and through a portion of the hydro corridor. These areas are hereby referred to as the “Study Area”.

Combined, the Study Area covers an area of approximately 75 ha south of Stittsville in the west end of Ottawa. Much of the Site was historically farmed though some currently forested areas on the western half area associated with broad forested bands that have existed on the Site for more than 60 years based on historical aerial photography¹. Much of 5993 Flewellyn Road and the Eder Parcel was cleared of vegetation in ~2016 (per geoOttawa imagery) in association with the construction of the Faulkner SWM Pond. The remaining forested area in the southeast corner of the Study Area was cleared of tree cover throughout 2018.

¹ National Air Photo Library Roll A18057, Photo 0049, Dated 1963-05-24



4.0 METHODOLOGY

4.1 Desktop and Background Data Review

4.1.1 General Records Review

Background information was obtained from online databases and geographic information system mapping applications to review relevant information. Aerial imagery from Google Earth, the RVCA Geoportal and the City's geoOttawa systems was used to identify existing features and confirm information found in the background review.

4.1.2 Species at Risk Screening

The review of existing information included a preliminary SAR screening for species listed under the federal SARA and provincial ESA having some record of occurrence within the broader vicinity of the Site. The screening was completed following the *Draft Client's Guide to Preliminary Screening for Species at Risk* (MECP, 2019). The results of the screening process informed the list of species that were considered in the assessment of the potential for development impact(s) to SAR or SAR habitat. Previously, the results of the preliminary SAR screening were forwarded to MECP for comment and review. The results of the screening were sent to MECP on October 4, 2022, to confirm the information collected (Appendix B). As of 2023, however, the MECP no longer provides this service, and no response will be provided. Regardless, it is considered unlikely that MECP would indicate potential for SAR beyond those already considered in this EIS.

Where it is determined through the EIS process that there is an anticipated impact of the development on SAR, an Information Gathering Form (IGF) is typically submitted to MECP for further review. The IGF process, however, is not generally necessary where the SAR management process may be handled through a Notice of Activity process associated with the Ontario Conservation Fund under O.Reg. 829/21. The preliminary screening considered data sources including:

- Species at Risk in Ontario (SARO; Ministry of Environment, Conservation, and Parks (MECP, 2023);
- Species at Risk Public Registry (Government of Canada, 2026);
- Natural Heritage Information Centre (NHIC; Ministry of Natural Resources, and Forestry (MNRF, 2025b);
- Land Information Ontario (MNRF, 2025a);
- Aquatic Species at Risk Map (Fisheries and Oceans Canada (DFO), 2025);
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2019);
- Ontario Breeding Birds Atlas (Birds Canada et al., 2009);
- Ontario Butterfly Atlas (Toronto Entomologists' Association, 2025);
- eBird (The Cornell Lab of Ornithology, 2025);
- iNaturalist (California Academy of Sciences and National Geographic Society, 2025);
- Bumble Bee Watch (Wildlife Preservation Canada et al., 2025);



- Recovery Strategy for the Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*) in Ontario (Humphrey & Fotherby, 2019);
- Recovery Strategy for the Eastern Small-footed Myotis (*Myotis leibii*) in Ontario (Humphrey, 2017); and
- Fish ON-Line (MNRF, 2024).

4.1.3 Agency Consultation

The Site is located within the jurisdictions of the City of Ottawa and the Rideau Valley Conservation Authority (RVCA).

Ongoing consultation with City of Ottawa staff has been undertaken throughout the various phases of the project. The W4 Natural Systems Working Group has met on a regular basis throughout 2023, 2024, and 2025, and includes members of City staff, Caivan, and KAL.

4.2 Field Surveys

4.2.1 Site Work Summary

KAL undertook a field program to document existing ecological conditions within the Study Area (including the Site) and to confirm the results of the background review.

KAL Biologists completed an initial field review of the Study Area in the late summer of 2022, then completed an extensive suite of field studies through the spring and summer of 2023. Black Ash surveys were completed in summer 2024. Table 1 provides a summary of all field visits. Specific details of each program are further described under each study type (e.g., breeding bird surveys) in the relevant sub-sections following through the remainder of Section 4.2. Specific survey stations are shown in Figure 2.

Table 1: Field Study Dates

Date	Purpose	Conditions	Personnel
November 23, 2021	• Identify general site conditions • Map Butternuts along drill rig routes	• 3°C • Cloudy, no precipitation • Light breeze	• Anthony Francis
September 8, 2022	• Review general site conditions • Conduct initial ELC	• 24°C • Sunny with some clouds • 12km/h wind SW	• Anthony Francis • Kesia Miyashita
September 28, 2022	• Confirm ELC designations	• 14°C • Overcast • No precipitation	• Sarantia Katsaras
April 4, 2023	• Site recon	• 8°C • Sunny • 13km/h winds N	• Nick Moore • Rob Hallett
April 17, 2023	• HDFA #1	• 8°C • Light rain • Cloudy	• Nick Moore • Rob Hallett
April 20, 2023	• Frogs #1	• 8°C • 30% cloud cover • Very light wind	• Rob Hallett • Kurtis Westbury
May 19, 2023	• HDFA #2	• 21°C	• Kurtis Westbury



Date	Purpose	Conditions	Personnel
		- Sunny with some clouds - Strong breeze	Nicholas Schulz
May 23, 2023	Frogs #2	18°C 0% cloud cover - No wind	- Nick Moore - Kurtis Westbury
May 29, 2023	EWPW #1	18°C - No cloud cover 75% of moon visible	- Kurtis Westbury - Maren Nielsen
June 1, 2023	EWPW #2	29°C 50% cloud cover 90% of moon visible	- Kurtis Westbury - Jenni Velichka
June 2, 2023	- Breeding Bird Survey #1 - Acoustic Bat Monitor Deployment - ELC	29°C - Sunny with clouds	- Rob Hallett - Maren Nielsen
June 5, 2023	Butternut Health Assessment	22°C - Cloudy - Slight breeze	- Maren Nielsen - Rob Hallett
June 13, 2023	- Breeding Bird Survey #2 - Acoustic Bat Monitor Deployment (2nd location)	22°C - Slightly cloudy - Slight breeze	Rob Hallett
June 30, 2023	- Frogs #3 - EWPW #3	22°C - Clear and smoky sky 100% of moon visible	- Jenni Velichka - Maren Nielsen
July 5, 2023	- Breeding Bird Survey #2 - HDFA #3	24°C - Slight breeze 0% cloud cover	Nicholas Schulz
June 27, 2024	Black Ash Assessment	19°C - Sunny with some clouds - Strong winds	- Maren Nielsen - Kesia Miyashita
June 28, 2024	Black Ash Assessment	24°C - Sun and cloud - Slight breeze	- Maren Nielsen - Kesia Miyashita
December 6, 2024	Site Visit – Tree and Natural Heritage Feature Review	-9°C - Sun and cloud	- Maren Nielsen (KAL) - Anthony Francis (KAL) - Susan Murphy (Caivan) - Amy MacPherson (City of Ottawa) - Matthew Hayley (City of Ottawa) - Mark Richardson (City of Ottawa) - Zoe Bedford (City of Ottawa) - Julian Alvarez-Barkham (City of Ottawa) - Amanda Davidson (City of Ottawa)

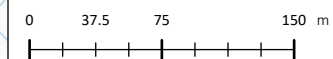




Legend

- Development Site
- Anuran Stations
- Bat Stations
- Bird Stations

Figure 2. Survey Locations



Spatial Reference:
PCS: WGS 1984 UTM Zone 18N
Map Units: Meter

Project: CAIV 1300
Map File Name: CAIV 1300 ArcGIS
Date Exported: 1/27/2026 1:40 PM



4.2.2 Surface Water Characterization

Aerial imagery and public databases were reviewed to determine wetland areas and watercourses (MNRF, 2025b; Rideau Valley Conservation Authority, 2023a). Wetlands within the Study Area were delineated and characterized in the field as part of the Ecological Land Classification (ELC) exercise (see Section 4.2.3 below). A Headwater Drainage Feature Assessment (HDFA) was conducted for the Study Area following the methods per the *Evaluation, Classification and Management of Headwater Drainage Features Guidelines* (Toronto and Region Conservation Authority & Credit Valley Conservation, 2014). The Faulkner Drain was not assessed using the HDFA protocol but was described based on existing data for the feature.

The HDFA protocol requires up to three surveys of HDFs on a site. The first is conducted near the spring freshet to identify channel and wetted dimensions at peak water levels. Fish communities and habitats are assessed later in the spring for those HDFs hydrologically capable of supporting fish. Water levels of features not found to be dry during the second visit are checked once more in mid to late summer to assess their status as permanent watercourses.

4.3 Ecological Land Classification

Vegetation communities within the Study Area were identified and mapped in the field on September 8 and September 28, 2022, and updated on June 2, 2023, using standard Ecological Land Classification (ELC) methods for Ontario (Lee et al., 1998). This method provides a consistent approach to identify, describe, and map vegetation communities or physiographic features on the landscape based on dominant plant species and soil composition. This method results in a standardized description of each vegetation community to capture the natural diversity and variability of communities within a site and to provide insight into available habitat and the type of species that may be present. More specifically, the classifications from ELC provide a basis for determining whether potential habitat for a given SAR or other ecological value may be present.

A desktop review of available aerial imagery and preliminary field visits informed how the Study Area generally divides into vegetation communities based on variation in land cover, topography, and vegetation structure. The dominant plant species were recorded within each proposed ecosite in the field to further divide ecosites into vegetation types (the finest resolution in ELC), where possible. Soil samples were taken using a 120 centimeter (cm) long soil auger to characterize community substrates. Representative photos of each ELC unit on the Site were taken and are included with the community descriptions in this report.

4.3.1 Butternut Health Assessment

Butternut (*Juglans cinerea*) trees within the Study Area were initially mapped on November 23, 2021, along proposed routes for drilling rigs that would be used in subsequent geotechnical surveys. The intention of that work was to adjust routes as required to avoid impacts to Butternuts. A subsequent, more detailed site review on September 8, 2022, noted that many of the previously observed Butternuts had blown down, presumably during the derecho event on May 21, 2022. A formal Butternut survey was conducted by KAL Biologists Rob Hallett and Maren Nielsen on June 5, 2023, to map and assess the remaining Butternuts in the Study Area. The Butternut Health Assessment (BHA) was completed following the provincial Butternut Assessment Guidelines: Assessment of Butternut Tree Health for the purposes of the *Endangered Species Act, 2007* (MECP, 2021).



4.3.2 Black Ash Assessment

A formal Black Ash (*Fraxinus nigra*) Assessment (BAA) was conducted by KAL Biologists Maren Nielsen and Kesia Miyashita on June 27 and 28, 2024, to map and assess the Black Ash in the Study Area. The BAA was completed following the provincial Black Ash Assessment Guidelines: Assessment of Black Ash (*Fraxinus nigra*) for the purposes of the *Endangered Species Act, 2007* (MECP, 2024). The BAA inventoried every Black Ash stem over 8 cm at 1.37 m and recorded the number of Black Ash with a stem less than 1.37 m in height or a DBH less than 8 cm. Based on field observations, an ultimate health determination was assigned for each stem. ESA clause 9 (1) (a), prohibits the killing, harm, harassment, possession, transportation, trade and/or removal of a living, healthy Black Ash tree.

4.3.3 Breeding Birds

Morning breeding bird surveys were performed using point counts following the Ontario Breeding Bird Atlas Guide for Participants (Ontario Breeding Bird Atlas, 2001). Breeding bird surveys are to be completed from survey stations that, combined, provide suitable viewing of all habitats on a site on calm weather days with light wind (less than 3 on the Beaufort Scale) and no precipitation. As per the Ontario Breeding Bird Atlas, two rounds of surveys must take place between sunrise and five hours after sunrise between May 24 and July 10. Surveys took place during the mornings of June 2 and July 5, 2023.

A total of eight breeding bird survey stations were established in representative habitats on the Site (Figure 2). All incidental observations were recorded while moving between survey points as well as during other visits to the Study Area. Birds were identified by song and/or direct visual observation.

Bird species were classed as regionally rare based on an analysis of data from the Atlas of Breeding Birds of Ontario (2009) based on Hill's Site Regions, now Ecoregions. The federal and provincial significance of bird species were classed based on species' listings under Schedule 1 of SARA and the ESA, and species tracked by NHIC (MNRF, 2023c; for non-SAR species considered provincially significant).

4.3.4 Nightjars

Night-time bird surveys to confirm the presence/absence of at-risk nightjars, specifically Eastern Whip-poor-will (*Antrostomus vociferus*), and their potential breeding territories were conducted following the Survey Protocol for Eastern Whip-poor-will in Ontario (MNRF, 2014; Ontario Breeding Bird Atlas, 2021). This protocol calls for three separate night-time surveys between May 18 and June 30 that are timed based on moon conditions. Eastern Whip-poor-wills usually forage in the semi-darkness of early morning and dusk, but on nights when the moon is more than half full, they are likely to forage all night long under the brighter conditions. Their broods are timed such that the young hatch approximately 10 days before the full moon when the parents have more time (and moonlight) to catch food for them (Kaufman, 2019; The Cornell Lab of Ornithology, 2023). As such, this species is more detectable during a full moon period.

As per the draft protocol, surveys were completed within a week of the full moon while the moon was visible above the horizon (greater than 50% illuminated) and started at least 30 minutes after sunset and ended while the moon was still visible. Surveys were conducted under field conditions with no precipitation, little or no wind, clear skies, temperature of 10°C or above, and good visibility (low cloud cover). The timing of Eastern Whip-poor-will surveys is also optimal for observing Common Nighthawk (*Chordeiles minor*), as that



species is generally best heard calling in the late evening. MNRF (2014) recommends a minimum of three surveys to be completed during the breeding season, with two ideally occurring in late May or the first week of June during a week preceding or just after a full moon, and a third survey in the next available full moon period (middle/end of June). Nightjar surveys took place on the evenings of May 29th, June 1st, and June 30th, 2023.

Survey points are to be established at 500 m intervals along the survey route (the aim is to have one survey point for every 30 ha of typical habitat). Two survey stations were used for nightjar surveys (EWPW1 and EWPW2; Figure 2), and these stations covered habitats that were considered most likely to uncover nightjars (i.e., they were close to edge habitats along wooded areas that would provide feeding opportunity near potential nesting areas). As per MNRF (2014), each point count station had a fixed radius of 300 m so that the absolute number of birds could be counted within a reasonable hearing range (note that calling Eastern Whip-poor-will can be heard up to 1 km away under ideal conditions). Surveyors were careful not to walk directly through suitable nightjar habitat in between survey stations to avoid stepping on any potential Eastern Whip-poor-will eggs, which are cryptically coloured and laid on the forest floor.

4.3.5 Anurans

Anuran (frog and toad) surveys were performed following the Marsh Monitoring Program (Birds Canada et al., 2008). This protocol calls for multiple survey stations across a site to capture spatial and habitat variability. The Marsh Monitoring Program advises that each station be visited three times at night, no less than 15 days apart, during the spring and early summer. Following this protocol, the timing of the three anuran surveys is based on nighttime air temperature:

- Early breeders (Wood Frog, Western Chorus Frog, Spring Peeper): above 5°C;
- Mid-season breeders (Mink Frog, American Toad, Gray Treefrog): above 10°C; and
- Late breeders (Green Frog, Bullfrog): above 17°C.

Anuran surveys are to begin one half hour after sunset and end before midnight on evenings with appropriate temperatures and light winds (≤ 3 on the Beaufort Scale¹). Anuran surveys took place on the evenings of April 20th, May 23rd, and June 30th, 2023. Additional observations of amphibians were made throughout the spring and summer during other field visits.

4.3.6 Bats and Other Mammals

Bat monitoring was completed following acoustic surveys under the MNRF's Survey Protocol for Species at Risk Bats within Treed Habitats (2017). This is currently the recommended protocol for confirming the presence/absence of Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-coloured Bat (*Perimyotis subflavus*), where it is determined that potentially suitable habitat for the establishment of maternity roosts is present. Wooded areas within the Study Area were deemed potentially suitable habitat for the establishment of maternity roosts during KAL's preliminary desktop review and initial field visits. Trees with characteristics suitable for bat roosting were observed in the area.

All species of bats in a given area are detectable under this protocol if ultrasonic acoustic monitors are used and the signal-to-noise ratio can be analyzed from sonogram displays to identify bat calls to species level. Under the protocol, acoustic monitors are to be installed for a minimum of 10 nights between June 1 and



June 30, with recordings commencing after dusk and continuing for five hours. KAL installed two acoustic monitors on the Site (Figure 2): one at the edge of the forested area on the north edge of the Site, and one at the edge of the forested area near the southeast corner of the Site. The acoustic monitors were placed in these locations to capture the best potential bat habitat on the Site (potential roosting habitat in wooded areas and potential foraging habitat over adjacent open areas) and to increase the likelihood of detecting bats based on their echolocating behaviour. Bats use echolocation more frequently in cluttered environments (Falk et al., 2014), so installing monitors along the edges of wooded areas rather than in the middle of open foraging areas likely increases bat detectability. The monitors were placed just outside of the cluttered environment (forested area) as the distinguishability of calls among species diminishes within such locations (National Park Service, 2020). Both monitors were installed on June 2, 2023, moved to a second location on June 13, 2023, and removed on July 4, 2023.

Incidental observations of other mammals present in the Study Area were collected during all field visits. Mammal observations were limited to sightings of scat, tracks, and in some cases, direct observations.

5.0 RESULTS

5.1 General Natural Heritage Context

The nearest lands zoned EP-Environmental Protection surrounding the Site are approximately 850 m northwest of the northwest corner of the Site. These EP lands are associated with the Fernbank Wetland (not a Provincially Significant Wetland [PSW]) located to the west of Stittsville Main Street. The closest PSW is the Goulbourn Wetland complex located 1.8 km to the northwest of the Site. Wetland estimates from within the geoOttawa system (City of Ottawa, 2025) purport the potential presence of wetland along the east edge of the Study Area. No wetlands are mapped on the Site. Those maps, however, are estimates from 2011, and this area has been subject to active agricultural usage since 2018. The currently existing extent of wetland cover is assessed in Sections 5.3 and 5.4 below.

There are no Areas of Natural and Scientific Interest in this portion of Stittsville (Muncaster, 2019). No environmental constraints were indicated on the Site in Schedule K of the City's previous Official Plan (Muncaster, 2019). Most of the forested portions of the Site are indicated as potential Natural Heritage Features within Schedule C11 of the City's current OP.

5.2 Landforms, Soils, and Geology

The topography of the broader area is generally flat with loamy, fine sand soils over clay or fluvial materials (Schut & Wilson, 1987). The eastern edge of the Study Area is indicated in regional soil maps as part Osgoode Association, with fine loamy sand with poor drainage. The remainder of the Study Area, including the Site is indicated as part of the Reevecraig Association, also with (alkaline) loamy fine sand but typically over clay causing poor drainage. Soil cores taken across the Site during the ELC investigation confirmed the upper soil layers as consisting of ~80 cm of fine loamy sand, but generally hit fluvial-type material with sufficient gravel texture to preclude deeper coring. Across most of the Site, soil was moist/fresh but with no noticeable mottles or gley above ~60 cm depth. Accumulated organic material on the surface was never more than 5



cm in depth except in the small swamp pocket at the north end of the Study Area where the organic layer was 10 to 15 cm in depth.

5.3 Ecological Land Classification

A total of ten distinct landcovers or ELC units were delineated within the Study Area (Figure 3a); the Site itself intersects with only three of these (Figure 3b). The following section includes descriptions of all ten ELCs within the Study Area for reference, but subsequent natural heritage reviews of the current project consider only the three ELCs directly associated with the Site.

Much of the western portion of the Study Area, and the majority of the Site, is a mixed Eastern White Cedar forest. Other parts of the Study Area include Poplar-dominant deciduous forests, and meadow areas, with smaller areas of Scots Pine plantation and an Eastern White Cedar Swamp. The eastern portion of the Study Area is dominated by a thicket community and open agricultural lands. KAL Biologists were not permitted direct access to the small, residential parcels along Flewellyn Road as they are privately-owned. Roadside and aerial image reviews, however, indicate land cover on the small parcels (other than of the manicured spaces directly associated with houses and lawns) to correspond with the adjacent landcover of the Site. For each ELC unit identified, the dominant species observed, and any SAR plant species (highlighted in the descriptions below with an asterisk) are discussed in the following sections. An exhaustive list of all plant species observed in each ELC unit as well as tree sizes (DBH), where applicable is included in Appendix C.





Legend

Site Boundary

Study Area

ELC

CUM1-1

CUT1

FOCM6-3

FODM7

FOMM4-3

FOMM7-2

MEMM3

Surface Water Features

Faulkner Drain

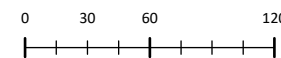
Rear Yard Drainage

Road Side Ditch

To Be Removed



Figure 3b. Existing Conditions



Spatial Reference:
PCS: WGS 1984 UTM Zone 18N
Map Units: Meter

Project: CAIV 1300
Map File Name: CAIV 1300 ArcGIS
Date Exported: 2026-01-29 6:55 AM



5.3.1 Dry - Fresh White Cedar – Hardwood Mixed Forest Type (FOMM4-3)

The majority of the Site, and a broad swath of the western portion of the Study Area is characterized as a Dry - Fresh White Cedar – Hardwood Mixed Forest Type (FOMM4-3) community (Figure 4). It is dominated by Eastern White Cedar (*Thuja occidentalis*; 10-20 cm DBH), Trembling Aspen (*Populus tremuloides*; 10-20 cm DBH), Green Ash (*Fraxinus pennsylvanica*; 10-15 cm DBH), Large tooth Aspen (*Populus grandidentata*; ~15 cm DBH), White Spruce (*Picea glauca*; 30 cm DBH), White Pine (*Pinus strobus*; 25 cm DBH), Larch/Tamarack (*Larix laricina*; 15-20 cm DBH), American Beech (*Fagus grandifolia*; 10-15 cm DBH), and American Elm (*Ulmus americana*). Butternut* (*Juglans cinerea*; 20-50 cm DBH) were observed scattered throughout this community.



Figure 4. Dry - Fresh White Cedar – Hardwood Mixed Forest Type (FOMM4-3)

5.3.2 Fresh - Moist White Cedar - Hardwood Mixed Forest Type (FOMM7-2)

The northwest portion of the Site and the western-most extent of the Study Area is characterized as a Fresh - Moist White Cedar - Hardwood Mixed Forest Type (FOMM7-2) community (Figure 5). It is dominated by Eastern White Cedar (*Thuja occidentalis*; 5-15 cm DBH), White Birch (*Betula papyrifera*; 10-20 cm DBH), Trembling Aspen (*Populus tremuloides*; 10-35 cm DBH), White Ash (*Fraxinus americana*; 5-8 cm DBH), White Spruce (*Picea glauca*; ~10 cm DBH), and Balsam Fir (*Abies Balsamea*) tree species.





Figure 5. Fresh - Moist White Cedar - Hardwood Mixed Forest Type (FOMM7-2)

5.3.3 Dry – Moist Old Field Meadow Type (CUM1-1)

A Dry – Moist Old Field Meadow Type (CUM1-1; Figure 6) is located within the northeastern portion of the Site, associated with the central area of the Study Area. This area is characteristic of previous disturbance with scattered tree species including Large tooth Aspen (*Populus grandidentata*; ~5 cm DBH), Trembling Aspen (*Populus tremuloides*; 10-25 cm DBH), Eastern White Cedar (*Thuja occidentalis*; ~10 cm DBH), Scots Pine (*Pinus sylvestris*; 5-10 cm DBH), American Beech (*Fagus grandifolia*; ~10 cm DBH), Apple Spp. (*Malus*; 8-10 cm DBH), White Spruce (*Picea glauca*; 20-25 cm DBH), Larch/Tamarack (*Larix laricina*; ~5-10 cm DBH), Green Ash (*Fraxinus pennsylvanica*; <5 cm DBH). Dominant shrub and groundcover species included Common Juniper (*Juniperus communis*), Trembling Aspen (*Populus tremuloides*) saplings, Orchard Grass (*Dactylis glomerata*), Wild Strawberry (*Fragaria vesca*), Canada Goldenrod (*Solidago canadensis*), Poison Ivy (*Toxicodendron radicans*), Red Raspberry (*Rubus idaeus*), Alder Buckthorn (*Rhamnus frangula*), and Common Blackberry (*Rubus allegheniensis*).





Figure 6. Dry – Moist Old Field Meadow Type (CUM1-1)

5.3.4 Dry – Fresh Mixed Meadow Ecosite (MEMM3)

A Dry – Fresh Mixed Meadow Ecosite (MEMM3) is located in the northwest corner of the Study Area (Figure 7). This area is mainly characterized by Eastern White Cedar (*Thuja occidentalis*), Scots Pine (*Pinus sylvestris*; ~10-20 DBH), Larch/Tamarack (*Larix laricina*; ~10 DBH), and scattered Butternut* (*Juglans cinerea*; ~10-20 DBH) trees. Dominant shrub and groundcover species included Common Juniper (*Juniperus communis*), Orchard grass (*Dactylis glomerata*), Wild strawberry (*Fragaria vesca*), Canada Goldenrod (*Solidago canadensis*), Alder Buckthorn (*Rhamnus frangula*), and Common Blackberry (*Rubus allegheniensis*).





Figure 7. Dry – Fresh Mixed Meadow Ecosite (MEMM3)

5.3.5 Dry – Fresh Scots Pine Naturalized Coniferous Plantation Type (FOCM6-3)

A Fresh Scots Pine Naturalized Coniferous Plantation Type (FOCM6-3) is located in the northwest corner of the Study Area (Figure 8). It is mainly dominated by Scots Pine (*Pinus sylvestris*; ~10-20 cm DBH), Jack Pine (*Pinus banksiana*; ~15 cm DBH), Eastern White Cedar (*Thuja occidentalis*), White Pine (*Pinus strobus*; ~20 cm DBH), White Birch (*Betula papyrifera*; 10-20 cm DBH), Butternut* (*Juglans cinerea*), American Beech (*Fagus grandifolia*), and Green Ash (*Fraxinus pennsylvanica*; 10-15 cm DBH).





Figure 8. Dry – Fresh Scots Pine Naturalized Coniferous Plantation Type (FOCM6-3)

5.3.6 White Cedar Mineral Coniferous Swamp (SWCM1-1)

A White Cedar Mineral Coniferous Swamp (SWCM1-1) is located in the northwestern portion of the Study Area (Figure 9). It is dominated by Eastern White Cedar (*Thuja occidentalis*) and has ground cover consisting of Bulblet Bladder Fern (*Cystopteris bulbifera*), Alder Buckthorn (*Rhamnus frangula*), Interrupted Fern (*Osmunda claytoniana*), Sensitive Fern (*Onoclea sensibilis*), and Poison Ivy (*Toxicodendron radicans*).





Figure 9. White Cedar Mineral Coniferous Swamp (SWCM1-1)

5.3.7 Fresh – Moist Lowland Deciduous Forest Ecosite (FODM7)

A Fresh-Moist Lowland Deciduous Forest Ecosite (FODM7) is located in the center of the Study Area (Figure 10). It is dominated by Trembling Aspen (*Populus tremuloides*) Eastern White Cedar (*Thuja occidentalis*), Butternut* (*Juglans cinerea*), Black Ash* (*Fraxinus nigra*), and Balsam Poplar (*Populus balsamifera*). Its ground cover consists of Common Buckthorn (*Rhamnus cathartica*), Poison Ivy (*Toxicodendron radicans*), White Panicle Aster (*Symphyotrichum lanceolatum*), Riverbank Grape (*Vitis riparia*), Common Ragweed (*Ambrosia artemisiifolia*), and Yellow Sweet Clover (*Melilotus officinalis*).





Figure 10. Fresh – Moist Lowland Deciduous Forest Ecosite (FODM7)

5.3.8 Fresh – Moist Poplar Deciduous Forest Type (FODM8-1)

A Fresh – Moist Poplar Deciduous Forest Type (FODM8-1; Figure 11) is located within the Study Area and is dominated by Trembling Aspen (*Populus tremuloides*; 10-20 cm DBH), White Birch (*Betula papyrifera*; 10-20 cm DBH), Balsam Poplar (*Populus balsamifera*; 10-25 cm DBH), Butternut* (*Juglans cinerea*; 10-20 cm DBH), Eastern White Cedar (*Thuja occidentalis*; 10-20 cm DBH), Basswood (*Tilia americana*; ~30 cm DBH), Red Maple (*Acer rubrum*; ~27 cm DBH), American Elm (*Ulmus americana*; 10-20 cm DBH), and Black Ash* (*Fraxinus nigra*). Its dominant ground cover consists of Common Juniper (*Juniperus communis*), Trembling Aspen saplings (*Populus tremuloides*), Sensitive Fern (*Onoclea sensibilis*), Ostrich Fern (*Matteuccia struthiopteris*), Interrupted Fern (*Osmunda claytoniana*), Canada Goldenrod (*Solidago canadensis*), Poison Ivy (*Toxicodendron radicans*), Alder Buckthorn (*Rhamnus frangula*), Bloodroot (*Sanguinaria*), and Meadow Horsetail (*Equisetum pratense*).





Figure 11. Fresh – Moist Poplar Deciduous Forest Type (FODM8-1)

5.3.9 Medium Mineral Open Pasture Type (OAGM4)

A Medium Mineral Open Pasture Type (OAGM4) on Site (Figure 12) is dominated by planted crop cultivar and scattered shrub community species such as Canada Goldenrod (*Solidago canadensis*), Meadow Horsetail (*Equisetum pratense*), Purple Aster (*Symphyotrichum patens*), Common Mullein (*Verbascum thapsus*), Meadow Buttercup (*Ranunculus acris*), Wild Strawberry (*Fragaria vesca*), and Common Dandelion (*Taraxacum officinale*).





Figure 12. Medium Mineral Open Pasture Type (OAGM4)

5.3.10 Cultural Thicket Ecosite (CUT1)

A Cultural Thicket Ecosite (CUT1; Figure 13) within the hydro corridor in the Study Area is dominated by Bebb's Willow (*Salix bebbiana*), Alder Buckthorn (*Rhamnus frangula*), Trembling Aspen Saplings (*Populus tremuloides*), White Willow (*Salix alba*), White Meadowsweet (*Spiraea alba*), and Common Milkweed (*Asclepias syriaca*).





