



FISHERIES AND AQUATIC ECOSYSTEMS EXISTING -CONDITIONS REPORT – HIGHWAY 6 (HANLON EXPRESSWAY) IMPROVEMENTS, GUELPH (GWP 3002-05-00)

File No. 165000631

Prepared for:

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December 2007 (Updated May 2009)

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1.0 Introduction

Stantec Consulting Ltd. (Stantec) has been retained by the Ministry of Transportation, Ontario (MTO) to undertake the planning, preliminary design, and environmental assessment for the upgrading of Highway 6 (the Hanlon Expressway) from 0.5 km south of Maltby Road north to (but not including) the Speed River. The study area is located within the City of Guelph, the Township of Puslinch, and Wellington County (see **Figure 1**).

Highway 6 is a major provincial facility. The purpose of the study is to upgrade the expressway to a fully-controlled access freeway between the Speed River and 0.5 km south of Maltby Road, with access restricted to interchange locations only.

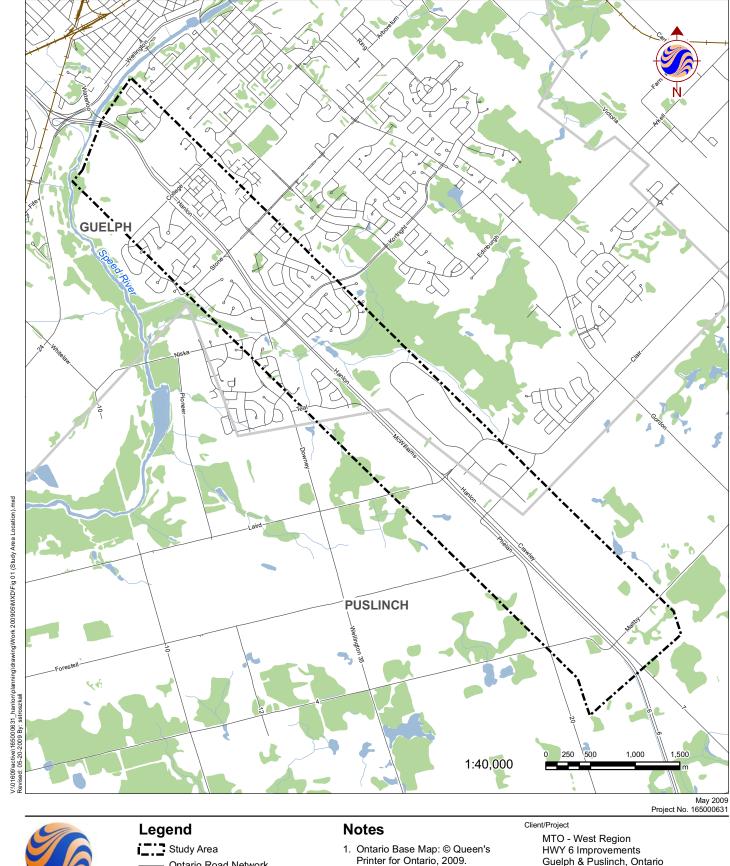
The study includes:

- Carrying out engineering and environmental field investigations;
- Developing interchange and access alternatives for College Avenue, Stone Road, Kortright Road, Laird Road, Clair Road, and Maltby Road;
- Seeking input from the public, property owners, local municipalities, external ministries / agencies, and businesses;
- Evaluating the interchange and access alternatives;
- Identifying a recommended plan for an access-controlled Highway 6, including side road connections and grade separations;
- Preliminary design and environmental mitigation to facilitate the proposed improvements;
 and
- Conducting an environmental assessment under MTO's Class EA process to obtain environmental approvals for the recommended alternative(s).

The purpose of this Fisheries and Aquatic Ecosystems Report is to document the existing aquatic ecological features within the Highway 6 study area. All natural environment features have been characterized based upon field assessment, secondary source data, and consultation with agency staff.

The scope of work for this report is limited to fish and aquatic habitat. However, a Terrestrial Ecosystems Report is being submitted concurrently with this report. Together, these two documents summarize the Natural Sciences component of the Highway 6 planning, preliminary design, and environmental assessment study.

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Legend Study Area Ontario Road Network Watercourse Railroad Lower Tier Municipality Wooded Area Waterbody Notes 1. Ontario Base Map: © Queen's Printer for Ontario, 2009. Stantec Notes 1. Ontario Base Map: © Queen's Queen's Printer for Ontario, 2009. Figure No. 1 Title Study Area Location

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2.0 Methodology

2.1 AGENCY CONSULTATION AND BACKGROUND DATA COLLECTION

The study area is located within the jurisdiction of the Guelph District Ministry of Natural Resources (MNR) and within the Grand River Conservation Authority (GRCA) watershed. Both MNR and GRCA staff were contacted to obtain available background aquatic data pertinent to the study area.

Consultation with agency staff included:

- Donald Kirk (Natural Heritage Ecologist, MNR) provided rare species data. He indicated
 there are no aquatic Species at Risk documented within the study area. Updated SAR maps
 were reviewed in May 2009, confirming there have been no changes in this regard;
- Jean-Christophe Laurence (GIS Officer, MNR) provided mapping of fish spawning areas that occur within the study area;
- Art Timmerman (Fish and Wildlife Biologist, MNR) permitted access to fisheries data on file, provided a License to Collect Fish for Scientific Purposes, and identified an appropriate construction timing window for in-water works. In a subsequent project meeting (March 31, 2008), MNR indicated that Hanlon Creek has been impacted by adjacent development, particularly west of Highway 6 and that the areas adjacent to the existing Highway 6 culvert does not provide brook trout spawning habitat.
- Zoë Green (GIS Technician, GRCA) directed us toward the GRCA website for natural features mapping; and
- Jennifer Wright (Aquatic Ecologist, GRCA) indicated that no aquatic habitat information was available from the GRCA.

The MNR's Natural Heritage Information Centre (NHIC) database was consulted to document the presence / absence of known occurrences of rare aquatic floral or faunal species (i.e., nationally and/or provincially endangered, threatened or special concern species) within the vicinity of the study area. Local MNR and GRCA offices were consulted to confirm this information.

In addition, the project team has reviewed information collected as part of the City of Guelph's Natural Heritage Strategy update (April 2009).

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Methodology May 19, 2009

2.2 FISHERIES PROTOCOL

This project was initiated (via a Request for Proposals) in October 2006. At the time of project initiation, the MNR was the lead agency on MTO projects and the role of various provincial ministries with respect to fish and fish habitat was outlined in the 1993 MTO-MNR Fisheries Protocol. In the years between project initiation and the selection of the Preferred Plan for this project, a new MTO/DFO/OMNR Protocol has been adopted,. The MTO/DFO/MNR (2006) protocol includes specific field requirements and a change in the process for DFO approvals that required for Ministry of Transportation projects. The most significant change to the approvals process was that MNR is no longer responsible for confirming the fisheries impacts (i.e. HADD or No HADD) of MTO projects. Due to the timing and schedule of this project, the field data collection and documentation followed the 1993 MTO-MNR Fisheries Protocol.

However, this component of the fisheries and aquatic ecosystem study has been updated in 2009 to include the decision process with respect the level of risk that any residual effects may pose to fish and fish habitat was determined using DFO's Risk Assessment Matrix. Background and field data collected for the project, in combination with anticipated construction activities according to the Preferred Plan were used to assess the level of risk to fish and fish habitat.

2.3 FIELD INVESTIGATIONS

Stantec staff conducted site-specific fisheries and aquatic ecosystems field investigations on June 12, 2007. The only watercourse that crosses Highway 6 within the Study Area is Hanlon Creek. The Speed River is located immediately north of the north end of the Study Area. All field investigations were conducted according to the MTO Environmental Reference for Highway Design (2002), which includes the 1993 MTO-MNR Fisheries Protocol. Under the 1993 Protocol, fisheries data requirements for a Preliminary Design study include habitat mapping from 20 m upstream to 100 m downstream of the estimated project ROW. One season of fisheries surveys was conducted. The purpose of the field investigations was to document existing aquatic ecological conditions within the Highway 6 study area.

Fisheries collections were conducted utilizing a backpack electrofisher. All fish were identified and live-released in the field. The field investigations included a description of site-specific aquatic habitat (i.e., dimensions, bank stability, streamflow, riffle-pool-run formation), identification of key habitat features (i.e., in-stream and riparian cover, substrate characteristics, etc.), and a summary of general water quality parameters (i.e., dissolved oxygen, conductivity, pH, temperature) upstream and downstream of Highway 6. The survey concentrated on identifying sensitive habitat areas (such as spawning, nursery and feeding areas), potential migration routes, and any barriers to fish migration.

A photographic record of field surveys is included in **Appendix A**. MTO Riverine Field Collection Records are included in **Appendix B**.

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3.0 Existing Ecological Conditions

The Highway 6 study area is situated within the Speed River subwatershed, which is part of the Grand River watershed. In addition to baitfish and panfish species, the Speed River supports the following sportfish species (GRCA, 2007):

brook trout

- brown trout
- bullhead

carp

- largemouth bass
- northern pike

rainbow trout

smallmouth bass

Aquatic habitat field investigations were conducted within the Highway 6 study area (see **Figure 2**), in which the only watercourse crossing is Hanlon Creek.

According to the NHIC database, there are no aquatic Species at Risk occurring within the Highway 6 study area. This information was confirmed by the MNR (personal communication with Donald Kirk, Natural Heritage Ecologist) and in 2008 DFO Species-at-Risk mapping. Digital mapping provided by the MNR (personal communication with JC Laurence, GIS Officer) indicates the presence of fish spawning habitat in the upstream reaches of Hanlon Creek, specifically in a tributary flowing from the south (**Figure 2**). The University of Guelph Fisheries Club was contacted regarding the potential for trout spawning habitat within the vicinity of the Highway 6 crossing of Hanlon Creek. According to their 1990 data, no spawning areas were documented within the Highway 6 right-of-way (confirmed by A. Timmerman in March 2008). The Club indicated that trout nests (redds) have been recorded in the upstream headwater reaches of Hanlon Creek (the same location provided by the MNR; Figure 2).

Hanlon Creek is a meandering coldwater creek that is a tributary to the Speed River. On the upstream side of Highway 6, the watercourse exhibits a mean channel width of 2.5 m and mean water depth of 15 cm. In-stream habitat features include logs and trees, organic debris, and undercut banks. Stream morphology is dominated by flat reaches. Bottom substrates are comprised of a mixture of silt with sand, muck, gravel and rubble.

Downstream of Highway 6, the mean channel width is 2.5 m and mean water depth is 15 cm. In-stream habitat features include logs and trees, organic debris, and boulders. The downstream reaches demonstrate good riffle-run complexing and riparian cover. Benthic substrates are dominated by muck with silt and rubble.

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Existing Ecological Conditions May 19, 2009

According to data on file at the MNR, the following fish species reside in Hanlon Creek (GRCA, 1988; MNR, 1998):

blacknose dace

brook stickleback

brook trout

creek chub

greenside darter

longnose dace

mottled sculpin

pumpkinseed

white sucker

The following species were captured during Stantec's field investigations (June 2007):

blacknose dace

brook trout

creek chub

fathead minnow

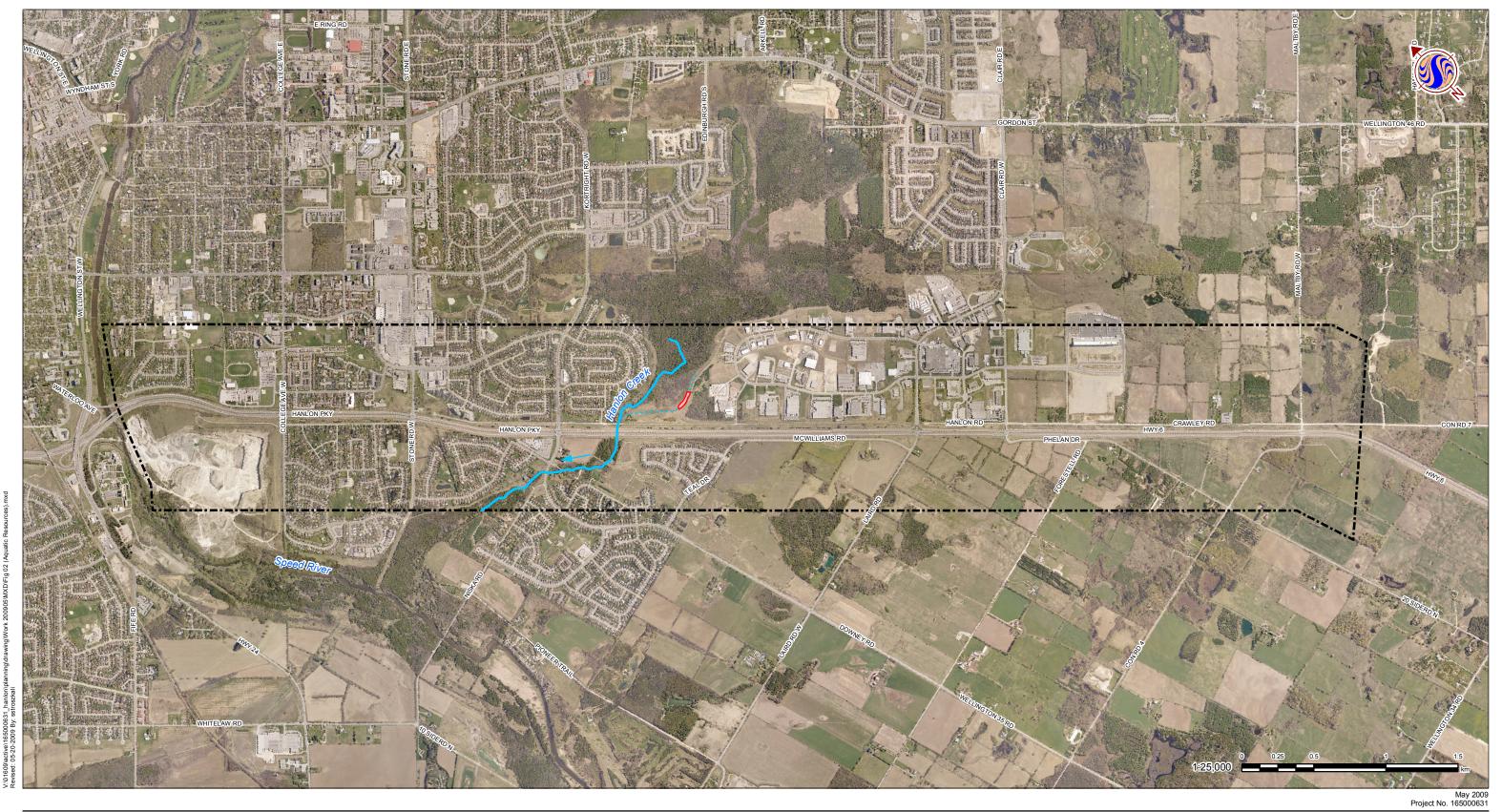
mottled sculpin

pumpkinseed

3.2

Water quality parameters were recorded during the field investigations, and are summarized in **Table 1**.

Table 1 Water Quality Conditions in Hanlon Creek (June 12, 2007)					
Parameter	Upstream of Highway 6	Downstream of Highway 6			
Dissolved Oxygen (mg/L)	9.55	9.12			
Conductivity (µS/cm)	832	830			
pH	8.40	8.40			
Water Temperature (°C)	18.40	18.50			
Air Temperature (°C)	24	24			



Legend

--- Watercourse

Fish Spawning Area

Study Area

Notes

- Orthoimagery provided by the Grand River Conservation Authority. Flown by First Base Solutions, 2006.
- Fish Spawning area provided by the Ministry of Natural Resources.

Client/Project

MTO - West Region HWY 6 Improvements Guelph & Puslinch, Ontario

Figure No.

Title

Aquatic Resources in the Study Area

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4.0 Environmental Protection Measures

4.1 SEDIMENT AND EROSION CONTROL

General mitigation measures are provided herein; however, an erosion and sediment control plan should be confirmed during detail design in accordance with current Best Practices outlined in the *Environmental Reference for Highway Design* (2006).

Various mitigation techniques will be employed during construction to reduce the risk of impacts to natural environment features. Mitigation measures for sedimentation, erosion, and dust control should be implemented to prevent sediment and dust from entering sensitive natural features.

The primary principles associated with sedimentation and erosion protection measures are to: (1) minimize the duration of soil exposure; (2) retain existing vegetation, where feasible; (3) encourage re-vegetation; (4) divert runoff away from exposed soils; (5) keep runoff velocities low; and to (6) trap sediment as close to the source as possible. To address these principles, the following mitigation measures are proposed:

- No equipment will be permitted to enter any natural areas during construction;
- Silt fencing will be used along all construction areas adjacent to natural areas and the boundaries of the site;
- All materials requiring stockpiling (fill, topsoil, etc.) will be stabilized and kept a safe distance
 from any sensitive natural features. The perimeter of the stockpiles will be encircled with silt
 fencing;
- All exposed soil areas will be stabilized and re-vegetated, through the placement of seed and mulching or seed and an erosion control blanket, promptly upon completion of construction activities:
- Refueling of equipment will be carried out away from any sensitive natural features to avoid potential impacts, in the event that an accidental spill occurs;
- Straw bale dams will be placed in front of sewer (catchment) inlets;
- In addition to any specified requirements, additional silt fence, straw bales, and rip-rap should be moved on site, prior to grading operations, to provide a contingency supply in the event of an emergency;
- All sediment and erosion controls should be monitored regularly and properly maintained, as required. Controls are to be removed only after the soils of the construction area have been stabilized and adequately protected until cover is re-established;

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Environmental Protection Measures May 19, 2009

- The limits of construction adjacent to all natural features to be retained will be flagged and fenced prior to construction, and monitored during construction (along with sediment and erosion control measures) to ensure the limits are maintained with respect to vehicular traffic and soil or equipment stockpiling; and
- The Contractor is required to restore any disturbed natural areas to pre-construction conditions.

4.2 CONSTRUCTION TIMING RESTRICTIONS

Works adjacent to aquatic resources that provide fish habitat, or have the potential to support fish, are often restricted to certain periods to avoid construction-related impacts to fish species during their most sensitive / vulnerable life cycles (i.e., during reproduction and early development stages of off-spring). According to the MNR (personal communication with Art Timmerman, Fish and Wildlife Biologist), any construction activities in Hanlon Creek (coldwater habitat) would be restricted between September 16 and June 30 (i.e., in-water work is prohibited during this period). As per the Preferred Plan no in-water work is required at Hanlon Creek however the construction window would apply in the event of possible future changes at this location.

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Preliminary Impact Assessment

The Preferred Plan for the Highway 6 improvements includes interchanges at Laird Road and Stone Road, a partial interchange (ramps to the south) at Kortright Road/Downey Road, and highway underpasses for Kortright Road/Downey Road and College Avenue.

During the study, the project team confirmed that no changes are required to the existing Highway 6, Hanlon Creek culvert. Minor roadway widening will occur above the existing Highway 6 Hanlon Creek Culvert, and also over the existing Downey Road, Hanlon Creek structure.

The federal Fisheries Act is the primary piece of environmental legislation governing the protection of fisheries and aquatic habitat, including the harmful alteration, disruption or destruction (HADD) of fish habitat (Section 35), and the deposition of deleterious substances into fisheries waters (Section 36). The DFO's Risk Assessment Matrix is now a key tool in the determination of the risk of project to fish and fish habitat. The potential for HADD is greatest if any Highway 6 improvements are in close proximity to known fisheries waters however the Preferred Plan has been selected, in part, since it avoids work in the vicinity of Hanlon Creek, the only location in the study area where fish habitat is present. Based on the Risk Assessment Matrix, the risk of the project to fish habitat is Low (Appendix C), therefore DFO approval would not be required for the current Preferred Plan.

Provided there are no future changes to the Preferred Plan in the Hanlon Creek area, the field data collected during this Preliminary Design phase would not require updating under the 2006 Fisheries Protocol. Additional data collection may be warranted if changes to the culvert (e.g., replacement or lengthening) were proposed at the Detail Design stage.

Sediment introduction from graded areas adjacent to streams has the potential to affect fish habitat. Suspended sediments increase stream turbidity, which can impair vision and subsequent feeding by fish that are sight-hunters, abrade gill membranes leading to physical stress, and impact prey organisms. Heavier sediments can deposit on the stream bottom and clog coarser substrates that may be used for spawning, incubation of juvenile fish, or food production. These potential indirect effects to fish habitat can be mitigated through the use of standard sediment and erosion control measures, outlined in Section 4.

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Summary 6.0

This Fisheries and Aquatic Ecosystems Report documents existing aquatic ecological features within the Highway 6 study area, from 0.5 km south of Maltby Road to the Speed River. Together with the Terrestrial Ecosystems Report, these two documents summarize the Natural Sciences component of the Highway 6 planning, preliminary design, and environmental assessment study.

Fisheries Act implications associated with this project are greatest where the improvements to Highway 6 may come within close proximity of known fisheries habitat. The only fish habitat within the study area limits is Hanlon Creek, a coldwater brook trout creek. Located immediately to the north of the study area, the Speed River is a large warmwater river that supports a diverse community of sportfish, panfish, and baitfish. No aquatic Species at Risk are known to occur in the study area.

The partial interchange at Kortright Road/Downey Road has been designed to avoid impacts to Hanlon Creek. Direct impacts to fish habitat in Hanlon Creek are not anticipated. In the event that changes to the culvert are required or construction activities (e.g. grading, vegetation removal) are necessary adjacent to the creek, additional mitigation measures (and localized field investigations) may be required during detail design.

All of which is respectfully submitted,

STANTEC CONSULTING LTD.

Jor Kathleen Todd, M.Sc. Benthic Ecologist

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APPENDIX A

PHOTOGRAPHIC RECORD



Speed River, looking downstream (southwest) toward the Highway 6 crossing.



Hanlon Creek, looking upstream (east) from under the Highway 6 crossing.



Hanlon Creek, looking downstream (west) toward the Highway 6 crossing. Hanlon Creek, looking downstream (west) from the Highway 6 crossing.





Brook trout captured in Hanlon Creek.



Mottled sculpin captured in Hanlon Creek.



PREPARED FOR:

MTO - SW REGION HWY 6 IMPROVEMENTS

Initiated: October, 2007 Revised:

PHOTOGRAPHIC RECORD

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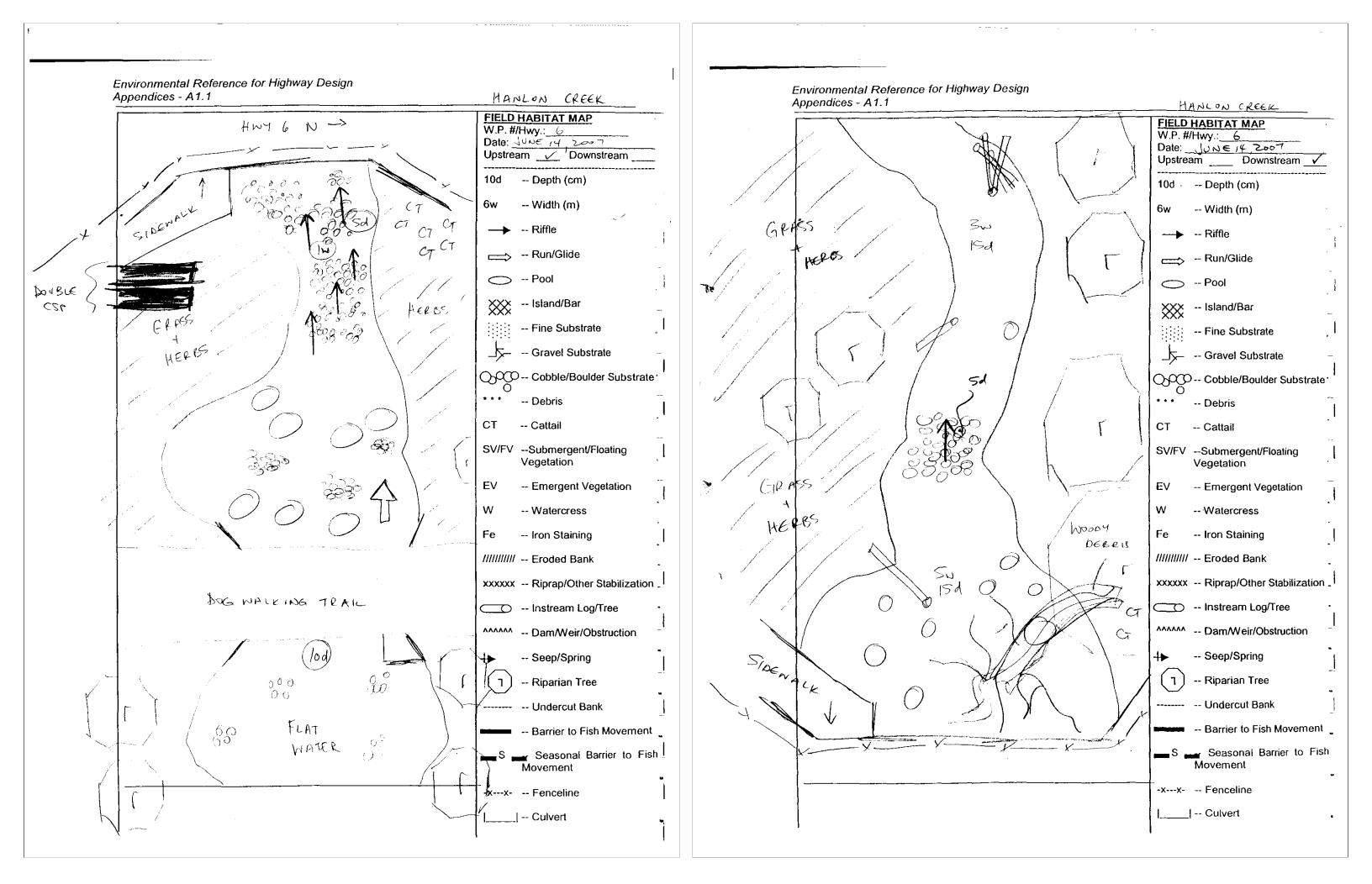
APPENDIX B

MTO RIVERINE FIELD COLLECTION RECORDS

A1.1 RIVERINE FIELD COLLECTION RECORD (page 1)												
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Stream Classification:	14/e	water enert fint	Rosgen (Classification:			
Coolwater Coolwater		water sport fish water balt fish	1				ļ
Migratory	1 "1	sh habitat	-				



FISHERIES AND AQUATIC ECOSYSTEMS – EXISTING CONDITIONS REPORT HIGHWAY 6 (HANLON EXPRESSWAY) IMPROVEMENTS, GUELPH (GWP 3002-05-00) DECEMBER 2007 (UPDATED MAY 2009)



APPENDIX C

RISK ASSESSMENT WORKSHEETS

Ministry of Transportation Environmental Guide for Fish and Fish Habitat

TEMPLATE 10.5

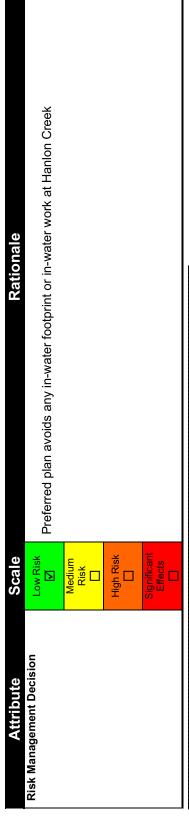
Risk Assessment Worksheet

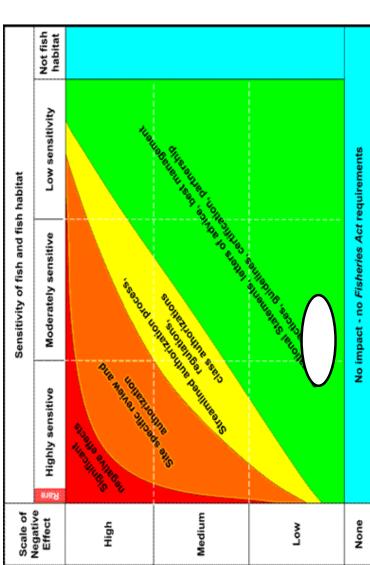
		•	May 14, 2000	Asmnt Wksheet_Template 10_5_Hanlon Ck.doc
Residual Negative Effects from Aquatic Effects Assessment: None – no in water work required. Sediment and erosion control	Aquatic Eff Sediment a	ects Assessment: nd erosion control plan will	mitigate any potential	Residual Negative Effects from Aquatic Effects Assessment: None – no in water work required. Sediment and erosion control plan will mitigate any potential effects from nearby construction activities
		Scale of Negative Effect		
Attrilibuite Extent (size)	Scale		Каг	Kationale
Refers to the direct "footprint" of the development proposal, as well as areas	<u> </u>	Preferred Plan does not i	nclude any changes t	Preferred Plan does not include any changes to the existing culvert or any other instream work
indirectly affected, such as downstream or down-current areas in relation to an ecological unit	§ 🗆			
	Medium			
	High			
Duration The amount of time that a residual effect will persist.	None	No residual effects anticipated.	oated.	
	Low			
	Medium			
	High			
Intensity The expected amount of change from the baseline condition Intensity is a way	None	No instream work or char	nges to culvert require	No instream work or changes to culvert required (as per the Preferred Plan).
of describing the degree of change, such as changes in water temperature, salinity flow suspended sediment etc.	§ 🗆			
oraling, from paraporate and controlling of works may have a major influence on intensity. Effects such as sediment release occurring cluring critical	Medium			
spawning periods will have a higher intensity.	High			

Ministry of Transportation Environmental Guide for Fish and Fish Habitat

	Sca	Scale of Sensitivity for Fish and Fish Habitat
Species Sensitivity Sensitivity of species to change in environmental conditions, such as suspended sediments, water, temperature or salinity.	Scale None Low Moderate	Rationale Brook trout are sensitive to changes in water quality.
Species' Dependence on Habitat Use of habitat by fish species. Some species may be able to spawn in a wide range of habitats, while others may have very specific habitat requirements.	None Cow Moderate High	Brook trout require gravel substrate and groundwater upwelling. No spawning documented immediately upstream or downstream of Highway 6.
Rarity The relative strength of a fish population or prevalence of a particular type of habitat.	Low Moderate Moderate Migh High	Similar habitat is available in upstream and downstream reaches; however brook trout habitat becoming limited in southern Ontario.
Habitat Resiliency Habitat resiliency refers to the ability of an aquatic ecosystem to recover from changes in environment conditions. The flow and thermal regimes of the system as well as its physical characteristics are important considerations in describing freshwater ecosystems.	None Low Moderate	Permanent coldwater stream.

Ministry of Transportation Environmental Guide for Fish and Fish Habitat





Categorize risk by plotting a point/circle/oval on the Risk Assessment Matrix.

Use a point, circle or oval depending on uncertainty.

Ministry of Transportation Environmental Guide for Fish and Fish Habitat

NOTES:

- Complete one Worksheet for each waterbody that requires a Comprehensive Fisheries Assessment (step 5).

- Complete une worksheet:

 Owaterbody enter name of waterbody

 Residual Negative Effects enter residual negative effects from Aquatic Effects Assessment Summary

 Residual Negative Effect for details on completing the assessment, refer to sections 6 and 7 of the Guide.

 Scale of Sensitivity of Fish and Fish Habitat for details on completing the assessment, refer to sections 5 and 7 of the Guide.

 Risk Management Decision box enter general comments (e.g. designed to avoid in-water footprint) and specific comments relating to the main areas of concern (e.g. duration component was the main concern, all other components were considered low)

 Risk matrix plot a point / circle / oval depending on uncertainty



TERRESTRIAL ECOSYSTEMS -EXISTING CONDITIONS REPORT -HIGHWAY 6 (HANLON EXPRESSWAY) IMPROVEMENTS, GUELPH (GWP 3002-05-00)

File No. 165000631

Prepared for:

Ministry of Transportation West Region Planning and Design Section 3rd Floor, 659 Exeter Road London, ON, N6E 1L3

Prepared by:

Stantec Consulting Ltd. 70 Southgate Drive, Suite 1 Guelph ON N1G 4P5

December 2007 (Updated May 2009)

TERRESTRIAL ECOSYSTEMS EXISTING CONDITIONS REPORT HIGHWAY 6 (HANLON EXPRESSWAY) IMPROVEMENTS, GUELPH (GWP 3002-05-00) DECEMBER 2007 (UPDATED MAY 2009)

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TERRESTRIAL ECOSYSTEMS EXISTING CONDITIONS REPORT HIGHWAY 6 (HANLON EXPRESSWAY) IMPROVEMENTS, GUELPH (GWP 3002-05-00) DECEMBER 2007 (UPDATED MAY 2009)

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TERRESTRIAL ECOSYSTEMS EXISTING CONDITIONS REPORT HIGHWAY 6 (HANLON EXPRESSWAY) IMPROVEMENTS, GUELPH (GWP 3002-05-00) DECEMBER 2007 (UPDATED MAY 2009)

1.0 Introduction

Stantec Consulting Ltd. (Stantec) has been retained by the Ministry of Transportation, Ontario (MTO) to undertake the planning, preliminary design, and environmental assessment for the upgrading of Highway 6 (the Hanlon Expressway) from 0.5 km south of Maltby Road north to (but not including) the Speed River. The study area includes 120 m on both sides of Highway 6 (the Hanlon Expressway) in accordance with the *Environmental Reference for Highway Design* (2002). The study area is located within the City of Guelph, the Township of Puslinch, and Wellington County (see **Figure 1**).

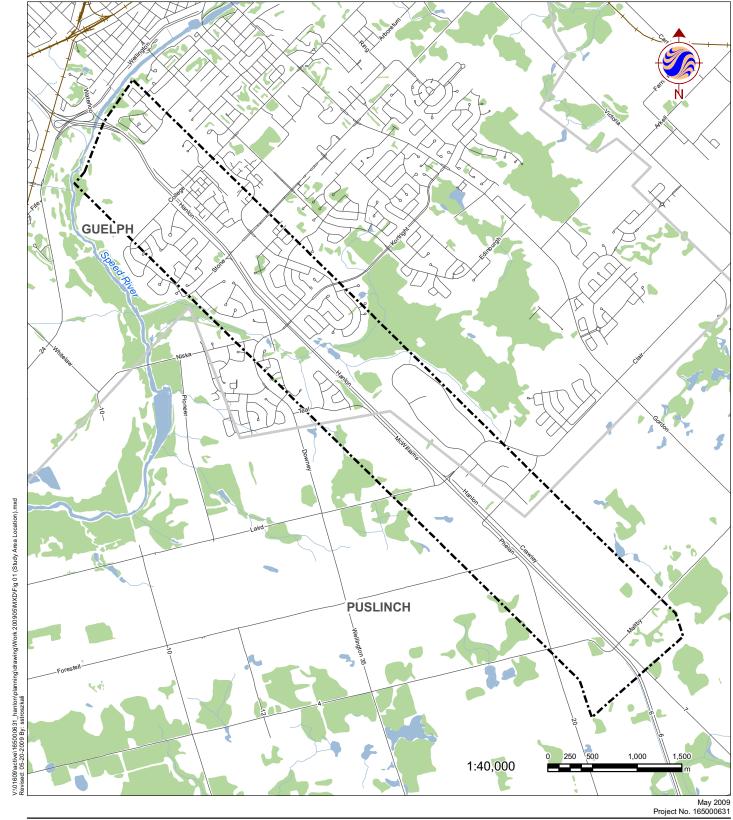
Highway 6 is a major provincial facility. The purpose of the study is to upgrade the expressway to a fully-controlled access freeway between the Speed River and 0.5 km south of Maltby Road, with access restricted to interchange locations only.

The study includes:

- Carrying out engineering and environmental field investigations;
- Developing interchange and access alternatives for College Avenue, Stone Road, Kortright Road, Laird Road, Clair Road, and Maltby Road;
- Seeking input from the public, property owners, local municipalities, external ministries / agencies, and businesses;
- · Evaluating the interchange and access alternatives;
- Identifying a recommended plan for an access-controlled Highway 6, including side road connections and grade separations;
- Preliminary design and environmental mitigation to facilitate the proposed improvements;
 and
- Conducting an environmental assessment under MTO's Class EA process to obtain environmental approvals for the recommended alternative(s).

The purpose of this Terrestrial Ecosystems Report is to document the existing terrestrial ecological features within the Highway 6 study area. All natural environment features have been characterized based upon field assessment, secondary source data, and consultation with agency staff.

The scope of work for this report is limited to terrestrial ecosystems. However, a Fisheries and Aquatic Ecosystems Report is being submitted concurrently with this report. Together, these two documents summarize the Natural Sciences component of the Highway 6 planning, preliminary design, and environmental assessment study.



Legend

Study Area
Ontario Road Network
Watercourse
Railroad
Lower Tier Municipality
Wooded Area
Waterbody

Notes

Ontario Base Map: © Queen's Printer for Ontario, 2009.

Client/Project

MTO - West Region HWY 6 Improvements Guelph & Puslinch, Ontario

Figure No.

T:41 -

Study Area Location

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TERRESTRIAL ECOSYSTEMS EXISTING CONDITIONS REPORT HIGHWAY 6 (HANLON EXPRESSWAY) IMPROVEMENTS, GUELPH (GWP 3002-05-00) DECEMBER 2007 (UPDATED MAY 2009)

2.0 Methodology

2.1 AGENCY CONSULTATION AND BACKGROUND DATA COLLECTION

The study area is located within the jurisdiction of the Guelph District Ministry of Natural Resources (MNR) and the within the Grand River Conservation Authority (GRCA) watershed. Both MNR and GRCA staff were contacted to obtain available background terrestrial data pertinent to the study area.

Consultation with agency staff included:

- Donald Kirk (Natural Heritage Ecologist, MNR) provided rare species data. He indicated
 that the Eastern Milksnake (*Lampropeltis triangulum*) has been recorded in the study area,
 and that Jefferson Salamanders (*Ambystoma jeffersonianum*) are known to occur
 approximately 500 m southeast of the study area;
- Mike Stone (District Planner, MNR) indicated that Eastern Milksnake and Eastern Ribbonsnake (*Thamnophis sauritus*) are potentially within the study area;
- Art Timmerman (Fish and Wildlife Biologist) attended a project meeting to discuss the sensitivities of natural features in the study area;
- Jean-Christophe Laurence (GIS Officer, MNR) provided mapping of wetlands and woodlands that occur within the study area; and
- Zoë Green (GIS Technician, GRCA) directed us toward the GRCA website for natural features mapping.

The MNR's Natural Heritage Information Centre (NHIC) database was consulted to document the presence / absence of known occurrences of rare floral or faunal species (i.e., nationally and/or provincially endangered, threatened or special concern species) in the study area. Local MNR and GRCA offices were consulted to confirm this information.

In addition, the project team has reviewed information collected as part of the City of Guelph's *Natural Heritage Strategy* update (April 2009).

2.2 FIELD SURVEY GUIDE

This project was initiated (via a Request for Proposal) in October 2006. At the time of project initiation, the reference document for the completion the Terrestrial Ecosystems component of the study was the 2002 ERHD. The data collection and documentation methods used are appropriate for the reporting of existing conditions and the completion of a preliminary impact assessment of the Preferred Plan, as discussed in this report.

TERRESTRIAL ECOSYSTEMS EXISTING CONDITIONS REPORT HIGHWAY 6 (HANLON EXPRESSWAY) IMPROVEMENTS, GUELPH (GWP 3002-05-00) DECEMBER 2007 (UPDATED MAY 2009)

Methodology

2.3 FIELD INVESTIGATIONS

Stantec staff conducted site-specific field investigations on June 14, 2007. All Natural Sciences field investigations were conducted according to the MTO *Environmental Reference for Highway Design* (2002). The purpose of the field investigations was to document existing terrestrial ecological conditions up to 120 m east and west of Highway 6 (the Hanlon Expressway) between the south side of the Speed River and 0.5 km south of Maltby Road. A photographic record of field surveys is included in **Appendix A**.

Significant Natural Features

The MNR's Natural Heritage Information Centre (NHIC) database was consulted to document the presence / absence of known occurrences of rare floral or faunal species (i.e., nationally and/or provincially endangered, threatened or special concern species) within the vicinity of the study area. Additionally, the presence / absence of known sensitive natural environment features was determined, including areas of natural and scientific interest (ANSIs), provincially significant wetlands (PSWs), environmentally significant areas (ESAs), provincial or national parks, or conservation areas. Local MNR and GRCA offices were consulted to confirm this information.

Terrestrial Ecosystems

Within the Highway 6 study area, vegetation communities were initially delineated through interpretation of aerial photography. In the field, community characterizations were based on the Ecological Land Classification (ELC) system for Southern Ontario (Lee et al., 1998). ELC data sheets were completed for every unit identified and are included in **Appendix B**.

Wildlife Habitat

Incidental wildlife observations were recorded during field investigations. In addition, major culverts were searched for evidence of nesting migratory birds as defined by the *Migratory Birds Convention Act* (MBCA). Secondary source data were used to augment these data, to determine potential wildlife habitat in the study area, including wildlife species recorded within the *Atlas of the Mammals of Ontario* (Dobbyn, 1994), the *Ontario Herpetofaunal Summary Atlas* (Oldham and Weller, 2001), and the *Ontario Breeding Bird Atlas* (Bird Studies Canada, 2005).

TERRESTRIAL ECOSYSTEMS EXISTING CONDITIONS REPORT HIGHWAY 6 (HANLON EXPRESSWAY) IMPROVEMENTS, GUELPH (GWP 3002-05-00) DECEMBER 2007 (UPDATED MAY 2009)

3.0 Existing Ecological Conditions

3.1 SIGNIFICANT NATURAL FEATURES

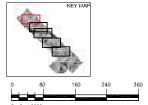
According to the NHIC database, there are no ANSIs, ESAs, provincial or national parks, or conservation areas within the Highway 6 study area. This information was confirmed by the MNR (electronic mapping received from J.C. Laurence, GIS Officer). The study area does include portions of the Hanlon Creek Swamp Complex Provincially Significant Wetland (PSW) (Figure 2). This PSW is comprised of 15 individual wetlands, and includes two wetland types (i.e., 89% swamp and 11% marsh) (Coulson et al., 1993). Within the study area, this feature is primarily represented by swamp units, as described in Section 3.3. Additionally, there are a number of woodlots and small unevaluated wetlands present within the study area limits (see Figure 2).

As indicated within the NHIC database, and subsequently confirmed by the MNR (personal communication with Donald Kirk, Natural Heritage Ecologist), habitat for the Eastern Milksnake is found within the study area and there is a record of Eastern Ribbonsnake (email from Mike Stone, District Planner). Both snake species are ranked S3 (vulnerable in Ontario), and are categorized as "Special Concern" species at both provincial and national levels. No protection for these species or their habitats is afforded by legislation. However, the MNR's role is to ensure that regard is given to the habitats of species of conservation concern (i.e., ranked S1, S2, and S3) during the planning process. Eastern Milksnake utilizes a wide variety of habitats, including fields, woodlands, rocky hillsides, river bottoms, buildings, etc. while the Eastern Ribbonsnake is most often found near wetland areas (Connant and Collins, 1998).

According to the MNR (personal communication with Donald Kirk, Natural Heritage Ecologist), the Jefferson Salamander has been recorded within 500 m (southeast) of the study area. Despite this occurrence, the MNR has confirmed that its habitat is found well beyond the limits of the Highway 6 study area. The Jefferson Salamander is ranked S2 (imperiled in Ontario) and is "Threatened" at provincial and national levels. This species and its habitat are protected by the provincial *Endangered Species Act*.

Recent fieldwork carried out as part of the City of Guelph's *Natural Heritage Strategy* (2009) identified areas of potential habitat for the Jefferson Salamander in wetland areas west of the Highway 6/Laird Road intersection. However, no pure Jefferson Salamanders were identified during the field investigations. In addition, MNR's draft (2009) *Recovery Strategy for the Jefferson Salamander in Ontario* indicates that the Jefferson Salamander population in Wellington County, South of Guelph is likely extirpated and noted that the last of the pure salamanders were observed in Wellington County in April 1989 and that the breeding pond was dry in successive years (1990 – 1993).