Figure 13. Cultural Thicket Ecosite (CUT1)

5.4 Surface Water, Groundwater and Fish Habitat

The Study Area is located within the Rideau River watershed and the Jock River subwatershed (Ministry of Natural Resources and Forestry – Government of Ontario, 2023; Rideau Valley Conservation Authority, 2023b). The Study Area contains a portion of the Faulkner Municipal Drain. A channelized watercourse originating near Hickstead Way flows south, becoming the legal Faulkner Municipal Drain where it crosses the hydro corridor onsite to south, turning east and becoming a roadside ditch along Flewellyn Road, towards Shea Road. The drain continues south down Shea Road, eventually joining the Flowing Creek Phase 1 Drain, just south of Brownlee Road (Figure 1). The channelized watercourse north of the legal Faulkner Municipal Drain is hereby referred to as the “Upper Faulkner Watercourse”.

The HDFA identified six (6) HDFs/Tributaries located on and adjacent to the Study Area. One group of channels is primarily associated with the Faulkner Municipal Drain, and the second group primarily conveys water from within the forested areas on the Site towards the Faulkner Drain (Figure a). One tributary is located on the Site (Figure 3b). During the ELC survey, one wetland pocket was identified in the Study Area, the White Cedar Mineral Coniferous Swamp (SWCM1-1) vegetation community.



5.4.1 Faulkner Drain

The Study Area includes a portion of the Faulkner Drain, which, per geoOttawa mapping, appears to be primarily a tributary of Flowing Creek. This feature, however, is located >350 m to the east of the Site and is thus not otherwise considered within this report.

5.4.2 HDFA

The HDFA identified six (6) HDFs located on and/or adjacent to the Study Area. Three HDFs (Tributaries A, B and D) are associated with the forested areas and White Cedar swamp, while three (Tributaries C, E and F) are associated with the Faulkner Drain. Only Tributary A occurs directly on the Site; Tributary C is situated just off its south side. All other HDFs are well removed from the Site and are thus not considered further in the assessment of the project in the context of this EIS.

Tributary A originates directly south of the White Cedar Swamp (SWCM1-1) community and flows southward as a man-made ditch and braided channel towards Flewellyn Road. It primarily functions as an ephemeral drainage feature supporting spring run-off and after heavy rainfall; it is not considered to provide fish habitat. The chain of classification descriptors, as listed in the HDFA report (Appendix D) leads to a standard management directive of “Mitigation” for this reach. Further discussion and review of the standard HDFA mitigations for this and the other HDFs occurring directly on the Site are included below.

Tributary C is a roadside ditch feature that originates at the southwestern corner of the Study Area, at the terminus of Tributary D. It flows eastward, joining the Faulkner Drain. Tributary C is a permanent feature that has water present year-round. This feature was confirmed to function as amphibian breeding habitat and fish habitat. The chain of classification descriptors leads to a management directive of Protection for this reach. It is recommended that this feature be retained to maintain overland flow conditions in the Study Area and along Flewellyn Road.

Tributary B originates within the SWCM1-1 community and flows southeast, eventually joining with Tributary E. It has a man-made standing water pool present with interstitial flow towards the Faulkner Drain. While areas of standing water can potentially function as amphibian breeding habitat, no amphibians were observed within this reach. The chain of classification descriptors leads to a management directive of Protection for this reach.

Tributary D is a man-made, engineered lot swale drain feature that originates in the northwestern corner of the Study Area, within the FOMM7-2 vegetation community. It follows the western property boundary and is present within portions of the rear yard allowances of the western adjacent residences. It primarily functions as a drainage feature supporting spring run-off and after heavy rainfall. The chain of classification descriptors leads to a management directive of Mitigation for this reach. As this feature is located off of the Site and Study Area, it will be retained and will continue to provide an overland flow route during the spring freshet.

Tributary E is a constructed, linear channel feature that originates within the FOMM4-3 and MEMM3 vegetation communities and flows south eventually turning eastward joining the Faulkner Drain. It has intermittent standing water pools present with intermittent flow towards Faulkner Drain. Standing water contributes to groundwater recharge and can function as amphibian breeding habitat. Breeding amphibians



were observed within this reach. The chain of classification descriptors leads to a management directive of Protection for this reach.

Tributary F is a roadside ditch feature located along Shea Road at the eastern Study Area boundary. It is located adjacent to an idle agricultural field and connects downstream to the Faulkner Drain at the intersection with Flewellyn Road. It primarily functions as a drainage feature supporting spring run-off and after heavy rainfall. Breeding amphibians were not observed within this reach. Significant groundworks have and continue to occur in the southern portion of this tributary, and a large portion of this tributary has been altered and/or removed. This chain of classification descriptors leads to a management directive of Protection for this reach.

Standard HDFA management directives of “Mitigation” indicate that the feature may be maintained, replicated, or enhanced using natural channel design techniques to maintain or enhance the overall productivity of the reach. There is no requirement to retain the feature per se, but on-site flow, outlet flows, and overall water balance for the area must be maintained by providing mitigation measures to infiltrate clean stormwater. Standard HDFA management directives of “Protection” indicate that the feature may be maintained and/or enhanced, but typically should not be relocated. The general directive is for the feature to be protected and its riparian zone enhanced where feasible. Notably for Tributaries B and E, however, these tributaries are sourced from the SWCM1-1 community wetland. As the wetland would be unlikely to remain with development occurring on the western half of the Study Area, (i.e., even with standard setbacks) the hydrology of those Tributaries is unlikely to remain regardless of protections otherwise applied.

5.4.3 Wetlands

While one isolated wetland was identified within the Study Area, the Site itself includes no wetland features.

A White Cedar Mineral Coniferous Swamp (SWCM1-1), located in the northwest corner of the Study Area (~300 m from the Site), supports Eastern White Cedar (*Thuja occidentalis*), Bulblet Bladder Fern (*Cystopteris bulbifera*), Alder Buckthorn (*Rhamnus frangula*), Interrupted Fern (*Osmunda claytoniana*), Sensitive Fern (*Onoclea sensibilis*), and Poison Ivy (*Toxicodendron radicans*). This community has developed in a low-lying area, with organic loamy soils. Mottling and gley were encountered at a depth of ~30 cm.

5.5 Wildlife Surveys

5.5.1 Breeding Birds

Morning breeding bird surveys were conducted on the dates outlined in Table 3.



Table 2 Summary of dates and weather conditions of morning breeding bird surveys, 2023

Date	Cloud Cover (%)	Air Temperature (°C)	Wind (Beaufort)
June 2, 2023	30	18	2
July 13, 2023	100	15	2
July 5, 2023	0	24	1

A total of 44 bird species were observed in the Study Area via morning breeding bird surveys and incidental observations. A list of all bird species observed and their respective observation dates and stations, and highest breeding evidence is included in Appendix E. The most commonly observed species during breeding bird surveys were American Crow, American Goldfinch, American Robin, Common Yellowthroat, and Song Sparrow. The Brown-headed Cowbird (*Molothrus ater*) was observed incidentally in the Study Area. All observed forest bird species can be anticipated to occupy the Site.

Three listed at-risk bird species were observed during the morning breeding bird surveys. These SAR observations are summarized in Table 4 below.

Table 3 Summary of species at risk observations during breeding bird surveys, 2023

Species (Taxonomic name)	SARA Status	ESA Status	Dates and Locations Observed
Chimney Swift (<i>Chaetura pelagica</i>)	Threatened	Threatened	June 13, 2023: BBS#1
Eastern Wood-Pewee (<i>Contopus virens</i>)	Special Concern	Special Concern	June 2 and June 13, 2023: BBS#2 and BBS#3
Wood Thrush (<i>Hylocichla mustelina</i>)	Special Concern	Threatened	June 4, 2023: BBS#1

5.5.2 Nightjars

KAL surveyors completed nightjar surveys on May 29th and June 1st and 29 2023 (Table 5), two during the first moon cycle and one in the next moon cycle, per MNRF (2014) protocols.

Table 4 Summary of dates and weather conditions of nightjar surveys, 2021

Date	Cloud Cover (%)	Air Temperature (°C)	Wind (Beaufort)	Moon Illumination (%)	Moon Visibility (%)
2023-05-29	0-25	18	0	75	100
2023-06-01	50-75	29	1	90	90
2023-06-29	0	22	0	70	100

No Eastern Whip-poor-will were heard calling at either station during any of the three surveys. No Common Nighthawks were observed.



5.5.3 Anurans

Anuran surveys were performed on April 20th, May 23rd, and June 30th, 2023, at eight stations distributed across the Study Area to capture spatial and habitat variability. A total of five frog species were observed via evening anuran surveys and incidental observations. A summary of the weather conditions during the anuran survey is provided in Table 5. Frog species and their respective stations and calling codes are summarized in Table 7. Station locations are shown in Figure 2.

Table 5 Dates and weather conditions of anuran surveys

Date/Time	Wind (Beaufort Scale)	Air Temperature (°C)	Cloud Cover (%)	Precipitation
2023-04-20	1	8	30	None
2023-05-23	0	20	0	None
2023-06-30	0	22	0	None

Table 6 Summary of anurans detected during anuran surveys

Common Name	Scientific Name	Station(s) Observed	Survey Date(s) Observed	Highest Calling Code ¹
American toad	<i>Anaxyrus americanus</i>	MMP1, MMP3, MMP4, MMP5, MMP6, MMP7	2023-05-23, 2023-06-29	1
Green frog	<i>Rana clamitans</i>	MMP6, MMP7	2023-06-29	2
Spring peeper	<i>Pseudacris crucifer</i>	MMP4, MMP5, MMP6, MMP8	2023-04-20, 2023-05-23	3
Western chorus frog	<i>Pseudacris triseriata</i>	MMP5	2023-04-20,	3
Wood frog	<i>Lithobates sylvaticus</i>	MMP1, MMP5, MMP6	2023-04-20,	3

Table Notes: ¹Calling codes are defined as follows (Birds Canada et al., 2008): **1** – Calls not simultaneous, individuals can be accurately counted; **2** – Some calling simultaneous, individuals reliably estimated; **3** – Full chorus, continuous and overlapping, individuals not reliably estimated.

5.5.4 Bats and Other Mammals

Two acoustic bat monitors were installed for 14 nights and placed facing an open meadow community, where the greatest likelihood for bat activity would occur within the Study Area. Conditions were ideal with mainly clear or cloudy nights and warm temperatures ($\geq 15^{\circ}\text{C}$). The most commonly observed bat species include the Big Brown Bat (*Eptesicus fuscus*), Hoary bat (*Lasiurus cinereus*), and Silver-haired Bat (*Lasionycteris noctivagans*). The southern bat monitor was placed on June 2nd, 2023, within a hydro corridor. The North Bat monitor was installed on June 2nd, 2023, in a forested community and moved to a second location on June 13, 2023, to cover a wider area of the northern forest. Bat monitor locations are shown in Figure 2.



Table 7. Summary of bat recordings from acoustic monitoring

Survey Station	Survey Dates	Habitat Description	Big Brown Bat	Eastern Red Bat	Hoary Bat	Little Brown Bat	Silver-haired Bat	Tri-Colored Bat	Mean Number of Calls per Night
AM-1 (North)	2023-05-25 to 2023-06-02	Mixed forest opening to a small meadow	85	0	2	0	37	1	9
AM-2 (South)	2023-05-25 to 2023-06-02	Open hydro corridor with sparse shrubs and trees	2108	12	1761	1	4229	5	585

5.6 Species at Risk

An assessment of species listed under SARA and ESA was completed to identify species having some potential to occur on or near the Study Area, including Extirpated, Endangered, Threatened, and Special Concern species. Species listed as Extirpated, Endangered, and Threatened are afforded species and habitat protection under the ESA. Federal protections under SARA are always in force for listed species of fish and migratory birds. For species of other groups, SARA normally only applies on federal lands or on projects having some level of participation with or oversight by the federal government. However, SARA-based protections can be imposed by ministerial order on a case-by-case basis in situations where provincial-level protections are deemed inadequate to otherwise protect a species. Such protections are not expected to apply to the Site.

The SAR assessment evaluated whether the Site may provide suitable habitat for SAR (i.e., considering species known to occur in the Ottawa area; Appendix F) and whether they have potential to interact with future development of the Site. An assessment of the potential for SAR and their potential habitat was completed based on the results of the field surveys, ELC (i.e., habitat availability), and a desktop review that considered known species ranges, historic observation records, and preferred habitat requirements of these species (Appendix F). A total of 12 species subject to protections as SAR under the ESA and/or SARA were initially considered to have a moderate to high potential to occur on the Site and/or interact with the project (Table 8). Of those 12 species, four were observed to occur within the Study Area. None are considered likely to be negatively impacted by the development of the Site.

SAR presented in Table 9 do not include listed species that are not directly protected as SAR on the Site under the ESA or SARA (e.g., listed only as Special Concern, or are protected only federally and are not birds or fish). However, individuals of these species are protected under other regulations addressing wildlife conservation generally, such as the FWCA, the MBCA, and the PPS. In addition, species listed as Special Concern under the ESA may receive habitat protection if they are observed in habitats that meet the criteria for designation as SWH for Special Concern Species (MNRF, 2015a). Species of Species Concern will be discussed with SWH in Section 5.8.



Table 8 Species at risk initially considered to have potential for interaction with the site development

Common Name	Taxonomic Name	Status under Endangered Species Act	Status under Species at Risk Act (Schedule 1)	Potential to Interact with Development of the Site
Birds				
Barn Swallow	<i>Hirundo rustica</i>	Special Concern	Threatened	Not detected on the Site
Bobolink	<i>Dolichonyx oryzivorus</i>	Threatened	Threatened	
Canada Warbler	<i>Cardellina canadensis</i>	Special Concern	Threatened	
Common Nighthawk	<i>Chordeiles minor</i>	Special Concern	Special Concern	
Eastern Meadowlark	<i>Sturnella magna</i>	Threatened	Threatened	
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	Threatened (Special Concern January 2025)	Threatened	
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Special Concern	Special Concern	
Chimney Swift	<i>Chaetura pelagica</i>	Threatened	Threatened	Limited/Transient presence only. A single fly-over was detected on the south side of the property. The species was considered unlikely to be resident on the Site. With all trees having been removed from the Site (in the winter), the probability of negative interactions on the Site is negligible at any
Eastern Wood-Pewee	<i>Contopus virens</i>	Special Concern	Special Concern	Detected on the Site during breeding bird surveys. With all trees having been removed from the Site (in the winter), the probability of negative interactions on the Site is negligible at any
Wood Thrush	<i>Hylocichla mustelina</i>	Special Concern	Threatened	
Mammals				
Eastern Small-footed Myotis	<i>Myotis leibii</i>	Endangered	Not Listed	Not detected on the Site
Northern Myotis	<i>Myotis septentrionalis</i>	Endangered	Endangered	
Eastern Red Bat	<i>Lasiurus borealis</i>	Endangered (January 2025)	Not Listed	Detected in the Study Area—migratory species, originally considered to have a low probability of negative interactions with site development if tree clearing occurred outside of the active season. With all trees having been removed from the Site (in the winter), the probability of negative interactions on the Site is negligible at any time.
Hoary Bat	<i>Lasiurus cinereus</i>	Endangered (January 2025)	Not Listed	
Little Brown Myotis	<i>Myotis lucifugus</i>	Endangered	Endangered	Limited/Transient presence only - low probability of negative interactions if tree clearing occurs outside of the active season
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	Endangered (January 2025)	Not Listed	
Tri-colored Bat	<i>Perimyotis subflavus</i>	Endangered	Endangered	
Vascular Plants				
Butternut	<i>Juglans cinerea</i>	Endangered	Endangered	None – not present within the Site
Black Ash	<i>Fraxinus nigra</i>	Endangered	No Status	



5.7 Significant Woodlands and Canopy Cover

The City of Ottawa's (2022c) Significant Woodland Policy, defines Significant Woodlands within the urban boundary as any area 0.8 hectares in size or larger, supporting woodland 60 years of age and older at the time of evaluation. Significant Woodland on the Site was thus demarcated by delineating the boundaries of wooded areas on and adjacent to the property based on aerial imagery from 1963² (Appendix G). Portions of the demarcated areas that were noted as subsequently deforested in historical aerial imagery between 1976 and 2023 within the geoOttawa system were removed. Remaining areas greater than 0.8 ha in size were deemed to constitute Significant Woodland. A total of 0.07 ha of the wooded areas on the Site thus constitute Significant Woodland (Figure 14). Significant Woodland features on the Site are characterized according to screening criteria per the City's Significant Woodlands policy (2022; 9).

Table 9. Characterization of Significant Woodland Areas

Social Values	
Unusual recreational, educational or cultural opportunities	None. The Site consists of private property with no public use supported.
Qualifying Cultural, Heritage, or Historical Features	None. There are no existing designations within the OP.
Indigenous values established through consultation	No values are identified in the Jock River Subwatershed Study or in the nearby Stittsville Mainstreet or Fernbank CDPs. These studies did not however include indigenous consultation.
Hazard lands	
Constrained areas	None. Subject area has no hazards (e.g., floodplain, meander belts, steep or unstable slopes, restrictive soils or karst).
Habitat and Landscape Connectivity	
Adjacency and connectivity	None. Not part of Natural Heritage System Core Area or identified greenspace. Forested areas in the Study Area extend to abutting areas of dense residential development to the north and west. As such, they cannot serve as connection corridors between other natural areas.
Specialized habitat	None. Forest cover on the Site was removed in winter 2025/2026. No uncommon community types or rare species were present within the wooded areas.

² National Air Photo Library Roll A18057, Photo 0049, Dated 1963-05-24



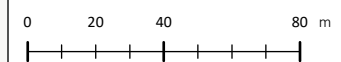


Legend

- Site Boundary
- Significant Woodland
- Significant Woodland On Site



Figure 4. Significant Woodland



Spatial Reference:
PCS: WGS 1984 UTM Zone 18N
Map Units: Meter

Project: CAIV 1300
Map File Name: CAIV 1300 ArcGIS
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5.8 Significant Wildlife Habitat

The Significant Wildlife Habitat (SWH) Criteria Schedule for Ecoregion 6E (MNRF, 2015) identifies four main types of significant wildlife habitat: seasonal concentration areas, rare vegetation communities, specialized habitat for wildlife and habitats of Species of Conservation Concern.

5.8.1 Seasonal Concentration Areas

The background information reviewed for the Study Area did not identify any seasonal concentration areas for animals. No obvious signs or evidence of use as a seasonal concentration area were observed and none are likely to occur.

5.8.2 Rare Vegetation Communities or Specialized Habitat for Wildlife

Rare Vegetation Communities

Rare vegetation communities typically include those that have developed on cliff and talus slopes, sand barrens, shallow soils over limestone bedrock (alvar), old growth forests, savannahs, and tallgrass prairies. No rare vegetation communities were observed.

Specialized Wildlife Habitat

Specialized Wildlife Habitat includes waterfowl nesting areas, Bald Eagle and Osprey nesting, foraging and perching habitat, woodland raptor nesting habitat, turtle nesting areas, seeps and springs, woodland amphibian breeding habitat, wetland breeding habitat, and woodland area-sensitive bird breeding habitat.

One pool of standing water was observed in Tributary B during the HDFA. The SWH Criteria requires the presence of 2 or more springs to be considered SWH. Per Section 5.4.3, however, water within site Tributaries is due only to short-distance, horizontal migration through shallow soils rather than groundwater springs.

Woodland amphibian breeding habitat is present within the Study Area. KAL's amphibian surveys recorded the presence of Spring Peeper (*Pseudacris crucifer*), Western Chorus Frog (*Pseudacris triseriata*), and Wood Frog (*Lithobates sylvaticus*) within the MMP5 and MMP6 stations, all of which are listed as qualifying significant wildlife species in the SWH criteria. As two or more of these species with a Call Level Code of 3 were recorded, the habitat of the breeding area plus a 230 m radius of woodland area qualifies as SWH. Only the areas near MMP5 and MMP6 stations therefore qualify as SWH.

No other Specialized Wildlife Habitats were identified or observed.

Habitats of Species of Conservation Concern

Habitats of Species of Conservation Concern include marsh bird breeding habitat, open country bird habitat, shrub/early successional bird breeding habitat, terrestrial crayfish and special concern and rare wildlife species. Habitats of Species of Conservation Concern do not include habitats of Endangered or Threatened species as identified by the ESA. Our background review did not identify the presence of any of the Habitats of Species of Conservation Concern for marsh bird breeding habitat, open country bird habitat, shrub/early successional bird breeding habitat, or terrestrial crayfish. The Site qualifies as SWH for special concern and



rare wildlife species, as the Eastern Wood-Pewee and Wood Thrush (special concern) were observed on the Site during breeding bird surveys.

5.9 Other Natural Heritage Features

No Provincially Significant Wetlands (PSW) and/or Areas of Natural and Scientific Interest (ANSI) are located on or adjacent to the Site. The Site does not contain significant valleylands or greenspace linkages. No other significant natural heritage features are located within 120 m of the Site.

6.0 DESCRIPTION OF THE PROPOSED PROJECT

The proposed Site Plan (Figure 15) includes 268 stacked dwelling units with communal and private amenity areas, including sodded/grassed and treed areas, rear decks, balconies, and patios. No SWM ponds are proposed on the Site; these will be addressed in future development applications.

Tributary A, a man-made ditch, is proposed to be removed/infilled to accommodate development. Tributary C, a roadside ditch along Flewellyn Road will be retained in its current extent and maintain its current functionality as a roadside ditch. No setbacks are required from Tributary C.

The Site has been cleared of all vegetation and forest cover to accommodate development, under relevant City of Ottawa tree permits. Overall canopy cover for the Site post-development will be 26.0%, accounting for 6,095m² (NAK Design Strategies, 2026). No park blocks are included in the Site under the current development application. Canopy cover is limited to streetscaping and amenity areas.





Legend

- Site Boundary
- Unit Block
- Road
- Parking
- Tree to be Planted

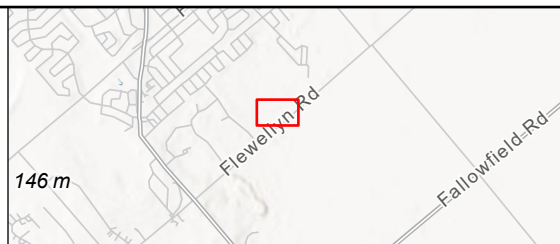
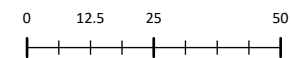


Figure 5. Proposed Site Plan



Spatial Reference:
PCS: WGS 1984 UTM Zone 18N
Map Units: Meter

Project: CAIV 1300
Map File Name: CAIV 1300 ArcGIS
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7.0 IMPACT ASSESSMENT AND MITIGATION APPROACHES

The Site was fully cleared of vegetation and forest cover in December 2025. Impact assessment consideration for the Site is limited to Tributaries A and C and the downstream Faulkner Drain (i.e. only generally as a receiver for surface water leaving the site). The assessment of impacts is based on the proposed development compared to existing Site conditions observed in 2023 and 2024.

The following sections provide recommended mitigative measures that would be imposed to limit potential impacts to natural heritage features on the Site under future residential development.

7.1 Vegetation, Significant Woodland and Canopy Cover

The Significant Woodland Policy (City of Ottawa, 2022c) provides that the forest attributes of woodland features qualified as “significant” can be replaced, substituted, or otherwise (adequately) mitigated. The policy acknowledges that negative impacts on the functions and services of significant woodlands within the urban area may be necessary in order to achieve the policies and objectives of the Official Plan and PPS. In evaluating potential tradeoffs associated with how the proposed development can be expected to impact Significant Woodland on the Site, this EIS considers changes in social value, accessibility and equity considering the percentage of the community with easy access to greenspace (i.e. considering the portion of the community within 250 m of wooded features).

All forest cover (i.e. Significant Woodland or otherwise) on the Site has been removed. Compensation for the removal will be addressed in future phases of development within the Study Area. The Landscape Plan for the Site (NAK Design Strategies, 2026; Appendix H) recommends native species for planting, including large, medium, and small deciduous trees, coniferous trees, and a variety of shrubs and grasses/perennials. Soil volume projections are provided in the Landscape Plan for the Site (NAK Design Strategies, 2026; Appendix H), based on a 1.5 m depth.

The following mitigation measures are recommended to minimize impacts on the surrounding forested areas and natural heritage features during construction of the Site:

- Erect a fence beyond the critical root zone (CRZ; i.e., 10 x the trunk diameter) of retained trees. The fence is recommended to be highly visible (e.g., orange construction fence) and paired with erosion control fencing. Pruning of branches is recommended in areas of potential conflict with construction equipment;
- Signage attached to the CRZ fence every 6.0 m indicating:
 - a) the fencing is to protect the tree’s CRZ; and
 - b) that the fence must not be moved.
- Do not place any material or equipment within the CRZ of the tree;
- Do not attach any signs, notices, or posters to any tree;
- Do not raise or lower the existing grade within the CRZ without approval;
- Tunnel or bore when digging within the CRZ of a tree;



- Do not damage the root system, trunk or branches of any tree; and
- Ensure that exhaust fumes from all equipment are NOT directed toward any tree's canopy.

After community buildout, it is recommended that residents/landowners are provided with an environmental awareness package detailing common invasive plant species to avoid planting in yards to reduce risk of invasive species spread into the retained woodland, as well as avoiding dumping yard waste.

7.2 Surface Water Features

Tributaries within the Study Area were found to be primarily fed by overland flow and precipitation catchment into the SWCM1-1 wetland and by very shallow water transport through the adjacent soils rather than true groundwater upwellings (Paterson Group, 2023). Direct fish habitat occurs south of the Site in Tributary C roadside ditch feature. Fish were otherwise absent from Tributary A on the Site.

Tributary C will be fully retained in its current alignment. Tributary A was found to be a ditch/swale feature, with no defined bed, banks, or sides, and thus no RVCA permit for its removal and/or infilling is required.

To eliminate harmful alteration, disruption, or destruction (HADD) of fish and fish habitat under the Fisheries Act (Government of Canada, 1985) during the removal of Tributary A, for work within Tributary C, or potential impacts to downstream fish bearing channels, the following mitigation measures are recommended to be implemented:

- Time work to avoid the restricted activity timing windows to reduce the risk of harm to fish and fish habitat. Restricted timing windows in Ontario are March 15 - July 15, and October 1 – May 31;
- Utilize methods to prevent soil compaction near fish habitat, such as swamp mats or pads;
- Install a temporary cofferdam or other isolation method to isolate the construction zone for any in-water works prior to beginning work;
- Perform a fish removal of the isolated area, conducted by a qualified professional biologist;
- Minimize duration of in-water work;
- Wherever possible, operate machinery on land above the high water mark in a manner that minimizes disturbance to the banks and bed of retained waterbodies;
- Do not place fill or (re)grade any channels or watercourses without required authorization and/or permits from RVCA, DFO, and MNRF, and consult a qualified professional biologist on additional measures that may be required to protect fish habitat;
- Maintain fish passage by avoiding obstructing or interfering with the movement and migration of fish by changing flows or water levels of watercourses and/or channels; and
- Prevent entry of deleterious substances to watercourses and channels.
- It is recommended that the project follow applicable DFO standards and codes of practice including:
 - Interim standard: In-water Site Isolation;
 - Interim code of practice: End-of-pipe fish protection screens for small water intakes in freshwater; and



- Interim code of practice: Municipal and agricultural drain maintenance.

The potential for construction-related impacts to surface water features can be managed with the implementation of appropriate mitigation measures, such as:

- Ensure equipment is clean prior to construction works to avoid introducing invasive species to the Site, and clean equipment prior to leaving Site to avoid spreading the aforementioned invasive species elsewhere;
- Design and implement erosion and sediment controls to contain/isolate the construction zone, manage site drainage/runoff and prevent erosion of exposed soils and migration of sediment;
- An Erosion and Sediment Control Plan outlining mitigation measures to limit the potential for sediment and erosion to enter these watercourses. The ESC Plan must be developed to the satisfaction of RVCA. The ESC Plan should include:
 - A multi-faceted approach to provide ESC;
 - Regularly inspecting and maintaining the ESC measures during all phases of the project;
 - Retention of existing vegetation and stabilization of exposed soils with native vegetation where possible;
 - Keeping the ESC measures in place until all disturbed ground has been permanently stabilized;
 - Using biodegradable ESC materials where possible and removing all exposed non-biodegradable ESC materials once the Site is stabilized;
 - Limiting the duration of soil exposure and phasing project works;
 - Limiting the size of disturbed areas by minimizing nonessential clearing and grading;
 - Minimizing the total slope length and the gradient of disturbed areas;
 - Refueling of machinery should occur >30 m from surface water features and all machinery will remain on the project-side of silt and construction fence;
 - Maintaining overland sheet flow and avoiding concentrated flows;
 - Storing/stockpiling materials >30 m away from the Faulkner Drain, SWM pond, and other surface water features within the Study Area;
 - Fencing or tarping all stockpiled material (<150-millimeter gravel) during the turtle nesting period (late May to early July) (MECP, 2021b) to prevent turtles from nesting in stockpiles. If the stockpile is within a properly fenced area (i.e., the project footprint) additional fencing is not necessary for turtle management, but is recommended for ESC if piles will be left unused for extended periods;
 - Regularly inspecting the Site for signs of sedimentation during all phases of work and taking corrective action if required;
 - Developing a response plan to be implemented immediately in the event of a spill of a deleterious substance;
 - Keeping an emergency spill kit on the Site;



- Stopping work and containing deleterious substances to prevent dispersal; and
- Reporting any spills of sewage, oil, fuel, or other deleterious material whether near or directly into a surface water feature.

As a general surface water protection measure post-development, residents should be made aware of the importance of minimizing or avoiding the use of fertilizers, herbicides, and pesticides and should consider using surface materials that allow for rainwater infiltration.