Ecological Land Classification Units

FOREST COMMUNITIES

Coniferous Forest

FOC2-2 Dry-fresh White Cedar Coniferous Forest

Mixed Forest

Mixed Forest

FOM7-2 Fresh-moist White Cedar - Hardwood Mixed Forest

FOM9-1* White Spruce - Hardwood Mixed Forest

Deciduous Forest

FOD5-2 Dry-fresh Sugar Maple - Beech Deciduous Forest

FOD7-2 Fresh-moist Ash Lowland Deciduous Forest FOD7-6* Fresh-moist Willow - Ash - Manitoba Maple Lowland

Deciduous Forest

FOD10-1* Fresh-moist Manitoba Maple - Balsam Poplar - Ash Deciduous Forest

CULTURAL COMMUNITIES

Cultural Plantation

CUP3-1 Red Pine Coniferous Plantation CUP3-2 White Pine Coniferous Plantation CUP3-3 Scotch Pine Coniferous Plantation

Cultural Meadow

CUM1 Mineral Cultural Meadow

Cultural Thicket

CUT1-7* European Buckthorn Cultural Thicket

Cultural Savannah

CUS1 Mineral Cultural Savannah **Cultural Woodland**

Cultural Woodland (*manicured) CUW* Mineral Cultural Woodland CUW1

CUW1-3* White Cedar Cultural Woodland CUW1-4* Willow - Manitoba Maple Cultural Woodland

Mixed Swamp

SWM1-1 White Cedar - Hardwood Mineral Mixed Swamp **Deciduous Swamp**

SWD4-5* Ash - White Elm Mineral Deciduous Swamp Thicket Swamp

SWT2-2 Willow Mineral Thicket Swamp

* = ELC code not listed in the first approximation of ELC for Southern Ontario (Lee et al., 1998)

OTHER DESIGNATIONS

AGR Agriculture Deciduous hedgerow DΗ PARK Public manicured park RES Residential / Business

IND Industrial

NATURAL HERITAGE FEATURES (MNR, 2007)

Fish Spawning Areas Woodlots

Significant Wetlands Unevaluated Wetlands Client/Project

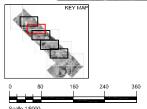
MTO - WEST REGION HWY 6 IMPROVEMENTS

Figure No.

NATURAL ENVIRONMENT FEATURES

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Coniferous Forest

FOC2-2 Dry-fresh White Cedar Coniferous Forest

Mixed Forest

FOM Mixed Forest

FOM7-2 Fresh-moist White Cedar - Hardwood Mixed Forest

FOM9-1* White Spruce - Hardwood Mixed Forest

Deciduous Forest

FOD5-2 Dry-fresh Sugar Maple - Beech Deciduous Forest FOD7-2 Fresh-moist Ash Lowland Deciduous Forest FOD7-6* Fresh-moist Willow - Ash - Manitoba Maple Lowland Deciduous Forest

FOD10-1* Fresh-moist Manitoba Maple - Balsam Poplar - Ash Deciduous Forest

Cultural Plantation

CUP3-1 Red Pine Coniferous Plantation **CUP3-2** White Pine Coniferous Plantation

CUP3-3 Scotch Pine Coniferous Plantation

Cultural Meadow

CUM1 Mineral Cultural Meadow

Cultural Thicket

CUT1-7* European Buckthorn Cultural Thicket

Cultural Savannah

CUS1 Mineral Cultural Savannah

Cultural Woodland

CUW* Cultural Woodland (*manicured) Mineral Cultural Woodland CUW1 **CUW1-3*** White Cedar Cultural Woodland

CUW1-4* Willow - Manitoba Maple Cultural Woodland

Mixed Swamp

SWM1-1 White Cedar - Hardwood Mineral Mixed Swamp **Deciduous Swamp**

SWD4-5* Ash - White Elm Mineral Deciduous Swamp

Thicket Swamp **SWT2-2** Willow Mineral Thicket Swamp

* = ELC code not listed in the first approximation of ELC for Southern Ontario (Lee et al., 1998)

AGR Agriculture Deciduous hedgerow DH PARK Public manicured park Residential / Business RES

Industrial

IND

NATURAL HERITAGE FEATURES (MNR, 2007)

Fish Spawning Areas

Significant Wetlands

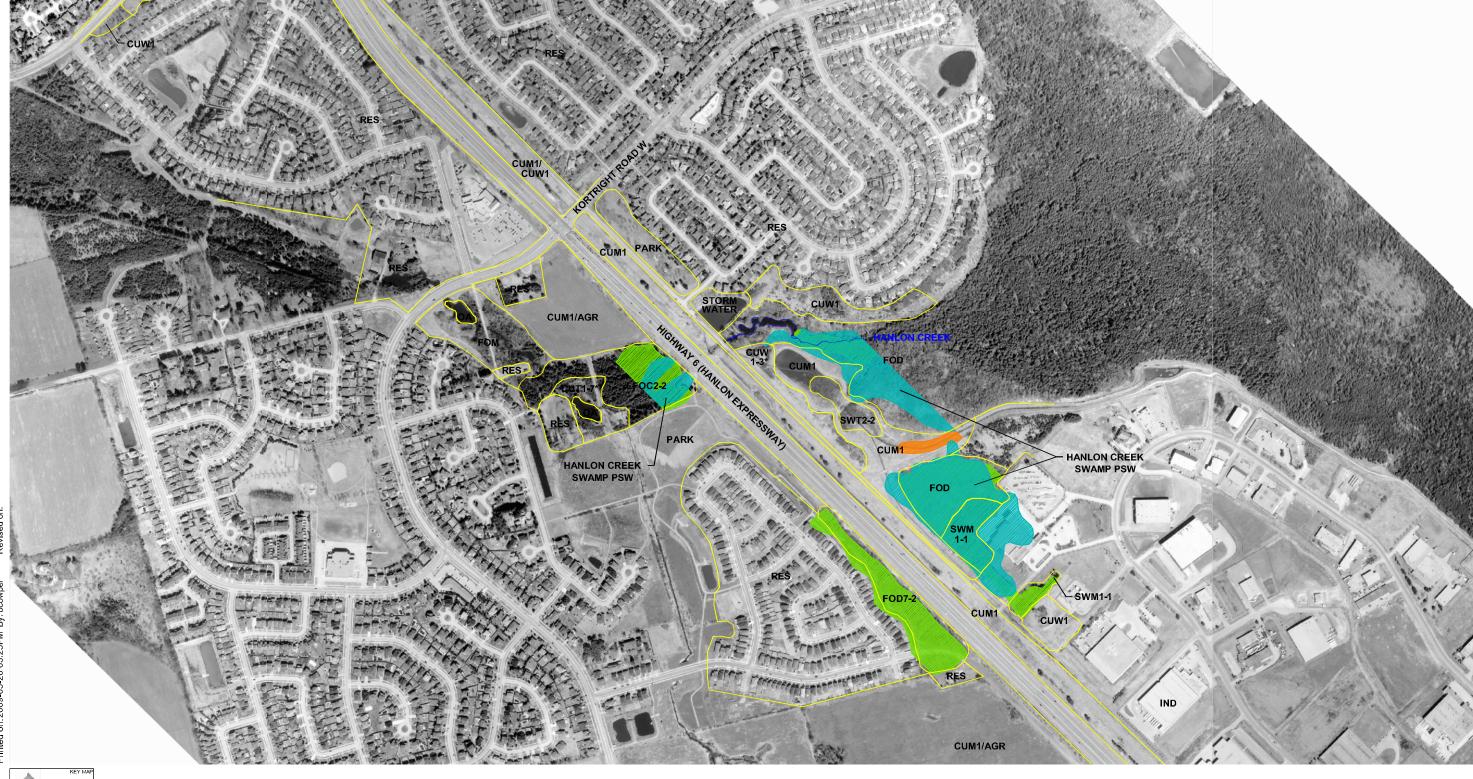
Woodlots Unevaluated Wetlands Client/Project

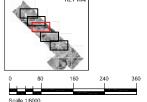
MTO - WEST REGION HWY 6 IMPROVEMENTS

NATURAL

ENVIRONMENT FEATURES

Page 2 of 5







Ecological Land Classification Units

FOREST COMMUNITIES

Coniferous Forest

FOC2-2 Dry-fresh White Cedar Coniferous Forest **Mixed Forest**

FOM Mixed Forest

FOM7-2 Fresh-moist White Cedar - Hardwood Mixed Forest

FOM9-1* White Spruce - Hardwood Mixed Forest

Deciduous Forest

FOD5-2 Dry-fresh Sugar Maple - Beech Deciduous Forest

FOD7-2 Fresh-moist Ash Lowland Deciduous Forest

FOD7-6* Fresh-moist Willow - Ash - Manitoba Maple Lowland

Deciduous Forest

FOD10-1* Fresh-moist Manitoba Maple - Balsam Poplar - Ash Deciduous Forest

CULTURAL COMMUNITIES

Cultural Plantation

CUP3-1 Red Pine Coniferous Plantation
CUP3-2 White Pine Coniferous Plantation
CUP3-3 Scotch Pine Coniferous Plantation

Cultural Meadow

CUM1 Mineral Cultural Meadow

Cultural Thicket

CUT1-7* European Buckthorn Cultural Thicket

Cultural Savannah

CUS1 Mineral Cultural Savannah

Cultural Woodland

CUW* Cultural Woodland (*manicured)
CUW1 Mineral Cultural Woodland

CUW1-3* White Cedar Cultural Woodland
CUW1-4* Willow - Manitoba Maple Cultural Woodland

SWAMP COMMUNITIES

Mixed Swamp

SWM1-1 White Cedar - Hardwood Mineral Mixed Swamp Deciduous Swamp

SWD4-5* Ash - White Elm Mineral Deciduous Swamp
Thicket Swamp

SWT2-2 Willow Mineral Thicket Swamp

* = ELC code not listed in the first approximation of ELC for Southern Ontario (Lee et al., 1998)

OTHER DESIGNATIONS

AGR Agriculture
DH Deciduous hedgerow
PARK Public manicured park
RES Residential / Business

IND Industrial

NATURAL HERITAGE FEATURES (MNR, 2007)

////////// Fish Spawning Areas

 Client/Project
MTO - WEST REGION

HWY 6 IMPROVEMENTS

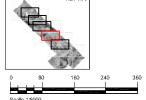
Figure No.

2

NATURAL ENVIRONMENT FEATURES

Page 3 of 5







Ecological Land Classification Units FOREST COMMUNITIES

Coniferous Forest

FOC2-2 Dry-fresh White Cedar Coniferous Forest

Mixed Forest

FOM Mixed Forest

FOM7-2 Fresh-moist White Cedar - Hardwood Mixed Forest

FOM9-1* White Spruce - Hardwood Mixed Forest

Deciduous Forest

FOD5-2 Dry-fresh Sugar Maple - Beech Deciduous Forest Fresh-moist Ash Lowland Deciduous Forest FOD7-2 FOD7-6* Fresh-moist Willow - Ash - Manitoba Maple Lowland

Deciduous Forest FOD10-1* Fresh-moist Manitoba Maple - Balsam Poplar - Ash Deciduous Forest

CULTURAL COMMUNITIES

Cultural Plantation

CUP3-1 Red Pine Coniferous Plantation White Pine Coniferous Plantation

CUP3-3 Scotch Pine Coniferous Plantation **Cultural Meadow**

CUM1 Mineral Cultural Meadow

Cultural Thicket CUT1-7* European Buckthorn Cultural Thicket

Cultural Savannah CUS1 Mineral Cultural Savannah

Cultural Woodland

Cultural Woodland (*manicured) CUW* Mineral Cultural Woodland CUW1 CUW1-3* White Cedar Cultural Woodland CUW1-4* Willow - Manitoba Maple Cultural Woodland SWAMP COMMUNITIES

Mixed Swamp

SWM1-1 White Cedar - Hardwood Mineral Mixed Swamp **Deciduous Swamp**

SWD4-5* Ash - White Elm Mineral Deciduous Swamp Thicket Swamp

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* = ELC code not listed in the first approximation of ELC for Southern Ontario (Lee et al., 1998)

OTHER DESIGNATIONS

AGR Agriculture Deciduous hedgerow DH PARK Public manicured park RES Residential / Business

IND Industrial

NATURAL HERITAGE FEATURES (MNR, 2007)

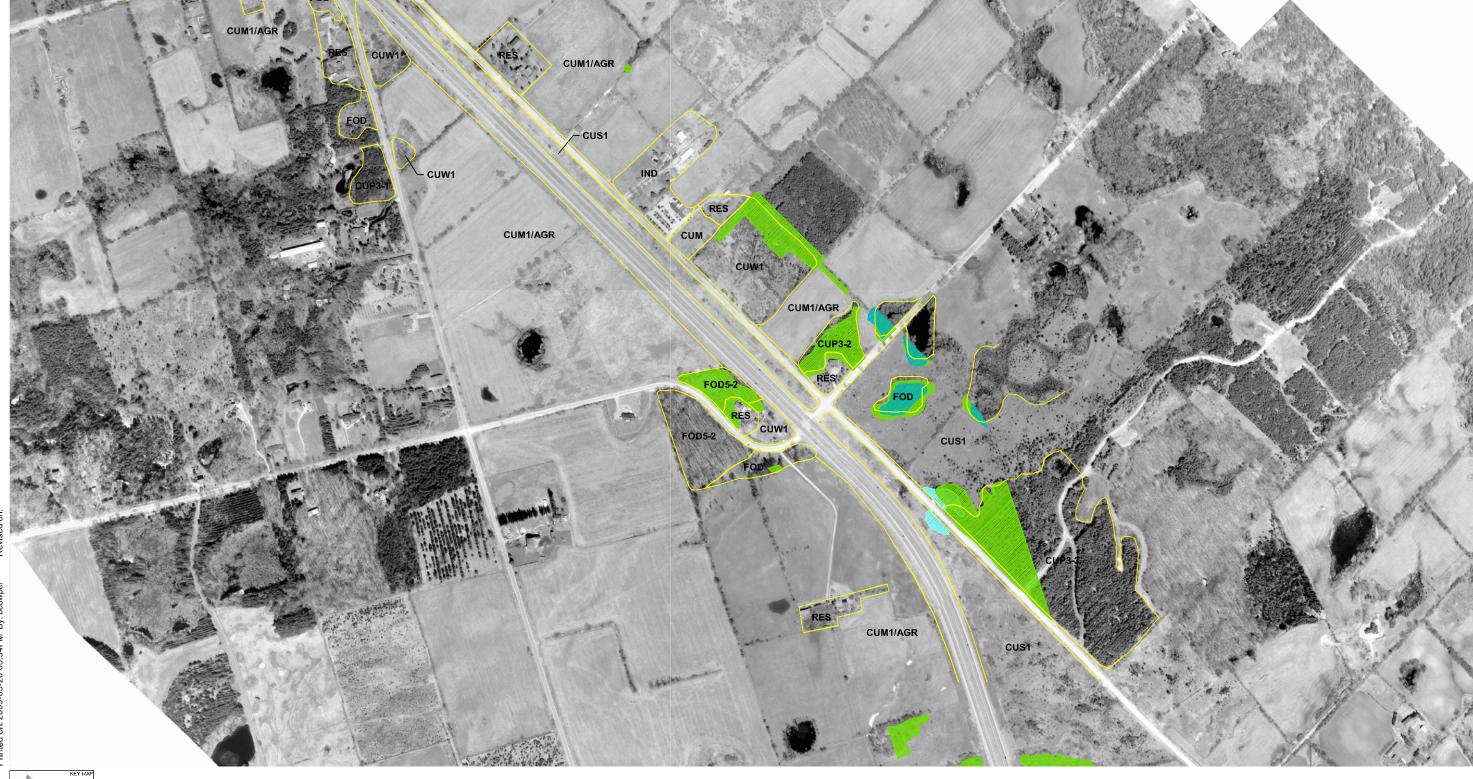
Fish Spawning Areas Woodlots Significant Wetlands Unevaluated Wetlands Client/Project

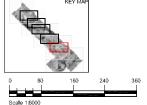
MTO - WEST REGION HWY 6 IMPROVEMENTS

Figure No.

NATURAL ENVIRONMENT FEATURES

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Ecological Land Classification Units

FOREST COMMUNITIES

Coniferous Forest

FOC2-2 Dry-fresh White Cedar Coniferous Forest

Mixed Forest

FOM Mixed Forest

FOM7-2 Fresh-moist White Cedar - Hardwood Mixed Forest

FOM9-1* White Spruce - Hardwood Mixed Forest

Deciduous Forest

FOD5-2 Dry-fresh Sugar Maple - Beech Deciduous Forest

FOD7-2 Fresh-moist Ash Lowland Deciduous Forest

FOD7-6* Fresh-moist Willow - Ash - Manitoba Maple Lowland

Deciduous Forest

FOD10-1* Fresh-moist Manitoba Maple - Balsam Poplar - Ash
Deciduous Forest

CULTURAL COMMUNITIES

Cultural Plantation

CUP3-1 Red Pine Coniferous Plantation

CUP3-2 White Pine Coniferous Plantation

CUP3-3 Scotch Pine Coniferous Plantation

Cultural Meadow

CUM1 Mineral Cultural Meadow

Cultural Thicket

CUT1-7* European Buckthorn Cultural Thicket

Cultural Savannah

CUS1 Mineral Cultural Savannah

Cultural Woodland

CUW* Cultural Woodland (*manicured)
CUW1 Mineral Cultural Woodland

CUW1-3* White Cedar Cultural Woodland
CUW1-4* Willow - Manitoba Maple Cultural Woodland

SWAMP COMMUNITIES

Mixed Swamp

SWM1-1 White Cedar - Hardwood Mineral Mixed Swamp Deciduous Swamp

SWD4-5* Ash - White Elm Mineral Deciduous Swamp Thicket Swamp

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OTHER DESIGNATIONS

AGR Agriculture
DH Deciduous hedgerow

PARK Public manicured park
RES Residential / Business

Industrial

IND

NATURAL HERITAGE FEATURES (MNR, 2007)

Fish Spawning Areas
Woodlots
Significant Wetlands
Unevaluated Wetlands

Client/Project MTO - WEST REGION

HWY 6 IMPROVEMENTS

Figure No.

NATURAL ENVIRONMENT FEATURES

Page 5 of 5

TERRESTRIAL ECOSYSTEMS EXISTING CONDITIONS REPORT
HIGHWAY 6 (HANLON EXPRESSWAY) IMPROVEMENTS, GUELPH (GWP 3002-05-00)
DECEMBER 2007 (UPDATED MAY 2009)

Existing Ecological Conditions

3.2 PHYSICAL ENVIRONMENT

The study area is within the Huron-Ontario section of the Great Lakes Forest Region (Rowe, 1972). Natural upland forest cover in this region is generally dominated by sugar maple, American beech, basswood, white ash, white oak, bur oak, eastern hemlock and eastern white pine. Mixed forests of silver maple, white elm, red elm, black ash, and eastern white cedar generally develop in lowland areas.

3.3 TERRESTRIAL ECOSYSTEMS

Nineteen vegetation communities were identified within the Highway 6 study area, along with additional anthropogenic communities (i.e., residential and business areas). Of these communities, those ranked for provincial status in the NHIC database are all considered ranked S5 (secure in Ontario). A brief description of each unit is provided in **Table 1**. **Figure 2** depicts the type and extent of vegetation communities. ELC data sheets are provided in **Appendix B**.

Table 1 Vege	tation Communities within the Highway 6 Study Area
Vegetation Unit	Community Description
Forest Communities	
Coniferous Forest	
FOC2-2 Dry-fresh White Cedar Coniferous Forest	This community contained white cedar in the canopy, sub-canopy and understory. Additional species in the understory included white ash and common buckthorn. Groundcover was not well-developed, and contained sparse groupings of garlic mustard and seedlings. This community type was present south of Kortright Road.
Mixed Forest	
FOM Mixed Forest	This community consisted of a mix of both coniferous and deciduous trees, with no clear dominant species. This community type was present south of Kortright Road.
FOM7-2 Fresh-moist White Cedar – Hardwood Mixed Forest	White cedar was the dominant species in the canopy and sub-canopy, while white birch and balsam poplar were sub-dominant in one unit, and red maple, white elm and green ash were sub-dominant in the other. Understory and groundcover species consisted of ash and other saplings, common buckthorn, and garlic mustard. This community type was present immediately south of the Speed River.

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Existing Ecological Conditions

Table 1 Vege	tation Communities within the Highway 6 Study Area
Vegetation Unit	Community Description
FOM9-1* White Spruce – Hardwood Mixed Forest	Anthropogenic activity has resulted in the formation of this white spruce dominated community. Other species present included white elm, white ash, basswood, and black cherry in both the sub-canopy and understory. Common buckthorn was also in the sub-canopy. Groundcover species included goldenrods, asters, and various seedlings. This community type was present immediately south of Clair Road.
Deciduous Forest	
FOD Deciduous Forest	Deciduous forest patches with no clear species dominance were present in several locations in the study area. These communities contained a highly variable mix of deciduous hardwoods, such as maples, ashes, poplars, basswood, and elms. These communities are generally disturbance-related. Communities of this type were present throughout the study area.
FOD5-2 Dry-fresh Sugar Maple – Beech Deciduous Forest	Sugar maple and American beech dominated the canopy, sub-canopy and understory of this community. Also present in the understory were black cherry saplings. Groundcover species included herb Robert, chokecherry, and woodland sedges. Communities of this type were present along Maltby Road.
FOD7-2 Fresh-moist Ash Lowland Deciduous Forest	This community contained green ash in the canopy, along with basswood, black cherry, balsam poplar, and white elm. The sub-canopy and understory consisted of various saplings and common buckthorn. Garlic mustard, herb Robert, enchanter's nightshade, and Virginia creeper were present in the groundcover. This community type was present across from the Hanlon Business Park along the Hanlon Expressway.
FOD7-6* Fresh-moist Willow – Ash – Manitoba Maple Lowland Deciduous Forest	This community occupied low-lying areas along the south edge of the Speed River. Species in the canopy included willow, green ash, Manitoba maple, and balsam poplar. Sub-canopy and understory consisted of Manitoba maple and common buckthorn. Groundcover species included stinging nettle, garlic mustard, celandine, and dame's rocket.
FOD10-1* Fresh-moist Manitoba Maple – Balsam Poplar – Ash Deciduous Forest	This community occupied areas of disturbance in the northern portions of the study area. Species in the canopy included Manitoba maple, balsam poplar and ash. These species, along with common buckthorn, were also present in the sub-canopy and understory. Groundcover species included seedlings, garlic mustard, and Virginia creeper. This community type was found south of the Speed River.
Cultural Communitie	es
Cultural Meadow	
CUM1 Cultural Meadow	Cultural meadows are present throughout the study area; some are related to fallow agricultural fields in the central portions of the study area, while others represent disturbed areas along roads. In each case, a mix of native and exotic forbs and grasses are present, including grasses, goldenrods, asters, vetch, birdsfoot trefoil, and ox-eye daisy.

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Existing Ecological Conditions

Table 1 Vege	tation Communities within the Highway 6 Study Area
Vegetation Unit	Community Description
Cultural Thicket	
CUT1-7* European Buckthorn Cultural Thicket	Common buckthorn almost exclusively dominated this thicket community, with scattered nannyberry and white cedar. The lower layers consisted of grasses, goldenrods, and asters. This community type was found south of Kortright Road.
Cultural Savannah	
CUS1 Mineral Cultural Savannah	This cultural savannah showed no clear species dominance, with species such as black locust, sugar maple, scotch pine, and white ash in the canopy. Lower layers were occupied by Tartarian honeysuckle and scotch pine, while grasses, goldenrods, asters, oxeye daisy, strawberry, and fleabanes were noted in the groundcover. Cultural savannahs were found throughout the study area, primarily along the Hanlon Expressway south of Laird Road.
Cultural Woodland	
CUW1 (*) Mineral Cultural Woodland	Cultural woodlands did not show clear species dominance. Species included white ash, trembling aspen, scotch pine and white elm, with staghorn sumac, common buckthorn, and hawthorns. Lower layers were occupied by grasses, goldenrods and asters, along with strawberry and St. John's-wort. These community types were found throughout the study area. (*) = manicured / landscaped
CUW1-3* White Cedar Cultural Woodland	This white cedar cultural woodland consisted of scattered white cedars with scotch pine and sugar maple. Grasses, goldenrods, asters, hawkweeds, colts-foot and strawberry occurred in the lower layers. This community type was found south of Kortright Road.
Cultural Plantation	
CUP3-1 Red Pine Coniferous Plantation	This red pine plantation contained white ash and common buckthorn in the subcanopy and understory. Groundcover primarily contained seedlings. This community type was present on Sideroad 20, north of Maltby Road.
CUP3-2 White Pine Coniferous Plantation	White pine dominated this coniferous plantation, while sugar maple was also present in the canopy and sub-canopy. Understory species included Tartarian honeysuckle, common buckthorn, and choke cherry. The sparse groundcover consisted of seedlings and Virginia creeper.
CUP3-3 Scotch Pine Coniferous Plantation	Scotch pine dominated the canopy of this community, while white ash and common buckthorn were present in the sub-canopy and understory. Groundcover species included seedlings, grasses, and goldenrods. This community type was present south of Maltby Road.

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Vegetation Unit	Community Description
Swamp Communitie	
Mixed Swamp	
SWM1-1 White Cedar – Hardwood Mineral Mixed Swamp	This wetland community consisted of white cedar with tamarack, white birch, poplars, black ash, and white elm in the canopy and sub-canopy. Understory species included glossy buckthorn, white cedar, and red-osier dogwood. Sensitive fern, marsh fern, and marsh horsetail were present in the groundcover. This community type was present at the north edge of the Hanlon Business Park.
Thicket Swamp	
SWT2-2 Willow Mineral Thicket Swamp	This community consisted of willow shrubs, glossy buckthorn, and red-osier dogwood in the canopy, sub-canopy and understory. The groundcover contained sensitive fern, bittersweet nightshade, marsh fern, and marsh horsetail. This community type was found south of Kortright Road.

In addition to the ELC units described above, a number of anthropogenic communities, including residential and business areas, also occur within the study area (**Figure 2**).

3.4 WILDLIFE HABITAT

According to electronic mapping received from the MNR (personal communication with JC Laurence, GIS Officer), no significant terrestrial wildlife habitat is known to occur within the Highway 6 study area. Secondary source data was the main method used to determine the presence of potential wildlife habitat within the study area. A summary of species records, by atlas accounts (Dobbyn, 1994; Oldham and Weller, 2001; Bird Studies Canada, 2005), is discussed below. It is important to note that the exact locations of species occurrences are not available from these atlases and, instead, species are recorded within a 10 km² square. It is possible that many of the identified wildlife species may not occur within the limits of the Highway 6 study area. A complete list of species identified in atlases and in the field is provided in **Appendix C**.

<u>Mammals</u>

Historical records indicate that thirty-seven species of mammals have been recorded within the vicinity of the study area (Dobbyn, 1994). All of these species are ranked S5 (secure in Ontario) or S4 (apparently secure in Ontario), with the exception of three species that are considered to be exotic and non-native to Ontario.

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Existing Ecological Conditions

Reptiles and Amphibians

Thirty species of reptiles and amphibians have been recorded within the vicinity of the study area (Oldham and Weller, 2001). Six of these species are significant species, as discussed below.

The Queen Snake (*Regina septemvittata*) and Jefferson Salamander are ranked S2 (imperiled in Ontario) and are "Threatened" at provincial and national levels. These species are protected by the provincial *Endangered Species Act*. The Queen Snake prefers clear stony streams with abundant crayfish (Connant and Collins, 1998).

The Jefferson Salamander requires large tracts of mature deciduous upland forest for overwintering and foraging habitat. In spring, this species migrates to vernal pools to breed and lay their eggs. Marginal forest habitat for this species was observed in the study area, and no likely breeding areas were identified. The Jefferson salamander has been observed 500 m southeast of the study area (personal communication with Donald Kirk, Natural Heritage Ecologist). However as discussed above, the Jefferson Salamander population in Wellington County (South of Guelph) is likely extirpated and the last of the pure salamanders were observed in Wellington County in April 1989.

The Blanding's Turtle (*Emydoidea blandingii*) is ranked S3 (vulnerable in Ontario) and is "Threatened" at the provincial level. The species is protected by the provincial *Endangered Species Act*. The Blanding's Turtle will utilize a variety of habitats, including lakes, marshes, streams and ponds (Connant and Collins, 1998) but there are no recent records for the area and it is not likely to be found in the study area.

The Northern Map Turtle (*Graptemys geographica*), Northern Ribbonsnake (*Thamnophis sauritus septentrionalis*), Eastern Milksnake and Eastern Ribbonsnake are ranked S3 (vulnerable in Ontario) and are species of "Special Concern" at provincial and national levels. No protection for these species or their habitats are afforded by legislation. Map turtles prefer large bodies of water (Connant and Collins, 1998) and, therefore, could potentially utilize habitats within the Speed River, which is located to the north of the study area. Eastern Ribbonsnakes are most often found near wetland areas (Connant and Collins, 1998), and could potentially be found in marshy areas or ditches within the Highway 6 study area. Milksnakes utilize a wide range of habitats, including man-made structures.

The MNR and NHIC database have no records of any other significant wildlife species occurring within the Highway 6 study area.

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Existing Ecological Conditions

Birds

A review of the Ontario Breeding Bird Atlas (Bird Studies Canada, 2005) indicates that 118 avian species have been recorded in the 10 km² square that overlaps with the Highway 6 study area. Six of these species are significant species, as discussed below.

The Acadian Flycatcher is ranked S2 and is "Endangered" at provincial and national levels. This species is also listed on Schedule 1 of the federal *Species at Risk Act* and is a migratory bird. As such, it and its habitats are afforded protection under this legislation. Further, the species is protected by the provincial *Endangered Species Act*. This species requires large mature forest blocks (at least 30 ha) for breeding (Whitehead and Taylor, 2002); habitat that is not present within the Highway 6 study area.

The Red-headed Woodpecker is ranked S3. It is a species of "Special Concern" at the provincial level and "Threatened" at the national level. Therefore, this species and its habitats are not afforded any legislative protection. The Red-headed Woodpecker requires large trees and snags or dead limbs, but will utilize a variety of habitats as long as these requirements are met in at least a portion of the habitat (Smith et al., 2000). This species could be found within a number of locations in the Highway 6 study area.

The Caspian Tern is ranked S3 and is "Not at Risk" at provincial and national levels. Therefore, this species and its habitats are not afforded any legislative protection. Although this species has been incidentally observed in the study area, the Caspian Tern requires large bodies of open water and beach areas for nesting (Cuthbert and Wires, 1999); habitat that is not present within the Highway 6 study area.

The Golden-winged Warbler and Common Nighthawk, both ranked S4 (apparently secure in Ontario) and the Chimney Swift, ranked S5 (secure in Ontario), are all "Threatened" at the national level and carry no designation at the provincial level. Therefore, these species and their habitats are not afforded any legislative protection. The Golden-winged Warbler requires relatively open habitats with clumps of trees and/or shrubs associated with a forest edge (Confer, 1992). The Common Nighthawk will utilize a variety of open habitats including fields, disturbed ground, grassland, open woodland, and even flat roofs (Poulin et al., 1996). The Chimney Swift requires cavities for nesting, and is most often observed in rural or urban settings where chimneys are used (Cink and Collins, 2002). Habitats for all three species are present in the Highway 6 study area.

All culverts in the study area were checked, and no nests of migratory birds were observed.

Wildlife Observations

Incidental wildlife observations recorded during the field investigations include the following common species (see **Appendix C**): American Goldfinch, American Crow, American Robin, Common Grackle, Sharp-shinned Hawk, Song Sparrow, Field Sparrow, European Starling, Redtailed Hawk, Blue Jay, Eastern Wood Pewee, Red-winged Blackbird, Mallard, Eastern Kingbird,

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Baltimore Oriole, red squirrel, white-tailed deer, chipmunk, raccoon, green frog, northern leopard frog, and the following butterfly species: inornate ringlet, northern crescent, monarch, sulphur orange, cabbage white, red admiral, and European skipper.

3.5 REVIEW OF NATURAL HERITAGE STRATEGY

Since the fieldwork was completed for this study in 2007, the City of Guelph has initiated a detailed update to the City's Natural Heritage Strategy (City of Guelph's Phase 2 *Natural Heritage Strategy* [2009]). This study has been reviewed to confirm that no additional sensitive features or species were identified in the study area. A summary of the review is provided in **Appendix D**, which lists general Areas of Concern identified by the study. The review concluded that none of the Areas of Concern overlapped with the Highway 6 study area.

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4.0 Preliminary Impact Assessment

The Preferred Plan for the Highway 6 improvements includes the construction of interchanges at Laird Road and Stone Road, a partial interchange (ramps to the south) at Kortright Road/Downey Road, and highway underpasses for Kortright Road/Downey Road and College Avenue.

Loss of Terrestrial Habitat

Significant terrestrial features that overlap the Highway 6 study area include a provincially significant wetland, unevaluated wetlands, and woodlots. Where feasible, avoidance of any wetlands and woodlots in the design is the best option to minimize impacts.

Land use within the study area is dominated by cultural areas and isolated patches of remnant forest cover. The Preferred Plan will result in the removal of cultural vegetation communities including meadows, thickets and some woodlands. These areas are the result of human disturbance, and are not considered significant features within the City.

A single butternut tree was observed in the mixed forest located immediately south of the Speed River however, the Preferred Plan does not require construction in this area. It is possible that additional butternut trees may be present within the study area. As a provincially and nationally "Endangered" species, it is recommended that a detailed survey be conducted, during the detail design phase of the study, to confirm the presence/absence of any additional butternut trees in areas where tree clearing is proposed. If butternut were located within the areas to be cleared, the Ministry of Natural Resources should be contacted immediately in order to assess their health and develop an action plan for each tree.

Disturbance to Wildlife and Species of Significance

Habitat for the Eastern Milksnake and Eastern Ribbonsnake is found within the study area, and observations of Eastern Ribbonsnake have been recorded by the MNR. As provincial and national species of "Special Concern", no protection for these species or their habitats are afforded by legislation. However, the role of the MNR is to ensure that during the planning process, regard is given to the habitats of species of conservation concern (i.e., ranked S1, S2, and S3). The MNR and GRCA do not know of any other significant wildlife species recorded within the limits of the Highway 6 study area.

Although six species of significance were identified as part of the existing conditions review, no specific areas of high quality habitat for these species have been identified.

The majority of general wildlife-related impacts from the proposed development would be caused by the direct removal of terrestrial habitat, as outlined above, and increased ambient noise and increased lighting. Depending on the level and duration/frequency of the activity, an

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increase in ambient noise can have detrimental effects on wildlife through agitation and flushing responses. Frequent disturbance can cause increased energy consumption, decreased feeding time, physiological stress and decreased reproduction success due to increased predation on young while adults are flushed. Land uses associated with vehicular traffic and the daily presence of site machinery (during construction) pose an impact in this regard. However, given the existing traffic on Highway 6, it is likely that resident wildlife have either adapted to periodic daily noise or have already relocated to areas beyond their individual noise impact threshold.

Any tree clearing carried out within the defined bird nesting period (May 1 to July 31) will require a search of the area to be cleared for nests of migratory birds. Nesting activity can occur after this time but the probability is decreased. No sensitive species were found during the 2007 field survey however, if any sensitive species are found immediately prior to construction, the timing window may be adjusted for that particular species.

A nest search of the area that is scheduled for clearing should be undertaken by qualified ecologists to ensure no active nests covered by the MBCA are destroyed. Nest searches must be completed within three days of clearing. If clearing is not completed within three days following the nest search, the search must be repeated to ensure that no birds have established new nests during that period.

If no nests are found, clearing may proceed in the area searched. If a nest is located a designated buffer will be marked off, within which no activity will be allowed while the nest is active. The radius of the buffer ranges from 5 m to 60 m depending on the species. The nest will be checked every few days to determine its status. One the nest is determined to be inactive clearing of that area may proceed.

Dust and Siltation

During construction adjacent to vegetated areas, heavy equipment could damage peripheral vegetation from contact, excavation and/or soil compaction. Dust and silt generated from construction activities can also harm natural areas. These potential effects can be mitigated through the use of standard sediment and erosion control measures, outlined in Section 5.1.

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5.0 Environmental Protection Measures

5.1 SEDIMENT AND EROSION CONTROL

Various mitigation techniques will be employed during construction to reduce the risk of impacts to natural environment features. Mitigation measures for sedimentation, erosion, and dust control should be implemented to prevent sediment and dust from entering sensitive natural features.

The primary principles associated with sedimentation and erosion protection measures are to: (1) minimize the duration of soil exposure; (2) retain existing vegetation, where feasible; (3) encourage re-vegetation; (4) divert runoff away from exposed soils; (5) keep runoff velocities low; and to (6) trap sediment as close to the source as possible. To address these principles, the following mitigation measures are proposed:

- No equipment will be permitted to enter any natural areas during construction;
- Silt fencing and/or barriers will be used along all construction areas adjacent to natural areas and wetlands;
- All materials requiring stockpiling (fill, topsoil, etc.) will be stabilized and kept a safe distance from any sensitive natural features. The perimeter of the stockpiles will be encircled with silt fencing;
- All exposed soil areas will be stabilized and re-vegetated, through the placement of seed and mulching or seed and an erosion control blanket, promptly upon completion of construction activities;
- Refueling of equipment will be carried out away from any sensitive natural features to avoid potential impacts, in the event that an accidental spill occurs;
- In addition to any specified requirements, additional silt fence should be available on site, prior to grading operations, to provide a contingency supply in the event of an emergency;
- All sediment and erosion controls should be monitored regularly and properly maintained, as required. Controls are to be removed only after the soils of the construction area have been stabilized and adequately protected until cover is re-established;
- The limits of construction adjacent to all natural features to be retained will be flagged and fenced prior to construction, and monitored during construction (along with sediment and erosion control measures) to ensure the limits are maintained with respect to vehicular traffic and soil or equipment stockpiling;

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- The Contractor is required to restore any disturbed natural areas to pre-construction conditions; and,
- Use of straw bale and/or rock flow checks in ditches to trap sediments for off-site disposal.

5.2 MINIMIZING DAMAGE TO PERIPHERAL VEGETATION

During construction adjacent to vegetated areas, heavy equipment could damage peripheral vegetation from contact, excavation and/or soil compaction. Prior to heavy machinery working adjacent to these areas, a barrier for tree protection (e.g., snow fencing) should be employed to protect any site vegetation that is to be retained and is in the vicinity of exposure to damage by machinery. This involves fencing the vegetation at, or beyond, the treed drip-line.

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6.0 Summary

This Terrestrial Ecosystems Report documents existing terrestrial ecological features within the Highway 6 study area, from 0.5 km south of Maltby Road to the Speed River. Together with the Fisheries and Aquatic Ecosystems Report, these two documents summarize the Natural Sciences component of the Highway 6 planning, preliminary design, and environmental assessment study.

There are no ANSIs, ESAs, provincial or national parks, or conservation areas within the Highway 6 study area. However, the study area overlaps portions of the provincially significant Hanlon Creek Swamp Complex. Additionally, there are a number of woodlots and small unevaluated wetlands.

A single butternut tree was recorded just south of the Speed River. It is possible that additional butternut trees may be present within the study area. As a provincially and nationally "Endangered" species, it is recommended that a detailed survey be conducted, during the detail design phase of the study, to confirm the presence/absence of any additional butternut trees in areas where tree clearing is proposed.

Habitat for the Eastern Milksnake and potential habitat for Eastern Ribbonsnake is present within the study area, and species observations have been recorded by the MNR. As a provincial and national species of "Special Concern", no protection for these species or their habitats are afforded by legislation. If the species are observed during construction, activity in the vicinity of the sighting should be ceased and the MNR should be notified immediately. The MNR and GRCA have not identified any other significant wildlife species recorded within the limits of the Highway 6 study area.

Where feasible, avoidance of any wetlands and woodlots in the design is the best option to minimize impacts to natural heritage features. This approach has been incorporated into the evaluation of alternatives for the proposed highway improvements and identification of a Preferred Plan. Only minor vegetation clearing is required to accommodate the Preferred Plan and there are no impacts to wetlands. Where possible, impacts to terrestrial resources will be further minimized during detail design, particularly in the vicinity of Hanlon Creek and west of Highway 6, at Laird Road. Encroachment into terrestrial ecosystems will be quantified in the *Transportation Environmental Study Report* (TESR).

All of which is respectfully submitted,

STANTEC CONSULTING LTD.

Gwendolyn Weeks, B.Sc. Environmental Scientist

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APPENDIX A

PHOTOGRAPHIC RECORD







Norway Spruce - Hardwood Mixed Forest (FOM9-2*).



Deciduous Hedgerow: typical roadside deciduous hedgerows showing variety of tree species.



Dry-fresh White Cedar Coniferous Forest (FOC2-2).



Deciduous Forest typical of study area showing variety of tree species (FOD).



White Pine Coniferous Plantation (CUP3-2).



MTO - SW REGION HWY 6 IMPROVEMENTS

Initiated: October, 2007 Revised:





Dry-fresh Sugar Maple - Beech Deciduous Forest (FOD5-2).



Mineral Cultural Savannah (CUS1).



Scotch Pine Coniferous Plantation (CUP3-3).



Cattail Mineral Shallow Marsh (MAS2-1)(foreground). Ash - White Elm Mineral Deciduous Swamp (SWD4-5*)(rear).



White Cedar Cultural Woodlands (CUW1-3*).



Fresh-moist White Cedar - Hardwood Mixed Forest (FOM7-2).