7.3 Species at Risk

A total of 12 species subject to protections as SAR under the ESA and/or SARA were initially considered to have potential to occur on the Study Area and/or interact with the project (Table 8). Of those 12 species, four were observed to occur within the Study Area. No SAR are considered likely to be negatively impacted by the proposed development of the Site. All treed areas on the Site have been cleared during appropriate timing windows for migratory birds and bats. The general wildlife mitigations provided in Section 7.4 below are anticipated to protect the SAR that may potentially occur on the Site.

Impacts to other SAR can be managed with the implementation of appropriate mitigation measures, such as:

- All on-site staff are recommended undergo environmental awareness training to be able to identify the potential SAR that may be encountered; and,
- Perform daily pre-work searches of the construction area to ensure no wildlife has entered the work area overnight.

7.4 Wildlife

A total of five frog species were observed on the Site via evening Frog surveys and incidental observations, predominantly associated with the existing SWM pond within the Study Area. This SWM pond is being retained and is well outside the Study Area, and therefore no impact to species utilizing this feature is anticipated. Wood Frogs, Chorus Frog, and Spring Peeper were observed in association with Tributaries A, C and E. Under future site development, Tributary A would experience altered subsurface flows and thus cannot be retained (Paterson Group, 2023). The limited anuran presence along this feature, however, could be replicated in small wetland features associated with the enhancement of the Upper Faulkner Watercourse, detailed in future development applications.

The following mitigation measures are recommended to be implemented during future construction to generally protect wildlife:

- Ensure that a qualified biologist develops a wildlife management plan for the construction process and delivers environmental compliance and biodiversity training to all site workers to implement the plan. The plan is recommended include (but not be limited to) requirements to:
 - Utilize silt fence paired with sturdy construction fence along the project perimeter and around soil stockpiles to serve as a wildlife exclusion measure to prevent smaller animals from accessing/utilizing temporary habitats on the Site;



- Check the entire work site for wildlife prior to beginning work each day;
- It is recommended that construction and vegetation removal occurs in phases, limiting vegetation removal to the highest extent possible to facilitate wildlife movement towards safety;
- Do not harm, feed, or unnecessarily harass wildlife;
- Manage waste to prevent attracting wildlife to the work site. Effective mitigation measures include litter prevention and keeping all trash secured in wildlife-proof containers and promptly removing it from the work site, especially during warm weather;
- A recommended a speed limit of 20 km/h during the active season (April 1 to September 30) to reduce wildlife mortality; and
- Manage stockpiles and equipment at the work site to prevent wildlife from being attracted to artificial habitat. Cover and contain any piles of soil, fill, brush, rocks, and other loose materials and cap ends of pipes where necessary to keep wildlife out. Ensure that trailers, bins, boxes, and vacant buildings are secured at the end of each workday to prevent access by wildlife.

Once construction is complete and the residences are occupied, KAL recommends that new residents are encouraged through signage and public education to keep pets on leash during the bird breeding season (April 1 to August 31). It is recommended that landowners be provided with educational resources about keeping cats on a leash or indoors, as cats are one of the largest threats to bird populations (Blancher, 2013).



8.0 REVIEW AND CONCLUSIONS

The intent of this report is to consider potential impacts to natural heritage system features associated with the Site Plan Control Application for the Site. This report identifies likely mitigation measures that would be employed under future development and/or imposed on future development.

Reviewing natural heritage system elements addressed within the PPS and the City's OP (and in consideration of relevant federal and/or provincial legislation per Section 2.0 above):

- a) Significant Wetlands
 - No significant wetlands are present on the Site.
- b) Habitat for SAR (and SAR directly)
 - No SAR were observed on the Site.
- c) Significant Woodlands
 - 0.07 ha of Significant Woodland will be removed from the Site.
- d) Significant Valleylands
 - There are no significant valleylands associated with the Site.
- e) Significant Wildlife Habitat
 - Significant Wildlife Habitat on the Site is limited to supporting Eastern Wood-Pewee, Wood Thrush, and several species of frogs. Both bird species were present in limited numbers and would likely remain associated with the Study Area in limited numbers. Frog habitat can be maintained and/or re-established along the Upper Faulkner Watercourse corridor.
- f) Areas of Natural and Scientific Interest
 - There are no ANSIs associated with the Site.
- g) Urban Natural Features
 - There are no UNFs associated with the Site.
- h) Natural Environment Areas
 - There are no significant Natural Environment Areas associated with the Site.
- i) Natural linkage features and corridors
 - The Site abuts developed areas and as such, does not provide Natural linkage features and corridors.



j) Groundwater features

- There are no significant groundwater features associate with the Site.

k) Surface water features, including fish habitat

- Tributary A will be fully removed, and does not constitute fish habitat. Tributary C will be retained, and its hydrological and fish habitat functionality will be protected and maintained.

l) Landform features

- There are no significant landform features associate with the Site.

It is the opinion of the undersigned that residential development could be sufficiently mitigated to limit net negative impacts to significant natural features or ecological functions of the Site.



9.0 CLOSURE

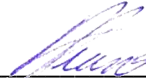
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Respectfully submitted,

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Appendix A Qualifications of Report Authors



Maren Nielsen, BES, EMA

Maren is a Biologist and Project Manager with over five years of professional experience with expertise in terrestrial and aquatic ecology, natural heritage policy, and impact assessment. She has worked extensively in the environmental sector with government agencies and private industry, guiding land development, ecological restoration, Species at Risk, and fisheries permitting and approvals processes, delivering adaptive solutions and ensuring compliance with key environmental regulations. She carries out field programs for the collection, analysis, and monitoring of water, fish, benthos, sediment, and soils as well as a variety of vegetation, wetland, Species at Risk, and wildlife surveys, and construction monitoring.

Since joining Kilgour & Associates Ltd. in 2023, Maren has supported the delivery of high-quality assessments, including environmental impact studies, federal and municipal environmental assessments, Species at Risk assessments, headwater drainage feature assessments, community design plans and environmental constraints analyses. Maren is a certified wetland evaluator under the Ontario Wetland Evaluation System (OWES).

Anthony Francis, PhD

Dr. Francis is a Senior Ecologist with 20 years' consulting experience to both government agencies and private industry. He has worked on a diversity of projects relating to species at risk (SAR), invasive species, terrestrial and aquatic habitat, environmental effects monitoring and mitigation, and fate/effects of contaminants. Within each of these subject areas, Dr. Francis has completed projects addressing specific site concerns and broader policy initiatives. Dr. Francis' academic background is in spatial ecology with a focus on tree species diversity. As a Senior Ecologist at KAL, he regularly completes TCRs, Environmental Impact Statements, and Integrated Environmental Reviews for land development projects throughout Ottawa and eastern Ontario. He is also a certified Butternut Health Assessor (BHA #104).



Appendix B MECP Species at Risk Correspondence



October 4, 2022

Our File: CAIV 1300

Management Biologist
Permissions and Compliance Section
Ontario Ministry of Environment, Conservation and Parks
10-1 Campus Drive
Kemptville, ON
K0G 1J0

Reference: Species at risk information request for 5993 and 6115 Flewellyn Road and 6070 Fernbank Road in Stittsville

1.0 INTRODUCTION

This letter is a request for information relating to the potential presence of species at risk (SAR) for the proposed development at 5993 and 6115 Flewellyn Road and 6070 Fernbank Road, Stittsville, Ontario. This letter includes a desktop review of SAR occurrence records using the resources and guidelines outlined in the draft document, *Client's Guide to Preliminary Screening for Species at Risk* (Ministry of the Environment, Conservation and Parks (MECP), 2019). We (Kilgour & Associates Ltd.; KAL) are seeking confirmation from MECP regarding the list of SAR that may occur on or near the project site. Potential impacts to SAR will be assessed via an Environmental Impact Study (EIS) that we will be preparing for our client. If impacts to SAR are anticipated, we will recommend that our client notifies MECP and engages in consultation to further consider potential impacts, avoidance and/or mitigation measures, and whether the project may require authorization under the *Endangered Species Act* (ESA).

1.1 Site Overview

The site is 67.24 ha in size and is located at 5993 and 6115 Flewellyn Road and 6070 Fernbank Road (Figure 1). The zoning of the property is Rural Countryside (RU), and it is currently a naturalized lot with a hydro corridor some agricultural activities. The site is dominated by mixed forest and cultural meadow, with agricultural activities in the northeast corner.

The centroid coordinates of the subject project area are:

Latitude: 45.245871°, Longitude: -75.895627°

The site is bordered by:

- Residential to the north;
- Agricultural lands to the east;
- Agricultural lands and forest to the south; and
- Residential, forest, and wetland to the west.



Figure 1 Location and existing conditions of the site

2.0 SPECIES AT RISK RESOURCES REVIEW AND RESULTS

We reviewed the following online resources to determine SAR occurrences on and/or nearby the site.

- Aquatic Species at Risk Map (DFO, 2022)
- Ontario Ministry of Natural Resources and Forestry (MNRF)
 - Natural Heritage Information Centre (MNRF, 2022a)



- Land Information Ontario Provincially Tracked Species Grid Detail (MNRF, 2022b)
- Recovery Strategy for the Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*) in Ontario (Humphrey and Fotherby, 2019)
- Recovery Strategy for the Eastern Small-footed Myotis (*Myotis leibii*) in Ontario (Humphrey, 2017)
- Species at Risk in Ontario (MECP, 2022)
- Species at Risk Public Registry (Government of Canada, 2022)
- Atlas of the Breeding Birds of Ontario 2001-2005 (Birds Canada et al., 2009)
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2019)
- iNaturalist (California Academy of Sciences and National Geographic Society, 2022)
- eBird (Cornell Lab of Ornithology, 2022)
- Bumble Bee Watch (Wildlife Preservation Canada et al., 2022)
- Ontario Butterfly Atlas (Toronto Entomologists' Association, 2022)

The results of the SAR desktop review are indicated in Table 1. Note that occurrence data in Table 1 from the Natural Heritage Information Centre (MNRF, 2022a), Land Information Ontario (MNRF, 2022b), eBird (Cornell Lab of Ornithology, 2022), and iNaturalist (California Academy of Sciences and National Geographic Society, 2022) are occurrences within ~5 km of the site. SAR occurrence data from the Ontario Breeding Birds Atlas (Birds Canada et al., 2009) and the Ontario Reptile and Amphibian Atlas (Ontario Nature, 2019) are based on the 10 x 10 km Atlas square that the site falls in. As this Site was located at the corner of four squares (18VR21, 18VR31, 18VR20, 18VR30) data was gather from all.

Table 1 List of species at risk with potential to occur on or near the project site based on our desktop review

Species Name (<i>Scientific name</i>)	Information Source
Birds	
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	Cornell Lab of Ornithology (2022); California Academy of Sciences and National Geographic Society (2022)
Bank Swallow (<i>Riparia riparia</i>)	Birds Canada et al. (2009); Cornell Lab of Ornithology (2022)



Species Name (<i>Scientific name</i>)	Information Source
Barn Swallow (<i>Hirundo rustica</i>)	Birds Canada et al. (2009); MNRF (2022a); MNRF (2022b); Cornell Lab of Ornithology (2022)
Bobolink (<i>Dolichonyx oryzivorus</i>)	Birds Canada et al. (2009); MNRF (2022a); MNRF (2022b); Cornell Lab of Ornithology (2022)
Canada Warbler (<i>Cardellina canadensis</i>)	MNRF (2022a)
Chimney Swift (<i>Chaetura pelagica</i>)	Cornell Lab of Ornithology (2022)
Common Nighthawk (<i>Chordeiles minor</i>)	Birds Canada et al. (2009); Cornell Lab of Ornithology (2022)
Eastern Meadowlark (<i>Sturnella magna</i>)	Birds Canada et al. (2009); MNRF (2022a); MNRF (2022b); Cornell Lab of Ornithology (2022)
Eastern Whip-poor-will (<i>Antrostomus vociferus</i>)	Birds Canada et al. (2009); MNRF (2022a)
Eastern Wood-Pewee (<i>Contopus virens</i>)	Birds Canada et al. (2009); Cornell Lab of Ornithology (2022)
Evening Grosbeak (<i>Coccothraustes vespertinus</i>)	Birds Canada et al. (2009); Cornell Lab of Ornithology (2022)
Grasshopper Sparrow (<i>Ammodramus savannarum</i>)	Birds Canada et al. (2009)
Hudsonian Godwit (<i>Limosa haemastica</i>)	Cornell Lab of Ornithology (2022)
Least Bittern (<i>Ixobrychus exilis</i>)	MNRF (2022a)
Lesser Yellowlegs (<i>Tringa flavipes</i>) *	Cornell Lab of Ornithology (2022)
Olive-sided Flycatcher (<i>Contopus cooperi</i>)	Cornell Lab of Ornithology (2022)
Peregrine Falcon (<i>Falco peregrinus</i>)	Cornell Lab of Ornithology (2022); California Academy of Sciences and National Geographic Society (2022)
Rusty Blackbird (<i>Euphagus carolinus</i>)	Cornell Lab of Ornithology (2022)
Wood Thrush (<i>Hylocichla mustelina</i>)	Birds Canada et al. (2009); MNRF (2022a); Cornell Lab of Ornithology (2022)
Mammals	
Eastern Small-footed Myotis (<i>Myotis leibii</i>)	Humphrey (2017)
Little Brown Myotis (<i>Myotis lucifugus</i>)	Humphrey and Fotherby (2019)
Northern Myotis (<i>Myotis septentrionalis</i>)	Humphrey and Fotherby (2019)
Tri-colored Bat (<i>Perimyotis subflavus</i>)	Humphrey and Fotherby (2019)
Amphibians	
Western Chorus Frog (<i>Pseudacris triseriata</i>)	Ontario Nature (2019); MNRF (2022a)
Reptiles	
Blanding's Turtle (<i>Emydoidea blandingii</i>)	Ontario Nature (2019); MNRF (2022a); MNRF (2022b); California Academy of Sciences and National Geographic Society (2022)



Species Name (<i>Scientific name</i>)	Information Source
Eastern Milksnake (<i>Lampropeltis triangulum</i>)	Ontario Nature (2019); MNRF (2022a); MNRF (2022b); California Academy of Sciences and National Geographic Society (2022)
Midland Painted Turtle (<i>Chrysemys picta marginata</i>)	Ontario Nature (2019); MNRF (2022a); California Academy of Sciences and National Geographic Society (2022)
Northern Map Turtle (<i>Graptemys geographica</i>)	MNRF (2022a); California Academy of Sciences and National Geographic Society (2022)
Snapping Turtle (<i>Chelydra serpentina</i>)	Ontario Nature (2019); MNRF (2022a); MNRF (2022b); California Academy of Sciences and National Geographic Society (2022)
Arthropods	
Monarch (<i>Danaus plexippus</i>)	California Academy of Sciences and National Geographic Society (2022); Toronto Entomologists' Association (2022)
Yellow-banded Bumble Bee (<i>Bombus terricola</i>)	MNRF (2022a)
Fish	
American Eel (<i>Anguilla rostrata</i>)	MNRF (2022a)
Vascular Plants	
Black Ash (<i>Fraxinus nigra</i>)	MNRF (2022a); California Academy of Sciences and National Geographic Society (2022)
Butternut (<i>Juglans cinerea</i>)	MNRF (2022a)
Lichens	
Flooded Jellyskin (<i>Leptogium rivulare</i>)	MNRF (2022a); MNRF (2022b)

* Lesser Yellowlegs is not currently listed under the ESA or SARA (currently it is listed as Threatened under COSEWIC). However, it will be added to SARO as Threatened on Jan 25, 2023. As the project likely will not commence until after Jan 25, 2023, it has been included here.

The local conservation authority (Rideau Valley Conservation Authority) does not have a SAR geodatabase and no additional SAR information was found in their relevant watershed/subwatershed reports.

We note that observation records on eBird (Cornell Lab of Ornithology, 2022) and iNaturalist (California Academy of Sciences and National Geographic Society, 2022) are crowd-sourced and rely heavily on data submitted by volunteer citizen scientists that are not necessarily vetted by experts. As such, observation records from these sources are considered non-confirmed by KAL, but are included in this preliminary SAR screening based on guidelines set forth by MECP (2019).



3.0 CLOSURE

Thank you for considering this SAR information request for 5993 and 6115 Flewellyn Road and 6070 Fernbank Road. We look forward to any comments you may have. Questions relating to the contents of this letter can be addressed to the undersigned.

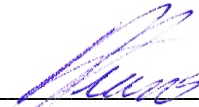
Respectfully submitted,

KILGOUR & ASSOCIATES LTD.



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cc: Kesia Miyashita (KAL)



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Appendix C Vascular Plant List



Appendix D - Vascular Plant List

Trees

Species Common Name	Scientific Name	ELC Codes	DBH Ranges
American Beech	<i>Fagus grandifolia</i>	FOMM4-3, FOCM6-3,CUM1-1	10-15 cm
American Elm	<i>Ulmus americana</i>	FOMM4-3, FODM8-1	10-20 cm
Apple Spp.	<i>Malus spp.</i>	CUM1-1	8-10 cm
Balsam Fir	<i>Abies Balsamea</i>	FOMM7-2	
Balsam Poplar	<i>Populus balsamifera</i>	FODM7, FODM8-1	10-25 cm
Basswood	<i>Tilia americana</i>	FODM8-1	~30 cm
Black Ash*	<i>Fraxinus nigra</i>	FODM7, FODM8-1	
Butternut*	<i>Juglans cinerea</i>	FOMM4-3, MEMM3, FOCM6-3, FODM7, FODM8-1	~10-20 cm, 20-50 cm
Eastern White Cedar	<i>Thuja occidentalis</i>	FOCM6-3, FODM8-1, CUM1-1, FOMM4-3, FOMM7-2, MEMM3, FOM7	5-15 cm, 10-20 cm
Green Ash	<i>Fraxinus pennsylvanica</i>	FOMM4-3, FOMM7-2, CUM1-1, FOCM6-3	<5 cm , 10-15 cm
Jack Pine	<i>Pinus banksiana</i>	FOCM6-3	~15 cm
Larch/Tamarack	<i>Larix laricina</i>	FOMM4-3, CUM1-1, MEMM3	~5-10 cm, 15-20 cm
Large tooth Aspen	<i>Populus grandidentata</i>	FOMM4-3, CUM1-1	~15 cm, ~5 cm
Red Maple	<i>Acer rubrum</i>	FODM8-1	~27 cm
Scots Pine	<i>Pinus sylvestris</i>	CUM1-1, MEMM3, FOCM6-3	5-10 cm, ~10-20 cm
Trembling Aspen	<i>Populus tremuloides</i>	FOMM4-3, FOMM7-2,CUM1-1,FODM7, FODM8-1	10-35 cm
White Ash	<i>Fraxinus americana</i>	FOMM7-2	5-8 cm
White Birch	<i>Betula papyrifera</i>	FOMM7-2, FOCM6-3, FODM8-1	10-20 cm
White Pine	<i>Pinus strobus</i>	FOMM4-3,FOCM6-3	20-25 cm
White Spruce	<i>Picea glauca</i>	FOMM4-3, FOMM7-2, CUM1-1	20-25cm, 30 cm, ~10 cm

Understory & Groundcover

Species Common Name	Scientific Name	ELC Codes
Alder Buckthorn	<i>Rhamnus frangula</i>	FOMM7-2, CUM1-1, MEMM3, FOCM6-3, SWMC1-1, FODM8-1, CUT1
American Elm Saplings	<i>Ulmus americana</i>	MEMM3
American Vetch	<i>Vicia americana</i>	MEMM3
Apple Spp.	<i>Malus spp.</i>	MEMM3, FOCM6-3

Species Common Name	Scientific Name	ELC Codes
Basswood Saplings	<i>Tilia americana</i>	FOMM4-3
Bebb's Willow	<i>Salix bebbiana</i>	CUM1-1, MEMM3, FOCM6-3, CUT1
Birds-foot Trefoil	<i>Lotus corniculatus</i>	MEMM3, CUM1-1
Bladder Campion	<i>Silene vulgaris species</i>	CUM1-1
Bloodroot	<i>Sanguinaria</i>	FODM8-1
Box Elder Saplings	<i>Acer negundo</i>	MEMM3,CUM1-1
Broad-leaved helleborine	<i>Epipactis helleborine</i>	FODM8-1
Brown Eyed Susan	<i>Rudbeckia triloba</i>	CUM1-1
Bulblet Bladder Fern	<i>Cystopteris bulbifera</i>	SWMC1-1
Canada Goldenrod	<i>Solidago canadensis</i>	FOMM4-3, CUM1-1, MEMM3, FODM8-1, OAGM4
Canada Mayflower	<i>Maianthemum canadense</i>	FOMM7-2
Clematis virginiana	<i>Clematis virginiana</i>	FODM8-1
Common Blackberry	<i>Rubus allegheniensis</i>	CUM1-1, MEMM3, FOCM6-3
Common Buckthorn	<i>Rhamnus cathartica</i>	FOMM4-3
Common Buckthorn	<i>Rhamnus cathartica</i>	FODM7
Common Dandelion	<i>Taraxacum officinale</i>	CUM1-1, MEMM3, FOCM6-3, OAGM4
Common Juniper	<i>Juniperus communis</i>	FOMM4-3, CUM1-1, MEMM3, FOCM6-3, FODM8-1
Common Lady Fern	<i>Athyrium filix-femina</i>	FOMM7-2
Common Milkweed	<i>Asclepias syriaca</i>	MEMM3, FODM8-1, CUT1
Common Mullein	<i>Verbascum thapsus</i>	CUM1-1, OAGM4
Common Ragweed	<i>Ambrosia artemisiifolia</i>	CUM1-1, FODM7
Cow Vetch	<i>Vicia cracca</i>	CUM1-1, MEMM3, FOCM6-3
Deptford Pink	<i>Dianthus armeria</i>	FOCM6-3
Eastern Hemlock	<i>Tsuga canadensis</i>	FOMM7-2
Eastern Prickly Gooseberry	<i>Ribes cynosbati</i>	FODM8-1
False Solomon's Seal	<i>Maianthemum racemosum</i>	FOMM4-3, FODM8-1
Fragrant bedstraw	<i>Galium trifler</i>	FOCM6-3
Garlic Mustard	<i>Alliaria petiolata</i>	FOMM4-3, FOMM7-2
Glossy Buckthorn	<i>Rhamnus frangula</i>	MEMM3
Grass-leaved Goldenrod	<i>Euthamia graminifolia</i>	MEMM3
Gray's Sedge	<i>Carex grayi</i>	FODM8-1

Species Common Name	Scientific Name	ELC Codes
Interrupted Fern	<i>Osmunda claytoniana</i>	SWMC1-1, FODM8-1
Jack-in-the-pulpit	<i>Arisaema triphyllum</i>	FOMM7-2
Joe Pye Weed	<i>Eutrochium purpureum</i>	MEMM3
Kentucky Bluegrass	<i>Poa pratensis</i>	CUM1-1
Meadow Buttercup	<i>Ranunculus acris</i>	CUM1-1, FOCM6-3, OAGM4
Meadow Horsetail	<i>Equisetum pratense</i>	MEMM3, FODM8-1,OAGM4
New England Aster	<i>Symphyotrichum novae-angliae</i>	FOMM4-3, CUM1-1, MEMM3, FODM8-1
Orchard Grass	<i>Dactylis glomerata</i>	CUM1-1, MEMM3, FOCM6-3, FODM8-1
Ostrich Fern	<i>Matteuccia struthiopteris</i>	FOMM7-2, FODM8-1
Pin Cherry	<i>Prunus pensylvanica</i>	FOMM4-3, CUM1-1, MEMM3, FODM8-1
Poison Ivy	<i>Toxicodendron radicans</i>	FOMM4-3, CUM1-1, SWMC1-1, FODM7, FODM8-1
Prairie Fleabane	<i>Erigeron strigosus</i>	CUM1-1
Purple Aster	<i>Symphyotrichum patens</i>	OAGM4
Purple Flowering raspberry	<i>Rubus odoratus</i>	FOMM4-3, CUM1-1, MEMM3
Purple Loosestrife	<i>Lythrum salicaria</i>	MEMM3
Queen Annes Lace	<i>Daucus carota</i>	CUM1-1
Red Osier Dogwood	<i>Cornus sericea</i>	MEMM3
Red Raspberry	<i>Rubus ideaus</i>	FOMM4-3, CUM1-1, FOCM6-3
Reed Canary Grass	<i>Phalaris arundinacea</i>	CUM1-1, FOCM6-3
Riverbank Grape	<i>Vitis riparia</i>	FOMM4-3, FODM7
Rough Cinquefoil	<i>Potentilla norvegica</i>	CUM1-1
Rough goldenrod	<i>Solidago rugosa</i>	FOMM4-3
Sensitive Fern	<i>Onoclea sensibilis</i>	FOMM4-3, FOMM7-2, MEMM3, SWMC1-1, FODM8-1
Silver Cinquefoil	<i>Potentilla argentea</i>	CUM1-1
Smooth Bromegrass	<i>Bromus inermis</i>	CUM1-1
Spiked Speedwell	<i>Veronica spicata</i>	FOMM4-3
Spinulose Wood Fern	<i>Dryopteris carthusiana</i>	FOMM4-3, FOMM7-2
Sugar Maple Saplings	<i>Acer saccharum</i>	FODM8-1
Tall Thimbleweed	<i>Anemone virginiana</i>	FOMM4-3,FOCM6-3
Trembling Aspen saplings	<i>Populus tremuloides</i>	CUM1-1, FOMM4-3, FODM8-1, CUT1
Vipers Bugloss	<i>Echium vulgare</i>	CUM1-1

Species Common Name	Scientific Name	ELC Codes
Virginia Creeper	<i>Parthenocissus quinquefolia</i>	FOMM7-2, FODM8-1
White Meadowsweet	<i>Spiraea alba</i>	MEMM3, FODM8-1, CUT1
White Panicle Aster	<i>Symphyotrichum lanceolatum</i>	MEMM3, FODM7
White Snakeroot	<i>Ageratina altissima</i>	FODM8-1
White Turtlehead	<i>Chelone glabra</i>	FODM8-1
White Willow	<i>Salix alba</i>	FODM8-1,FOMM7-2, CUT1
Wild Strawberry	<i>Fragaria vesca</i>	CUM1-1, MEMM3, FOCM6-3, OAGM4
Yarrow	<i>Achillea millefolium</i>	CUM1-1
Yellow Sweet Clover	<i>Melilotus officinalis</i>	FODM7
Yellow Toadflax	<i>Linaria vulgaris</i>	MEMM3

Appendix D Headwater Drainage Features Assessment



Headwater Drainage Feature Assessment for Caivan Development Corporation, Flewellyn Road Properties

2023-09-08

Final Report

KILGOUR & ASSOCIATES LTD.
www.kilgourassociates.com

Project Number: CAIV 1300



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List of Acronyms and Abbreviations

EEM – Environmental Effects Monitoring
EIS – Environmental Impact Statement
KAL – Kilgour & Associates Ltd.
HDFA – Headwater Drainage Feature Assessment
HDFs – Headwater Drainage Features



1.0 INTRODUCTION

This report is a Headwater Drainage Feature Assessment (HDFA) prepared by Kilgour & Associates Ltd. (KAL) on behalf of Caivan Development Corporation in support of future residential development located at 5993 and 6115 Flewellyn Road, and 6070 Fernbank Road in Stittsville, Ontario (hereafter referred to as “the Site”).

This report provides a detailed description of the Headwater Drainage Features (HDFs) on and adjacent to the property following field methodologies identified in the *Evaluation, Classification and Management of Headwater Drainage Features Guidelines* (Toronto and Region Conservation Authority & Credit Valley Conservation, 2013)), herein referred to as the HDF Guidelines.

2.0 HEADWATER DRAINAGE FEATURES

2.1 Overview

This study identifies and describes six (6) HDFs located on and adjacent to the Site (Figure 1). There are two main groups of channels that flow across and adjacent to the Site. The Site consists of forested areas, wetland areas, meadow, a hydro line, a stormwater pond, and an idle agricultural field. Surrounding land uses are predominantly residential and agricultural.

One group of channels is primarily associated with the Faulkner Municipal Drain, and the second group primarily conveys water from within the forested areas on the Site towards the Faulkner drain.

2.2 Assessment Methodology

The Standard level of assessment follows Ontario Stream Assessment Protocol (OSAP) methodologies for descriptions of flow conditions, riparian vegetation and site features that are important components of habitat (headwater sampling protocol OSAP S4.M10) and includes an electrofishing survey to describe fish and fish habitat (OSAP S4.M10). Additionally, the Ecological Land Classification for Southern Ontario (ELC) was applied to the Site (Lee et al., 1998), with specific focus on the riparian zone of each segment, and determined habitat community types present on the Site. An assessment of amphibian breeding was conducted following the Marsh Monitoring Protocol (MMP) (Birds Canada et al., 2009).

OSAP investigations of HDFs were conducted on April 17, 2023 during spring freshet, and electrofishing surveys on May 18, 2023. Two amphibian surveys following the MMP were conducted on April 20, 2023 and May 23, 2023. The ELC survey was conducted on June 02, 2023.



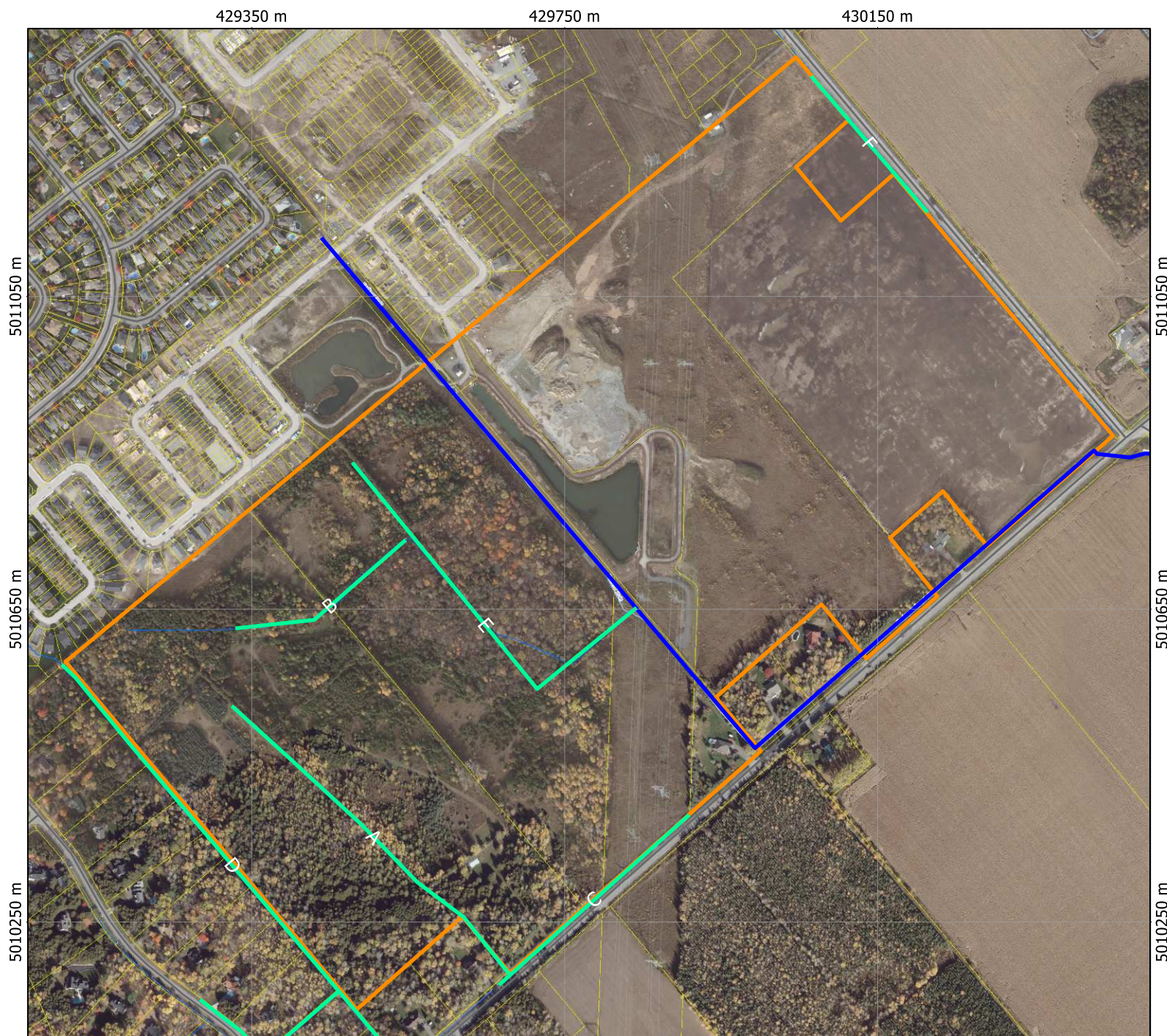
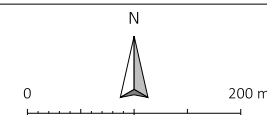


Figure 6 Head Water Drainage
Assesment

- Tributaries
- Faulkner Drain



Project: CAIV 1300
 Map File: CAIV 1300 2308a-AFRANCIS-KAL
 Universal Transverse Mercator - Zone 18 (N)
 Printed on: 2023-09-27



2.3 General Reach Descriptions

Images of Reaches A through F are provided in Appendix A.

2.3.1 Tributary A

Tributary A is a 465 m roadside ditch that flows southward and turns into a braided channel as it approaches Flewellyn Road. It originates within a cedar swamp wetland located centrally on the Site and flows through a mixed forest primarily composed of Eastern White Cedar and upland deciduous tree species. Tributary A was observed to have minimal flow during spring freshet, lacks in-stream vegetation and contains organic substrate. The mean bankfull width of the feature is approximately 0.73 m.

2.3.2 Tributary B

Tributary B is a ditch feature located in the northern portion of the Site, traversing the Site from west to east. The upstream reach flows southeast and while the downstream reach flows east. It flows primarily through deciduous forest and meadow communities. Tributary B was observed to have minimal flow during spring freshet, does not contain aquatic vegetation, and contains primarily organic substrate with sand and cobble. The mean bankfull width of Tributary B is approximately 0.93 m.

2.3.3 Tributary C

Tributary C is a permanent roadside ditch feature that flows eastward along Flewellyn Road from the western Site boundary to Shea Road, and connects to the Faulkner Drain just east of the hydro cut area. Riparian vegetation is primarily lawn and it contains primarily gravel and cobble substrate. It contains submerged vegetation and has a mean wetted width of approximately 1.85 m.

2.3.4 Tributary D

Tributary D is a tile feature that flows southward along the western Site boundary, traversing the Site from the northern Site boundary through the cedar swamp and mixed forest communities and joins Tributary C at the southern Site boundary. The majority of the feature does not contain vegetation; however, the downstream reach contains robust emergent vegetation and submergent vegetation. The mean bankfull width of Tributary D is approximately 1.59 m and contains organic substrate.

2.3.5 Tributary E

Tributary E is an channelized or constrained feature that flows from the terminus of Tributary B southeast through the mixed deciduous forest community and redirects and flows east into the Faulkner Drain that flows southeast at the boundary of the forested area and stormwater pond area. Tributary E lacks in-stream vegetation and has a mean bankfull width of approximately 2.06 m and contains organic substrate with sand and silt.

2.3.6 Tributary F

Tributary F is a roadside ditch that flows southeast along the eastern Site boundary and Shea Road. The meadow riparian vegetation is present on the left bank, and limited vegetation is present on the right



bank. In-stream vegetation consists of grasses. The mean bankfull width of Tributary F is approximately 1.30 m and contains a mixed substrate of organic, silt, and gravel.

2.4 Component Classifications

Tables 1-4 below summarize the functions provided by the six (6) Drainage Features.

Table 1 Hydrology Classification of the headwater drainage features on the Flewellyn Road Properties, 2023

Drainage Feature	Hydrology Classification					
	Assessment Period	Flow Conditions		Flow Classification	Modifiers	Hydrological Function
		Description	(OSAP Code)			
A	April 17, 2023	Minimal Surface flow	4	Intermittent/Ephemeral	No source other than spring run-off and after heavy rain	Contributing Functions
	May 18, 2023	No surface water	1			
B	April 17, 2023	Minimal Surface flow	4	Perennial	Pool present with interstitial flow from upstream ATV trail	Important Functions
	May 18, 2023	Interstitial flow	4			
C	April 17, 2023	Surface flow substantial	5	Perennial	Roadside ditch wet along all of Flewellyn Road along Site boundary	Important Functions
	May 18, 2023	Surface flow substantial	5			
D	April 17, 2023	Minimal Surface flow	4	Ephemeral	No source other than spring run-off and after heavy rain	Contributing Functions
	May 18, 2023	No surface water /Standing water	2			
E	April 17, 2023	Minimal Surface flow	4	Perennial	Water is present throughout the year. Upstream minimal flow then no flow with intermitted small pools downstream	Important Functions
	May 18, 2023	Minimal Surface flow	4			
F	April 17, 2023	Minimal Surface flow	4	Perennial	Water is present throughout the year. Downstream under construction. Outlets into Faulkner Drain	Important Functions
	May 18, 2023	Minimal Surface flow	4			



Table 2 Riparian Classification for headwater drainage features on the Flewellyn Road Properties, 2023

Drainage Feature	Riparian Classification			
	OSAP Descriptions	OSAP Riparian Codes	ELC Codes	Riparian Conditions
A	RUB - Forest LUB - Forest	RUB - 7 LUB - 7	FOM4, CUM1-1 SWCM1-1	Valued/Contributing Functions
B	RUB - Forest LUB - Forest	RUB - 7 LUB - 7	CUM1-1, FODM3-1	Important Functions
C	RUB - Lawn LUB - Lawn	RUB - 2 LUB - 2	FOM4, CUT1, OAGM4	Important Functions
D	RUB - Forest LUB - Forest	RUB - 7 LUB - 7	SWCM1-1, FOM4	Valued/Contributing Functions
E	RUB - Forest LUB - Forest	RUB - 7 LUB - 7	FODM3-1	Important Functions
F	RUB - None LUB - Meadow	RUB - 1 LUB - 4	OAGM4	Important Functions

Table Notes: RUB – right upstream bank, LUB – left upstream bank

Table 3 Fish and Fish Habitat Classification for the headwater drainage features on the Flewellyn Road Properties, 2023

Drainage Feature	Riparian Classification		
	Fish Observation	Fish & Fish Habitat Designation*	Modifiers/Notes
	Fishing effort		
A	Dry	Limited Functions	
B	Fish present, no SAR present; 166.8 S	Important Functions	Two fish caught belonging to one species. Species is very common and highly tolerant
C	Fish present; no SAR present; 468.6 S	Important Functions	Four fish caught belonging to four species. Species all very common and highly tolerant
D	Dry	Limited Functions	
E	No fish present; 90 S	Contributing Functions	
F	No fish present; 60 S	Limited Functions	



Table 4 Terrestrial Classifications on the Flewellyn Road Properties, 2023

Drainage Feature	Description	Amphibians	Terrestrial Classification
A	This reach provides habitat to the adjacent White Cedar Swamp and mixed forest vegetation communities	Wood Frogs were observed in the feature	Valued Functions
B	There is no wetland habitat present. This feature connects deciduous and mixed forest types on the Site	No frogs were observed within the vicinity of this feature	Limited Functions
C	This reach is a permanent roadside ditch that is wet year-round	Frogs were observed adjacent to this feature (Chorus Frog, Spring Peeper, Wood Frog)	Important Functions
D	This reach provides habitat to the adjacent White Cedar Swamp vegetation community	No frogs were observed within the vicinity of this feature	Limited Functions
E	There is no wetland habitat present. This feature connects a forest with the Flewellyn Drain and adjacent SWP	Frogs were observed within the vicinity of this feature (Wood Frog, Spring Peeper)	Valued Functions
F	This reach is a permanent roadside ditch that is wet year-round and very heavily vegetated	No frogs were observed within the vicinity of this feature	Contributing Functions

2.5 Reach Summary

Dimensions of the Headwater Drainage Features are summarized in Table 5 below.

Drainage Feature	Length (m)	Mean	Mean Wetted Width (m)	Mean Depth (m)
		Bankfull Width (m)		
A	465 m	0.73	0.72	0.07
B	378 m	0.93	0.91	0.21
C	1, 185 m	-	1.85	0.17
D	675 m	1.59	1.56	0.36
E	478 m	2.06	2.02	0.15
F	640 m	1.30	2.14	0.25

3.0 MANAGEMENT RECOMMENDATIONS

The classification categories identified in Section 2 provide the basis of the management recommendations provided here. The following flow chart (Figure 2) combines and translates the classification results to management recommendations.



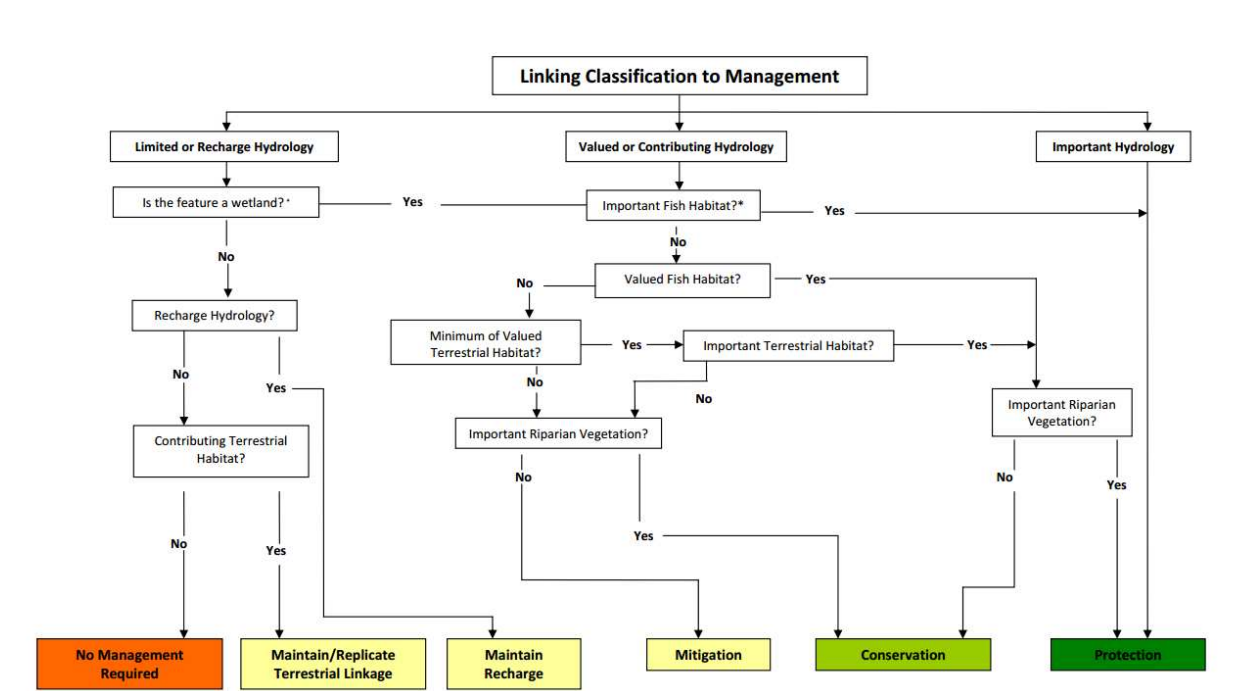


Figure 2 Headwater Drainage Feature Assessment (HDFa) flow chart providing direction on management options

3.1 Periphery Reaches

3.1.1 Tributary A

This feature is a drainage ditch that becomes braided downstream and is a direct connection between the edge of a white cedar swamp and mixed forest to the Flewellyn roadside ditch and Flewellyn Drain. It primarily functions as a drainage feature supporting spring run-off and after heavy rainfall. Following the HDFa Guide flow chart linking component classification to management directives, this reach:

1. Provides Valued/Contributing Hydrology;
2. Provides Valued/Contributing Riparian Vegetation;
3. Provides Limited Fish Habitat; and,
4. Provides Valued Terrestrial Habitat.

This chain of classification descriptors leads to a management directive of **Mitigation** for this reach. This feature may be maintained, replicated, or enhanced using natural channel design techniques to maintain or enhance overall productivity of the reach. This feature provides ephemeral flow and water storage functions during and (for a short time) after spring freshet and following large rain events only. Additionally, amphibians were heard calling during MMP surveys. There is no requirement to retain the feature per se, but on-site flow, outlet flows, and overall water balance for the area must be maintained by providing mitigation measures to infiltrate clean stormwater.



3.1.2 Tributary B

This feature is a ditch feature located within mixed and deciduous forest communities and connects downstream to Tributary E. It has a standing water pool present with interstitial flow towards the Flewellyn Drain. Standing water contributes to groundwater recharge and can function as amphibian breeding habitat. No amphibians were observed within this reach. Following the HDFA Guide flow chart linking component classification to management directives, this reach:

1. Provides Important Hydrology;
2. Provides Important Fish Habitat;
3. Provides Important Riparian Vegetation; and,
4. Provides Limited Terrestrial Habitat.

This chain of classification descriptors leads to a management directive of **Protection** for this reach. This feature may be maintained and/or enhanced, but cannot be relocated. The feature should be protected and its riparian zone enhanced where feasible. The hydroperiod must be maintained. Use natural channel design techniques or wetland design to restore and enhance existing habitat features if and where needed. Stormwater management systems must be designed to avoid impacts (i.e. sediment, temperature) to this tributary.

3.1.3 Tributary C

This feature is a roadside drainage ditch that conveys flow along Flewellyn Road, eventually meeting the Faulkner Drain (Tributary F) at Shea Road. Tributary C is a permanent feature that has water present year-round. This feature was confirmed to function as amphibian breeding habitat and fish habitat. Following the HDFA Guide flow chart linking component classification to management directives, this reach:

1. Provides Important Hydrology;
2. Provides Important Fish Habitat;
3. Provides Important Riparian Vegetation; and,
4. Provides Important Terrestrial Habitat.

This chain of classification descriptors leads to a management directive of **Protection** for this reach. This feature may be maintained and/or enhanced, but cannot be relocated. The feature should be protected and its riparian zone enhanced where feasible. The hydroperiod must be maintained. Use natural channel design techniques or wetland design to restore and enhance existing habitat features if and where needed. Stormwater management systems must be designed to avoid impacts (i.e. sediment, temperature) to this tributary.

3.1.4 Tributary D

This feature is a tile feature that flows from the northwest portion of the Site and from the adjacent residential area southward towards Tributary C. It is a direct connection between the edge of a white cedar swamp and mixed forest to the Flewellyn roadside ditch and Flewellyn Drain. It primarily functions as a drainage feature supporting spring run-off and after heavy rainfall. Following the HDFA Guide flow chart linking component classification to management directives, this reach:



1. Provides Valued/Contributing Hydrology;
2. Provides Limited Fish Habitat;
3. Provides Valued/Contributing Riparian Vegetation; and
4. Provides Limited Terrestrial Habitat.

This chain of classification descriptors leads to a management directive of **Mitigation** for this reach. This feature may be maintained, replicated, or enhanced using natural channel design techniques to maintain or enhance overall productivity of the reach. This feature provides ephemeral flow and water storage functions during and (for a short time) after spring freshet and following large rain events only. There is no requirement to retain the feature per se, but on-site flow, outlet flows, and overall water balance for the area must be maintained by providing mitigation measures to infiltrate clean stormwater.

3.1.5 Tributary E

This feature is a channelized or constrained feature located within mixed and deciduous forest communities and connects downstream to the Faulkner Drain. It has intermittent standing water pools present with intermittent flow towards Faulkner Drain. Standing water contributes to groundwater recharge and can function as amphibian breeding habitat. Breeding amphibians were observed within this reach. Following the HDFA Guide flow chart linking component classification to management directives, this reach:

1. Provides Important Hydrology;
2. Provides Contributing Fish Habitat;
3. Provides Important Riparian Vegetation; and,
4. Provides Valued Terrestrial Habitat.

This chain of classification descriptors leads to a management directive of **Protection** for this reach. This feature may be maintained and/or enhanced, but cannot be relocated. The feature should be protected and its riparian zone enhanced where feasible. The hydroperiod must be maintained. Use natural channel design techniques or wetland design to restore and enhance existing habitat features if and where needed. Stormwater management systems must be designed to avoid impacts (i.e. sediment, temperature) to this tributary.

3.1.6 Tributary F

This feature is a roadside ditch feature located along Shea Road adjacent to an idle agricultural field and connects downstream to the Faulkner Drain at the intersection with Flewellyn Road. It primarily functions as a drainage feature supporting spring run-off and after heavy rainfall. Breeding amphibians were not observed within this reach. Following the HDFA Guide flow chart linking component classification to management directives, this reach:

1. Provides Important Hydrology;
2. Provides Limited Fish Habitat;
3. Provides Important Riparian Vegetation; and,
4. Provides Contributing Terrestrial Habitat.



This chain of classification descriptors leads to a management directive of **Protection** for this reach. This feature may be maintained and/or enhanced, but cannot be relocated. The feature should be protected and its riparian zone enhanced where feasible. The hydroperiod must be maintained. Use natural channel design techniques or wetland design to restore and enhance existing habitat features if and where needed. Stormwater management systems must be designed to avoid impacts (i.e. sediment, temperature) to this tributary.

4.0 CLOSURE

This report provides detailed descriptions of the Headwater Drainage Features on and adjacent to 5993 and 6115 Flewellyn Road, and 6070 Fernbank Road, and provides management recommendations to direct future development near those features. Questions may be addressed to the undersigned.

Respectfully submitted,

KILGOUR & ASSOCIATES LTD.



Maren Nielsen, BES, EMA

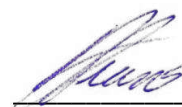
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Appendix A Site Photos



Figure 3 Tributary A



Figure 4 Tributary B



Figure 5 Tributary B



Figure 6 Pool



Figure 7 Tributary C



Figure 8 Tributary D



Figure 9 Tributary E



Figure 10 Tributary E



Figure 11 Tributary F



Figure 12 Tributary F



Appendix E Breeding Bird Survey Data



Appendix F - Breeding Bird Survey Data

Common Name	Scientific Name	Date(s) Observed	Highest Breeding Evidence	Station(s) Observed
Alder Flycatcher	<i>Empidonax alnorum</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	7,8
American Crow	<i>Corvus brachyrhynchos</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	1,2,4,5,6,7,8
American Goldfinch	<i>Spinus tristis</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	1,2,3,4,5,8
American Kestrel	<i>Falco sparverius</i>	2023-06-13	PO	8
American Redstart	<i>Setophaga ruticilla</i>	2023-06-02, 2023-06-13	PO	2,4,5
American Robin	<i>Turdus migratorius</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	1,2,4,5,6,7
American Tree Sparrow	<i>Spizelloides arborea</i>	2023-06-02	PO	4,5,6
Black-capped Chickadee	<i>Poecile atricapillus</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	1,8
Blue Jay	<i>Cyanocitta cristata</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	1,2,4,8
Brown Thrasher	<i>Toxostoma rufum</i>	2023-06-02, 2023-06-13	PO	2,4
Canada Goose	<i>Branta canadensis</i>	2023-06-14	PO	5
Chimney Swift	<i>Chaetura pelagica</i>	2023-06-13	PO	1
Common Grackle	<i>Quiscalus quiscula</i>	2023-06-02	PO	5
Common Yellowthroat	<i>Geothlypis trichas</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	1,4,5,6,7,8
Eastern Wood-Pewee	<i>Contopus virens</i>	2023-06-02, 2023-06-13	PO	2,3
European Starling	<i>Sturnus vulgaris</i>	2023-06-02	PO	2,5,6
Field Sparrow	<i>Spizella pusilla</i>	2023-06-02, 2023-06-13	PO	1,6,7,8
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	2
Green Heron	<i>Butorides virescens</i>	2023-06-02	PO	5
Hermit Thrush	<i>Catharus guttatus</i>	2023-06-02	PO	3,4
House Wren	<i>Troglodytes aedon</i>	2023-06-02, 2023-06-13	PO	1,2,3
Killdeer	<i>Charadrius vociferus</i>	2023-06-02, 2023-07-04	PO	1,7
Mallard	<i>Anas platyrhynchos</i>	2023-06-02, 2023-06-13	PO	5,6,8
Mourning Dove	<i>Zenaida macroura</i>	2023-06-02, 2023-06-13	PO	2,6
Northern Cardinal	<i>Cardinalis cardinalis</i>	2023-06-02, 2023-06-13	PO	1,2,3,4,6
Ovenbird	<i>Seiurus aurocapilla</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	1,2,8
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	2023-06-02, 2023-06-13	PO	1,2,4,5
Ring-billed Gull	<i>Larus delawarensis</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	1,2,5,6,8
Red-breasted Nuthatch	<i>Sitta canadensis</i>	2023-06-02	PO	2
Red-eyed Vireo	<i>Vireo olivaceus</i>	2023-06-02, 2023-06-13	PO	1,2,3,5
Ruffed Grouse	<i>Bonasa umbellus</i>	2023-06-13	PO	2
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	4,5
Savannah Sparrow	<i>Passerculus sandwichensis</i>	2023-06-02, 2023-06-13	PO	7,8
Song Sparrow	<i>Melospiza melodia</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	1,2,3,4,5,6,7,8
Swamp Sparrow	<i>Melospiza georgiana</i>	2023-06-02, 2023-06-13	PO	8
Tree Swallow	<i>Tachycineta bicolor</i>	2023-06-02	PO	6
Veery	<i>Catharus fuscescens</i>	2023-06-02	PO	2
Warbling Vireo	<i>Vireo gilvus</i>	2023-06-13	PO	2
Wild Turkey	<i>Meleagris gallopavo</i>	2023-06-02, 2023-06-13	PO	1,2,4,7
Winter Wren	<i>Troglodytes hiemalis</i>	2023-06-02	PO	4
Wood Thrush	<i>Hylocichla mustelina</i>	2023-07-04	PO	1
White-throated Sparrow	<i>Zonotrichia albicollis</i>	2023-06-02, 2023-06-13	PO	1,2,4,8
Yellow Warbler	<i>Setophaga petechia</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	1,5,6,8

Appendix F Species at Risk Assessment for Study Area



Name (Taxonomic Name)	Status under ESA	Status under SARA	Observation Record Sources (within 10 km of the Site)	Habitat Description	Suitable Habitat on or Adjacent (within 120 m) to the Site	Potential to Interact with Development of the Site
Birds						
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	Special Concern	Not at Risk	Cornell Lab of Ornithology (2022); California Academy of Sciences and National Geographic Society (2022)	Nest in mature forests near open water. In large trees such as pine and poplar.	The available open water near the Site is limited to the Faulkner SWM Pond, which would not provide feeding habitat suitable to support the species.	Negligible
Bank Swallow (<i>Riparia riparia</i>)	Threatened	Threatened	Birds Canada et al. (2009); Cornell Lab of Ornithology (2022)	Colonial nester; burrows in eroding silt or sand banks, sand pit walls, and human-made sand piles. Often found on banks of rivers and lakes.	The open meadows and farm fields of the western portion of the site provide some potential as feeding habitat, but no banks suitable for nesting are evident on or adjacent to the Site.	Low
Barn Swallow (<i>Hirundo rustica</i>)	Threatened (Special Concern as of Jan 25, 2023)	Threatened	Birds Canada et al. (2009); MNRF (2022a); MNRF (2022b); Cornell Lab of Ornithology (2022)	Nests on barns and other structures. Forages in open areas for flying insects. Lives in close association with humans and prefers to nest on structures such as open barns, under bridges, and in culverts.	The open meadows and farm fields of the western portion of the site provide some potential as feeding habitat. While houses to the north, south and east of the Site likely provide limited nesting potential, suitable barns are present within 100 m of the western edge of the Site.	High – note, however, that the species will not no longer be subject to protections currently provided by the ESA by the start of the project.
Black Tern (<i>Chlidonias niger</i>)	Special Concern	Not at Risk	n/a	Build floating nests in loose colonies in shallow marshes with abundant emergent vegetation, especially in cattails.	There is no suitable habitat near the Site and the species is not known to occur in the vicinity.	Negligible
Bobolink (<i>Dolichonyx oryzivorus</i>)	Threatened	Threatened	Birds Canada et al. (2009); MNRF (2022a); MNRF (2022b); Cornell Lab of Ornithology (2022)	Breeds in hayfields, pastures, agricultural fields, and abandoned fields with tall grass that are ≥5 ha, and preferably >30 ha.	Cultural meadow areas on the western half of the site are too small to support the species. Cultural meadows on the eastern side of the site are becoming sufficiently shrubby to reduce the likelihood of use by the species, but still offer suitable breeding habitat. Active agricultural areas in the southeast corner may provide suitable habitat depending on the selection of crop species.	High
Canada Warbler (<i>Cardellina canadensis</i>)	Special Concern	Threatened	MNRF (2022a)	Prefers moist forests with dense shrub layers. Nests located on or near the ground on mossy logs or roots, along stream banks or on hummocks. Area-sensitive species that usually require a minimum of 30	Most of the western half of the Site provides highly suitable nesting habitat.	High



Name (Taxonomic Name)	Status under ESA	Status under SARA	Observation Record Sources (within 10 km of the Site)	Habitat Description	Suitable Habitat on or Adjacent (within 120 m) to the Site	Potential to Interact with Development of the Site
				ha of continuous forest for breeding habitat (OMNR, 2000).		
Cerulean Warbler (<i>Setophaga cerulea</i>)	Threatened	Endangered	n/a	Prefers mature deciduous forests. Area-sensitive species that require large forests (>100 ha) (OMNR, 2000).	Deciduous forest cove in the central portion of the Site is of a suitable type but is too small to provide habitat and the species is not known to occur in the vicinity.	Negligible
Chimney Swift (<i>Chaetura pelagica</i>)	Threatened	Threatened	Cornell Lab of Ornithology (2022)	Nests in traditional-style open brick chimneys (and rarely in hollow trees). Tends to stay close to water.	Houses on or adjacent to the Site appear to have modern chimneys that would not provide suitable nesting or roosting habitat. Some trees on Site may be suitable but these are not the preferred habitat of the species.	Moderate
Common Nighthawk (<i>Chordeiles minor</i>)	Special Concern	Threatened	Birds Canada et al. (2009); Cornell Lab of Ornithology (2022)	Nests in a wide variety of open sites, including beaches, fields, and gravel rooftops with little to no ground vegetation. They also nest in cultivated fields, orchards, urban parks, mine tailings and along gravel roads/railways but tend to occupy more natural sites.	Open areas on the Site provide marginal nesting conditions.	Moderate
Eastern Meadowlark (<i>Sturnella magna</i>)	Threatened	Threatened	Birds Canada et al. (2009); MNRF (2022a); MNRF (2022b); Cornell Lab of Ornithology (2022)	Breeds in hayfields, pastures, agricultural fields, and abandoned fields with tall grass that are ≥5 ha, and preferably >30 ha.	Cultural meadow areas on the western half of the site are too small to support the species. Cultural meadows on the eastern side of the site are becoming sufficiently shrubby to reduce the likelihood of use by the species, but still offer suitable breeding habitat. Active agricultural areas in the southeast corner may provide suitable habitat depending on the selection of crop species.	High
Eastern Whip-poor-will (<i>Antrostomus vociferus</i>)	Threatened	Threatened	Birds Canada et al. (2009); MNRF (2022a)	Suitable breeding habitats generally include open and half treed areas and often exhibit a scattered distribution of treed and open space. Lays eggs directly on the forest floor. Roosts are typically located in forest habitat on a low branch or directly on the ground. Home range size varies from 20 to 500 ha (mean 136 ha) (ECCC, 2018).	The entire western half of the site provides suitable habitat.	High