MTO - SW REGION
HWY 6 IMPROVEMENTS

Initiated: October, 2007 Revised:



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APPENDIX B

ECOLOGICAL LAND CLASSIFICATION DATA SHEETS

C	SITE 1650	165000631		POLYGON:		
COMMUNITY	SURVEYOR(S):	GAIM	DATE: JUNE	40.H	ОТМЕ	
DESCRIPTION &	START:	END		UTMZ:	UTMN:	
POLYGON DESCRIPTION	SCRIPTION					
SYSTEM	SUBSTRATE	E TOPOGRAPHIC FEATURE	HISTORY	PLANTFORM	COMMUNITY	
K TERRESTRIAL WETLAND AQUATIC	ORGANIC MINERAL SOIL PARENT MIN ACIDIC BEDRK.	DACUSTRINE RIVERINE TERRACE VALLEY SLOPE TABLELAND CIPE CIPE	MATURAL CULTURAL	DEANITON SUBMERGED CIPLONTING-LVD. GRAMINOID LICHEN DICHEN DICHEN DICHEN	LAKE POND RIVER STREAM SWAMP SWAMP FEN	
3118	CARB. BEDRK		COVER	CONIFEROUS	D BARREN D MEADOW D PRAIRIE	
O OPEN WATER SHALLOW WATER WE SURFICIAL DEP. BEDROCK	7.07.4	BEACH/BAR SAND DUNE	□ OPEN □ SHRUB TREED		SAVANNAH SAVANNAH WOODLAND FOREST PLANTATION	
STAND DESCRIPTION	IPTION:					
LAYER	HT CVR	SPECIES II (>> MUCH GREAT	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)	:REASING DON ER THAN; = ABC	MINANCE NUT EQUAL TO)	
1 CANOPY	7 4	THUCCCI > F	POPDELT > B	* BETALLE >	≥ POPBALS > PI	≯PICGLAU
2 SUB-CANOPY	3 4	THUCCC 1 ≥ 1	> FRAX.			
3 UNDERSTOREY	8 S-h	THUOCC >	> FRAX			
4 GRD. LAYER HT CODES: CVR CODES	6-7 3 1=>25 m 2=100 0= NONE 1= 0%	3 (GRITINGT) SIDGE CLUZE DRY 2x 100HT25m 3x 20HT210m 4x 10HT2m 1x 00K 28% 3x 25 X	Well , DRYCART A = 0.5cH721.	MAICAN 1751 m 6=024HTS 50% 4=CVR > 80%	MAICANA Seedlings 1m 6-02445.9m7=HT402#	
STAND COMPOSITION:	ITION:				BA:	
SIZE CLASS ANALYSIS	LYSIS:	A < 10	A 10-24	0 25 - 50	> 50	
STANDING SNAGS:	is:	A < 10	0 10-24	R 25-50	05 ^	
DEADFALL / LOGS:	S:	A < 10 N = NONE . R=	= RARE 0 = OCCASIONAL		50	
COMM. AGE	PIONEER	R YOUNG	X MID-AGE	MATURE	OLD GROWTH	
SOIL ANALYSIS					-	
TEXTURE:		DEPTH TO MOTTLES / GLEY	TLES / GLEY g	=	G=	
MOISTURE:		DEPTH OF ORGANICS:	ANICS:		(cm)	
HOMOGENEOUS	/ VARIABLE	рертн то веркоск:	3OCK:		(cm)	<u></u> :
COMMUNITYCLASSIFICATION: COMMUNITY CLASS:	ASSIFICATI SS:	ON:		CODE:	FO	en u
COMMUNITY SER	SERIES:		,	CODE: F	FCM	
ECOSITE:				CODE: F(FCMT	
VEGETATION TYPE: hardwood	·	Fresh meist white	. cedar -	CODE: F	FOMT-2	
NOISITION	1			.3000		

(E)	SITE,			POLYGON:	3
COMMONITY	SURVEYOR(S):		DATE:		UTME:
CLASSIFICATION S	START:	ENO		UTMZ:	OTMN:
POLYGON DESCRIPTION	CRIPTION				
SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANTFORM	COMMUNITY
M TERRESTRIAL WETLAND AQUATIC	ORGANIC ORGANIC PARENT MIN. ACIDIC BEDRK. BASIC BEDRK.	CLACUSTRINE RIVERINE BOTTOMLAND TERRACE TERRACE TABLELAND TABLELAND TABLELAND TABLELAND TABLELAND CLIFF	□ NATURAL SCULTURAL	PLANKTON SUBMERGED FLOATING-LVD. GRAMINOID ICHEN BRYOPHYTE	CLAKE CPOND STREAM STREAM OWARSH CSWAMP CBOO
SITE:	CARB. BEDRK.	TALUS CREVICE / CAVE ALVAR ROCKLAND BEACH / BAR SAND DUNE	COVER	MIXED MIXED	MARREN M
STAND DESCRIPTION:	PTION:	SPECIES IN ORDER	SPECIES IN ORDER OF DECREASING DOMINANCE ICH GREATER THAN: SGEATER THAN: = ABOUT EQUA	OF DECREASING DC	DOMINANCE = ABOUT EQUAL TO
h	3	Scortch Pine	2.5		
3 UNDERSTOREY	7 7 7	FRAAMER	KAAMEK		
	— € w	1 E.J. BUCK-HLOVIN SEECH MOD 3=100HT25m 5=020HT505m7=HT02m 1=08.ccNr.108. 3=10.ccNr.258. 3=25.cVR.608. 4=0XP.808.	1 SEECH 1005 4 141152 = 16064151 1.25% 3*25 CVR : 60%	A CON 4= CVR > 60%	Ts0.5 m 7 = HT<0.2 m 1%
STAND COMPOSITION:	TION:				BA:
SIZE CLASS ANALYSIS	YSIS:	A < 10	A 10-24	0 25-50	× 50
STANDING SNAGS: DEADFALL / LOGS: ABUNDANCE CODES:		A < 10 A < 10 N = NONE . R =	C 10-24 C 10-24 RARE 0=00	-24 R 25-50 -24 25-50 0=0ccASIONAL A=	50 > 50 50 > 50 A = ABUNDANT
COMM. AGE:	PIONEER	XYOUNG	MID-AGE	MATURE	OLD GROWTH
SOIL ANALYSIS		DEPTH TO MOTTLES / GLEY	TLES / GLEY	: B	G=
MOISTURE: HOMOGENEOUS / VARIABLE	/ VARIABLE	DEPTH OF ORGANICS: DEPTH TO BEDROCK:	ANICS: ROCK:		(cm)
COMMUNITYCLASSIFICATION:	ASSIFICATIO SS:	ä		CODE:	CU
COMMUNITY SERIES:	ES:			CODE:	cop
ECOSITE:				CODE:	CUP3
VEGETATION TYPE:	e: Scoteh I	Pine Can Yantaha	aniferous Jon	CODE:	CUP3-3
INCLUSION		-		соре	

1

- 7

	INE. 1650001	1870		POLYGON: (3)	
COMMUNITY	SURVEYOR(S):	3AM	DATE: JUNE	14.07	UTME
Š	START:	GNB		UTMZ	UTMN.
POI YGON DESCRIPTION	RIPTION				

SYSTEM

SUBSTRATE

PULTION DESCRIPTION

SYSTEM

SUBSTRATE

PERIODEN

SUBSTRATE

PERIODEN

SUBSTRATE

PERIODEN

SUBSTRATE

PERIODEN

STATEMON

STAT

SI AND DESCRIPTION	1	2								
LAYER	눞	S. R		SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; * ABOUT EQUAL	IN OR	DER OF DIAN; > GRE	ECRE	SPECIES IN ORDER OF DECREASING DOMINANCE INCH GREATER THAN; > GREATER THAN; = ABOUT EQUAI	MINANC OUT EQU	2E JAL TO)
1 CANOPY	2	3	THU	THUCCCI >> Sector Pine	Setch	Pine	>AC	> ACESASA		
2 SUB-CANOPY	Ţ	ħ	Gra	Grasses > THUCCC	H.	occ i				
3 UNDERSTOREY	ß	4	GYA	Grasses Goldenrods	. Jole	rods.	Asters	25		
4 GRD. LAYER	6-7	1 1	Haw	4 Hawkweeds Colfsfort Strawber	S	Spot .	Strav	uberry		
HT CODES: CVR CODES	4 = >25 m 0= NONE	l	cCVR s	2 = 10 <ht 0.54ht="" 11<br="" 16="" 25="" 3="2<HT/10" 4="" in="" of="">1= 0% < GVR < 10% 2= 10 < GVR < 25% 3= 25 < GVR < 60%</ht>	n 4 • 1ki	#£2 m 15/= 0 3= 25 < CVF	34H21	m 6 = 0.2 <hf.s 4= CVR > 60%</hf.s 	6 = 0.2 F so 5 m 7 = HT<0.2 m CVR > 60%	:HT<0.2 m.
STAND COMPOSITION:	HION								BA	
SIZE CLASS ANALYSIS:	LYSIS		M	< 10		10 - 24		25 - 50		> 50
STANDING SNAGS:	ÿ		<u> </u>	× 10		10-24		25 - 50		> 50
DEADFALL / LOGS:	Si		0	× 10	7	10 - 24		25 - 50		> 50
ABUNDANCE CODES:	ö		ž	N = NONE . R	. R = RARE		O = OCCASIONAL	1	A = ABUNDANT	11
COMM. AGE:		PIONEER		XYOUNG		MID-AGE		MATURE	0.0	OLD
SOIL ANALYSIS	ù								<u>)</u>	
TEXTURE:			DE	DEPTH TO MOTTLES / GLEY	TLES	/ GLEY	16		<u>"</u>	
MOISTURE:			DE	DEPTH OF ORGANICS:	GANIC	ë				(cm)
HOMOGENEOUS / VARIABLE	/ VAF	NABLE		DEPTH TO BEDROCK:	DROCK					(ш)
COMMUNITYCLASSIFICATION:	ASSI	FICAT	:NO							
COMMUNITY CLASS:	SS:						_	code: $\mathcal{C}\mathcal{U}$	2	
COMMUNITY SERIES:	IES:						_	CODE: (M 00 00	}
ECOSITE:								CODE: (COW	
VEGETATION TYPE: White cector cultural	3	카	Zeck Zeck	har cultur	hura Joh		_	Э :aaoo	30	COW1-3*
INCLUSION	z	L						CODE:		
COMPLEX	×	_					ľ	CODE:		

では	SITE			POLYGON: (4)	
COMMUNITY	SURVEYOR(S):		DATE:		UTME
CLASSIFICATION START	START:	END		UTMZ:	UTMN:
POLYGON DESCRIPTION	SCRIPTION				
SYŞTEM	SYSTEM SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	PLANT FORM COMMUNITY
TERRESTRIAL	ORGANIC	LACUSTRINE	M NATURAL	PLANKTON	☐ LAKE
X WETLAND	MINERAL SOIL	RIVERINE BOTTOMILAND	□ CULTURAL	C SUBMERGED FLOATING-LVD	SIVE S
□ AQUATIC	D PARENT MIN.	TERRACE		GRAMINOID	STREAM
	☐ ACIDIC BEDRK.	TABLELAND		CICKEN	SWAMP
	☐ BASIC BEDRK	Call UPLAND		DECIDIOUS	
	CARB. BEDRK.	TALUS	1	CONIFEROUS	O BARREN
SITE		O CREVCE / CAVE	3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	MIXED	PRAIR
OPEN WATER		C ROCKLAND	OPEN		U THICKET SAVANNAH
SHALLOW WATER		SANDOUNE	SHRUB		WOODLAND
BEDROCK		1	K TREED		PLANTATION

			┨		1						
STAND DESCRIPTION:	PTIO	÷		ı							
LAYER	눞	CVR	>	SPEC *> MUCH (REATE	ORD ER THA	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; = ABOUT EQUAL TO)	CRE/	VSING DO HAN; = AB	MINANC OUT EOL	SE JAL TO)
1 CANOPY	ч	7	THUC	(C) > (A)	2LAR	1-8E	MUCCI > LARLARI - BETPAPY - Poplars - FRANIGR > ULMAMER	oplar	S- FRAN	JIGR>U	MAME
2 SUB-CANOPY	m	7	As	Above	0.1			-	ļ		
3 UNDERSTOREY	4-5	J.	(slo	Glossy buckthern	KHIL	7.0	THUOC	713	THUOCCI, CORSTOL	_	
4 GRD. LAYER	12-9		Š	SENS	2	y YS	4 lonosens maish fern, maish horsetail	ม รก	horse		
HT CODES: CVR CODES	1 = >25 m		HT 523	Z = 10 <ht<25 3="2<HT<10" 4="1<H<br" m="">1= 0% < CVR < 10% 2= 10 < CVR < 25%</ht<25>	\$10 m 4	(• 1< 1) s 26%	\$2 m'6 = 0.5 <ht21 6="0.2<HTs<br" m="">3= 25 < CVR s 60% 4= CVR > 60%</ht21>	SCHT_211 \$ 50%	n 6 = 0.2 <h1< th=""><th>►</th><th>= HT<0.2 m</th></h1<>	►	= HT<0.2 m
STAND COMPOSITION:	NOF	·								BA:	
SIZE CLASS ANALYSIS:	YSIS:			A < 10		A	10 - 24	\aleph	25 - 50	Z	> 50
STANDING SNAGS:	is			A < 10		0	10 - 24	X	25 - 50	Z	> 50
DEADFALL / LOGS:	isi		Ť	0 4 10	o	0	10 - 24		25 - 50		> 50
ABUNDANCE CODES:	.:2		z	NON = N	. R = RARE	3ARE	0 = 0	O = OCCASIONAL		A = ABUNDANT	5
COMM. AGE:		PIONEER	ж —	YOUNG	П	Ż	MID-AGE		MATURE		OLD GROWTH
SOU ANA YOU											-
TEXTURE:			0	DEPTH TO MOTTLES / GLEY	MOT	LES/	GLEY	# 6		Ę.	
MOISTURE:		ļ. 	0	DEPTH OF ORGANICS	ORG/	NICS	 			·	(CE)
HOMOGENEOUS / VARIABLE	/ VAR	ABLE		DEPTH TO BEDROCK:	BEDR	Š					(cm)
COMMUNITYCLASSIFICATION:	ASSII	FICAT	O								
COMMUNITY CLASS:	:88								CODE:	SK	
COMMUNITY SERIES:	ES:					i			CODE:	SWM	
ECOSITE:									CODE:	SWM	
VEGETATION TYPE: White Cectar	TYPE: W	ا تا ج ج	k cedo	dar -	- have	y dv	hardwood		CODE:	SWM1-	1
NOI DSION	Z			Ħ		┨			CODE:		

Notes: Pines present on E side of Hanlan (#6), N
Vaad 34: in decline.

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	SITE	site: 165000631	10631		POLYGON: (5)	
COMMUNITY	SURVE	SURVEYOR(S): GAW	GAW	DATE: June 14.0	4.07	итме:
CLASSIFICATION			END		UTMZ	UTMIN
POLYGON DESCRIPTION	CRIP	No.				
SYSTEM	43,45	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANTFORM	PLANT FORM COMMUNITY
TERRESTRIAL X WETLAND	ORGANIC MINERAL	ORGANIC MINERAL SOIL	CACUSTRINE RIVERINE	M NATURAL	C PLANKTON C SUBMERGED	LAKE POND
AQUATIC	<u> </u>	PARENT MIN.	TABLEY SLOPE		S GRAMINOID	STREAM STREAM SWARSH
	S S	D BASIC BEDRY.	CLIFF UPLAND		DECIDIONS	
SILE	CAR.	CARB. BEDRK.	☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR	COVER	CONIFEROUS	D BARREN D MEADOW PRAIRIE
OPEN WATER			U ROCKLAND ☐ BEACH / BAR	M OPEN		SAVANNAH
SURFICIAL DEP			C SAND DUNE	SHRUB		WOODLAND FOREST
TAND DECOME	, i	١		□ TREED		U PLANTATION
S AND DESCR	2	<u> </u>	1 0010000	20 20 02 02 14	OC CINGRAGO	MANOR
LAYER	Ħ	C	(>> MUCH GREAT	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; = ABOUT EQUAL TO)	CREASING DON	UT EQUAL TO
1 CANOPY	7	<u>.</u>	TVP! AT!			

	LAYER	Έ	S	۵	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)	S IN OF	SPECIES IN ORDER OF DECREASING DOMINANCE IUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL	SECRE/ EATER 1	ASING HAN: "	DOM!	NAN	F (0)
-	CANOPY	7	7	7.7	TYPLATI				, ·			
7	SUB-CANOPY	5	4	"								
m	UNDERSTOREY 6-	1-9	h	CNO	CNOSENS Corex Spp. marsh fern	g 6	dds >	ß	sh f	g,		
4	GRD. LAYER				<u> </u>		-					
5 ≡	HT CODES: CVR CODES	1 = >25 r	2=10< 1=0%	HT325 II C CVR s	#>25m 2=104f125m 3=24f1210m 4=14f122m 5=054f121m 6=0.24f125m 7=Ff102m 0=NONE 1=0% <cvr 10%="" 2="10<CVR" 25%="" 3="25<CVR" 4="CVR" 80%="" s=""> 80%</cvr>	m 4=1	:HT≤2 m 5 = (4 3= 25 < CV	2.5 <hts11. R s 60%</hts11. 	m 6 m 0	2 <ht s0.3<="" th=""><th>E / E</th><th>HT<0.2 m</th></ht>	E / E	HT<0.2 m
ST,	STAND COMPOSITION:	TION:				:				8	BA:	
Siz	SIZE CLASS ANALYSIS:	LYSIS		잍	< 10		10 - 24		25 - 50	Š		> 50
ST	STANDING SNAGS:	ŝ		0	< 10	7	10 - 24		25 - 50	8		> 50
님	DEADFALL / LOGS:	.;		0	< 10		10 - 24		25 - 50	92	$\overline{}$	> 50
ABI	ABUNDANCE CODES:	iii		II Z	N = NON = N	. R = RARE		O = OCCASIONAL A = ABUNDANT	NAL	4 ≈ ABU	INDAN	_
8	COMM. AGE.		PIONEE	X	PIONEER XYOUNG	Ļ	MID-AGE		MATURE		0	OLD

Ę	TEXTURE:	DEPTH TO MOTTLES / GLEY g =	=9
Σ	MOISTURE:	DEPTH OF ORGANICS:	(ma)
Ĩ	HOMOGENEOUS / VARIABLE	ABLE DEPTH TO BEDROCK:	(cm)
Ű	COMMUNITY CLASSIFICATION:	ICATION:	
ŭ	COMMUNITY CLASS:		CODE: MA
ŭ	COMMUNITY SERIES:		SVW :3000
ш	ECOSITE:		CODE: MASZ
5	EGETATION TYPE: C_lpha	VEGETATION TYPE: Caffail Mineral Shallow	CODE:
		Marsh	1-7541/
M	INCLUSION	Willow Mineral Thicket Swp.	CODE: SWT-2-2
Ц_	COMPLEX	•	CODE:

	UTME	UTMN:		PLANT FORM COMMUNITY	CAKE COC		U STREAM D MARSH	SWAMP	: % : %	D BARREN MEADOW		SAVANNAH	MOODLAND	PLANTATION
POLYGON: (6		OTMZ:		PLANT FORM	PLANKTON	FLOATING-LVD	GRAMINOID	CICKEN	DECIDIOUS	CONIFEROUS	28.1		_	
	DATE		ı	HISTORY	X NATURAL	☐ CULTURAL				COVER		OPEN	☐ SHRUB	SS TREED
		END		TOPOGRAPHIC FEATURE	C CACUSTRINE	M BOTTOMLAND	U TERRACE	TABLELAND	CLIFF SPENSO	U TALUS CREVICE / CAVE	O ALVAR	D BEACH / BAR	SAND DUNE	
SITE	SURVEYOR(S):	START:	CRIPTION	SYŞTEM SUBSTRATE	O ORGANIC	MINERAL SOIL	D PARENT MIN.	ACIDIC BEDRK.	O BASIC BEDRK.	CARB. BEDRK.				
	COMMUNITY	CLASSIFICATION START	POLYGON DESCRIPTION	SYSTEM	☐ TERRESTRIAL	X WETLAND	☐ AQUATIC			SIF		OPEN WATER	SHALLOW WATER	П вервоск

SIZE CLASS ANALYSIS:
STANDING SNAGS:
DEADFALL / LOGS:
ABUNDANCE CODES:
COMM. AGE: STAND COMPOSITION:

V)	SOIL ANALYSIS:		-	
	TEXTURE:	DEPTH TO MOTTLES / GLEY g =	=5	
	MOISTURE:	DEPTH OF ORGANICS:	(cm)	
1-	HOMOGENEOUS / VARIABLE DEPTH TO BEDROCK:	DEPTH TO BEDROCK:	(cm)	
, –	COMMUNITYCLASSIFICATION:	:NC		
٧.	COMMUNITY CLASS:		CODE: SW	
10	COMMUNITY SERIES:		CODE: SWD	
144	ECOSITE:		CODE: SWD"	
	/EGETATION TYPE: Ash - W	VEGETATION TYPE: Ash-white elm, decidoous code:	CODE	ж
	SWAMP	mineral		
Щ	INCTOSION		CODE:	
ш_	COMPLEX		CODE:	

	ОТМЕ	UTMN:	
POLYGON: (7)		UTMZ:	
	DATE: JUNE 14		
SITE: 165000631	SURVEYOR(S) GAW	END	
SITE: 165	SURVEYOR(S	ON START:	POLYGON DESCRIPTION
	COMMUNIT	CLASSIFICATI	NOO'N TOO

- 1

COVER ORGANIC

MAINERAL SOIL

PARENT MIN.

ACIDIC BEDRY.