Name (Taxonomic Name)	Status under ESA	Status under SARA	Observation Record Sources (within 10 km of the Site)	Habitat Description	Suitable Habitat on or Adjacent (within 120 m) to the Site	Potential to Interact with Development of the Site
Eastern Wood- Pewee (<i>Contopus virens</i>)	Special Concern	Special Concern	Birds Canada et al. (2009); Cornell Lab of Ornithology (2022)	Woodland species often found in the mid-canopy layer near clearings and edges of intermediate age and mature deciduous and mixed forests with little understory.	The entire western half of the site provides suitable habitat.	High
Evening Grosbeak (<i>Coccothraustes vespertinus</i>)	Special Concern	Special Concern	Birds Canada et al. (2009); Cornell Lab of Ornithology (2022)	Nests in trees or large shrubs. Prefers mature coniferous forests (fir and/or spruce dominated), but will also use deciduous forests, parklands, and orchards. Its abundance is strongly linked to the cycle of Spruce Budworm.	Forest habitat on the Site is suitable but not optimal.	Moderate
Golden Eagle (<i>Aquila chrysaetos</i>)	Endangered	Not at Risk	n/a	Nests in remote, undisturbed areas, usually building their nests on ledges on a steep cliff/riverbank or large trees if needed. Most hunting is done near open areas such as large bogs or tundra. Migration only; no reported nests in Ottawa.	There is no suitable habitat near the Site and the species is not known to occur in the vicinity.	Negligible
Golden-winged Warbler (<i>Vermivora chrysoptera</i>)	Special Concern	Threatened	n/a	Ground-nests in areas of young shrubs surrounded by mature forest. Often found in areas that have recently been disturbed such as field edges, hydro or utility right-of-ways, or logged areas. Requires >10 ha of habitat (OMNR, 2000).	The center of the site between mature forests and shrubby meadows provides optimal habitat, but the species is not known to occur in the vicinity.	Low
Grasshopper Sparrow (<i>Ammodramus savannarum</i>)	Special Concern	Special Concern	Birds Canada et al. (2009)	Lives in open grassland areas with well-drained sandy soil. Will also nest in hayfields and pastures, as well as alvars, prairies, and occasionally grain crops such as barley. It prefers areas that are sparsely vegetated, and its nests are well hidden in the field, woven from grasses in a small cup-like shape.	The cultural meadows of the eastern half of the Site have limited suitability given their expanding shrub coverage, but the active agricultural areas in the southeast corner may be highly suitable depending on crop selection.	Moderate
Henslow's Sparrow (<i>Ammodramus henslowii</i>)	Endangered	Endangered	n/a	Prefers poorly drained grasslands with tall, dense grass where it can easily conceal its small ground nest. Tends to avoid fields that have been grazed or are crowded with trees and shrubs. Prefer ≥50 ha areas, but can inhabit ≥5 ha.	Habitat is suitable but the species is not known to occur in the vicinity.	Negligible
Horned Grebe (<i>Podiceps auritus</i>)	Special Concern	Special Concern	n/a	Nest in small ponds, marshes, and shallow bays that contain areas of open water and emergent vegetation.	There is no suitable habitat near the Site and the species is not known to nest in the vicinity.	Negligible



Name (Taxonomic Name)	Status under ESA	Status under SARA	Observation Record Sources (within 10 km of the Site)	Habitat Description	Suitable Habitat on or Adjacent (within 120 m) to the Site	Potential to Interact with Development of the Site
				Migrant only; no reported nests in Ottawa.		
Hudsonian Godwit (<i>Limosa haemastica</i>)	Threatened	No Status	Cornell Lab of Ornithology (2022)	They use a wide variety of habitats during migration, such as freshwater marshes, saline lakes, flooded fields, shallow ponds, coastal wetlands, and mudflats. Migrant only; breeds in far north.	There is no suitable habitat near the Site and the species is not known to nest in the vicinity.	Negligible
Least Bittern (<i>Ixobrychus exilis</i>)	Threatened	Threatened	MNRF (2022a)	Found in a variety of wetland habitats, but strongly prefers cattail marshes with a mix of open pools and channels. They prefer larger marshes >5 ha in size and are intolerant of loss of habitat and human disturbance (OMNR, 2000).	There is no suitable habitat near the Site.	Negligible
Lesser Yellowlegs (<i>Tringa flavipes</i>)	No Status (Threatened as of Jan 25, 2023)	No Status (Threatened as of Jan 25, 2023)	Cornell Lab of Ornithology (2022)	Breeds in boreal wetlands. Nests on dry ground or forest openings near peatlands, marshes, and ponds in the boreal forest and taiga. Migrant only; nests in far north (Government of Canada, 2021).	There is no suitable habitat near the Site and the species is not known to nest in the vicinity.	Negligible
Loggerhead Shrike (<i>Lanius ludovicianus</i>)	Endangered	Endangered	n/a	Prefers grazed pastures or other grasslands with scattered low trees and shrubs, especially hawthorns. Lives in fields or alvars (areas of exposed bedrock) with short grass, which makes it easier to spot prey.	Habitat potential near the Site is very limited and the species is not known to nest in the vicinity.	Negligible
Louisiana Waterthrush (<i>Seiurus motacilla</i>)	Threatened	Threatened	n/a	Found in large tracts of mature deciduous or mixed forests in steep, forested ravines with running streams. Clear headwater streams and associated wetlands are preferred sites, but it will also inhabit wooded swamps (Environment Canada, 2011).	Habitat potential near the Site is very limited and the species is not known to nest in the vicinity.	Negligible
Olive-sided Flycatcher (<i>Contopus cooperi</i>)	Special Concern	Threatened	Cornell Lab of Ornithology (2022)	Found along coniferous or mixed forest edges and openings. Will use forests that have been logged or burned if there are ample tall snags and trees to use for foraging perches.	The center of the site between mature forests and shrubby meadows provides suitable habitat.	High
Peregrine Falcon (<i>Falco peregrinus</i>)	Special Concern	Special Concern	Cornell Lab of Ornithology (2022); California Academy of Sciences and	Nests on tall, steep cliff ledges close to large bodies of water. Urban peregrines raise their young on ledges of tall buildings, even in busy downtown areas.	There is no suitable habitat near the Site.	Negligible



Name (Taxonomic Name)	Status under ESA	Status under SARA	Observation Record Sources (within 10 km of the Site)	Habitat Description	Suitable Habitat on or Adjacent (within 120 m) to the Site	Potential to Interact with Development of the Site
			National Geographic Society (2022)			
Red Knot (<i>Calidris canutus rufa</i>)	Endangered	Endangered	n/a	Prefer open beaches, mudflats, and coastal lagoons where they feast on molluscs, crustaceans, and other invertebrates. Migrant only; nests in far north.	There is no suitable habitat near the Site and the species is not known to nest in the vicinity.	Negligible
Red-headed Woodpecker (<i>Melanerpes erythrocephalus</i>)	Endangered	Endangered	n/a	Lives in open woodland and woodland edges and is often found in parks, golf courses, and cemeteries. These areas typically have many dead trees, which the birds use for nesting and perching.	The entire western half of the site provides suitable habitat, but the species is not known to occur in the vicinity.	Negligible
Red-necked Phalarope (<i>Phalaropus lobatus</i>)	Special Concern	Special Concern	n/a	Lives in coastal and inland marshes where it feeds in shallow ponds and nests on the grassy edges. Always near water during migration. Migrant only; nests in far north.	There is no suitable habitat near the Site and the species is not known to nest in the vicinity.	Negligible
Rusty Blackbird (<i>Euphagus carolinus</i>)	Special Concern	Special Concern	Cornell Lab of Ornithology (2022)	Prefers wet wooded or shrubby areas. Nests at edges of boreal wetlands and coniferous forests. These areas include bogs, marshes, and beaver ponds.	The northwestern portion of the Site provides a small area of potential habitat of limited suitability.	Low
Short-eared Owl (<i>Asio flammeus</i>)	Special Concern (Threatened as of Jan 25, 2023)	Special Concern	n/a	Lives in open areas such as grasslands, marshes, and tundra where it nests on the ground and hunts for small mammals.	The eastern half of the site provides potentially suitable habitat, but the species is not known to nest in the vicinity.	Negligible
Wood Thrush (<i>Hylocichla mustelina</i>)	Special Concern	Threatened	Birds Canada et al. (2009); MNRF (2022a); Cornell Lab of Ornithology (2022)	Lives in mature deciduous and mixed forests. They seek moist stands of trees with well-developed undergrowth and tall trees for singing and perching. Prefers nesting in large forest mosaics, but will also use fragmented forests. Usually build nests in Sugar Maple or American Beech.	Much of the western half of the site provides suitable habitat.	High
Yellow Rail (<i>Coturnicops noveboracensis</i>)	Special Concern	Special Concern	n/a	Lives deep in the reeds, sedges, and marshes of shallow wetlands, where they nest on the ground. The marshy areas used by Yellow Rails have an overlying dry mat of dead vegetation that is used to make roofs for nests.	There is no suitable habitat near the Site and the species is not known to nest in the vicinity.	Negligible
Mammals						



Name (Taxonomic Name)	Status under ESA	Status under SARA	Observation Record Sources (within 10 km of the Site)	Habitat Description	Suitable Habitat on or Adjacent (within 120 m) to the Site	Potential to Interact with Development of the Site
Algonquin Wolf (<i>Canis</i> sp.)	Threatened	Special Concern	n/a	Not restricted to a specific habitat type but typically occurs in deciduous and mixed forest landscapes.	This species only occurs in Algonquin Provincial Park and surrounding townships, along with other areas in central Ontario including in and around Killarney Provincial Park, Kawartha Highlands Signature Site, and Queen Elizabeth II Wildlands (MECP, 2019a).	None
Eastern Cougar (<i>Puma concolor</i>)	Endangered	No Status	n/a	Lives in large, undisturbed forests or other natural areas where there is little human activity.	The proximity of urban development makes the Site unsuitable as habitat.	None
Eastern Small-footed Myotis (<i>Myotis leibii</i>)	Endangered	Not Listed	Humphrey (2017)	In the spring and summer, Eastern Small-footed Myotis will roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. Overwinters in caves and abandoned mines.	Habitat on site is generally suitable, but the species is considered rare in Ottawa with only historical records from the downtown core.	Low
Gray Fox (<i>Urocyon cinereoargenteus</i>)	Threatened	Threatened	n/a	Lives in deciduous forests and marshes. Their dens are usually found in dense shrubs close to a water source, but they will also use rocky areas, hollow trees, and underground burrows dug by other animals.	The range of this species has recently been reduced to west of Lake Superior in the Rainy River District and on Pelee Island in west Lake Erie (MECP, 2020a).	None
Little Brown Myotis (<i>Myotis lucifugus</i>)	Endangered	Endangered	Humphrey and Fotherby (2019)	During the day they roost in trees and buildings. They often select attics, abandoned buildings, and barns for summer colonies where they can raise their young. They can squeeze through very tiny spaces (as small as six millimetres across) allowing them access to many different roosting areas.	Habitat on site is generally suitable.	Moderate
Northern Myotis / Northern Long-eared Bat (<i>Myotis septentrionalis</i>)	Endangered	Endangered	Humphrey and Fotherby (2019)	Associated with deciduous and mixed forests, choosing to roost under loose bark and in the cavities of trees. They forage along and within forests as well as in hayfields and pastures adjacent to mixed forests.	Habitat on site is generally suitable.	Moderate



Name (Taxonomic Name)	Status under ESA	Status under SARA	Observation Record Sources (within 10 km of the Site)	Habitat Description	Suitable Habitat on or Adjacent (within 120 m) to the Site	Potential to Interact with Development of the Site
Tri-colored Bat / Eastern Pipistrelle (<i>Perimyotis subflavus</i>)	Endangered	Endangered	Humphrey and Fotherby (2019)	Roosts mainly in trees during summer; overwinters in caves and mines along with other species, but often uses deeper parts of the hibernaculum. Foraging occurs in forested riparian areas, over water, and within gaps in forest canopies.	Habitat on site is generally suitable.	Moderate
Hoary Bat (<i>Lasiurus cinereus</i>)	Endangered (January 2025)	No Status	n/a	Roosts in both deciduous and coniferous forests of any age, among canopy foliage with open flight space below. Maternity roosts are often in large diameter, tall trees. Foraging occurs in open areas, wetlands, grasslands and open fields, with sparse trees.	Habitat on site is generally suitable.	Moderate
Silver-haired Bat (<i>Lasionycteris noctivagans</i>)	Endangered (January 2025)	No Status	n/a	Roosts under bark and in large decaying deciduous and coniferous tree cavities. Foraging occurs in young and mature forest openings and along forest edges.	Habitat on site is generally suitable.	Moderate
Eastern Red Bat (<i>Lasiurus borealis</i>)	Endangered (January 2025)	No Status	n/a	Roosts in both deciduous and coniferous forests of any age, among canopy foliage with open flight space below. Maternity roosts are often in large diameter, tall trees. Foraging occurs in forested and non-forested areas, above and below forest canopies.	Habitat on site is generally suitable.	Moderate
Amphibians						
Western Chorus Frog (<i>Pseudacris triseriata</i>)	Not Listed	Great Lakes/ St. Lawrence population: Threatened	Ontario Nature (2019); MNR (2022a)	Inhabits forest openings around woodland ponds but can also be found in or near damp meadows, marshes, bottomland swamps, and temporary ponds in open country, or even urban areas.	Drainage ditch/stream, pond and wetland areas on the Site provide suitable habitat.	Moderate
Reptiles						
Blanding's Turtle (<i>Emydoidea blandingii</i>)	Threatened	Endangered	Ontario Nature (2019); MNR (2022a); MNR (2022b); California Academy of Sciences and National	Quiet lakes, streams, and wetlands with abundant emergent vegetation. Also frequently occurs in adjacent upland forests.	The Faulkner Drain was subject to cleanout by the City in the fall of 2022 and is unlikely to provide suitable wetland space for the species. Other than the Faulkner SWM pond, which similarly has low suitability, no suitable wetland features occur within >500 m of the Site. Following provincial guidance	Low



Name (Taxonomic Name)	Status under ESA	Status under SARA	Observation Record Sources (within 10 km of the Site)	Habitat Description	Suitable Habitat on or Adjacent (within 120 m) to the Site	Potential to Interact with Development of the Site
			Geographic Society (2022)		on the species, no Category 2 or 3 habitat is considered to occur on the Site.	
Eastern Milksnake (<i>Lampropeltis triangulum</i>)	Not Listed	Special Concern	Ontario Nature (2019); MNRF (2022a); MNRF (2022b); California Academy of Sciences and National Geographic Society (2022)	Found in variety of open, scrubby or edge habitats, including pastures.	As a habitat generalist, much of the Site may be considered suitable for the species.	High – but the species is not protected as a SAR within the context of the development of the Site.
Eastern Musk Turtle / Stinkpot (<i>Sternotherus odoratus</i>)	Special Concern	Special Concern	n/a	Found in ponds, lakes, marshes, and rivers that are generally slow-moving, have abundant emergent vegetation, and muddy bottoms that they burrow into for winter hibernation.	Other than the Falkner SWM Pond, which is marginal at best, the Site does not generally provide suitable habitat, and the species is not known to occur in the vicinity.	Negligible
Eastern Ribbonsnake (<i>Thamnophis sauritus</i>)	Special Concern	Special Concern	n/a	The Eastern Ribbonsnake is semi- aquatic. It is most frequently found along the edges of shallow ponds, streams, marshes, swamps, or bogs bordered by dense vegetation that provides cover. Abundant exposure to sunlight is also required, and adjacent upland areas may be used for nesting.	Wet areas around the Site provide suitable habitat, but the species is not known to occur in the vicinity.	Low
Midland Painted Turtle (<i>Chrysemys picta marginata</i>)	Not Listed	Special Concern	Ontario Nature (2019); MNRF (2022a); California Academy of Sciences and National Geographic Society (2022)	Inhabits waterbodies, such as ponds, marshes, lakes and slow-moving creeks that have a soft bottom and provide abundant basking sites and aquatic vegetation. Often bask on shorelines or on logs and rocks that protrude from the water.	The Faulkner SWM Pond provides some habitat suitability.	High – but the species is not protected as a SAR within the context of the development of the Site.
Northern Map Turtle (<i>Graptemys geographica</i>)	Special Concern	Special Concern	MNRF (2022a); California Academy of Sciences and National Geographic Society (2022)	Lives in rivers and lakeshores where it basks on emergent rocks and fallen trees throughout the spring and summer. In winter, they hibernate on the bottom of deep, slow-moving sections of river.	Water features on or near the Site are generally too small to support the species.	Low
Snapping Turtle (<i>Chelydra serpentina</i>)	Special Concern	Special Concern	Ontario Nature (2019);	Spend most of their lives in the water. Prefer shallow waters so they can hide under the soft mud and leaf litter	The Faulkner SWM Pond provides some habitat suitability. Other water features	High – but the species is not protected as a SAR within the



Name (Taxonomic Name)	Status under ESA	Status under SARA	Observation Record Sources (within 10 km of the Site)	Habitat Description	Suitable Habitat on or Adjacent (within 120 m) to the Site	Potential to Interact with Development of the Site
			MNRF (2022a); MNRF (2022b); California Academy of Sciences and National Geographic Society (2022)	with only their noses exposed to the surface to breathe.	on or near the Site are generally too small to support the species.	context of the development of the Site.
Spiny Softshell (<i>Apalone spinifera</i>)	Endangered	Endangered	n/a	Found primarily in rivers and lakes but also in creeks, ditches, and ponds near rivers. Habitat requirements are open sand or gravel nesting areas, shallow muddy or sandy areas to bury in, deep pools for hibernation, areas for basking, and suitable habitat for crayfish and other food species.	The Faulkner SWM Pond provides some habitat suitability. Other water features on or near the Site are generally too small to support the species. Regardless, the species is not known to occur in the vicinity.	Negligible
Spotted Turtle (<i>Clemmys guttata</i>)	Endangered	Endangered	n/a	Semi-aquatic and prefers ponds, marshes, bogs, and even ditches with slow-moving, unpolluted water and an abundant supply of aquatic vegetation.	The Site provides some habitat suitability, but the species is not known to occur in the vicinity.	Negligible
Wood Turtle (<i>Glyptemys insculpta</i>)	Endangered	Threatened	n/a	Prefers clear rivers, streams, or creeks with a slight current and sandy or gravelly bottom. Wooded areas are essential habitat, but they are found in other habitats such as wet meadows, swamps, and fields.	The Site provides some habitat suitability, but the species is not known to occur in the vicinity.	Negligible
Arthropods						
American Bumble bee (<i>Bombus pensylvanicus</i>)	No Status (Special Concern as of Jan 25, 2023)	No Status	n/a	Habitat generalist. Requires a variety of habitat throughout it's life stages. Often found in or adjacent to open fields and meadows, grasslands, farmlands, and other undisturbed open habitats (Government of Canada, 2019).	As a habitat generalist, much of the Site may be considered suitable, but the species is not known to occur in the vicinity.	Negligible – but the species is not protected as a SAR within the context of the development of the Site anyway.
Bogbean Buckmoth (<i>Hemileuca</i> sp. 1)	Endangered	Endangered	n/a	Restricted to open, chalky, low shrub fens containing large amounts of bogbean, an emergent wetland flowering plant.	There is no suitable habitat near the Site, and the species is not known to occur in the vicinity.	None
Gypsy Cuckoo Bumble Bee (<i>Bombus bohemicus</i>)	Endangered	Endangered	n/a	Live in diverse habitats including open meadows, mixed farmlands, urban areas, boreal forest, and montane meadows. Host nests occur	Currently only known to occur in Pinery Provincial Park (MECP, 2019b).	None



Name (Taxonomic Name)	Status under ESA	Status under SARA	Observation Record Sources (within 10 km of the Site)	Habitat Description	Suitable Habitat on or Adjacent (within 120 m) to the Site	Potential to Interact with Development of the Site
				in abandoned underground rodent burrows and rotten logs.		
Macropis Cuckoo Bee (<i>Epeoloides pilosulus</i>)	Not Listed	Endangered	n/a	Found in habitats supporting both Macropis bees and their food plant, Yellow Loosestrife (<i>Lysimachia</i>).	Has not been observed in Ontario in over 45 years (COSEWIC, 2011).	None
Monarch (<i>Danaus plexippus</i>)	Special Concern	Special Concern	California Academy of Sciences and National Geographic Society (2022); Toronto Entomologists' Association (2022)	Milkweeds are the sole food plant for Monarch caterpillars. These plants predominantly grow in open and periodically disturbed habitats such as roadsides, fields, wetlands, prairies, and open forests.	The cultural meadows of the eastern half of Site support Milkweed and are considered suitable habitat.	High – but the species is not protected as a SAR within the context of the development of the Site.
Mottled Duskywing (<i>Erynnis martialis</i>)	Endangered	No Status	n/a	Requires host plants such as the New Jersey Tea and Prairie Redroot. These plants grow in dry, well-drained soils or alvar habitat within oak woodland, pine woodland, roadsides, riverbanks, shady hillsides, and tall grass prairies.	There is no suitable habitat near the Site, and the species is not known to occur in the vicinity.	None
Nine-spotted Lady Beetle (<i>Coccinella novemnotata</i>)	Endangered	No Status	n/a	Occurs within agricultural areas, suburban gardens, parks, coniferous forests, deciduous forests, prairie grasslands, meadows, riparian areas, and isolated natural areas.	There have been no records of this species in Ontario since the mid-1990s (MECP, 2019c).	None
Rusty-patched Bumble Bee (<i>Bombus affinis</i>)	Endangered	Endangered	n/a	Can be found in open habitat such as mixed farmland, urban settings, savannah, open woods, and sand dunes.	The range of this species is limited to southwestern Ontario (MECP, 2019e).	None
Suckley's Cuckoo Bumble Bee (<i>Bombus suckleyi</i>)	No Status (Endangered as of Jan 25, 2023)	No Status	n/a	Habitat generalist. Host nests occur in meadows, old fields, farmlands, croplands, urban areas, and woodlands (Government of Canada, 2020).	As a habitat generalist, much of the Site may be considered suitable, but the species is not known to occur in the vicinity.	Negligible - but the species is not protected as a SAR within the context of the development of the Site anyway.
Transverse Lady Beetle (<i>Coccinella transversoguttata</i>)	Endangered	Special Concern	n/a	Able to live in a wide range of habitats, including agricultural areas, suburban gardens, parks, coniferous forests, deciduous forests, prairie	There have been no records of the species in Ontario since 1990 (MECP, 2020b).	None



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				grasslands, meadows, and riparian areas.		
West Virginia White butterfly (<i>Pieris virginiensis</i>)	Special Concern	No Status	n/a	Lives in moist, deciduous woodlots. Requires a supply of toothwort, a small, spring-blooming plant that is a member of the mustard family, since it is the only food source for larvae.	The forests of the western half of the Site may be suitable, but the species is not known to occur in the vicinity.	Negligible
Yellow-banded Bumble Bee (<i>Bombus terricola</i>)	Special Concern	Special Concern	MNRF (2022a)	This species is a forage habitat generalist, able to use a variety of nectaring plants and environmental conditions. Can be found in mixed woodlands, particularly for nesting and overwintering, as well as a variety of open habitat such as native grasslands, farmlands, and urban areas.	As a habitat generalist, much of the Site may be considered suitable.	Moderate – but the species is not protected as a SAR within the context of the development of the Site.
Fish						
American Eel (<i>Anguilla rostrata</i>)	Endangered	No Status	n/a	Primarily nocturnal, hiding in soft substrate or submerged vegetation during the day.	There is no suitable habitat near the Site, and the species is not known to occur in the vicinity.	None
Bridle Shiner (<i>Notropis bifrenatus</i>)	Special Concern	Special Concern	n/a	Prefers clear water with abundant vegetation over silty or sandy substrate.	There is no suitable habitat near the Site, and the species is not known to occur in the vicinity.	None
Channel Darter (<i>Percina copelandi</i>)	Special Concern	Special Concern	n/a	Prefers clean streams and lakes with moderate current over sandy or rocky substrate.	There is no suitable habitat near the Site, and the species is not known to occur in the vicinity.	None
Cutlip Minnow (<i>Exoglossum maxillingua</i>)	Threatened	Special Concern	n/a	Lives in warmer rivers and creeks with clear, slow-moving water, and a rocky or gravel bottom.	There is no suitable habitat near the Site, and the species is not known to occur in the vicinity.	None
Lake Sturgeon (<i>Acipenser fulvescens</i>)	Endangered	No Status	n/a	Only found in large lakes and rivers. Forages in cool water, 4-9 m deep over soft substrate; spawns in shallower, fast-flowing areas over rocks or gravel.	There is no suitable habitat near the Site, and the species is not known to occur in the vicinity.	None
Northern Brook Lamprey (<i>Ichthyomyzon fossor</i>)	Special Concern	Special Concern	n/a	Inhabits clear, coolwater streams. The larval stage requires soft substrates such as silt and sand for burrowing which are often found in the slow-moving portions of a stream. Adults are found in areas associated with spawning, including fast flowing riffles comprised of rock or gravel.	There is no suitable habitat near the Site, and the species is not known to occur in the vicinity.	None



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Northern Sunfish (<i>Lepomis peltastes</i>)	Special Concern	Special Concern	n/a	Lives in shallow vegetated areas of quiet, slow flowing rivers and streams, as well as warm lakes and ponds with sandy banks or rocky bottoms.	There is no suitable habitat near the Site, and the species is not known to occur in the vicinity.	None
River Redhorse (<i>Moxostoma carinatum</i>)	Special Concern	Special Concern	n/a	Prefers fast-flowing, clear rivers over rocky substrate.	There is no suitable habitat near the Site, and the species is not known to occur in the vicinity.	None
Silver Lamprey (<i>Ichthyomyzon unicuspis</i>)	Special Concern	Special Concern	n/a	Requires clear water where they can find fish hosts, relatively clean stream beds of sand and organic debris for larvae to live in, and unrestricted migration routes for spawning. Larvae live 4-7 years in burrows (prefer soft substrates); filter-feed on plankton.	There is no suitable habitat near the Site, and the species is not known to occur in the vicinity.	None
Molluscs						
Hickorynut (<i>Obovaria olivaria</i>)	Endangered	Endangered	n/a	Live on the sandy beds in large, wide, deep rivers – usually more than two or three metres deep – with a moderate to strong current. Ottawa River.	There is no suitable habitat near the Site, and the species is not known to occur in the vicinity.	None
Vascular Plants						
American Chestnut (<i>Castanea dentata</i>)	Endangered	Endangered	n/a	Typical habitat is upland deciduous forests on sandy acidic soils. Occurs with Red Oak, Black Cherry, Sugar Maple, and beech.	The Site may be suitable, but the species is not known to occur in the vicinity.	Negligible
American Ginseng (<i>Panax quinquefolius</i>)	Endangered	Endangered	n/a	Grows in rich, moist, but well-drained, and relatively mature, deciduous woods dominated by Sugar Maple, White Ash, and American Basswood.	The Site is not generally suitable and there are no records of the species in the vicinity.	Negligible
Black Ash (<i>Fraxinus nigra</i>)	Endangered	No Status	MNRF (2022a); California Academy of Sciences and National Geographic Society (2022)	Predominantly a wetland species found in swamps, floodplains, and fens.	The entire Site is generally suitable for the species and individuals were observed there.	High – note, the implementation of legal protections for the species under the ESA has been delayed.
Butternut (<i>Juglans cinerea</i>)	Endangered	Endangered	MNRF (2022a)	Commonly found in riparian habitats but is also found on rich, moist, well-drained loams and well-drained gravels, especially those of limestone origin.	The entire Site is generally suitable for the species and individuals were observed there.	High



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Eastern Prairie Fringed-orchid (<i>Platanthera leucophaea</i>)	Endangered	Endangered	n/a	Populations are found in three main habitat types: fens, tallgrass prairie, and moist old fields.	There is no suitable habitat near the Site, and the species is not known to occur in the vicinity.	None
Lichens						
Black-foam Lichen (<i>Anzia colpodes</i>)	No Status	Threatened	n/a	Grows on the trunks of mature deciduous trees growing on level or sloped land where high humidity is supplied by nearby wetlands, lakes, or streams. The most common host is Red Maple but it also occurs on White Ash, Sugar Maple, Red Oak, and very occasionally on other species.	Assumed to no longer occur in Ontario (COSEWIC, 2015).	None
Flooded Jellyskin (<i>Leptogium rivulare</i>)	No Status	Special Concern	MNRF (2022a); MNRF (2022b)	Grows in seasonally flooded habitats, typically on the bark of deciduous trees, on rocks along the margins of seasonal ponds, and on rocks along shorelines and stream/riverbeds.	Treed areas along water features have some potential to support the species.	Moderate – but the species is not protected as a SAR within the context of the development of the Site.



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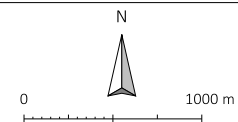
Appendix G Significant Woodlands – 1963 Air Photo





Appendix H
Significant Woodlands – 1963
Air Photo

-  Site
-  Significant Woodland
-  Portions on Site
-  Roads



Project: CAIV 1300
Map File: CAIV 1300 2309a
Universal Transverse Mercator - Zone 18 (N)
Printed on: 2024-01-18



Appendix H Landscape Plan



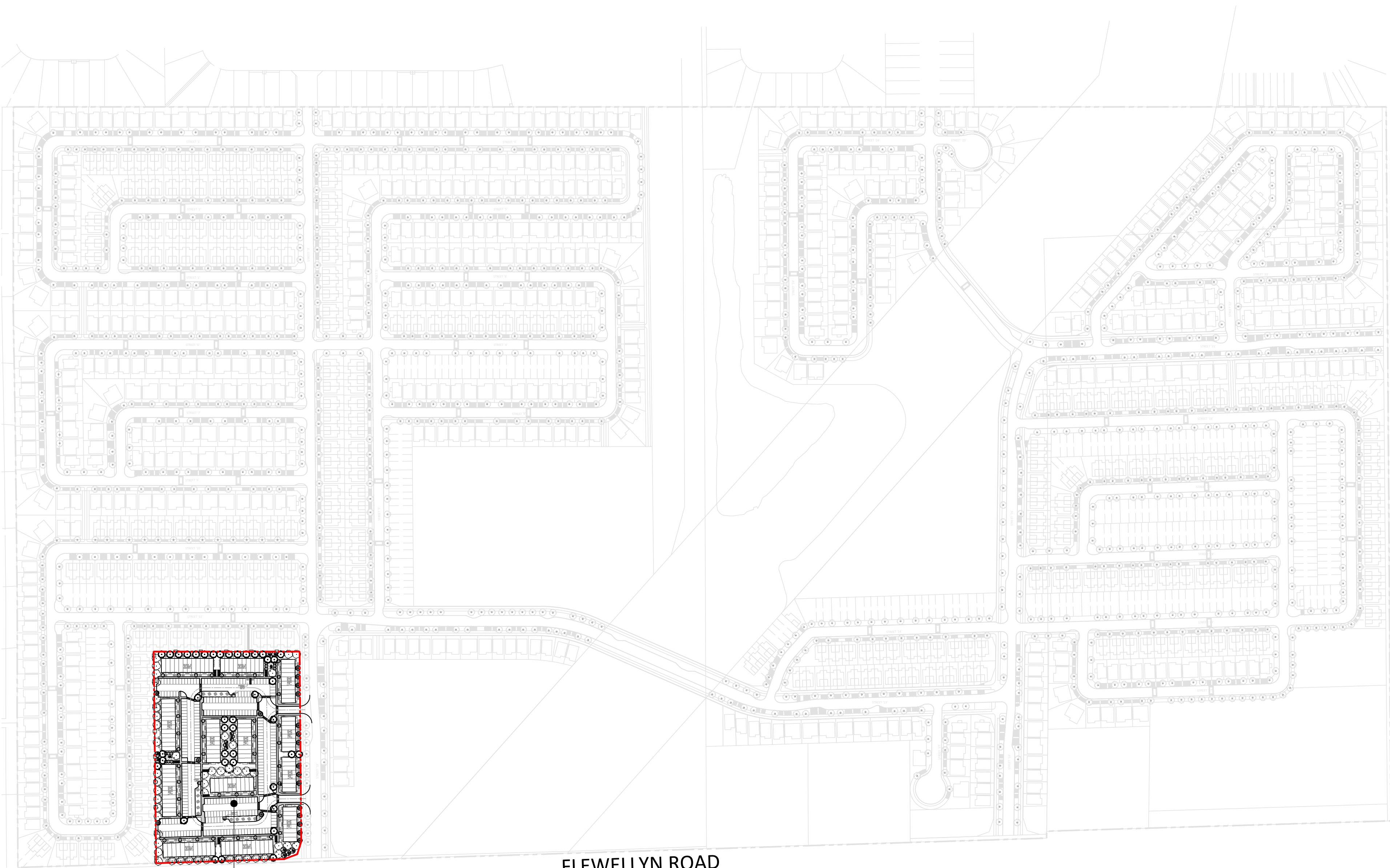
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PHASE 1

CAIVAN
COMMUNITIES

NAK
design strategies

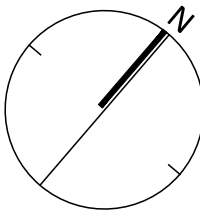
LIST OF DRAWINGS:

- L1.0 - LANDSCAPE PLAN
- L1.1 - PLANTING PLAN
- L2.0 - DETAILS
- L2.1 - DETAILS
- L2.2 - DETAILS

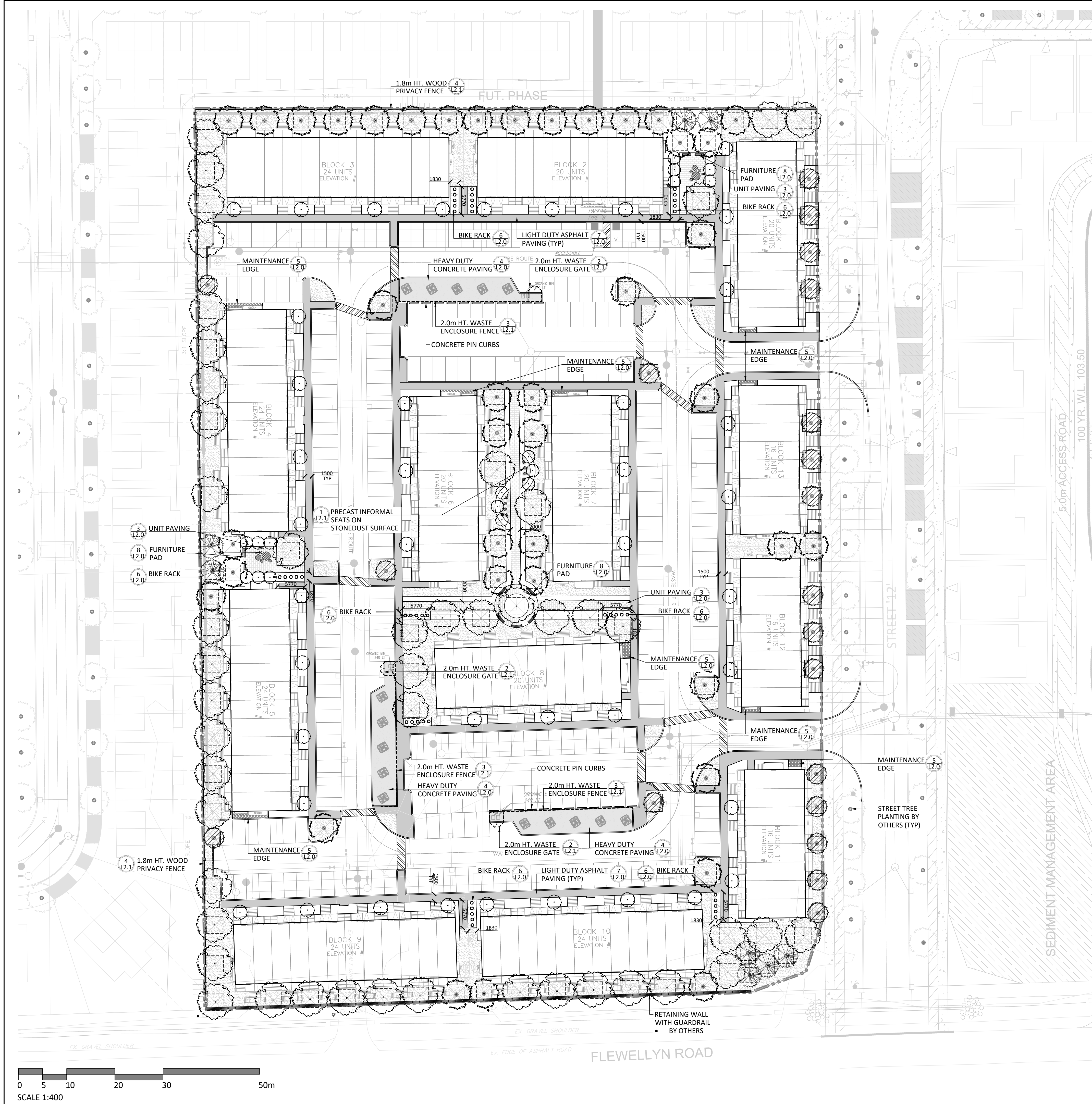


SITE

FLEWELLYN ROAD



KEYMAP
NTS



NOTES:
THE LANDSCAPE PLAN WAS PREPARED IN CONJUNCTION WITH THE
GEOTECHNICAL REPORT PREPARED BY PATERSON GROUP:
• PG5570-2, DATED JANUARY 20, 2022

ALL EXISTING SITE INFORMATION AS PER DRAFT PLAN OF SUBDIVISION,
DATED SEPTEMBER 26, 2025 AND PREPARED BY J.D. BARNES LIMITED.

GENERAL NOTES:

1. ALL PLANT MATERIAL SHALL BE NURSERY GROWN STOCK UNLESS OTHERWISE NOTED.
2. TREES TO HAVE A MINIMUM 1800 CLEAR STEM ABOVE GRADE.
3. CONTRACTOR TO MAKE GOOD ALL EXISTING AREAS DAMAGED BY HIS WORK TO THE SATISFACTION OF THE CONTRACTOR.
4. ALL PLANT MATERIAL SHALL BE WARRANTIED FOR TWO YEARS FROM THE DATE OF SUBSTANTIAL COMPLETION.
5. CONTRACTOR TO VERIFY LOCATION OF ALL SERVICES PRIOR TO ANY EXCAVATION.
6. ANY PROPOSED SUBSTITUTIONS OF PLANT SPECIES SHALL BE MADE WITH PLANTS OF EQUIVALENT OVERALL FORM, HEIGHT, BRANCHING HABIT, FLOWER, LEAF, COLOR, FRUIT AND CULTURE AND ONLY AFTER APPROVAL OF THE LANDSCAPE ARCHITECT.

SOIL VOLUME PROJECTIONS (NTS)*	SINGLE	MULTIPLE	TREE SOIL VOLUMES		
			TREE TYPE/SIZE	SINGLE TREE SOIL VOLUME	MULTIPLE TREE SOIL VOLUME (m3/TREE)
SMALL			ORNAMENTAL	15	9
			COLUMNAR	15	9
			SMALL	20	12
MEDIUM/ CONIFER			MEDIUM	25	15
			LARGE	30	18
LARGE			CONIFER	25	15
*SOIL VOLUME CALCULATION BASED ON 1.5m DEPTH					

CANOPY COVER DIAGRAM



CANOPY COVER LEGEND

- PROPERTY LINE
- BUILDING
- MATURE TREE CANOPY - PROPOSED SITE TREE
- MATURE TREE CANOPY - PROPOSED ROW TREE BY OTHERS (OVERLAPPING SITE)

PROPOSED TREE CANOPY PROJECTIONS			
TREE TYPE/SIZE	CROWN AREA* PER TREE STANDARD RANGE (m²)	AVERAGE CROWN AREA PER TREE USED FOR CALC. (m²)	SITE CANOPY COVER
LARGE (48)	135-250*	192	6,095m² (ACCOUNTS FOR OVERLAP)
MEDIUM (40)	35-135*	85	
SMALL (20)	5-35*	20	
CONIFER (8)	45-96*	70	
*RANGE OF CROWN AREAS IS IN ACCORDANCE WITH PROPOSED TREES SPECIES			
*CROWN AREAS ARE ACCORDING TO THE AVERAGE MATURE CANOPY SIZE OF THE RESPECTIVE SPECIES. CANOPY SIZES HAVE BEEN DETERMINED IN REFERENCE TO VARIOUS ARBORICULTURAL AND BOTANICAL SOURCES, SUCH AS: ONTARIO MINISTRY OF NATURAL RESOURCES & FORESTRY CANADA, US FOREST SERVICE, PARKMAN, J.L. TREES IN CANADA, UNIVERSITY OF GUELPH ARBORICULTURE, VARIOUS PUBLICATIONS			
PROPOSED ROW TREE CANOPY, BY OTHERS			60m² (ACCOUNTS FOR OVERLAP)
SITE AREA			23,718m²
TOTAL CANOPY COVER			26.0%

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Key Plan



LEGEND

PROPERTY LINE

FENCING

- 2.0m HT. WOOD PRIVACY FENCE
- 1.8m HT. WOOD PRIVACY FENCE
- 1.2m HT. DECORATIVE FENCE

PLANTING

- LARGE DECIDUOUS TREE
- MEDIUM DECIDUOUS TREE
- SMALL DECIDUOUS TREE
- CONIFEROUS TREE
- TREE FORM SHRUB
- DECIDUOUS SHRUB
- CONIFEROUS SHRUB
- GRASSES/PERENNIALS
- GROUND SHRUB COVER PLANTING
- SODDING

PAVING

- ASPHALT PAVING
- CIP CONCRETE PAVING
- HEAVY DUTY CONCRETE PAVING
- UNIT PAVING
- STONEDUST SURFACE
- RIVERSTONE PAVING (MAINTENANCE EDGE)
- PRECAST CURB (MAINTENANCE EDGE)

DETAIL KEY

- DETAIL NO.
- SHEET NO.

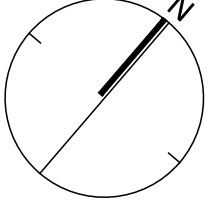
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1	Issued for First Submission	Jan 23/26
No.	Description	Date

Revision

OWNERSHIP	CIVIL
CAVANA COMMUNITIES	DBL
3713 Borrisokane Rd., Ottawa, ON K2J 4J4	120 Bell Rd., Suite 103, Stittsville, ON K2S 1J9
ARCHITECT	LANDSCAPE ARCHITECT
OK ARCHITECTS INC.	NAK DESIGN STRATEGIES
4130 Yonge St., Suite 602, Toronto, ON M2P 2P7	1285 Wellington St., Ottawa, ON K1Y 3A8
PLANNING	
JPSA Canada Inc.	
52 Springbrook Dr., Stittsville, ON K2S 1R4	

PROPERTY INFORMATION

Part 2 plan 58-11035 and Part 1 Plan 48-34545



NAK
design strategies

1285 WELLINGTON STREET, OTTAWA, ON K1Y 3A8 CANADA
T 613.237.2345
Project

STITTVILLE MAGNOLIA PH1
6115-5993 Flewellyn Rd, Ottawa, ON

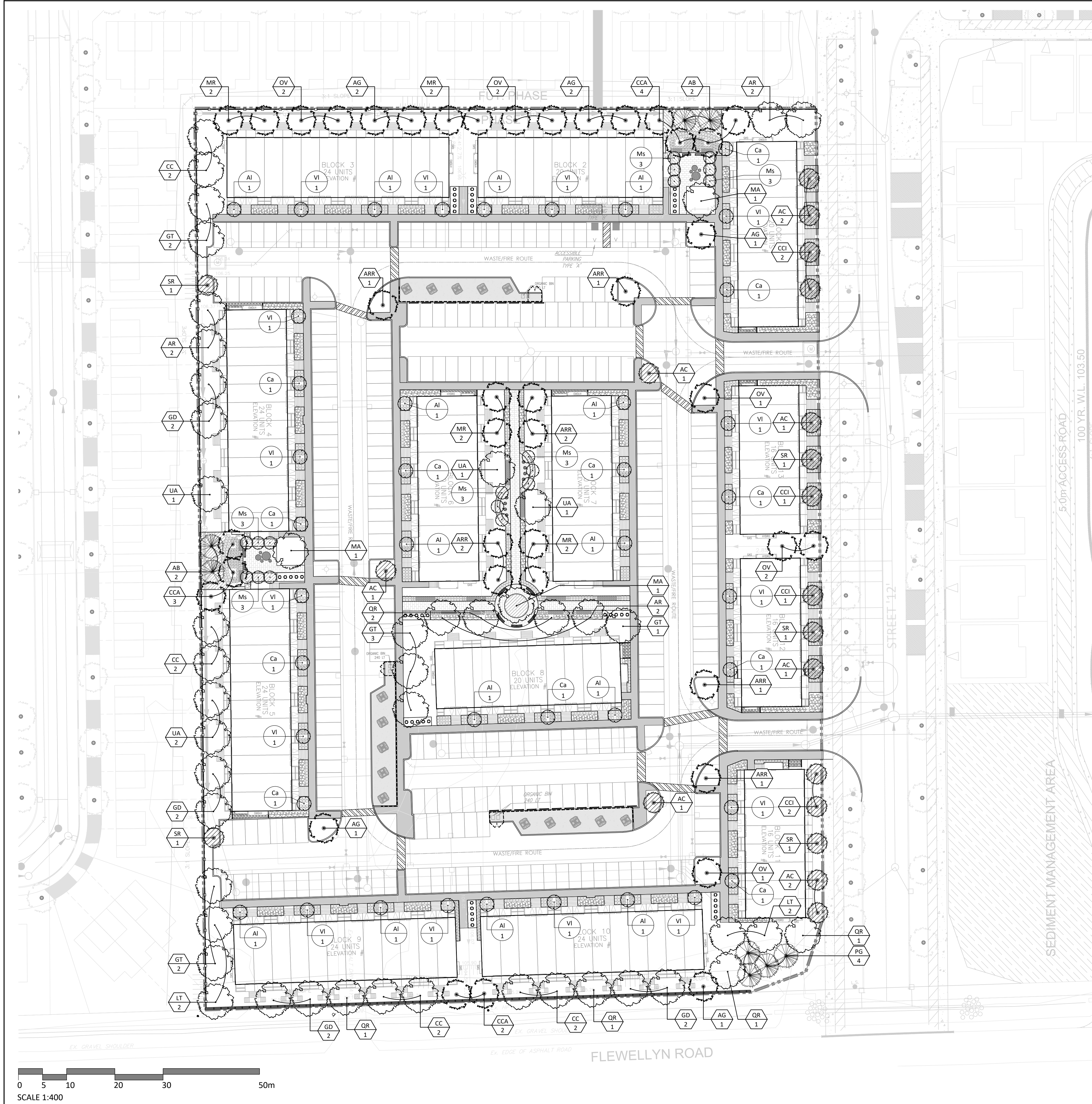
Title

LANDSCAPE PLAN

Date	2025-12-09	Sheet
Scale	1:400	L1.0
Drawn	SW	
Checked	MK	
Job No.	25-377	

PLAN N° XXXXX

CITY FILE N° DXX-XX-XX-XXXX



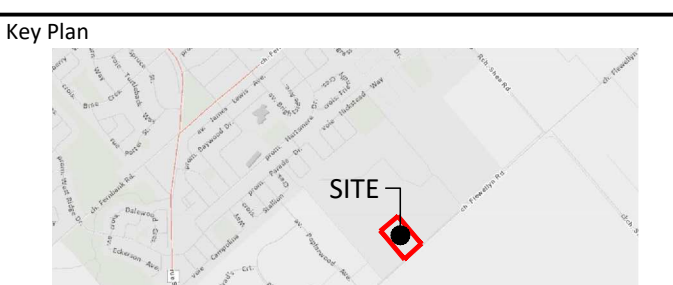
NOTES:
THE LANDSCAPE PLAN WAS PREPARED IN CONJUNCTION WITH THE
GEOTECHNICAL REPORT PREPARED BY XX:
• XX

THE LANDSCAPE PLAN WAS PREPARED IN CONJUNCTION WITH THE TREE
CONSERVATION REPORT PREPARED BY XX
• XX

ALL EXISTING SITE INFORMATION AS PER SITE SURVEY PLAN DATED XX AND
PREPARED BY ANNIS O'SULLIVAN, VOLLEBEKK LTD.

KEY	BOTANICAL NAME	COMMON NAME	QTY.	SIZE	REMARKS	NATIVE	OWNER
DECIDUOUS TREES - LARGE (15-30M HEIGHT): TOTAL 48							
AR	ACER RUBRUM	RED MAPLE	6	50mm	B&B	Y	PRIVATE
CC	CARYA CORDIFORMIS	BITTERNUT HICKORY	8	50mm	B&B	Y	PRIVATE
GD	GYMNOCLADUS DIOICUS	KENTUCKY COFFEE TREE	8	50mm	B&B	Y	PRIVATE
GT	GLEITSIA TRICANTHOS VAR. INERMIS 'SHADEMASTER'	SHADEMASTER HONEY LOCUST	8	50mm	B&B	N	PRIVATE
LT	LIRIODENDRON TULIPIFERA	TULIP TREE	4	50mm	B&B	Y	PRIVATE
MA	MAGNOLIA ACUMINATA	CUCUMBER TREE	3	50mm	B&B	Y	PRIVATE
QR	QUERCUS RUBRA	RED OAK	6	50mm	B&B	Y	PRIVATE
UA	ULMUS AMERICANA	VALLEY FORGE ELM	5	50mm	B&B	N	PRIVATE
DECIDUOUS TREES - MEDIUM (8-14M HEIGHT): TOTAL 40							
AG	AESCULUS GLABRA	OHIO BUCKEY	7	50mm	B&B	Y	PRIVATE
ARR	ACER RUBRUM 'REDPOINTE'	REDPOINTE RED MAPLE	8	50mm	B&B	Y	PRIVATE
CCA	CARPINUS CAROLINIANA	BLUE BEECH	9	50mm	B&B	Y	PRIVATE
MR	MORUS RUBRA	RED MULBERRY	8	50mm	B&B	Y	PRIVATE
OV	OSTRYA VIRGINIANA	IRONWOOD	8	50mm	B&B	Y	PRIVATE
DECIDUOUS TREES - SMALL (6-8M HEIGHT): TOTAL 20							
AC	AMELANCHIER CANADENSIS	SERVICEBERRY	9	50mm	B&B, TREE FORM	Y	PRIVATE
CCI	CRATAEGUS CRUSGALI 'INERMIS'	THORNLESS HAWTHORN	6	250cm 15 GAL	PT, TREE FORM	N	PRIVATE
SR	SYRINGA RETICULATA 'IVORY SILK'	JAPANESE LILAC	5	50mm	B&B, TREE FORM	N	PRIVATE
CONIFEROUS TREES: TOTAL 8							
AB	ABIES BALSAMEA	BALSAM FIR	4	200cm	B&B	Y	PRIVATE
PG	PICEA GLAUCA	WHITE SPRUCE	4	200cm	B&B	Y	PRIVATE
MULTI-STEM SHRUBS: TOTAL 59							
AI	AMELANCHIER LAEVIS	ALLEGHENY SERVICEBERRY	14	125cm ht.	PT, CLUMP	Y	PRIVATE
Ca	CORNUS ALTERNIFOLIA	PAGODA DOGWOOD	12	125cm ht.	PT, CLUMP	Y	PRIVATE
Ms	MAGNOLIA X 'SUSAN'	SUSAN MAGNOLIA	18	2 GAL	POT	Y	PRIVATE
VI	VIBURNUM LENTAGO	NANNYBERRY	15	125cm ht.	PT, CLUMP	Y	PRIVATE
DECIDUOUS SHRUBS							
Am	ARONIA MELANOCARPA	BLACK CHOKEBERRY	85	3 GAL	POT	Y	PRIVATE
Ig	ILEX GLABRA 'COMPACTA'	COMPACT INKBERRY	38	3 GAL	POT	N	PRIVATE
Po	PHYSOCARPUS OPULOFOLIUS 'DIABOLO'	'DIABOLO' NINEBARK	85	3 GAL	POT	N	PRIVATE
Ra	RHUS AROMATICA 'GRO-LOW'	GROW LOW FRAGRANT SUMAC	140	3 GAL	POT	Y	PRIVATE
Sa	SYMPHORICARPOS ALBUS	SNOWBERRY	87	3 GAL	POT	Y	PRIVATE
ORNAMENTAL GRASSES							
cl	CHASMANTHIUM LATIFOLIUM	NORTHERN SEA OATS	308	7 GAL	POT	Y	PRIVATE
dc	DESCHAMPSIA CESPITOSA	TUFTED HAIR GRASS	360	7 GAL	POT	Y	PRIVATE
bg	BOUTELOUA GRACILIS	BLUE GRAMA	345	7 GAL	POT	Y	PRIVATE
sh	SPOROBOLUS HETEROLEPSIS	PRARIE DROPSEED	445	7 GAL	POT	Y	PRIVATE
ss	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	310	7 GAL	POT	Y	PRIVATE
PERENNIALS							
am	ACHILLEA MILLEFOLIUM	COMMON YARROW	104	1 GAL	POT	Y	PRIVATE
gm	GERANIUM MACULATUM	WILD GERANIUM	52	1 GAL	POT	Y	PRIVATE
rh	RUDBECKIA HIRTA	BLACK-EYED SUSAN	132	1 GAL	POT	Y	PRIVATE
sa	SEDUM 'AUTUMN FIRE'	AUTUMN FIRE STONECROP	176	1 GAL	POT	N	PRIVATE

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LEGEND

--- PROPERTY LINE

FENCING

--- 2.0m HT. WOOD PRIVACY FENCE

--- 1.8m HT. WOOD PRIVACY FENCE

--- 1.2m HT. DECORATIVE FENCE

PLANTING

○ LARGE DECIDUOUS TREE

○ MEDIUM DECIDUOUS TREE

○ SMALL DECIDUOUS TREE

○ CONIFEROUS TREE

○ TREE FORM SHRUB

○ DECIDUOUS SHRUB

○ CONIFEROUS SHRUB

○ GRASSES/PERENNIALS

▨ GROUND SHRUB COVER PLANTING

▨ SODDING

PAVING

▨ ASPHALT PAVING

▨ CIP CONCRETE PAVING

▨ HEAVY DUTY CONCRETE PAVING

▨ UNIT PAVING

▨ STONEDUST SURFACE

▨ RIVERSTONE PAVING (MAINTENANCE EDGE)

▨ PRECAST CURB (MAINTENANCE EDGE)

DETAIL KEY	DETAIL NO.	SHEET NO.
1	1	1

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1	Issued for First Submission	Jan 23/26
No.	Description	Date

OWNERSHIP CAYAN COMMUNITIES 3713 Borrisokane Rd., Ottawa, ON K2J 4J4 109	CIVIL DBL 120 Berr Rd., Suite 103, Stittsville, ON K2S 1G9
ARCHITECT OIA ARCHITECTS INC. 4130 Yonge St., Suite 602, Toronto, ON M2P 2B7	LANDSCAPE ARCHITECT NAK DESIGN STRATEGIES 1285 Wellington St., Ottawa, ON K1Y 3A8
PLANNING JP&A Canada Inc. 52 Springbrook Dr., Stittsville, ON K2S 1R4	

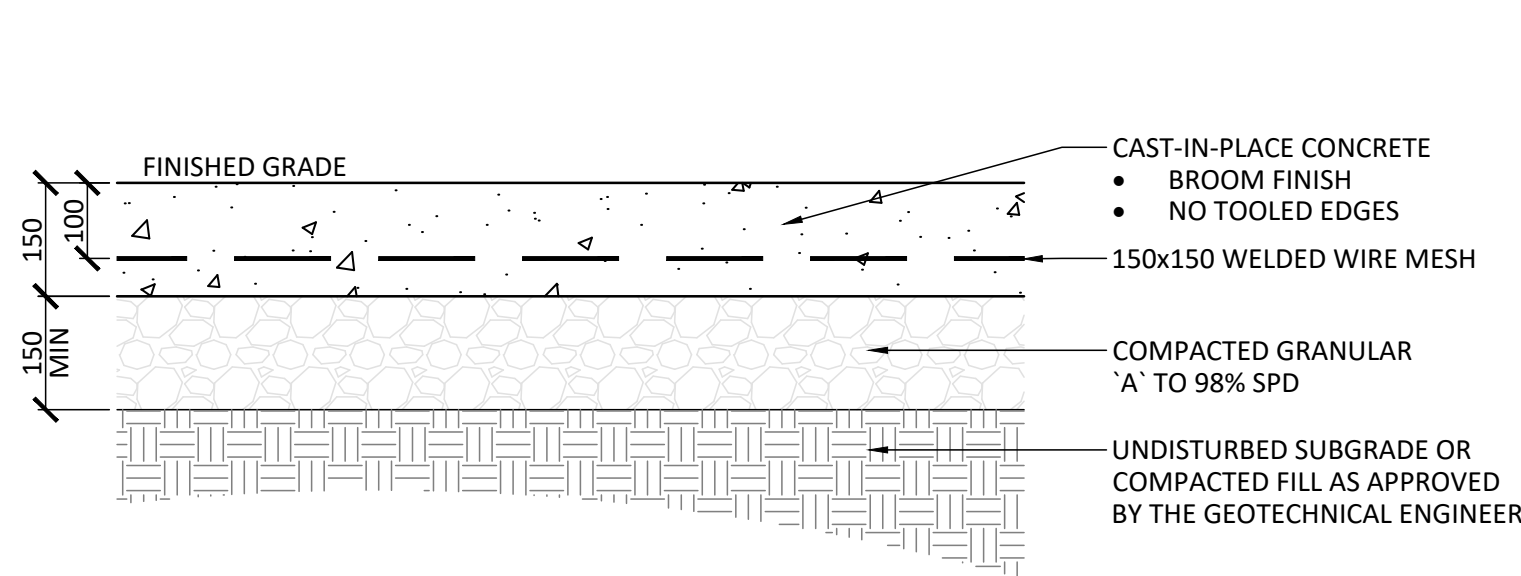
PROPERTY INFORMATION
Part 2 Plan SR-11035 and Part 1 Plan 4H-34545

NAK
design strategies

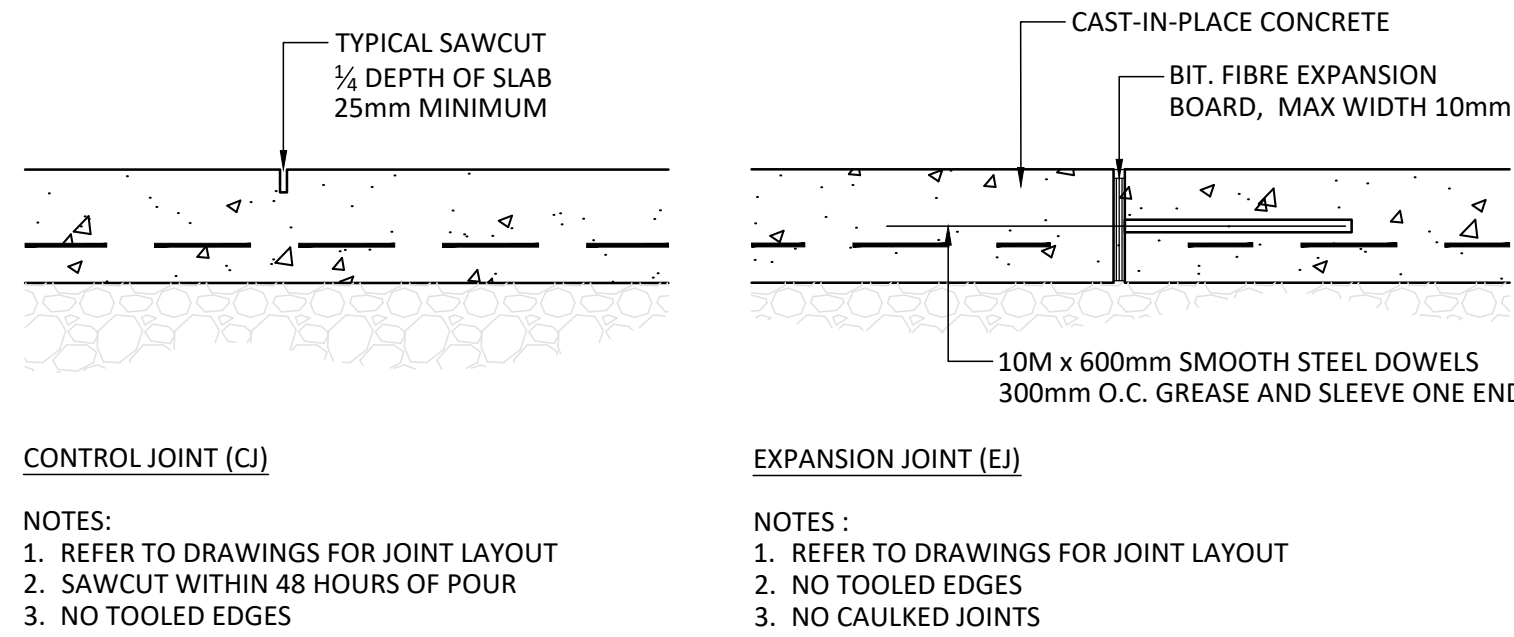
1285 WELLINGTON STREET, OTTAWA, ON K1Y 3A8 CANADA
T 613.237.2345
Project