CARB. BEDRY. OPEN WATER
SHALLOW WATER
WE SURFICIAL DEP.
BEDROCK SITE SYSTEM

STAND DESCRIPTION:

SPECIES IN ORDER OF DECREASING DOMINANCE

LAYER HT CVR (>> MUCH GREATER THAN, > GREATER THAN, = ABOUT EQUAL TO)

CANOPY 3 4 Solix ≥ Glossy buckthorn > CCRSTCL

SUB-CANOPY 4 4 As Above

JUNDERSTOREY 5 4 As Above

GRO. LAYER 6-7 4 ONCSENS NIGHTS MESSAGE MUSS HENSER HTCODES:

The CODES (1->25 m 2-1004/23m 1-24/45.0m 4-104/22m 5-23-47.03m 7-114/02m

CNR CODES (1->25 m 2-1004/23m 1-24/45.0m 4-104/22m 5-23-67.03m 7-114/02m

CNR CODES (1->25 m 2-1004/23m 1-24/45.0m 4-104.23m 5-23-67.03m 7-114/02m

CNR CODES (1->25 m 2-1004/23m 1-24/45.0m 4-104.23m 5-23-67.03m 7-114/02m

CNR CODES (1->25 m 2-104/23m 1-24/45.0m 4-104.23m 5-23-67.03m 7-114/02m

CNR CODES (1->25 m 2-104/23m 1-24/45.0m 4-104.23m 1-123-67.03m 7-114/02m

CNR CODES (1->25 m 2-104/23m 1-24/45.0m 1-114/23m 1-14/23m 1-14/2 STAND COMPOSITION:

च चर SIZE CLASS ANALYSIS:
STANDING SNAGS:
DEADFALL / LOGS:
ABUNDANCE CODES:

SOIL ANALYSIS:		
TEXTURE:	DEPTH TO MOTTLES / GLEY g =	<u>"</u>
MOISTURE:	DEPTH OF ORGANICS:	(cm)
HOMOGENEOUS / VARIABLE DEPTH TO BEDROCK:	E DEPTH TO BEDROCK:	(cm)
COMMUNITYCLASSIFICATION:	TION:	
COMMUNITY CLASS:		CODE: SW
COMMUNITY SERIES:		CODE: SWT
ECOSITE:		CODE: SWT2
VEGETATION TYPE: WILLO	VEGETATION TYPE: Willow Mineral Thicket	CODE: Cilitate
	Swamp	7-7 I MO
INCLUSION		соре:
COMPLEX		CODE:
Notes:		

	SITE			POLYGON:	
COMMUNIC	SURVEYOR(S):		DATE		UTME
CLASSIFICATION START	START:	END		UTMZ:	UTMN:
POLYGON DESCRIPTION	SCRIPTION				
SYSTEM	SYSTEM SUBSTRATE	TOPOGRAPHIC * REATURE	HISTORY	PLANT FORM	PLANT FORM COMMUNITY
X TERRESTRIAL	O ORGANIC	LACUSTRINE	□ NATURAL	PLANKTON	O LAKE
☐ WETLAND	MINERAL SOIL	D RIVERINE BOTTOMLAND	K CULTURAL	C FLOATING-LVD.	C RVE A
☐ Aguatic	D PARENT MIN.	TERRACE		GRAMINOID	O STREAM
•	ACIDIC BEDRK.	TABLELAND	,	10 C	SWAMP
	BASIC BEDRK.	KOLL. UPLAND		DECIDIOUS	0 E
	CARB. BEDRK	TALUS	4.0	CONFEROUS	BARREN -
17 H	AROJI 2., 18	D ALVAR			PRAIRIE
OPEN WATER		C ROCKLAND C REACH / BAR	Oopen		SAVANNAH
SHALLOW WATER		SAND DUNE	SHRUB		☐ WOODLAND
BEDROCK			K TREED		PLANTATION

STAND DESCRIPTION:	RIPTIO	ż		
LAYER	도	S. R	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)	70 TO)
1 CANOPY	2	ħ	Scotch Rine >> PICGLAU	
2 SUB-CANOPY	3	h	Cenymen Buckthern	
3 UNDERSTOREY 4-5	4-5	7	" PRUVIVI	
4 GRD. LAYER	1-d	1	6-7 4 " PARINSE TARCFFI Seedling/	
HT CODES: CVR CODES	1 = >25 n	1 24 104	1=>25	(T<0.2 m
STAND COMPOSITION:	NO E		BA:	-
SIZE CLASS ANALYSIS	ALYSIS		A < 10 A 10-24 A 25-50	\$ 20
STANDING SNAGS:	is:		0 <10 0 10-24 25-50	> 50
DEADFALL / LOGS:	GS:	 -	0 <10 0 10-24 25-50	^ 50
ABUNDANCE CODES:	:S:		N=NONE . R = RARE O = OCCASIONAL A = ABUNDANT	
COMM. AGE:		PIONEER	YOUNG MID-AGE MATURE	OLD

ı				7
Ŋ	SOIL ANALYSIS:			Γ
}-	TEXTURE:	DEPTH TO MOTTLES / GLEY 9 =	" 5	
Æ	MOISTURE:	DEPTH OF ORGANICS:	(cm)	
Ţ	HOMOGENEOUS / VARIABLE DEPTH TO BEDROCK:	DEPTH TO BEDROCK:	(cm)	
, 0	COMMINITY OF ASSIBICATION:	:20		ļ
<u>د د</u>	COMMUNITY CLASS:		CODE: CM	-
ĮΟ	COMMUNITY SERIES:		CODE: CMP	
j W	ECOSITE:		cope: Cup 3	
>	FEGETATION TYPE: Scote	VEGETATION TYPE: Scotch Rine Cultural Plantation	CODE: CUP3-3	
JL	INCLUSION		CODE:	
IL_	YA IONO		CODE	Г

Notes:

PTION PTIO	ز لا لا	i .	165000631		РОLYGON: (9	
PTION	COMMUNITY DESCRIPTION &	SURVEYOR(S)	G4W	PATE:	e 14.	UTME:
PTION PRINTED PLANTON PLANTO	CLASSIFICATION	START	END		UTMZ:	UTMN
BSTRATE TOPOGRAPHIC HISTORY PLANTFORM RRANIC CLOCSTRINE CLOCATINGLOD RIVERNE CLOCATINGLOD ROWNING CLOCATINGLOD RIVERNE CLOCATION RIVERNE CLOCATION RIVERNE CLOCATION RIPERTH TO MOTTLES GLEY G = GCCATION RIPERTH TO MOTTLES GLEY G = GCCATION RIPERTH TO MOTTLES GLEY G = GCCATION RIPERTH TO MOTTLES CLEY CCCATION RIPE	POLYGON DE	SCRIPTION				
March Code	SYSTEM	SUBSTRATE	TOPOGRAPHIC	20.5	1100	1.5
CVR CONTINUED						
Name	A IERRESIRIAL		C RIVERINE	NA OCAL	SUBMERGED	
Code	of the second		TERRAGE		GRAMINOID	STREAM
SCHEDRA STORY LIPLAND STORY CONFERENCE STOR			UVALLEY SLOPE			□ MARSH □ SMAMP
ON: COUNTRY			ROLL UPLAND		BRYOPHYTE	10 <u>0</u>
CVR PAGE PROJECT	SECTION OF STREET STREET	CARB	TALUS TA		CONFEROUS	JOE SAREN
ON: SPECIES IN ORDER OF DECREASING DOMINANCE CVR PANCHER THAN; A SCAPCH DINE PEARAM Z LOUIS ACESASA SCAPCH DINE PEAAM Z LONITATA SCAPCH DINE Y GVASSES GOLDENCES ASTERS I Y OXEVE CLASSY STAW DELTY PEABANE BUNDANT Y GVASSES GOLDENCES ASTERS Y GVASSES GOLDENCES N = NONE 10 - 24 25 - 50 N = NONE REARE 0 = OCCASIONAL BANCE AND	ָּהָ בּיינים		CAVE CAVE			PRAIRIE
ON: SPECIES IN ORDER OF DECREASING DOMINANCE CVR (P. MUCH GREATER THAN, -) GREATER THAN, = ABOUT EQUAL 2 LOCUST, ACESASA, Scotch DINE, FRAAM 2 LONITATA, Scotch DINE, FRAAM 2 LONITATA, Scotch DINE, FRAAM 4 GVASSES, Goldenreds, Asters 1 5 G < 10 10-24 25-50 1 6 < 10 10-24 25-50 1 8 N= NONE 1 10-24 25-50 1 10-24 25-50 1 10-24 25-50 2 CODE: CU DEPTH TO MOTTLES / GLEY CODE: CU CODE: CU CODE: CU SIEICATION: CODE: CU COD	OPEN WATER		☐ ROCKLAND	OPEN	1	THICKET
ON: CUR SPECIES IN ORDER OF DECREASING DOMINANCE 2 LOCUST, ACESACA, Scatch DINE FRAAM 2 LOCUST, ACESACA, Scatch DINE FRAAM 4 GVGSGG, Goldenreds, Asters 4 GVGSGG, Goldenreds, Asters 4 GVGSGG, Goldenreds, Asters 5 1 4 GVGSGG, Goldenreds, Asters 6 C C 10 10-24 25-50	SHALLOW WATER SURFICIAL DEP. BEDROCK		SANO DUNE	SHRUB		☐ WOODLAND ☐ FOREST ☐ PLANTATION
CVR PANCH GREATER THAN; A GENTER THAN; A BOUT EQUAL 2 LOCUST ACESASA Scych Dine; FRAAM 2 LONITATA Scotch Dine; FRAAM 4 Grasses Goldenreds Asters 5 Goldenreds Asters 6 Color of 10 Color of 10 7 Color of 10 Color of 10 8 10 Color of 10 Color of 10 8 Color of 10 Color of 10 8 Color of 10 Color of 10 8 Color of 10 Color of 10 10 Color of 10 C	STAND DESCR	NOIL				
CVR (>> WICHES IN WILLIAM) - CORES CONTROLL COMMINION OF THE WILLIAM) - CORES COLUMN - SEATER THANN - CORES COLUMN - ABOUNDANT - COLUMN - ACCESSAR SCAPE OF THE FORM - THE SAME - CORES COLUMN - THE SAME - CORES CORES CONTROLL - CORES C		-	911/11/11/11	20000	CC CINIO PEGGE	E CIA A LA
2 LOCUST, ACESASA Scotch pline FRAAM 2 LONITATA Scotch pline 4 GVASSES, Goldenrods, Asters 5 Gweet daisy Strawberry, Rebbane buffer-regime 1- 10 and 1	LAYER		OPECIES (>> MIICH GRFA	IN ORDER OF	FATER THAN: * AR	MINANCE OUT FOUAL TO
Code	'L	,	A Town	0 4040	- 'STATE OF THE PARTY OF THE PA	۱ ا
2 LONITATA Scotch pine	_	7		+	DINE	KHANITK
4 Gvasses Goldenreds Asters 4 Gvasses Goldenreds Asters 5 4 Gvasses Goldenreds 5 6 6 6 6 7 7 7 7 7 7 8 10 8 8 10 8 8 10 8 8 10 8 8 10 8 9 10 10 24 9 25 50 9 8 10	_	12 11		ک	nne	
4		h .		dentride	Asters	
Simple S		=	xeye daisy	Strawberry	fleabane b	Her-reggs
Si	IT CODES:	۱_	425 m 3 = 2 <ht 10="" m<br="" s="">VR s 10% 2= 10 s CV</ht>	4 = 14H 52 m 6 = R 25% 3= 25 < C	0.5 <hts1m 6="0.2<HT<br">7R < 60% 4= CVR > 60</hts1m>	.0.5 m 7 = HT20/2 m
Si	an coors		- 1	- 1	- 1	
C < 10 C 25 - 50 C C < 10 C 10 - 24 Z5 - 50 C C < 10 C 10 - 24 Z5 - 50 C N = NONE REPARE 0 = OCCASIONAL A = ABUNDANT PIONEER XYOUNG MDAGE MATURE GRD DEPTH TO MOTTLES / GLEY g = G = G = DEPTH TO MOTTLES / GLEY g = G = G = DEPTH TO BEDROCK: SIFICATION: CODE: CUS CODE: CUS CODE: CUS CODE:	STAND COMPOS	NOIL				BA:
O < 10 10.24 25.50	SIZE CLASS ANA	TYSIS:		5	7 25.	
C				,		
	TANDING SNAC	3	<u> </u>	10-24	4	\$
N=NONE RARE O=CCASIONAL A=ABUNDANT N=NONE RABUNDANT NEDACE NATURE OLD	PEADFALL / LOC		0 × 10	임	25	^
PIONEER XYOUNG MIDAGE MATURE OLD	BUNDANCE CODE	ö	Ψ,	-		ABUNDANT
DEPTH TO MOTTLES / GLEY g = G = G = DEPTH OF ORGANICS: ARIABLE DEPTH TO BEDROCK: SIFICATION: CODE: CU CODE: CUS CODE: CUS	OMM. AGE.	PIONEER	Xvoung	MID-AGE	MATURE	OLD
DEPTH TO MOTTLES / GLEY g = G = DEPTH OF ORGANICS: ARIABLE DEPTH TO BEDROCK: SIFICATION: CODE: CU CODE: CUS CODE: CUS CODE: CUS CODE: CUS CODE: CUS CODE: CUS	NOV LAINA TION					
DEPTH OF ORGANICS: ARIABLE DEPTH OF ORGANICS: BIFICATION: CODE: CU CODE: CUS	PXTURE:		DEPTH TO MOT	TI ES / GI EY		Ga
EQUIS I VARIABLE DEPTH TO BEDROCK: TYCLASSIFICATION: Y SCASS: Y SCRIES: CODE: CU CODE: CUS CODE: CUS NITYPE: MINERAL CULTURAL Savanah	AOISTI IRF		DEPTH OF ORG	ANICS		
Mineral Cultural cope: CUS Savanah CUS	HOMOGENEOUS	VARIABLE	DEPTH TO BED	BOCK		(E)
mineral Cultural cobe:						
cope: Mineral Cultural cope: Savannah	COMMUNITY CL	ASSIFICATIO SS:			"	٦
cope: nineral Cultural cope: Savannah					1	
mineral Cultural GODE: Savannah	OMMUNITY SER	IES:				cus
Mineral Cultural GODE:	COSITE:					CUSI
Savannan	EGETATION TY		(10		Cusi
			Zavezna	ah)

	SITE			POLYGON: (10	
COMMUNITY	SURVEYOR(S):		DATE:) 	UTME:
CLASSIFICATION S	START:	END		UTMZ:	UTMN:
POLYGON DESCRIPTION	SCRIPTION				
SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	СОММОИПУ
M TERRESTRIAL ☐ WETLAND	C ORGANIC	CACUSTRINE RIVERINE DESTROMEND	X NATURAL □ CULTURAL	D PLANKTON SUBMERGED TELOATING-LVD	
☐ AQUATIC	D PARENT MIN.	U TERRACE UVALLEY SLOPE TABLELAND		GRAMINOID FORB LICHEN	☐ STREAM ☐ MARSH ☐ SWAMP
		ROLL VPLAND		BRYOPHYTE DECIDIOUS	2000 12000 12000
i aits	CARB. BEDRIK	CREVICE / CAVE	COVER	U CONITEROUS	MEADOW OPRAIRIE
OPEN WATER SHALLOW WATER ST SURFICIAL DEP.		BEACH / BAR	☐ OPEN ☐ SHRUB		SAVANNAH SAVANNAH WOODLAND FOREST PLANTATION
STAND DESCRIPTION	IPTION				
LAYER	HT CVR	SPECIES (>> MUCH GREA'	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)	CREASING DOI	MINANCE OUT EQUAL TO)
1 CANOPY	1	ACESASA >>	>> FAGGRAN	7	
2 SUB-CANOPY	3 2	ii	"		
3 UNDERSTOREY	451	*	"	PRUVIV	
4 GRD. LAYER HT CODES: CVR CODES	6-7 4 6	4 GERROBE PRUVIVI SECULIONAL CARPENN 2=10041625m 3=2041610m 4=104162m 6-05.59167m 6=0.20416.05m7 1=04.cur.104 2=10.cur.234 2=25.cur.604 4=047.604	1VIVI Seculing	CARPE Sorte = 0.24Hz	2NN 6.5m7=Ht<0.2m
STAND COMPOSITION:	:NOIL:				BA:
SIZE CLASS ANALYSIS	LYSIS:	A < 10	0 10-24	R 25-50	R >50
STANDING SNAGS:	38:	R < 10	R 10-24	R 25-50	> 50
DEADFALL / LOGS:	33:	A < 10 N = NONE R =	2	0=0CCASIONAL A=A	50 > 50 A = ABUNDANT
COMM. AGE:	PIONEER	YOUNG	MIO-AGE	MATURE	GROWTH
SOIL ANALYSIS	io.	YE IS IS WOTT EN IS EX	Y 10, 10, 17	H	<u></u>
MOISTURE		DEPTH OF ORGANICS:	SANICS:		(mo)
HOMOGENEOUS / VARIABLE	/ VARIABLE	DEPTH TO BEDROCK:	ROCK:		(cm)
COMMUNITYCL ASSIFICATION:	ASSIFICATIO	:N		13000	17.
COMMUNITY CLASS:	133.			į.	
ECOSITE:				-;	FoDS
VEGETATION TYPE:	Dry-f	Resh Sugar Decidoous	Ar Maple Forest	- code:	FOD5-2
INCLUSION	_			CODE:	
COMPLEX	×			CODE:	
Motor				 	

	SITE: 16500063	0631		POLYGON: (11)	(
COMMUNITY DESCRIPTION &	SURVEYOR(S): GA W	1 W	DATE: June 1	14.07	UTME
CLASSIFICATION	START	END		UTMZ	UTMN:
POLYGON DESCRIPTION	COIDTION				

- 7

SYSTEM

SUBSTRATE

TOPOGRAPHIC

MATERIAL

ORGANIC

ORGANI

STAND DESCRIPTION:		
LAYER HT C	CVR (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)	ASING DOMINANCE THAN; = ABOUT EQUAL TO)
1 CANOPY 2	4 ULMAMER FRAX ACESASA	ROPTREM POPRAIS
2 SUB-CANOPY 3	н , " , " ф	Ev. Buckthorn
3 UNDERSTOREY 4-5	4 Goldenrods Asters	•
AYER 6-7	4 GERROBE, Strawberry	Strawberry
HT CODES: 1=>25 m CVR CODES 0= NONE	2*10 <htx25 3*2<htx16m="" 4*1<htx2m="" 5*0.5<htx1<br="" m="">t=0% < CVR x 10% 2*10 < CVR x 26% 3*25 < CVR x 60%</htx25>	m 6 = 0.2 <hts0.5 7="HT<0.2" m="" m<br="">4= CVR > 80%</hts0.5>
STAND COMPOSITION:		BA:
SIZE CLASS ANALYSIS:	A <10 A 10-24 O	25.50 / >50
STANDING SNAGS:	O < 10 O 10-24 R	25 - 50 / > 50
DEADFALL / LOGS:	10 10	1 1
DES:	N = NONE . R = RAR	A = ABUND
COMM. AGE: PI	PIONEER YOUNG MID-AGE	MATURE OLD GROWTH
SOIL ANALYSIS:		
TEXTURE:	DEPTH TO MOTTLES / GLEY g =	-ij
MOISTURE:	DEPTH OF ORGANICS:	(cm)
HOMOGENEOUS / VARIABLE	BLE DEPTH TO BEDROCK:	(cm)
COMMUNITYCLASSIFICATION:	CATION:	
COMMUNITY CLASS:		CODE: FO
COMMUNITY SERIES:		CODE: FOD
ECOSITE:	4.1.11.11.1	CODE: FOD
VEGETATION TYPE: Decidueus	iducus Forest	code: FOD
INCLUSION		CODE:
COMPLEX	•	CODE:
Notes]`

Notes: No clear dominance of any one species/ combination of species. Disturbance related.

	i i		,	POLYGON: (12)	$\overline{}$
ZUNINITA	SURVEYOR(S):		DATE:		UTME:
CLASSIFICATIONS START	START	END		UTMZ.	UTMN;
POLYGON DESCRIPTION	CRIPTION				
SYSTEM	SYSTEM SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM COMMUNITY	COMMUNITY
TERRESTRIAL	ORGANIC	☐ LACUSTRINE	□ NATURAL	U PLANKTON	O LAKE
□ WETLAND	M MINERAL SOIL	C RIVERINE	K CULTURAL	SUBMERGED FLOATING-LVD.	Pond
☐ AQUATIC	PARENT MIN.	☐ TERRACE		GRAMINOID	STREAM
	Acibic BEDRK	C TABLELAND			SWAMP
	BASIC BEDRK	ROLL UPLAND		BRYOPHYTE	OC S
	2000	TALUS	Aprilyn-green Discontillance	CONIFEROUS	BARREN
SITE	L CARB. BEDRA	CREVICE / CAVE	COVER	□ MIXED	MEADOW
		O SCOKLAND			THICKET
O OPEN WATER		D BEACH / BAR	- OPEN		SAVANNAH
SHALLOW WATER		SAND DUNE	□ sHRUB		WOODLAND FORFST
BEDROCK		L COM	M TREED		PLANTATION

STAND DESCRIPTION	PTIO	ż		
LAYER	노	CVR	SPECIES IN ORDER OF I (>> MUCH GREATER THAN; > GR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1 CANOPY	3	3	FRAAMER POPTREN	FRAAMER POPTREM SOLPH Pine ULMAMER
2 SUB-CANOPY	4-5	3	RHUTYPH EL BUCKThor'n	rn Grataeaus
3 UNDERSTOREY	1-9	J	۲П	Strawberry St. J. wort
4 GRD. LAYER				
HT CODES: CVR CODES	1 = >25 m 0= NONE		2=10cH7z55 m 3=2cH7z60 m 4=1cH7z2 m 5=05cH7z1 m 6=02cH7x65 m 7 = H7c02 m 1=0% < CVR s 10% 2=10 < CVR s 25% 3=25 < CVR s 60% 4= CVR> 60%	3.5 <ht<1 7="" ht<0.2="" m="" m<br="">R < 60% 4= CVR > 60%</ht<1>
STAND COMPOSITION:	HION:			8A:
SIZE CLASS ANALYSIS:	LYSIS:		O < 10 O 10-24	25 - 50 > 50
STANDING SNAGS:	33		0 < 10 10-24	25-50 > 50
DEADFALL / LOGS:	33		O <10 R 10-24	25-50 / >50
ABUNDANCE CODES:	ŝ		N * NONE . R * RARE O = C	O = OCCASIONAL A = ABUNDANT
COMM. AGE:		PIONEER	R YOUNG X MID-AGE	MATURE OLD GROWTH
SOIL ANALYSIS	ic			
TEXTURE:			DEPTH TO MOTTLES / GLEY	= B
MOISTURE:			DEPTH OF ORGANICS:	(cm)
HOMOGENEOUS / VARIABLE	/ VAR	IABLE	DEPTH TO BEDROCK:	(cm)
COMMUNITYCLASSIFICATION:	ASSI	FICATI	ON:	
COMMUNITY CLASS:	SS:			CODE: CU
COMMUNITY SERIES:	IES:			CODE: CUM
ECOSITE:				CODE: CUM!
VEGETATION TYPE: MINELA	يز	300	of Cultural	cope: C∪W]
INCLUSION	z			cope:
COMPLEX	×			CODE:

Notes: No clear SPP. dominance,

E E	SITE: 16500063	10,631		EI):NODATOA	
COMMUNITY	SURVEYOR(S): GAW	AW	DATE: JUNE 14.0"	14.07	ОТМЕ
CLASSIFICATION START	START	END		UTMZ:	OTMN:
POLYGON DESCRIPTION	SCRIPTION				
SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM COMMUNITY	COMMUNITY
X TERRESTRIAL	ORGANIC	[] LACUSTRINE	X NATURAL	PLANKTON	☐ ∪AKE
□ WETLAND	MINERAL SOIL	RIVERINE	□ CULTURAL	SUBMERGEO FLOATING-LVD.	□ Pond River
☐ AQUATIC	DARENT MIN.	TERRACE VALUEY SLOPE		GRAMINOID	STREAM
	ACIDIC BEDRK.	TABLELAND		LICHEN	SWAMP
	U BASIC BEDRK	ROLL UPLAND		K DECIDIOUS	
	CARB. BEDRK.	O TALUS	100	CONIFEROUS	D BARREN
7		O ALVAR	ב כאנוצ י	NAME OF	Prairie
OPENWATER		☐ ROCKLAND ☐ BEACH / BAR	OPEN		☐ THICKET
SHALLOW WATER		SAND DUNE	□ SHRUB		WOODLAND WE FOREST
BEDROCK			TREED		PLANTATION