STITTSVILLE MAGNOLIA PH1
6115-5993 Flewellyn Rd, Ottawa, ON

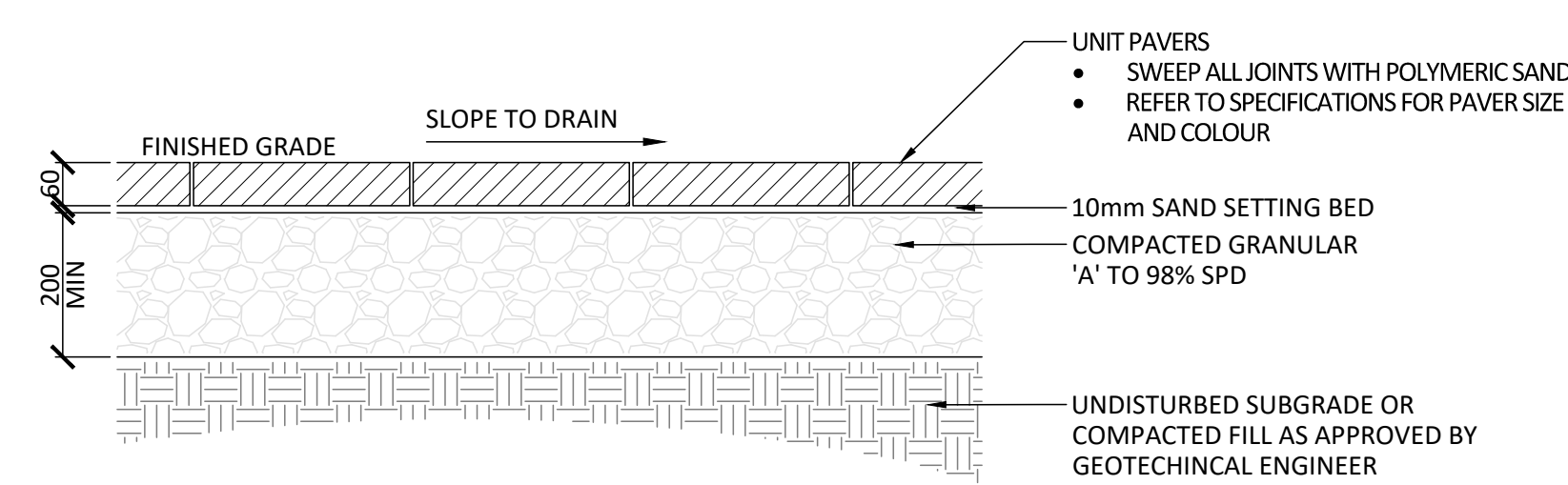
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Date	2025-12-09
Scale	1:400
Drawn	SW
Checked	MK
Job No.	25-377
Sheet	L1.1



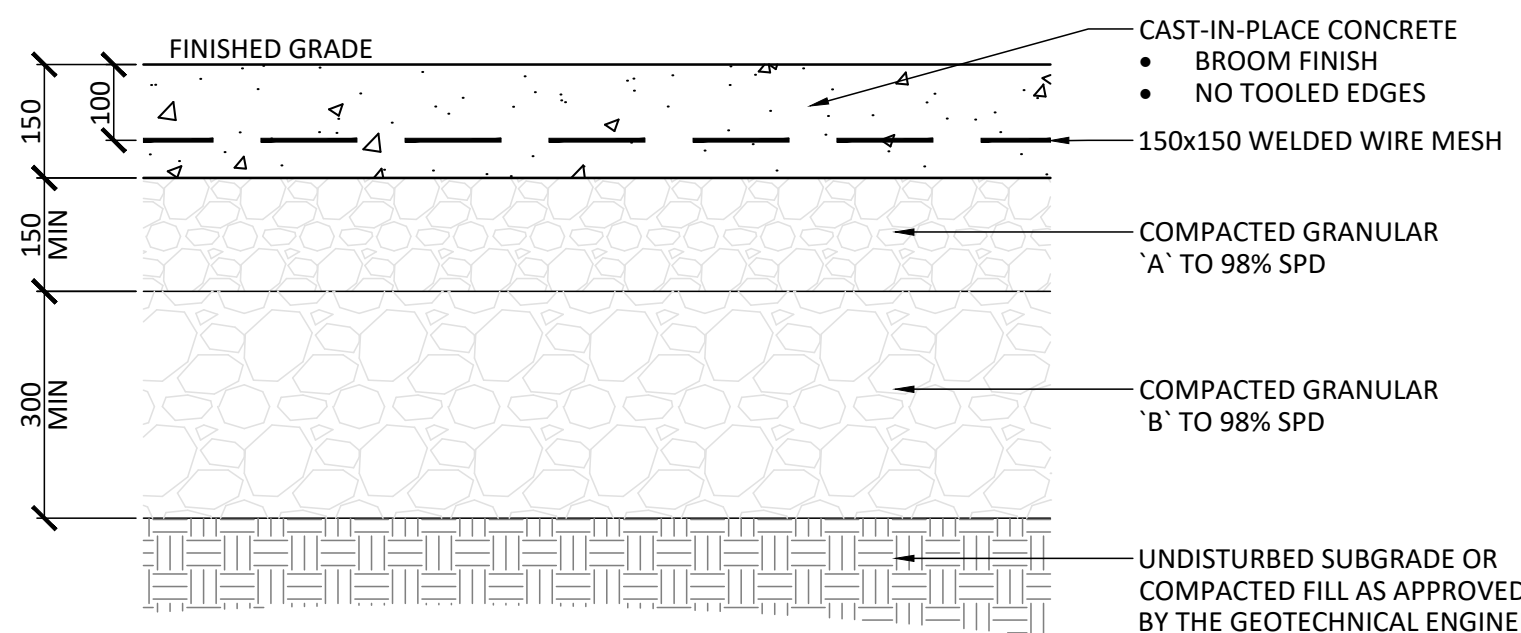
1 LIGHT DUTY CONCRETE PAVING
1:10



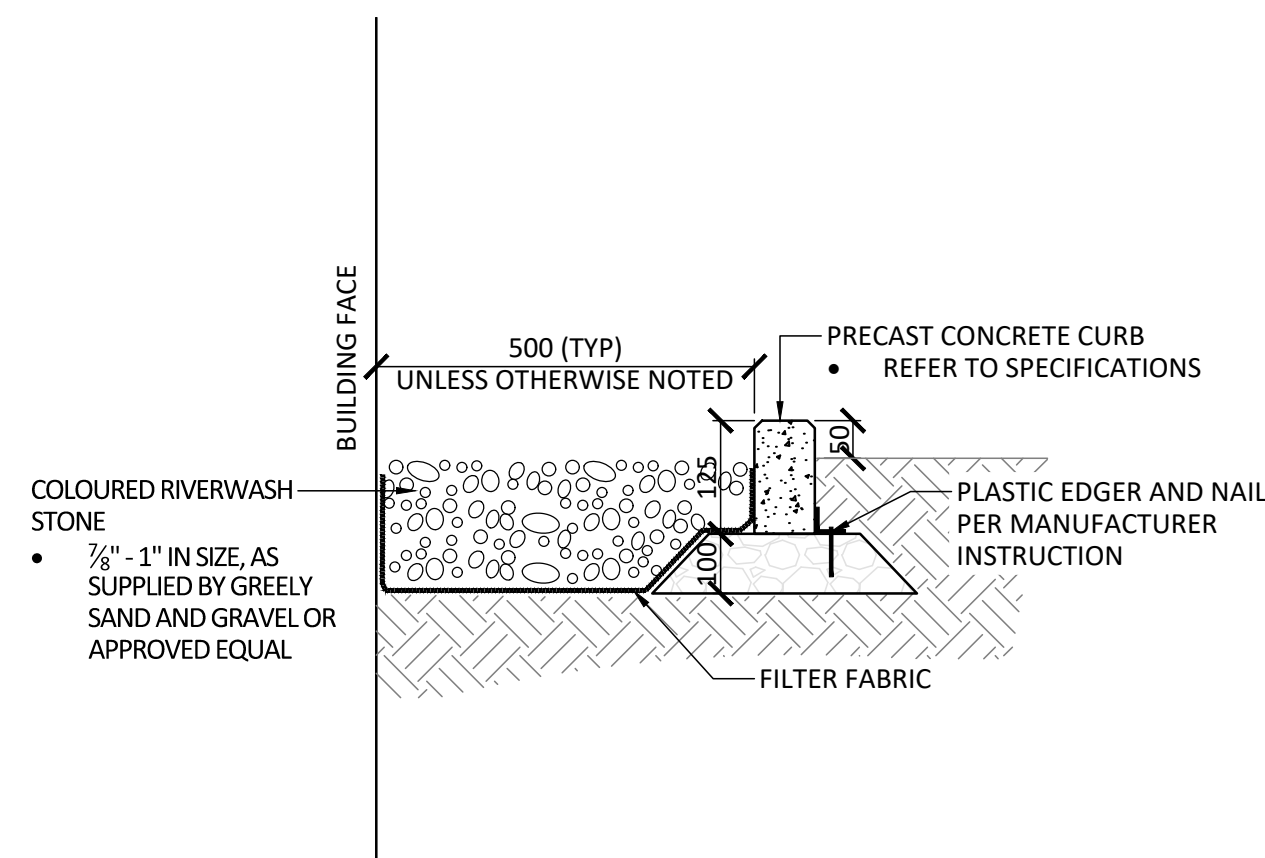
2 PEDESTRIAN CONCRETE JOINTING
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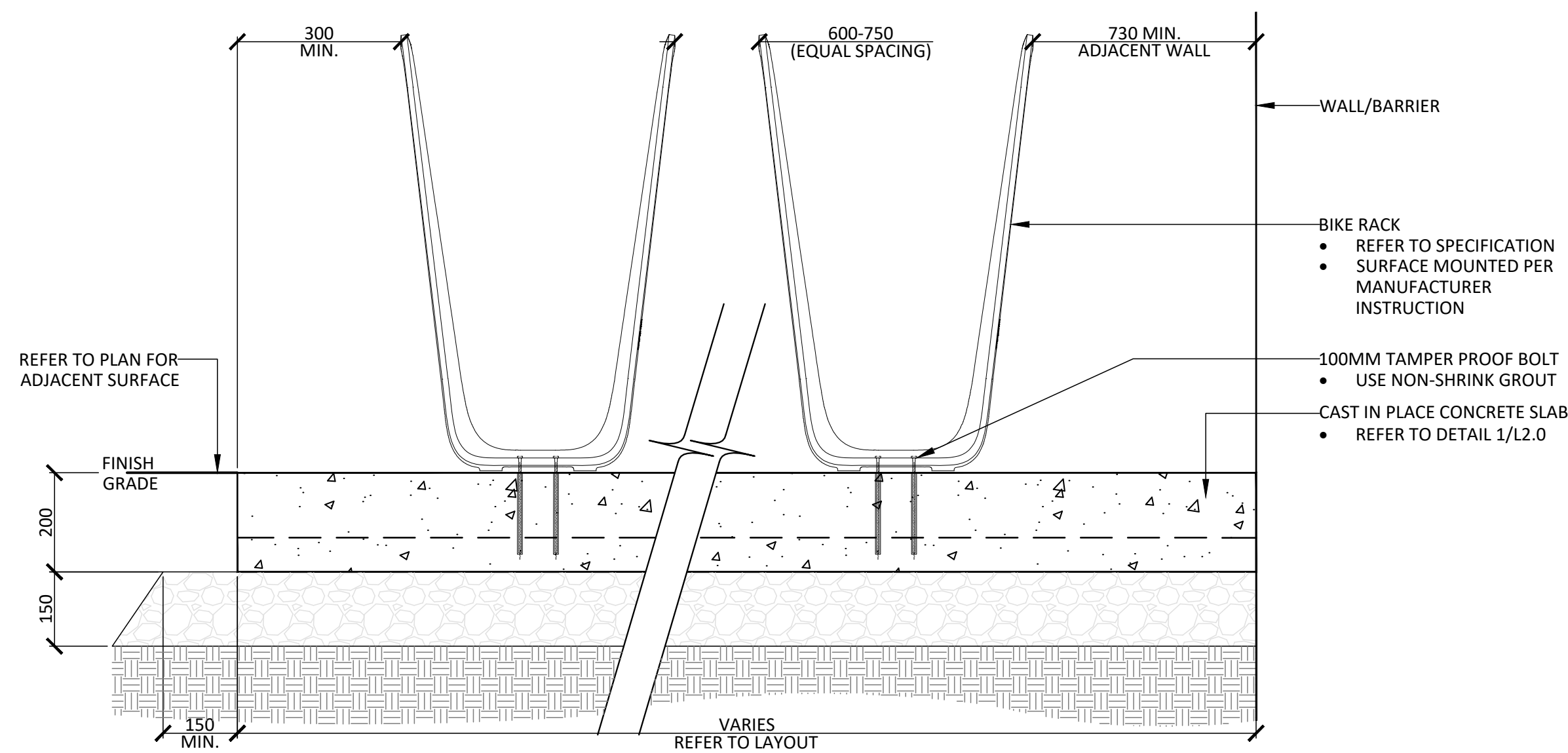
3 UNIT PAVING
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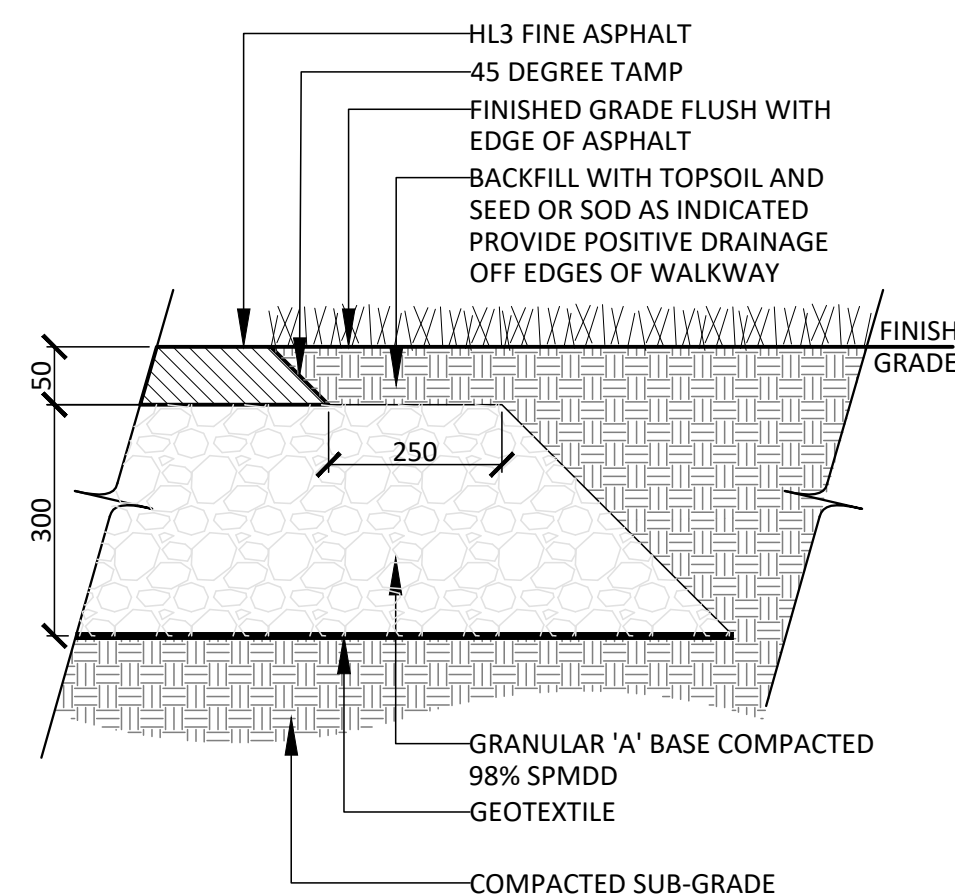
4 HEAVY DUTY CONCRETE PAVING
1:10



5 MAINTENANCE EDGE
1:10

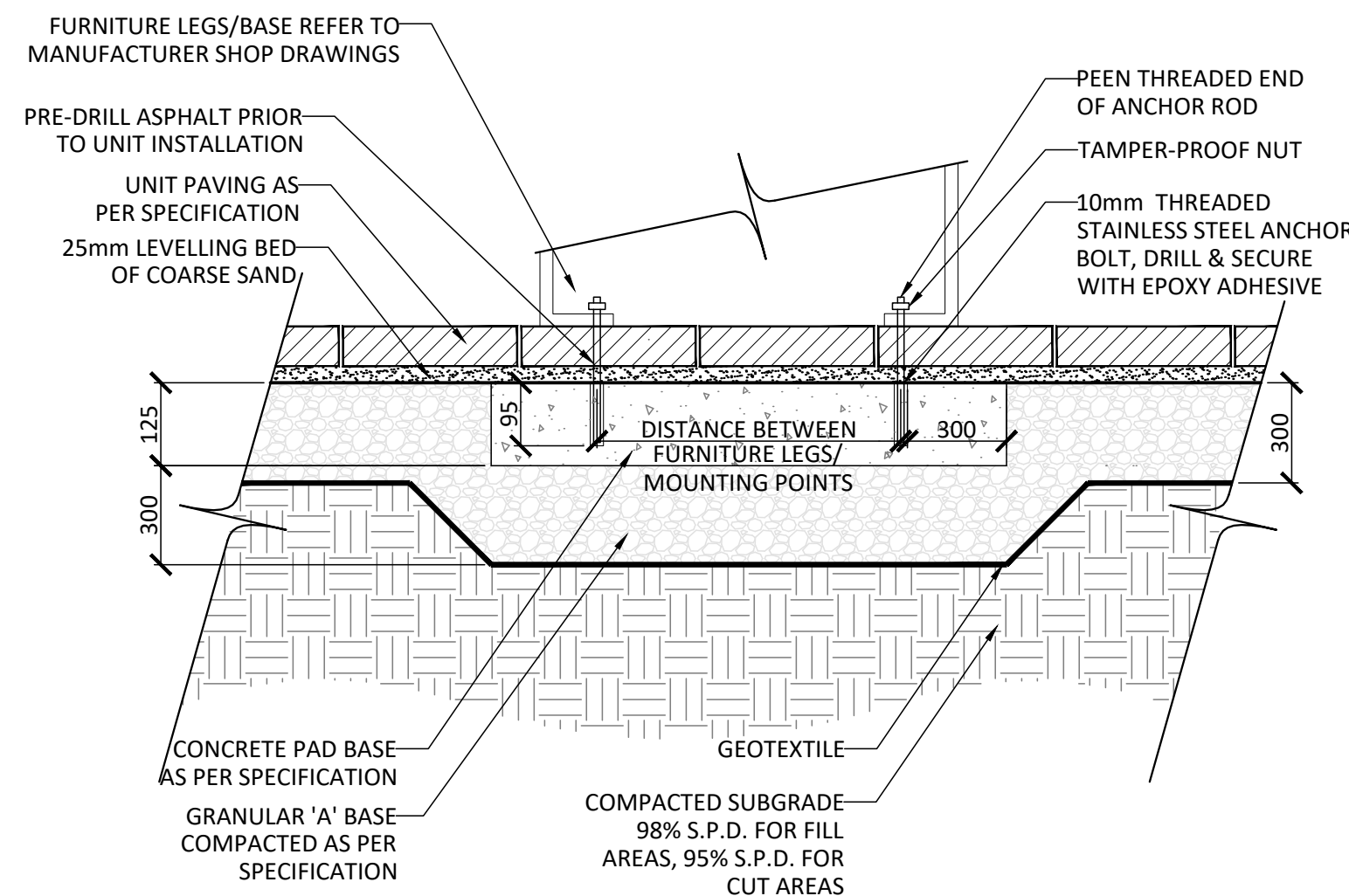


6 BIKE RACK
1:10



- NOTES:
- CROSS SLOPE PATH 1-2% IN DIRECTION OF NATURAL DRAINAGE TO PROVIDE POSITIVE DRAINAGE OF ALL WALKS.
 - FILTER FABRIC SHALL BE APPROVED NON-WOVEN CLASS 1 GEOTEXTILE AS PER MS-22.15 WHEN WARRANTED BY SOIL CONDITION. SUBJECT TO APPROVAL BY THE LANDSCAPE ARCHITECT.
 - ALL DISTURBED AREAS ALONG ASPHALT WALKWAYS SHALL BE SODDED OVER 150mm TOPSOIL FOR A MINIMUM DISTANCE OF 900mm.
 - GRANULAR 'A' SHALL MEET THE REQUIREMENTS OF OPSS 1010.

7 LIGHT DUTY ASPHALT PAVING'
1:10



- NOTES:
- FILTER FABRIC SHALL BE APPROVED NON-WOVEN CLASS 1 GEOTEXTILE AS PER MS-22.25
 - GRANULAR 'A' SHALL MEET THE REQUIREMENTS OF OPSS 1010.

8 FURNITURE PAD
1:10

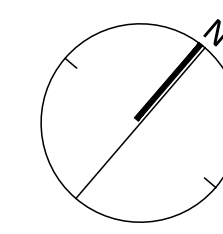
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1	Issued for First Submission	Jan 23/26
No.	Description	Date

OWNERSHIP	CIVIL
CAVANA COMMUNITIES	OSBL
3713 Borrisokane Rd., Ottawa, ON K2J 4J4	120 Bell Rd., Suite 103, Stittsville, ON K2S 1E9
ARCHITECT	LANDSCAPE ARCHITECT
OK ARCHITECTS INC.	NAK DESIGN STRATEGIES
4130 Yonge St., Suite 602, Toronto, ON M2P 2B7	1285 Wellington St., Ottawa, ON K1Y 3A8
PLANNING	
JPSA Canada Inc.	
52 Springbrook Dr., Stittsville, ON K2S 1R4	

PROPERTY INFORMATION
Part 2 plan 58-11035 and Part 1 Plan 48-34545



NAK
design strategies

1285 WELLINGTON STREET, OTTAWA, ON K1Y 3A8 CANADA
T 613.237.2345
Project

STITTVILLE MAGNOLIA PH1
6115-5993 Flewellyn Rd, Ottawa, ON

Title
LANDSCAPE DETAILS

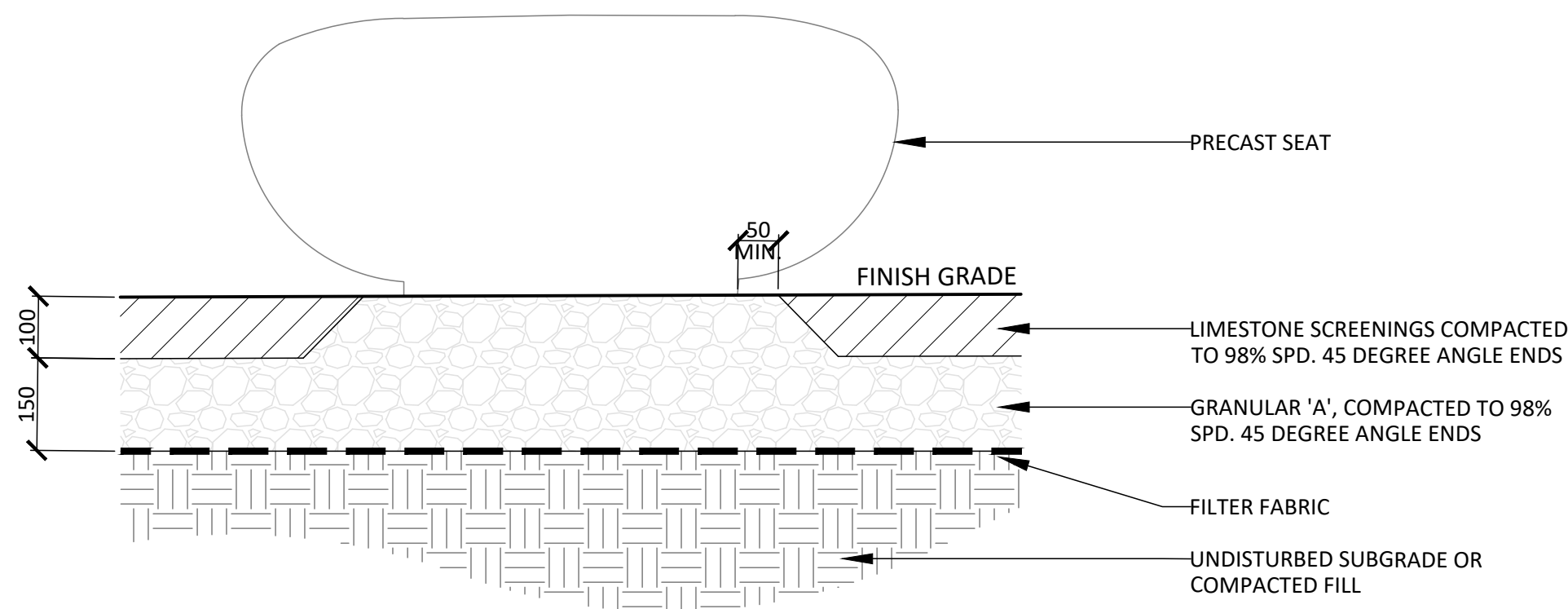
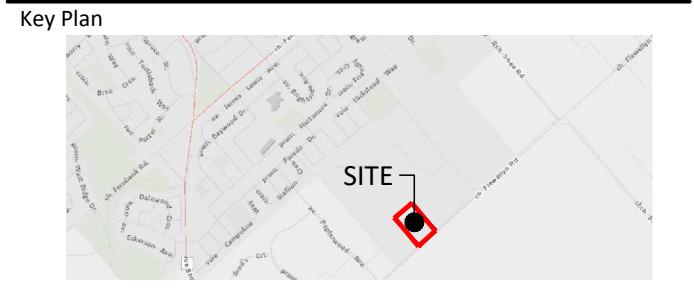
Date 2025-12-09
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Checked MK
Job No. 25-377

Sheet
L2.0

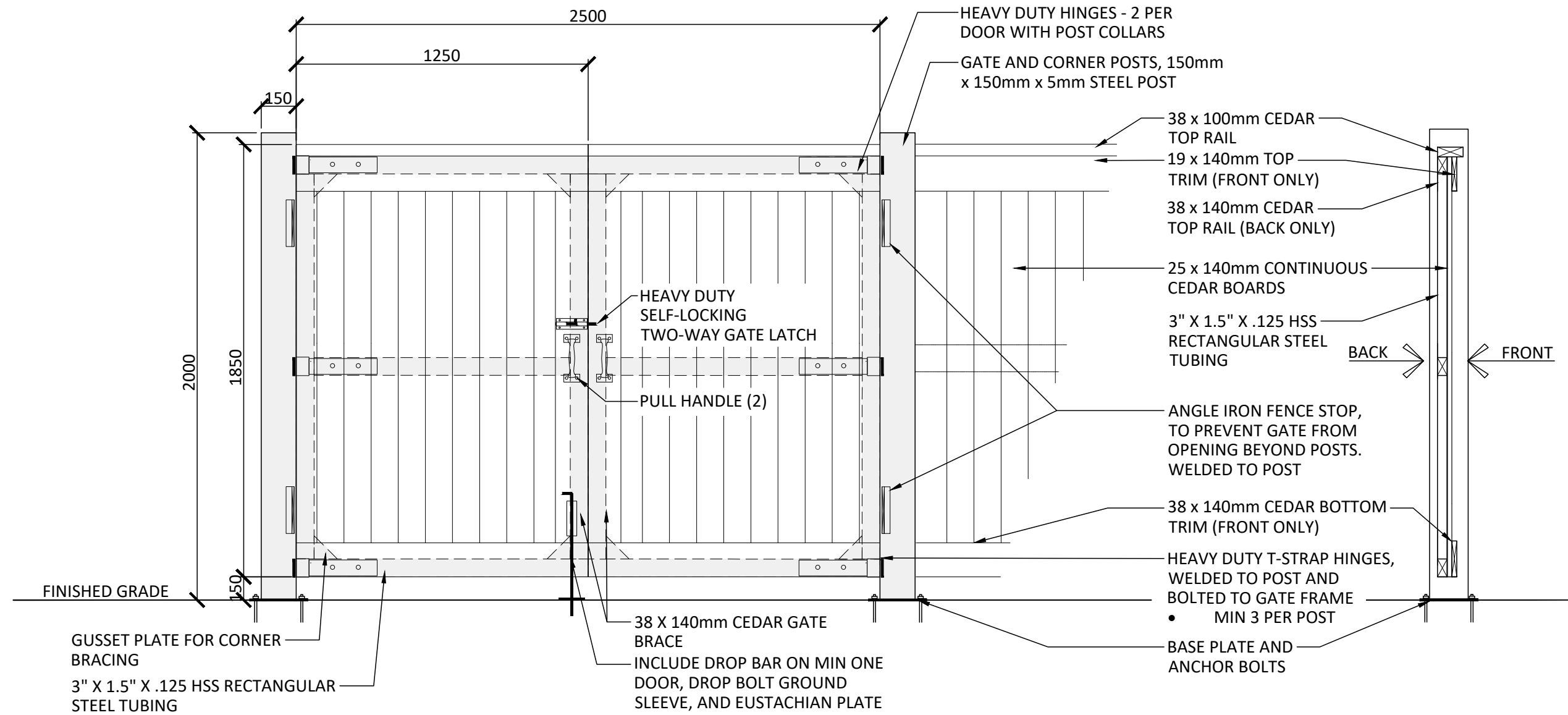
PLAN N° XXXX

CITY FILE N° DXX-XX-XX-XXXX

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- NOTES:
1. FILTER FABRIC SHALL BE APPROVED NON-WOVEN CLASS 1 GEOTEXTILE AS PER MS-22.25
 2. GRANULAR 'A' SHALL MEET THE REQUIREMENTS OF OPSS 1010.



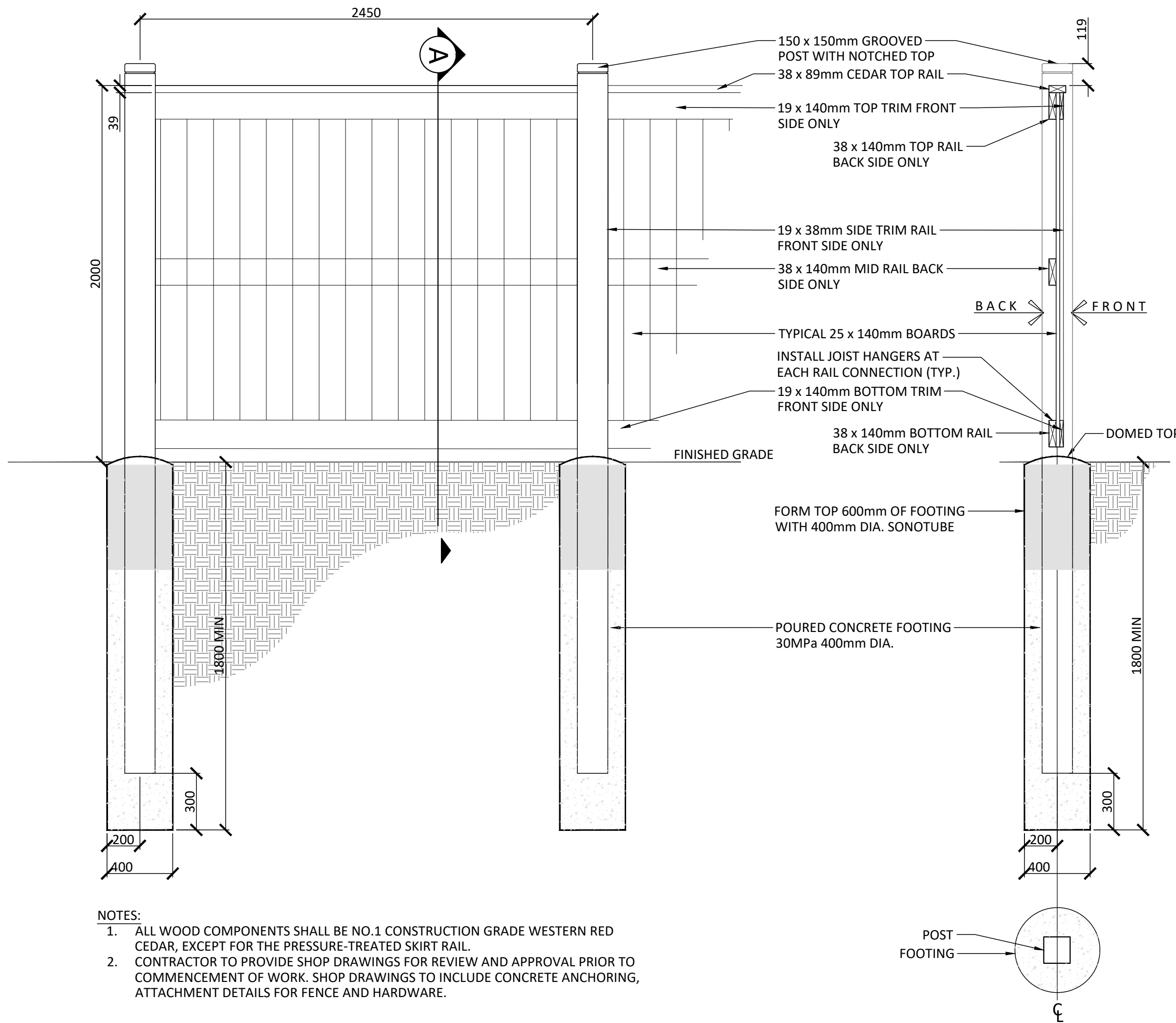
- NOTES:
1. ALL WOOD COMPONENTS SHALL BE NO.1 GRADE WESTERN RED CEDAR
 2. ALL FASTENERS TO BE HOT-DIPPED GALVANIZED
 3. ALL HEAVY DUTY GATE HINGES TO BE WELDED TO $\frac{3}{8}$ " STEEL FRAME AND POST.
 4. ALL STEEL TO BE PRIMED AND POWDER COATED. COLOR BE REVIEWED AND APPROVED BY LANDSCAPE ARCHITECTURE PRIOR TO FABRICATION.
 5. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF WORK. SHOP DRAWINGS TO INCLUDE CONCRETE ANCHORING, ATTACHMENT DETAILS FOR FENCE AND HARDWARE (GATE LATCH, HINGES, DROP BAR ETC.)

1 PRECAST INFORMAL SEAT ON STONEDUST SURFACING

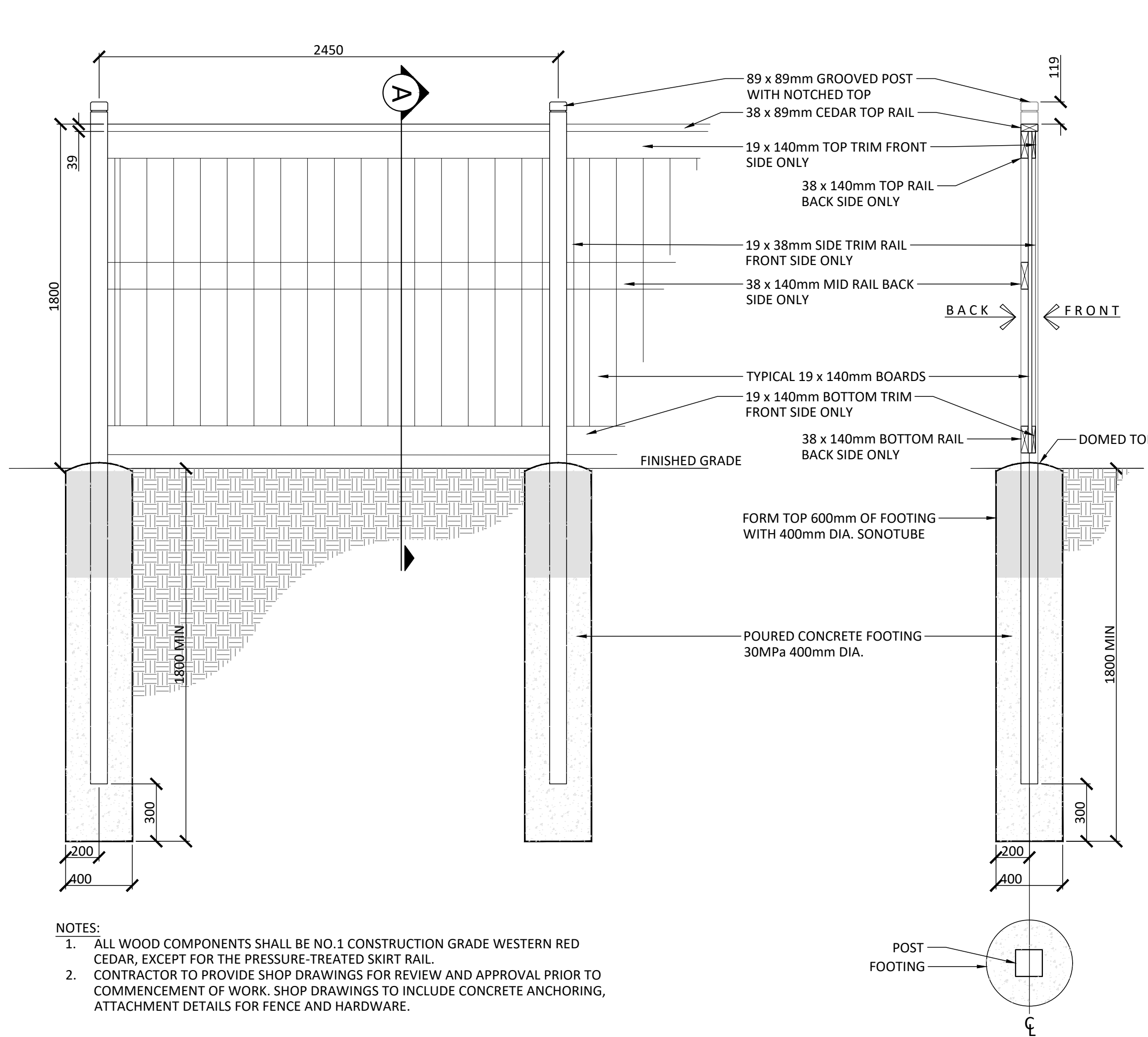
1:10

2 2.0m HEIGHT WASTE ENCLOSURE GATE

1:20



- NOTES:
1. ALL WOOD COMPONENTS SHALL BE NO.1 CONSTRUCTION GRADE WESTERN RED CEDAR, EXCEPT FOR THE PRESSURE-TREATED SKIRT RAIL.
 2. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF WORK. SHOP DRAWINGS TO INCLUDE CONCRETE ANCHORING, ATTACHMENT DETAILS FOR FENCE AND HARDWARE.



- NOTES:
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 2. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF WORK. SHOP DRAWINGS TO INCLUDE CONCRETE ANCHORING, ATTACHMENT DETAILS FOR FENCE AND HARDWARE.

3 2.0m HEIGHT WASTE ENCLOSURE FENCE

1:20

4 1.8m HEIGHT WOOD PRIVACY FENCE

1:20

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1	Issued for First Submission	Jan 23/26
No.	Description	Date

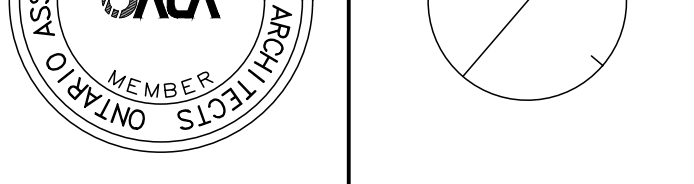
Revision	
1	Issued for First Submission
2	Issued for First Submission
3	Issued for First Submission
4	Issued for First Submission
5	Issued for First Submission
6	Issued for First Submission
7	Issued for First Submission
8	Issued for First Submission
9	Issued for First Submission
10	Issued for First Submission

OWNERSHIP	CIVIL
CAVANA COMMUNITIES	120 Rier Rd., Suite 103, Stittsville, ON K2S 1G9
3713 Borrisokane Rd., Ottawa, ON K2J 4J4	

ARCHITECT	LANDSCAPE ARCHITECT
OK ARCHITECTS INC.	NAK DESIGN STRATEGIES
4130 Yonge St., Suite 602, Toronto, ON M2P 2B7	1285 Wellington St., Ottawa, ON K1Y 3A8

PLANNING	
JPSA Canada Inc.	
52 Springbrook Dr., Stittsville, ON K2S 1R4	

PROPERTY INFORMATION	
Part 2 plan 58-11035 and Part 1 Plan 48-34545	



NAK
design strategies

1285 WELLINGTON STREET, OTTAWA, ON K1Y 3A8 CANADA
T 613.237.2345
Project

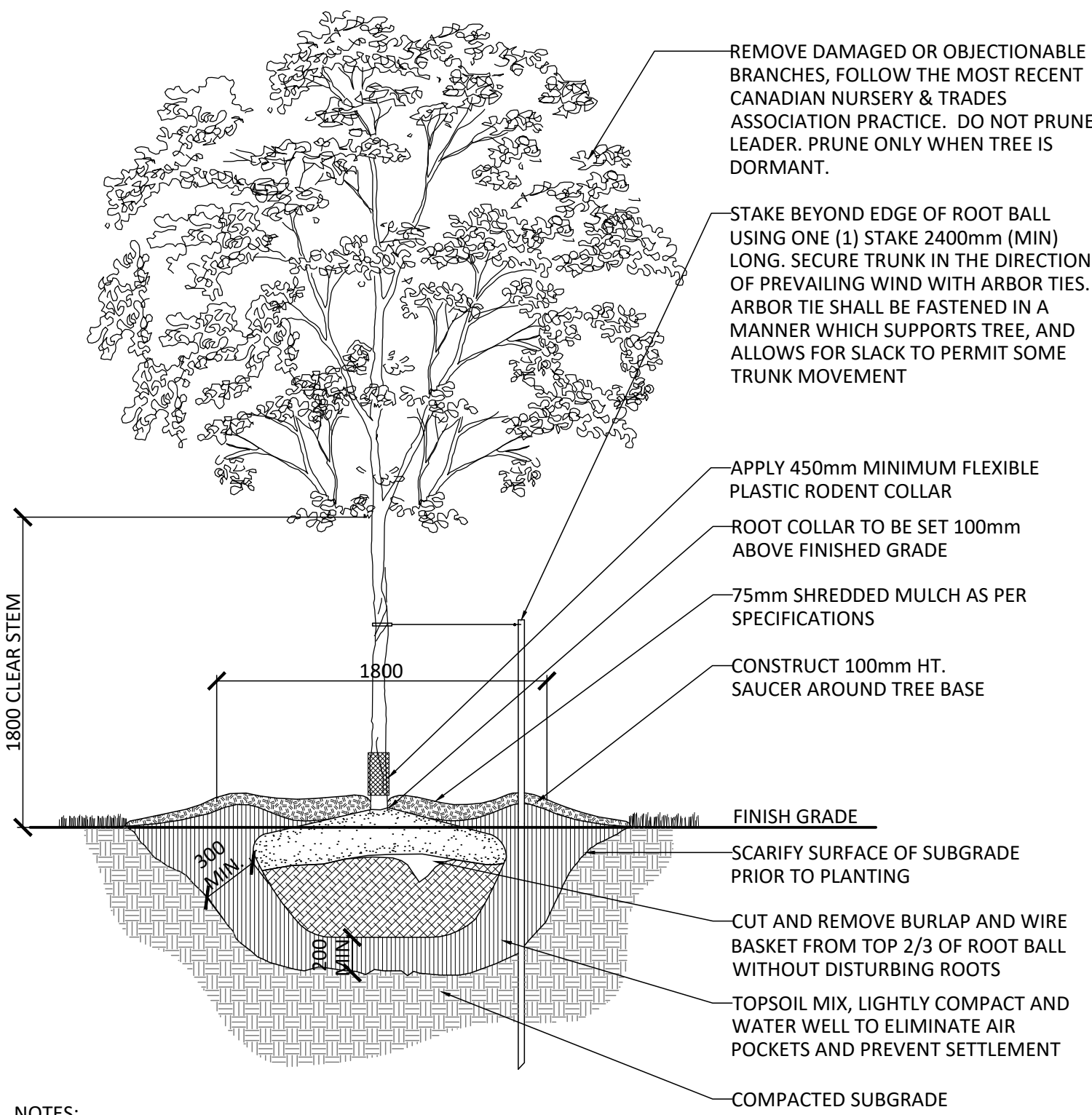
STITTVILLE MAGNOLIA PH1

6115-5993 Flewellyn Rd, Ottawa, ON

Title	
LANDSCAPE DETAILS	
Date	2025-12-09
Scale	1:400
Drawn	SW
Checked	MK
Job No.	25-377
Sheet	L2.1

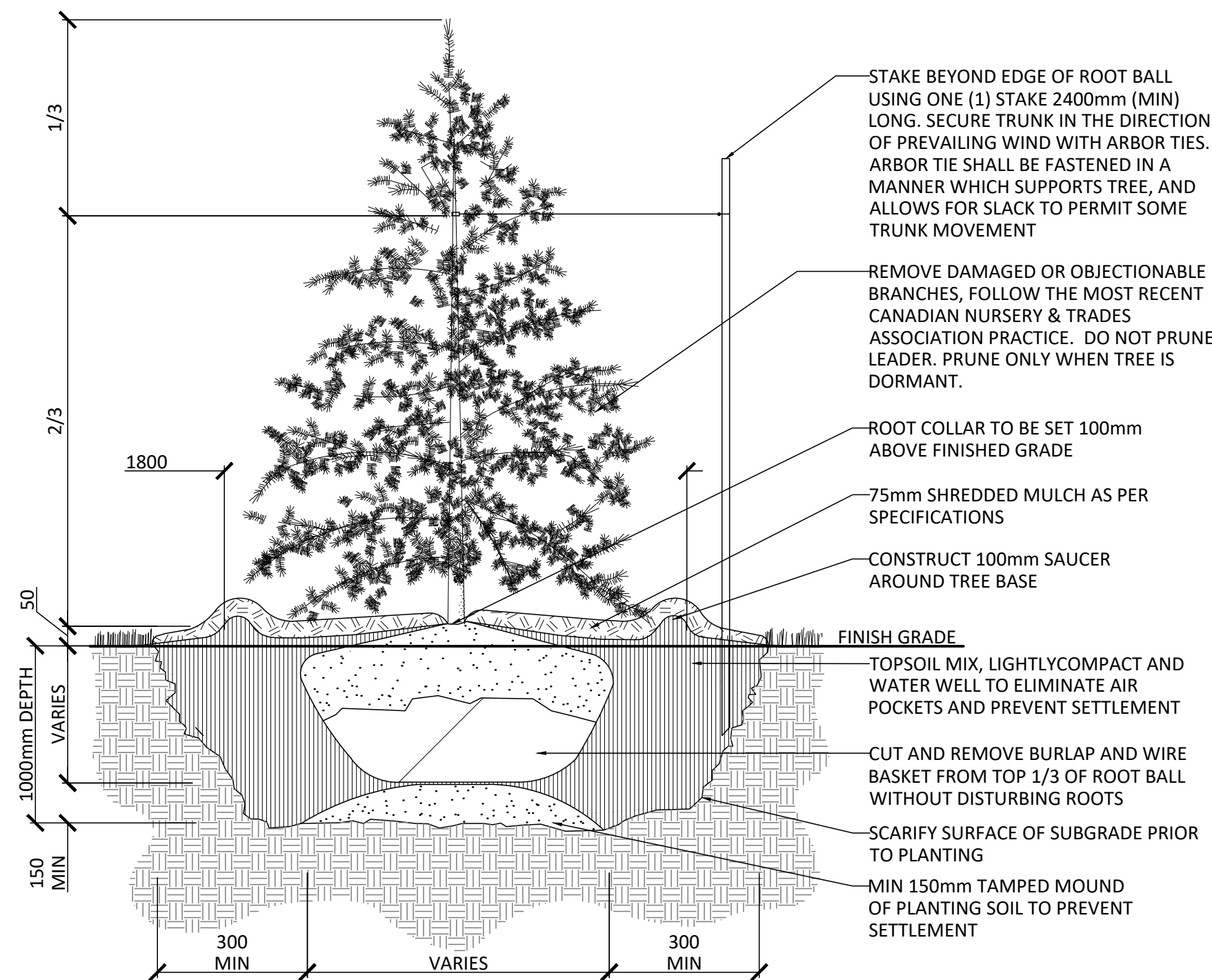
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CITY FILE N° DXX-XX-XX-XXXX



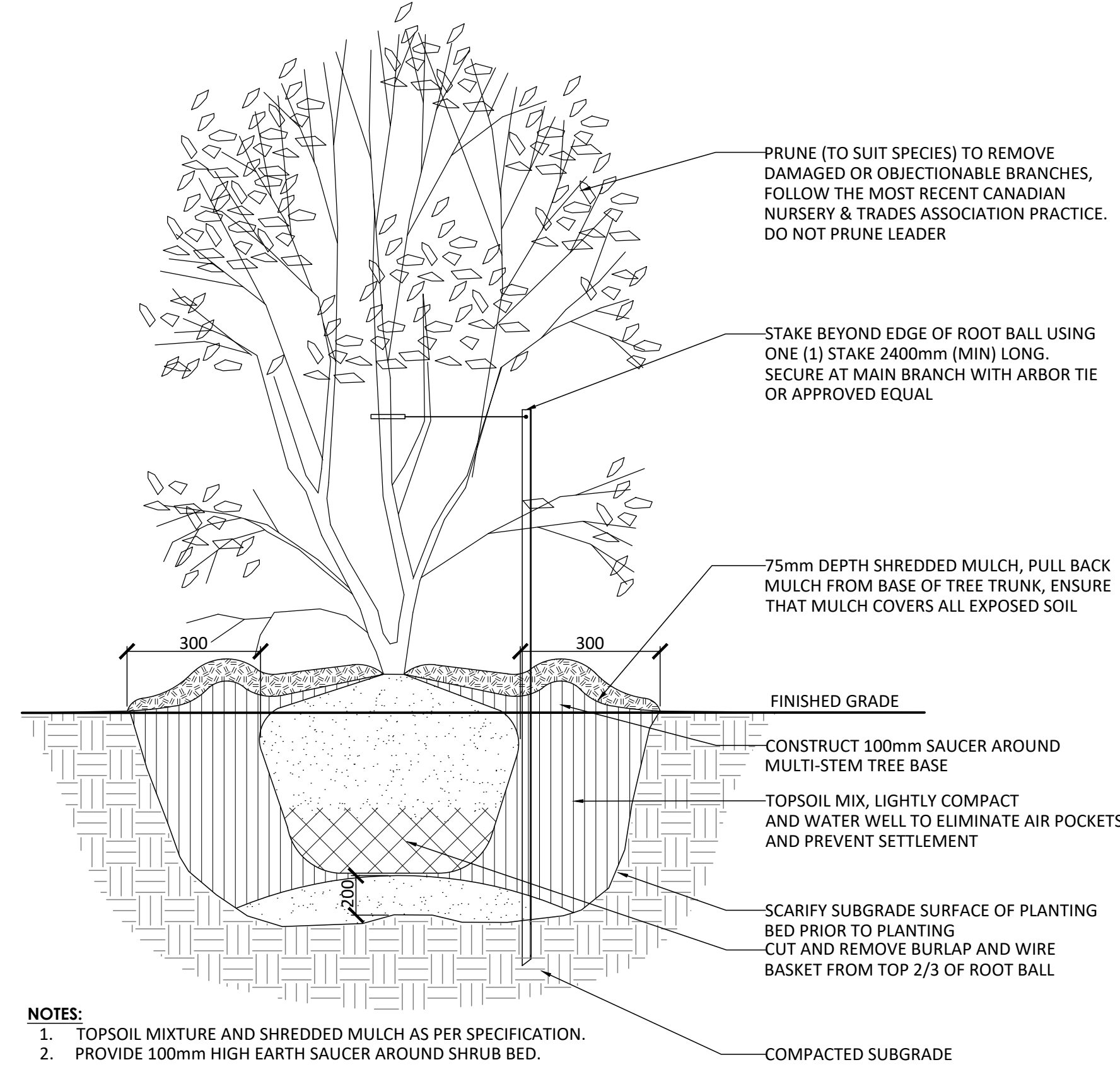
- NOTES:
1. REMOVE STAKE AFTER ONE YEAR OR UNTIL TAKEOVER, UNLESS OTHERWISE DIRECTED BY THE LANDSCAPE ARCHITECT.
 2. TOPSOIL MIXTURE AND SHREDDED MULCH AS PER SPECIFICATION
 3. REMOVE TREE WRAP AFTER PLANTING
 4. CALIPER TO BE MEASURED AT THE BASE OF TREE AT ROOT BALL.

1 DECIDUOUS TREE PLANTING
1:30



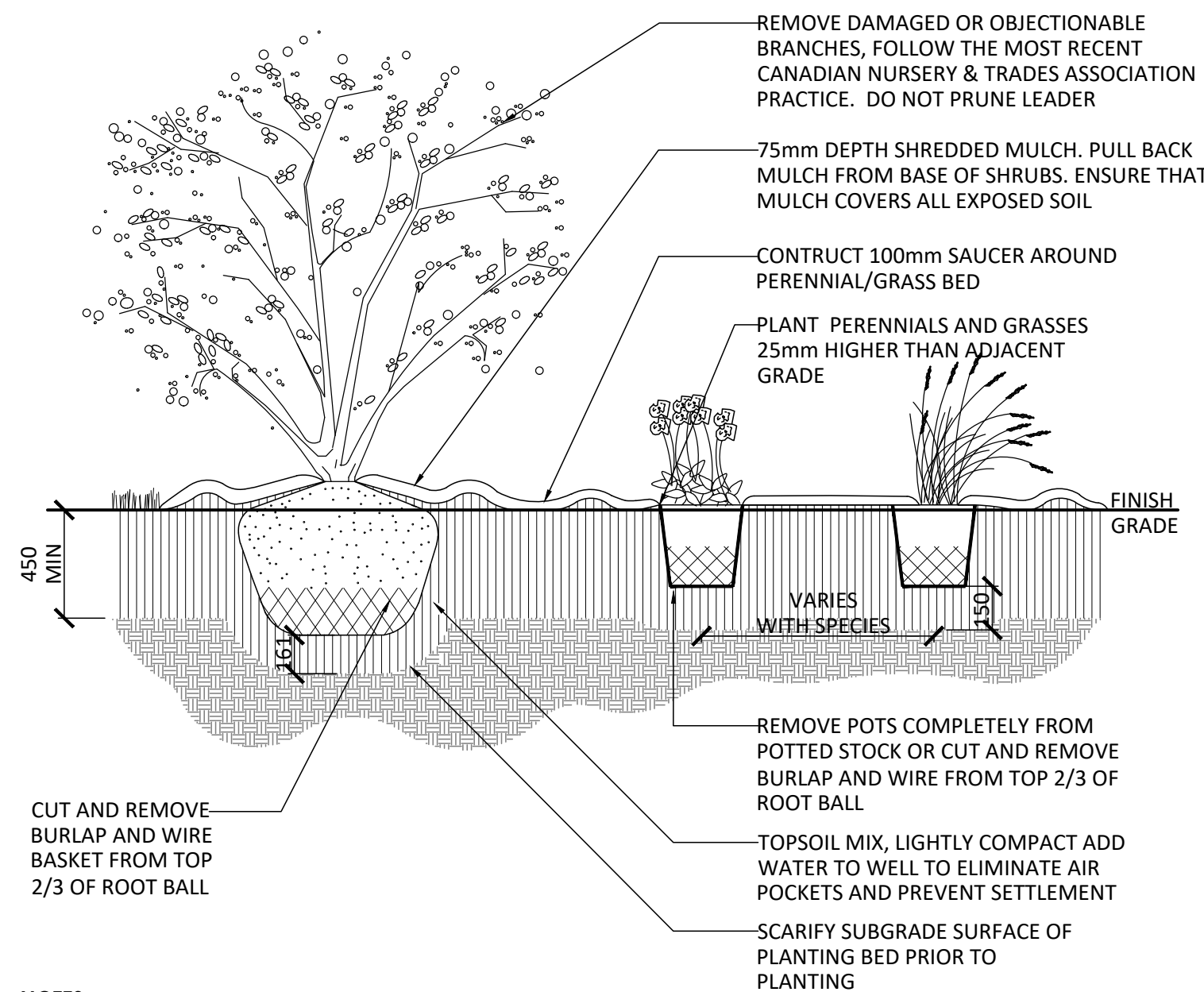
- NOTES:
1. REMOVE STAKE AFTER ONE YEAR OR UNTIL TAKEOVER UNLESS OTHERWISE DIRECTED BY THE LANDSCAPE ARCHITECT.
 2. TOPSOIL MIXTURE AND SHREDDED MULCH AS PER SPECIFICATION

2 CONIFEROUS TREE PLANTING
1:30



- NOTES:
1. TOPSOIL MIXTURE AND SHREDDED MULCH AS PER SPECIFICATION.
 2. PROVIDE 100mm HIGH EARTH SAUCER AROUND SHRUB BED.
 3. STAKES TO BE REMOVED AFTER ONE YEAR OR UNTIL TAKEOVER UNLESS OTHERWISE DIRECTED BY LANDSCAPE ARCHITECT.

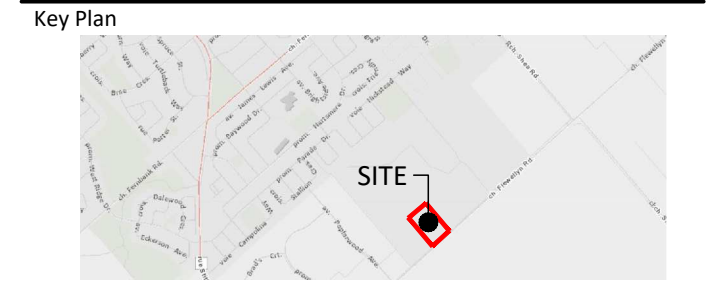
3 MULTI-STEM SHRUB PLANTING
1:25



- NOTES:
1. TOPSOIL MIXTURE AND SHREDDED MULCH AS PER SPECIFICATION.
 2. SHRUBS SPECIFIED TO BE PLANTED SO THAT ROOTS ARE FULLY EXTENDED IN PLANTING HOLE WITH SOIL MIX BACKFILLED CAREFULLY TO PREVENT ROOT DAMAGE.
 3. PROVIDE 100mm HIGH EARTH SAUCER AROUND SHRUB BED.

4 CONTINUOUS SHRUB/PERENNIAL PLANTING
1:25

Contractor shall check all dimensions on the work and report any discrepancy to the Landscape Architect before proceeding. All drawings and specifications are the property of the Landscape Architect and must be returned at the completion of the work. This drawing is not to be used for construction until signed by the Landscape Architect.



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1	Issued for First Submission	Jan 23/26
No.	Description	Date
Revision		
OWNERSHIP		
CIVIL		
CIVIL		
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ARCHITECT		
ON ARCHITECTS INC.		
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MSP 207		
LANDSCAPE ARCHITECT		
NAK DESIGN STRATEGIES		
1285 Wellington St., Ottawa, ON K1Y 3A8		
PLANNING		
JPSA Canada Inc.		
52 Springbrook Dr., Stittsville, ON K2S 1R4		
PROPERTY INFORMATION		
Part 2 plan 58-11035 and Part 1 Plan 48-34545		

NAK

design strategies

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Project

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Title		
LANDSCAPE DETAILS		
Date	2025-12-09	Sheet
Scale	1:400	L2.2
Drawn	SW	
Checked	MK	
Job No.	25-377	