U)	STAND DESCRIPTION:		ż									
	LAYER	Ħ	CVR	٤	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; = ABOUT EQUAL TO)	N OR	DER OF DE AN; > GRE	CREA	SING DON HAN; = ABC	AINAN(AL 70)	
-	CANOPY	7	ц	POP	POPTREM ULMAMER ACESASA FRAX	2	AME	A	ESASA	ĬŦ.	ZAX.	
7	2 SUB-CANOPY	3	ц	4		"		"	"	щ	Ev Buckthorn	Ę
6.	UNDERSTOREY 4-5	4-5	7	Golde	Goldenrods Asters	Asi	ers			,		,
4	GRD. LAYER	1-9	7	Strau	Stamberry Garlic mustard	Ga	rlic m	usto	u'C			
,∓ ∪	HT CODES: CVR CODES	1 = >25 m 0= NONE	1= 0%	HT/25 m < CVR s 10	is>25m 2°i0041725m 3°i24T7.∮Mn74°i4H72m 6°i054H74m 6°i024H365m 7°iH7402m psNONE is0K-c0NE;10K 2°i0 <c0ne;25k 3°i2<c0ne;60k="" 4°c0ne;60k<="" td=""><td>74 = 1<7</td><td>T≤2 m \$ = 0. 3-25 < CVR</td><td>5<ht4h n<br="">≤ 60%</ht4h></td><td>1 6 * 0.2<hts 4* CVR > 60%</hts </td><td>0.5 m 7</td><td>• HT<0.2 m</td><td></td></c0ne;25k>	74 = 1<7	T≤2 m \$ = 0. 3-25 < CVR	5 <ht4h n<br="">≤ 60%</ht4h>	1 6 * 0.2 <hts 4* CVR > 60%</hts 	0.5 m 7	• HT<0.2 m	
ຶ	STAND COMPOSITION:	HION:								BA:		
l (N	SIZE CLASS ANALYSIS:	LYSIS:		٧	< 10	A	10 - 24	V	25 - 50		> 50	
S	STANDING SNAGS:	SS:		0	< 10	Ø	10 - 24		25 - 50		> 50	
Ω	DEADFALL / LOGS:	:S:		C	< 10		10 - 24	7	25 - 50	7	> 50	

STAND COMPOSITION:							: D		
SIZE CLASS ANALYSIS:	∢	× 10	∢	10 - 24	abla	25 - 50		^ 20	
STANDING SNAGS:	ō	× 10	Ó	10 - 24		25 - 50		> 50	_
DEADFALL / LOGS:	c	× 10		10 - 24	7	25 - 50	/	> 50	
ABUNDANCE CODES:	N = N	N = NONE . R = RARE	RARE	0 = 0	CASIO	O = OCCASIONAL A = ABUNDANT	BUNDAN	Ŀ	٠.
COMM. AGE: PIONEER X YOUNG	X	GNG		MID-AGE		MATURE		OLD	_
SOIL ANALYSIS.							<u>.</u>	-	_
TEXTURE:	DEPT	DEPTH TO MOTTLES / GLEY	LES/	1	11 15		5		
MOISTURE:	DEPTI	DEPTH OF ORGANICS:	ANICS					(cm)	
HOMOGENEOUS / VARIABLE	DEPT	DEPTH TO BEDROCK:	SOCK					(cm)	
COMMUNITYCLASSIFICATION:	;								
COMMUNITY CLASS:						CODE: FO	Ģ		
COMMUNITY SERIES:						CODE: FOD	do		
ECOSITE:						CODE: 1	FoD		
VEGETATION TYPE: Decidoous	SOO	Forest	es }	L		code: F	Fod		
)		

spp. dominance Notes: No Clear - 14

- 79

373	SITE			hl) :NODATON	4)
COMMUNITY	SURVEYOR(S):		DATE:		отме:
CLASSIFICATIONS	START:	END		UTMZ:	UTMN:
POLYGON DESCRIPTION			-	-	
SYSTEM	SUBSTRATE	TOPOGRAPHIC	HISTORY	RLANTFORM	COMMUNITY
X TERRESTRIAL	ORGANIC	C LACUSTRINE	□ NATURAL	PLANKTON	W K
□ WETLAND		BOTTOMLAND	K CULTURAL	FLOATING-LVD.	
☐ AQUATIC	DARENT MIN.	U VALLEY SLOPE		L CKAMINOU	OO SIRCE AND SIR
	D BASIC BEDRIK.	ROLL UPLAND			Z 0
SILE	CARB. BEDRK.	TALUS CREVICE / CAVE	COVER	MIXED	BARREN DMEADOW PRAIRE
OPEN WATER		O ROCKLAND	Oopen		☐ THICKET ☐ SAVANNAH
SHALLOW WATER SURFICIAL DEP. BEDROCK		SAND DONE	SHRUB X TREED		☐ WOODLAND ☐ FOREST M PLANTATION
STAND DESCRIPTION:	IPTION:				
LAYER	HT CVR	SPECIES II	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL	CREASING DO TER THAN; = AB	MINANCE SOUT EQUAL TO
1 CANOPY	4	PINSTRO >>	> ACESASA		
2 SUB-CANOPY	_		"		
3 UNDERSTOREY		CNTATA, E	En Buckthorn	PRU	1010
4 GRD. LAYER	6-7 1 PAR	! _ <i>!</i> *	INSE Sections	H771 m 6 m 0 26H 0 5 m	1.05 m 7 = HT<0.2 m
HT CODES:	1 = >25 m Z = 10 <h1 j<br="" kz5="" m="">0 = NONE 1 = 0% < CVR < 10%</h1>	- X	4 = 154154 fg = 0.55415 R 5 25% 3= 25 < CVR : 60%	60% 4= CVR > 60%	
STAND COMPOSITION:	ITION:				вА:
SIZE CLASS ANALYSIS:	LYSIS:	A <10	A 10 - 24	25 - 50	> 50
STANDING SNAGS:	iŞ:	0 × 10	R 10-24	7 25 50	> 50
DEADFALL / LOGS:	33	C < 10	R 10-24	7 25 - 50	> 50
ABUNDANCE CODES:	iš	N = NONE N	= RARE 0 = OC	O = OCCASIONAL A =	A = ABUNDANT
COMM. AGE:	PIONEER	XYOUNG	MID-AGE	MATURE	GROWTH
SOIL ANALYSIS	in		į		-
TEXTURE:		DEPTH TO MOTTLES / GLEY		⇒ G	-5
MOISTURE:		DEPTH OF ORGANICS:	ANICS:		(сш)
HOMOGENEOUS / VARIABLE	/ VARIABLE	рертн то веркоск:	ROCK:		(cm)
COMMUNITYCLASSIFICATION:	ASSIFICATIO	ä			
COMMUNITY CLASS:	.SS:			CODE:	CE
COMMUNITY SERIES:	NES:			CODE	CuP
ECOSITE:				CODE:	CuP3
VEGETATION TYPE:	PE: While	Phototot	in ferous	CODE	CuP3-2
		7 7 7 7			

COMMUNITY SURVEYOR(S). GAW DATE JULY OF UTME. CLASSIFICATION START END OTTMIN. POLYGON DESCRIPTION	END DATE JULIE 14 07 UTAZ: U UTAZ: U UTAZ: U	ETC SILE: 16500063	16900	POLYGON: (15)	(
UTWZ UTWZ	END UTWZ: UTWZ: UTWZ: UTWZ: UTWZ: U	COMMUNITY SURVEYOR(S)	GAW	DATE: JUNE 14.07	итме:
POLYGON DESCRIPTION	E TOPOGRAPHIC HISTORY PLAN	CLASSIFICATION START	END	UTMZ:	UTMN:
	GRAPHIC HISTORY PLAN	POLYGON DESCRIPTION			

COVER SITE
OPEN WATER
SHALLOW WATER
SUFFICIAL DEP.

S AND DESCRIPTION	2			
LAYER	눞	S N	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)	ASING DOMINANCE THAN; = ABOUT EQUAL TO)
1 CANOPY	m	Ь	PINRESI	
2 SUB-CANOPY	7	_	FRAAMER Eu. Buckfrorn	
3 UNDERSTOREY	5	_	Ι.	
4 GRD. LAYER	6-7		Seedlings	
HT CODES: CVR CODES	1 = >25 m 0= NONE	ì I	2=104H325m 3=24H340m 4=14H32m 8=0.54H31 1=0% < CVR s 10% 2=10 < CVR s 25% 3=25 < CVR s 60%	pm 4 = 1 <hts2 5="0.2<HTs0.5" 7="HT<0.2" m="" m<br="">. CVR s 25% 3 = 25 < CVR s 60% 4 = CVR > 60%</hts2>
STAND COMPOSITION:	TION:	:		BA:
SIZE CLASS ANALYSIS:	LYSIS		A <10 C 10-24	25-50 / >50
STANDING SNAGS:	ن		10 < 10	25-50 / >50
DEADFALL / LOGS:	زن		< 10 10-24	25 - 50 > 50
ABUNDANCE CODES:	iö		N = NONE . R = RARE O = OCCASIONAL	ONAL A = ABUNDANT
COMM. AGE:		PIONEER	ER XYOUNG MID-AGE	MATURE OLD GROWTH
SOIL ANALYSIS	نىز			
TEXTURE:			DEPTH TO MOTTLES / GLEY g =	=5
MOISTURE:			DEPTH OF ORGANICS:	(cm)
HOMOGENEOUS / VARIABLE	/ VAR	IABLE	E DEPTH TO BEDROCK:	(cm)
COMMUNITYCLASSIFICATION:	ASSI	FICATI	JON:	
COMMUNITY CLASS:	SS:			CODE: CU
COMMUNITY SERIES:	IES:			CODE: CNP
ECOSITE:				code: CUP3
VEGETATION TYPE: Reca	ابر	ed f	Pine Coniferous Plantation	CUP3-1
NOISON	Z.	L		CODE:

	SITE.			POLYGON: (16)	
COMMUNITY	SURVEYOR(S):		DATE:		UTME:
CLASSIFICATION START	START:	ENO		UTMZ:	UTMN:
POLYGON DESCRIPTION	CRIPTION				
SYSTEM	SYSTEM SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
X TERRESTRIAL	O ORGANIC	☐ CACUSTRINE	M NATURAL	PLANKTON	C.K.K.
☐ WETLAND	MINERAL SOIL	D RIVERINE BOTTOMLAND	CULTURAL	C SUBMERGED FLOATING-LVD.	O RIVER
☐ AQUATIC	PARENT MIN.	TERRACE		GRAMINOID	O STREAM
	Acidic BEDRK.	TABLELAND			SWAMP
	SASIC BEDRK.	BROLL UPLAND		O pecipuous	
经过程的	CARB. BEDRK.	TAUS		CONFEROUS	O BARREN
SITE	ı	O CHEVICE / CAVE	COVER	MIXED	PRAIRIE
OPEN WATER		O ROCKLAND	OPEN		THICKET SAVANNAH
SHALLOW WATER		SAND DUNE	SHRUB		WOODLAND
D BEDROCK		#:0 #:0 #:0	X TREED		PLANTATION

			_		2	9					_
STAND DESCRIPTION	IPTIO	نرد									1
LAYER	HT	CVR	â	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; = ABOUT EQUAL TO)	N ORC TER TH	DER OF DI AN; > GRE	CREA	SPECIES IN ORDER OF DECREASING DOMINANCE UCH GREATER THAN; > GREATER THAN; = ABOUT EQUAI	AINANC JUT EQU	R AL TO)	
1 CANOPY	7	7	PIC	PICGLAU							
2 SUB-CANOPY	3	ф	ULA	ULMAMER FRAAMER TILAMER PRUSERO	FR/	AME	Z I	LAME	R R	USERC	~
3 UNDERSTOREY	4-5	Ļ	FR,	-RAAMER TILAMER	TIL	AMER	PRI	PRUVIVI EU. Buckthorn	£ú.Bvc	Kthau	0
4 GRD. LAYER	6-7	7	Gold	4 Goldenrods Asters Seedlings	Peter	S. Seed	llino	, 5/	. !		\neg
HT CODES: CVR CODES	1 = >25 m 0= NONE	l	HT425 m	2=104H1255	4 m/14	Trim 6=0. 3=25 < CVR	SCH7s1 s 60%	5 6 = 0.2 <hts 4= CVR > 60%</hts 	.0.5 m 7 = 1	HT<0.2 m	
STAND COMPOSITION:	HON								BA:		
SIZE CLASS ANALYSIS:	LYSIS:		M	× 10	V	10 - 24	ဝ	25 - 50		> 50	
STANDING SNAGS:	ï			× 10	0	10-24	0	25 - 50		> 50	
DEADFALL / LOGS:	ij		✓	× 10	ပ	10 - 24	X	25 - 50		> 20	
ABUNDANCE CODES:			ż	N - NONE . R.	. R = RARE	0*0	O = OCCASIONAL		A = ABUNDANT		
COMM. AGE:		PIONEER	띰	YOUNG	X	MID-AGE		MATURE	36	OLD GROWTH	
SOUL ANALYSIS									ij.	-	n 1
TEXTURE:		ļ	8	DEPTH TO MOTTLES / GLEY	TLES	GLEY	1 00		් ප්		
MOISTURE:			8	DEPTH OF ORGANICS:	ANIC					(сш)	1
HOMOGENEOUS / VARIABLE	/ VAR	ABLE		DEPTH TO BEDROCK:	ROCK					(cm)	$\overline{}$
COMMUNITYCLASSIFICATION:	ASSI	ICAT	ä						Ì		г
COMMUNITY CLASS:	SS:							CODE: F	FG		
COMMUNITY SERIES:	IES:							cope: ‡	FoM		
ECOSITE:								CODE: F	FOMS	*	
VEGETATION TYPE: White Spruce Mixed forest	20 E	Pirks S	ds +s	ruce -	Ž T	Hardwood		CODE: F(FOM9-1	4-1*	
INCLUSION			1					CODE:		!	

with a residence: disturbance related.

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- 1

COMMUNITED COM	UTMY: UTMM: UT
GGRAPHIC HISTORY PELA BATURE BATURE BATURAL BATURE BATU	MTTFORM COMMU WITHOUT COMMU WITHOUT COMMU WITHOUT COMMU WARSH FENOUS CHARGON DIALOGY DIALOGY CONCERNATION DIALOGY DIALOGY CONCERNATION DIALOGY DIALOGY CONCERNATION DIALOGY DIALOGY CONCERNATION DIALOGY DIALOGY DIALOGY DIALOGY DIALOGY MARSH DIALOGY D
OGRAPHIC HISTORY PLA EATURE CHANGE ENNE CHANGE TOWNAND TOWNAND TOWNAND TENNO T	WTFORM COMMU WRITE WERSON WINGLING WASH WINGLING WASH WINGLING WASH WASH WASH WASH WASH WASH WASH WASH
EXTURE ENTURE ENTURE	WITFORM COMMUNICATION OF THE C
USTRINE TOWALMAND RACE TOWALMAND TOWA	WITCH
SPECIES IN ORDER OF DECREE SPECY SP	MINGEORD GROUD MINGEORD GRAVER BENEVER BENEVER MENCON DECONOMINANCE HACKET DECONOMINANCE HACKET MENCON MENCO
SPECIES IN ORDER OF DECRES TO SEATER	MINOID B STREAM BEN BANKSH BEN
SPECIES IN ORDER OF DECREATER THAN, S GREATER	ENTEROUS SAVANAP DECOUS SAVANAP DERROUS SAVANAP DERROUS SAVANAP DECOUS SAVANAP DE
SPECIES IN ORDER OF DECREATION SPECIES IN ORDER OF DECREATION ASA Blue Spruce Pi X X X CELY Blue Spruce Pi X X CELY Blue Spruce Pi X X X CELY Blue Spruce Pi CELY B	DEPOUS BARREN DEPROUS BARREN DEPAUS
SPECIES IN ORDER OF DECREE ASA Blue Spruce Pi X	SING DOMINANCE JANANAN SANCOLAM POREST PLANTATIO PLANTATIO PLANTATIO PLANTATIO PLANTATIO SING DOMINANCE JAN: = ABOUT ECUAL 1 PLES TARGET SANCE
CHENT OPEN CHENT OF STRUB SPECIES IN ORDER OF DECRE NUCH GREATER THAN: > GREATER T ASA Blue Spruce Pi X X X X X X X X X X X X X	SING DOMINANCE SING DOMINANCE AN; = ABOUT EQUAL 1 DECS
SPECIES IN ORDER OF DECREATION ORDER OF DECREATION ORDER OF DECREATION O	SING DOMINANCE HAN; = ABOUT EQUAL 1 NES TO SEE SEE SEE SEE SEE SEE SEE SEE SEE SE
SPECIES IN ORDER OF DECREATION OF CREATER THAN, SCREATER THAN, SCREATER TASK SELVE PARTY NEW BLUEGY OSS	SING DOMINANCE IAN; = ABOUT ECUAL 1 N.E.S. 1
ASA Blue Spruce Pi X 2cky Bluegrass 2cky Bluegrass 2cky Bluegrass	AAN; = ABOUT EQUAL 1 NES 1 s = 0.24H; 0.3 m 7 = HFQ
ASA, Blue Spruce, Pi X X Docky Bluegrass	NeS 1 6 024H:05 m 7 = HFQ
JOEN BLUGGYASS	1 6 = 0.2cHf s0.5 m 7 # HF cd
ocy Bluggrass	1 6=0.2 <hfs.0.5m 7="Hfc0</td"></hfs.0.5m>
Deky Bluggrass	6 = 0.2 <hts0.5 7="HTs0</td" m=""></hts0.5>
	1 6 = 0.2 <hts0.5 7="HT<0</td" m=""></hts0.5>
300 - City - 35 - 5 - 350 - City - 55 - 5	A- 0110 - 808
**************************************	F CVR > ova
	BA:
<10 0 10.24 0	25 - 50 / > 50
< 10 10-24	25 50 / > 50
< 10 10.24 /	25 - 50 / > 50
# NONE . R # RARE O # OCCASIONAL	AL A = ABUNDANT
X YOUNG MID-AGE	MATURE OLD GROWTH
DEPTH TO MOTTLES / GLEY g =	<u>"</u>
DEPTH OF ORGANICS:	(cm)
DEPTH TO BEDROCK:	(cm)
	code: CL
	CODE: CUM
	CODE: CUM
	1
i !	cope:

T L	i i			POLYGON: (18)	જ જ
COMMUNITY	SURVEYOR(S):		DATE:		UTME:
DESCRIPTION	START:	GND		UTMZ:	UTMN:
	MOLEGICA				
SYSTEM	SUBSTRATE	TOPOGRAPHIC	HISTORY	PLANT FORM	COMMUNITY
961		Z FFALVE			· · · · · · · · · · · · · · · · · · ·
TERRESTRIAL WETLAND	ORGANIC ONGANIC MINERAL SOIL		M NATURAL	L PLANKTON SUBMERGED FLOATING-LVD	COND POND RIVER STREAM
3	O PAREN MIN. ACIDIC BEDRK.	O VALLEY SLOPE TABLELAND ROLL, UPLAND CUFF		☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☐ DECIDUOUS	MARSH SWAMP FEN BOG
SITE	CARB. BEDRK	TALUS CREVICE / CAVE	COVER	CONFEROUS MIXED	BARREN MEADOW PRAIRIE
OPEN WATER SHALLOW WATER SURFICIAL DEP. BEDROCK		BEACH / BAR	O OPEN O SHRUB TREED		SAVANNAH SAVANNAH WOODLAND FOREST PLANTATION
STAND DESCRIPTION:	IPTION:				
LAYER	HT CVR	SPECIES II (>> MUCH GREAT	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL	CREASING DO	MINANCE OUT EQUAL TO)
1 CANOPY	3	FRANIGR /	ACE SACC /	ACE RUBR	(
	٦	THUOCCL F	FRANIGR	ACE RUBR	N N
YER	H 1	4 LONTATA EV. BUCK HOLDS	d enchanghen	Buckthona	SOS ME COU. MUSS
STAND COMPOSITION:	. 1				BA:
SIZE CLASS ANALYSIS	LYSIS:	A < 10	A 10-24	R 25-50) so
STANDING SNAGS:	S:	0 < 10	0 10-24	R 25-50	Ž
DEADFALL / LOGS:	.S:	A < 10 N= NONE . R=	9	0 = 0CCASIONAL A=/	50 × 50 A = ABUNDANT
COMM. AGE:	PIONEER	၂၀၂	MID-AGE	MATURE	GROWTH
SOIL ANALYSIS	1				6
MOISTURE		DEPTH OF ORGANICS:			(cm)
HOMOGENEOUS / VARIABLE	/ VARIABLE	DEPTH TO BEDROCK:	ROCK:		(cm)
COMMUNITYCLASSIFICATION:	ASSIFICATIO	ä			
COMMUNITY CLASS:	SS:				SW
COMMUNITY SERIES:	IES:			٦٦.	SWM
ECOSITE:					SWAI
VEGETATION TYPE:	white (Sedar - H Jixed Si	Hardwood Swamp	CODE:	SWMI-1
INCLUSION	_			CODE:	
COMPLEX	×			CODE:	
Notes:					

<u>ම</u>	SITE: 1650	16500063)		POLYGON: (19	3
COMMUNITY	SURVEYOR(S): (GAW	DATE: JUNE	June 14.07	UTME
CLASSIFICATION START	START	END		UTMZ:	UTANN:
POLYGON DESCRIPTION	CRIPTION			-	
SYSTEM	SUBSTRATE	SUBSTRATE TOPOGRAPHIC FEATURE	HISTORY	PLANTFORM	COMMUNTY
X TERRESTRIAL	ORGANIC	C.ACUSTRINE	O NATURAL	PLANKTON	☐ LAKE
☐ WETLAND	X MINERAL SOIL	☐ RIVERINE	X CULTURAL	SUBMERGED FLOATING-LVD.	D POND
☐ AQUATIC	☐ PARENT MIN.	TERRACE		GRAMINOID	STREAM
	ACIDIC BEDRK.	TABLELAND	-		SWAMP
	☐ BASIC BEDRK.	CLIFF		M DECIDIOUS	£ 8 ⊃□
SITE	CARB. BEDRK.	TALUS CREVICE / CAVE	COVER	CONFEROUS MIXED	☐ BARREN ☐ MEADOW
100 P. 10		D ALVAR	THE COURT OF THE PARTY OF THE P		PRAIRIE THICKET
OPEN WATER		D BEACH / BAR	OPEN		SAVANNAH
SURFICIAL DEP.		SAND DUNE	C SHRUB		U WOODLAND
□ веряоск			TREE0		PLANTATION

				₫	Z TREED			PLANIATION	_
STAND DESCRIPTION:	OLLA	ż							
LAYER	보	CVR R		CIES IN (SPECIES IN ORDER OF DECREASING DOMINANCE UCH GREATER THAN; > GREATER THAN; = ABOUT EQUAI	DECRE	ASING DO THAN; = AB	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; = GREATER THAN; = ABOUT EQUAL TO)	6
1 CANOPY	3	3	En Bretthern >> VIBLENT	thern	>> VIB	LEN	В	THUCCE	T -
2 SUB-CANOPY	'	3	, ,,		,		2		·
3 UNDERSTOREY	5-7	7	Grasses Goldenicds	Golo	erred	1. 1	Astors		
4 GRD. LAYER								-	
HT CODES: CVR CODES	1 = >25 m 0= NONE	ı	2=10cHtt25 m 3=24fft0m 4=1cHft2m 5=05cHft1m 6=02cHft05m 7=Hft02m 1=b%cCVRc10% 2=10cCVRt25% 3=25cCVRc60% 4=CVR>60%	2 <hts10m 4="1<H<br">2=10 < CVR s 25%</hts10m>	* 1 <ht<2 5<br="" m="">25% 3= 25 < (</ht<2>	1<2 m 5 = 0.5 <h1<1 3=25 < CVR < 60%</h1<1 	m 6 = 0.2 <hts 4= CVR > 60%</hts 	≤0.5 m 7 ≈ HT<0.	3
STAND COMPOSITION:	NOIL							BA:	
SIZE CLASS ANALYSIS:	LYSIS		A	< 10	R 10-24	7	25 - 50	Š	20
STANDING SNAGS:	S:		v 0	< 10	10 - 24	7	25 - 50	^ 20	Q
DEADFALL / LOGS:	i,		9	5	10-24	7	25 - 50	\ \ \ \ \	ន
ABUNDANCE CODES:	ë		N = NONE	R = RARE		O = OCCASIONAL	ļ	A = ABUNDANT	
COMM. AGE:		PIONEER	R XYOUNG		MID-AGE	Ц	MATURE	OLD	E
SOH ANALYSIS	ir							5	
TEXTURE:			DEPTH TO	D MOTTL	DEPTH TO MOTTLES / GLEY	= 6	:	#J	
MOISTURE:			DEPTH OF ORGANICS:	F ORGAN	IICS:			၁)	(EE)
HOMOGENEOUS / VARIABLE	/ VAR	IABLE	DEPTH TO BEDROCK:) BEDRO	čĸ			၁)	(cm)
COMMUNITYCLASSIFICATION:	ASSI	ECAT	ION:						
COMMUNITY CLASS:	SS:						CODE: (ろり	
COMMUNITY SERIES:	IES:						CODE:	CAT	
ECOSITE:							CODE:	CMT)	
VEGETATION TYPE: EULEPEAN	ř: E	gon		octhor hicket	Bockthorn cultural thicket	bral	cope:	CUT1-	*
INCLUSION	Z.						cope:		
COMPLEX	×						CODE:		Γ
Notes:									

CLASSIFICATION		SITE			POLYGON: (2	ر ا
SCRIPTION SUBSTRATE (PEDTOR ORGANIC CLOUGTRINE EN WINEAL SOIL GROTOMAND CONTRINE EN TOWARD CONTRINE CONTRINE EN TOWARD CONTRINE	COMMUNITY	RVEYOR(S):		DATE:		UTME:
SUBSTRATE SUBSTRATE CORGANIC COCUSTRINE MINERAL SOIL CORGANIC CORGANIC COCUSTRINE	CLASSIFICATION STA	ART:	END		UTMZ:	UTMN:
SUBSTRATE RELIGIONE NO POGGRAPHIC RELIGIONE NO POGGRAPHIC CONCENSING NUMBERLA SOLI CONTRING NUMBERLA SOLI CONTRING NUMBERLA SOLI CONTRING NUMBERLA SOLI CONTRIBUTION OF CONTRI	POLYGON DESCR	RIPTION				
CORGANIC CACUETRINE MATURAL CALMINTON CALMINERLA SOIL COLTURAL CALMINER	SYSTEM	UBSTRATE	Security of		PLANT FORM	COMMUNITY
MANNEAL SOIL BOTTOMIANO CULTURAL FLOATING-TOO		ORGANIC	CACUSTRINE	M NATURAL	D PLANKTON	CAKE POND
PARENT MINI. PARE	_	MINERAL SOIL	BOTTOMICANO	CULTURAL	FLOATING-LVD.	RVER
Actor becok. Actor becok. Actor becok. Actor becok. Actor becok. Actor becok. Actor Ac		PARENT MIN.	VALLEY SLOPE			I MARSH
CARB BEDRY. CAUEF BOUNG CARB BEDRY. CAUCHEROUS	<u> </u>	ACIDIC BEDRK.	TABLELAND		I LICHEN	SWAMP
CARB BEDRY CHAUS CREWER CAVE ALVAR REACH BAR SAND DINE BLUFF TREED	٥	BASIC BEDRK.	Court		DECIDIOUS	
SR CAND DINE CORN COPEN		CARB. BEDRK.	CREWIE CAVE	COURT	CONFEROUS	BARREN
SR CANDONNE COPEN CANDONNE CHRUB CHUFF CANDONNE CANDON CANDONNE CA	216		ALVAR DOI	2		PRAIRIE
ER CANODONNE CONTROL	OPEN WATER		C ROCKLAND	COPEN	-	C SAVANNAH
U BLUFF X7 TREED	SHALLOW WATER		SAND DUNE	SHRUB		WOODLAND
	SURFICIAL DEF.		U BLUFF	⊈ TREED		PLANTATION
	SI PROPERTY INC.	- -	1000000	POPULATION OF DECEMBERSING DOMINANCE	CDEACING DON	HOMANIA

C BELIANCEA		X TREED	C PCANIA SION
STAND DESCRIPTION:	i i		
LAYER HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; = ABOUT EQUAL TO)	SING DOMINANCE HAN; = ABOUT EQUAL TO)
1 CANOPY 2	4	FRAX > TILAMER = PRUSERO = POPBALS = ULMAMER	POPBALS = ULMAMER
2 SUB-CANOPY 3	4	Soplings Eu. Buckthown	
3 UNDERSTOREY 4-5	4		
AYER		4 Garlic mustard, GERROBE Enight, PARINSE	night, PARINSE
HT CODES: 1= >25 m CVR CODES 0= NONE		2=10 <h7z25m 3="2<H7z40m" 4="1<H7z27m" 8="0.5<H1z1<br">1=0%<cvr 10%="" 2="10<CVR" 225%="" 260%<="" 3="25<CVR" td=""><td>4 CVR > 60%</td></cvr></h7z25m>	4 CVR > 60%
STAND COMPOSITION:			BA:
SIZE CLASS ANALYSIS:	ii	A <10 A 10-24 O	25.50 / >50
STANDING SNAGS:		O < 10 G 10-24 R	25 - 50 / > 50
DEADFALL / LOGS:		1	1.1
ABUNDANCE CODES:		N * NONE R * RARE O * OCCASIONAL	NAL A≖ABUNDANT
COMM. AGE:	PIONEER	YOUNG XMD-AGE	MATURE OLD GROWTH
SOIL ANALYSIS			
TEXTURE:		DEPTH TO MOTTLES / GLEY g=	<u>-</u> 5
MOISTURE:	٠.	DEPTH OF ORGANICS:	(cm)
HOMOGENEOUS / VARIABLE	RIABLE	DEPTH TO BEDROCK:	(cm)
COMMUNITYCLASSIFICATION:	IFICAL	ON:	
COMMUNITY CLASS:			coDE: ₹G
COMMUNITY SERIES:			CODE: FOD
ECOSITE:			CODE: FOD 7
VEGETATION TYPE:	Fresh-r Deciduous	noist Ash Lowland Forest	CODE: FOD 7-2
INCLUSION			code:
COMPLEX	-		CODE:
Notes:			

FIG	SITE 1650	165000631		POLYGON: (2	
COMMUNITY	URVE	1 10	DATE: 1.20	10 71	UTME
DESCRIPTION & CLASSIFICATION	TART	END	2000		UTIMN
POLYGON DESCRIPTION	SCRIPTION		1		
SYSTEM	SUBSTRATE	TOPOGRAPHIC	HISTORY	PLANT FORM	COMMUNITY
M TERRESTRIAL WETLAND AQUATIC	ORGANIC MINNERAL SOIL PARENT MIN. ACIDIC BEDRIK.	CLACUSTRINE CRIVERINE BOTTOMIAND TERRACE VALLEY SLOPE TABLELAND RELL UPLAND	MATURAL CULTURAL	PLANKTON SUBMERGED FLOATING-LVD GRAMINOID FORB LICHEN GRAMINOID LICHEN GRAMINOID RECEIVED	DUAKE POND STREER MARSH DOOD SWAMP
SITE OPEN WATER SHALLOW WATER SURFICIAL DEP		O TALLS CREVICE / CAVE CALLS CALVE C	COVER	CONFEROUS CONFEROUS MIXED	BAPREN MEADOW PRENTRE THICKET SAVANNAH WOODLAND POPEST PLANTATION
STAND DESCRIPTION	IPTION.	SPECIES	SPECIES IN ORDER OF DECREASING DOMINANCE	CREASING DO	
1 CANOPY		ACESASA >	ACESASA > ERAAMER	N DOINGEROOF	DO ECUME 10)
2 SUB-CANOPY	-	"	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1	2
3 UNDERSTOREY	3-4 3	•	" RH	RHACATH P	PRUVIUI
4 GRD. LAYER HT CODES: CVR CODES	5-7 4 1=>25 m 2=10cH	4 CONVALATION VE 14	4 (CONVOLOTIO SECTIFICATION = 0.2411.03 = 1.50411.25 = 1.50411.25 = 1.50411.25 = 1.50411.25 = 1.50511.03 = 1.	0 CHTs1m 6=0.2 <hts 60% 4= CVR > 60%</hts 	≤0.5 m 7 = HT<0.2 m
STAND COMPOSITION:	TION:				BA:
SIZE CLASS ANALYSIS	LYSIS:	A < 10	A 10-24	A 25-50	Ø
STANDING SNAGS: DEADFALL / LOGS:		2 2	5 5		\$ 8
ABUNDANCE CODES:	S: PIONEER	N = NONE · · · R	RARE 0=0C	D = DCCASIONAL A = A	A = ABUNDANT RE OLD
SOIL ANALYSIS					н
TEXTURE:		DEPTH TO MOTTLES / GLEY		= 6	<u>"</u>
MOISTURE:		DEPTH OF ORGANICS:	ANICS:		(ш)
HOMOGENEOUS / VARIABLE	/ VARIABLE	DEPTH TO BEDROCK:	ROCK:		(cm)
COMMUNITYCLASSIFICATION:	ASSIFICATION	N:			,
COMMUNITY CLASS:	:88:		ļ	CODE:	F10
COMMUNITY SERIES:	IES:			CODE:	FOD
ECOSITE:				CODE:	FOD5
VEGETATION TYPE: White A	Dry-f Ish D	itesh Suga	ar Maple Forest	CODE:	FoD5-8
INCLUSION	z			CODE:	
COMPLEX	×			CODE	

973				POLYGON: (2	22)
COMMUNITY	SURVEYOR(S):	22	DATE		UTME:
CLASSIFICATION	START.	END		UTMZ:	UTMN:
POLYGON DESCRIPTION	SCRIPTION	ı		-	
SYSTEM	SUBSTRATE	E TOPOGRAPHIC FEATURE	HISTORY	PLANTFORM	COMMUNITY
X TERRESTRIAL	ORGANIC		D NATURAL	PLANKTON	□□□ Power
AQUATIC	DARENT MIN.			CECAMINOID SEAMINOID	
				BRYOPHYTE	1000 1000
SILE:	C CARB. BEDRK		COVER	CONFEROUS MIXED	BARREN MMEADOW PRAIRIE
OPEN WATER SHALLOW WATER		BEACH / BAR	OPEN SHRUB		SAVANNAH WOODLAND
BEOROCK		LJ 6LUFF	M TREED		PLANTATION
STAND DESCRIPTION	PTION:				
LAYER	HT CVR		SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL	REASING DO	MINANCE SOUT EQUAL TO)
1 CANOPY	2 3	Salix >> 1	ACENEGU		
2 SUB-CANOPY	3 2	7	ORSTOL		Ţ
UNDERSTOREY		Can Bluejoin	4	Goldenroa	od Asters
H GRD. LAYER HT CODES: CVR CODES	1=>25 m 2=10 4=NONE 1=0%	## / / / / / / / / / / / / / / / / / /	// 4=14Hr2m 6=0.54Hr1m 6=0.24Hr0.5m7=HF<0.2m Rr.25% 1=15 <cvr.60% 4="CVR">60%</cvr.60%>	77 4Ts1 m 6 = 0.2<4Hs 80% 4= CVR > 80%	150.5 m 7 = HT<0.2 m
STAND COMPOSITION:	TION:				BA:
SIZE CLASS ANALYSIS	TASIS:	0 < 10	R 10-24	0 25-50	> 50
STANDING SNAGS:	35:	< 10	10 - 24	25 - 50	^ 20
DEADFALL / LOGS:	3S:	2	유	-24 7 25 - 50	50 × 50
ABUNDANCE CODES:	S:	N = NONE R	* KAKE O * CCC	15	aro oro
		-		-	GROWTH
SOIL ANALYSIS TEXTURE:	10	DEPTH TO MOTTLES / GLEY	TLES / GLEY 9	H	= <u>5</u>
MOISTURE:		DEPTH OF ORGANICS:	SANICS:		(cm)
HOMOGENEOUS / VARIABLE	/ VARIABLE	DEPTH TO BEDROCK:	ROCK:		(cm)
COMMUNITY CLASSIFICATION:	ASSIFICAT	:NOI:		CODE	(1)
				1000	
COMMUNITY SER	SERIES:			CODE:	3
FCOSIE.			200	T	-1
VEGETATION TYPE: C_{UC}	rPE: Willow Ju <i>ltural</i>	- Mahi Wood	topa riapie Lland	CODE	Cumi-4
NOTORION	NO.			CODE:	
X COMPLEX		culteral M	Meadow	CODE:	CUMI
Notes:					

3)	ОТМЕ	CTMN:		PLANT FORM COMMUNITY	Z.		STREAM MARSH	SWAMP	200	☐ BARREN		SAVANNAH	WOODLAND TO THE PROPERTY	PLANTATION
POLYGON: (23)	June 14.07	UTMZ:		PLANTFORM	PLANKTON	C FLOATING-LVD.	GRAMINOID	I CHEN	M DECIDIOUS	CONFEROUS				
	DATE: JUNE			HISTORY	M NATURAL	☐ CULTURAL				COVER	A TOTAL STREET	OPEN	□ SHRUB	M TREED
0063/	GAW	END		TOPOGRAPHIC FEATURE	LACUSTRINE	BOTTOMLAND	U TERRACE U VALLEY SLOPE	TABLELAND	CLIFF UPLAND	TALUS CREVICE / CAVE	O ALVAR	☐ BEACH / BAR	SAND DUNE	
FLC 16500063	SURVEYOR(S):	START	SCRIPTION	SUBSTRATE	ORGANIC	MINERAL SOIL	☐ PARENT MIN.	☐ ACIDIC BEDRK.	BASIC BEDRK.	CARB. BEDRK		-		
	COMMUNITY	CLASSIFICATION START	POLYGON DESCRIPTION	SYSTEM	X TERRESTRIAL	□ WETLAND	- Aguatic			SITE		OPEN WATER	SHALLOW WATER	D BEDROCK

STAND DESCRIPTION	PTIO	ż	
LAYER	H	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1 CANOPY	7	Ч	Salx > FRAPENN = ACENEGU > POPBALS
2 SUB-CANOPY	3	4	ACENEGU = EU BUCKTHOUN
3 UNDERSTOREY	4-5	ħ	, , , , , , , , , , , , , , , , , , , ,
4 GRD. LAYER	6-7		4 Stinging ruffle Garlie Most Calandine, Dames Rogle
HT CODES: CVR CODES	1 # >25 m		2 = 100H7425 gJ 3 = \$4H7410 M 44 10H72 M 8 = 0.50H74 M 6 = 0.20H7.05 M 7 = H7-0.2 M 1= 0% < CVR 1 10% 2= 10 < CVR 1,25% 3= 25 < CVR 1,60% 4= CVR 2,60%
STAND COMPOSITION:	TION:		BA:
SIZE CLASS ANALYSIS	LYSIS:		A <10 A 10-24 C 25-50 R >50
STANDING SNAGS:	ö		0 < 10 0 10.24 7 25.50 1 > 50
DEADFALL / LOGS:	iii		A <10 0 10-24 0 25-50 >50
ABUNDANCE CODES:	يرا		N = NONE . R = RARE O = OCCASIONAL A = ABUNDANT
COMM. AGE:		PIONEER	IR YOUNG MID-AGE MATURE OLD GROWTH
SOIL ANALYSIS			
TEXTURE:			DEPTH TO MOTTLES / GLEY g = G=
MOISTURE:			DEPTH OF ORGANICS: (cm)
HOMOGENEOUS / VARIABLE	/ VAR	IABLE	DEPTH TO BEDROCK: (cm)
COMMUNITYCLASSIFICATION:	ASSIE	ECATI	ON:
COMMUNITY CLASS:	SS:		CODE: FO
COMMUNITY SERIES:	IES:		CODE: FOD
ECOSITE;			CODE: FCD_
Manifeba Maple Lowland	F. F.	esh.	Willow - Ash - cope: +
INCLUSION	N		CODE:
COMPLEX	Ų	L	CODE:

ı	SITE	,		POLYGON: (24	·
COMMUNITY	SURVEYOR(S).		DATE)]	OTME:
DESCRIPTION & START.	START:	END		UTMZ:	UTMN:
POLYGON DESCRIPTION	SCRIPTION			-	
SYSTEM	SYSTEM SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	BLANT FORM	REANT FORM COMMUNITY
X TERRESTRIAL	ORGANIC	뷫	A NATURAL	PLANKTON	☐ LAKE
() WETLAND	MINERAL SOIL	BOTTONCAND	□ curtuRAL	U SUBMERGED	Power C
□ AQUATIC	PARENT MIN.	O TERRACE		GRAMINOID	☐ STREAM
	ACIDIC BEDRK	TABLELAND			SWAMP
	☐ BASIC BEDRK.	S ROLL UPLAND		DECIDIOUS	
建筑器 医多数形式	CARR BEDRE	☐ TALUS		CONFEROUS	O BARREN
SILE		O CREVICE / CAVE	COVER	MIXED	D PRAIRIE
CONTRACTOR OF STATE O		ROCKLAND	1000		THICKET
C OPEN WATER	•	EACH / BAR	Na Po		SAVANNAH
SURFICIAL DEP.		C SAND DONE	C) SHRUB		FOREST
☐ BEDROCK			S TREED		PLANTATION

	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO	THUCCCI > ACERUBR = ULMAMER = FRAPENN	Spolings RHACATH	`	3 Tall Rue Sectling, garlic mustond enverse secretarism = 18 prosenting no enverse enverse con second secon	, v C	O.Y.	A < 10 A 10-24 O 25-50 > 50	0 < 10 0 10-24 0 25-50 > 50	A <10 0 10.24 R 25-50 / >50	N=NONE . R = RARE O = OCCASIONAL A = ABUNDANT	YOUNG MID-AGE MATURE OLD	DEPTH TO MOTTLES / GLEY G = G=	DEPTH OF ORGANICS: (cm)	DEРТН ТО ВЕDROCK: (cm)		CODE: FO	CODE: FOM	CODE: FOM7-	moist while cedar-cobe.	CODE:	CODE:
STAND DESCRIPTION:	LAYER HT CVR	7	3	3 UNDERSTOREY 4-5 3	1=>25 m	.	STAND COMPOSITION:	SIZE CLASS ANALÝSIS:	STANDING SNAGS:	DEADFALL / LOGS:	ABUNDANCE CODES:	COMM. AGE: PIONEER	SOIL ANALYSIS.	MOISTURE:	HOMOGENEOUS / VARIABLE	COMMUNITYCLASSIFICATION:	COMMUNITY CLASS:	COMMUNITY SERIES:	ECOSITE:	VEGETATION TYPE: Fresh-moist	INCLUSION	COMPLEX

	SITE: 1650	16500063		POLYGON: Q	(io
COMMUNITY	SURV	SAW	DATE: JULY		UTME:
ASSIFICATION	START:	END		TTMZ	UTMN:
POLYGON DESCRIPTION	SCRIPTION				
SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
X TERRESTRIAL □ WETLAND □ AQUATIC	ORGANIC MINERAL SOIL PARENT MIN. ACIDIC BEDRK.	CACUSTRINE REFRINE REFRICE REFRACE VALLEY SLOPE TABLELAND ROLL. UPLAND	MATURAL CULTURAL	D PLANKTON D SUBMERGED C FLOATING-LVD. G GRAMINOID C FORB	LAKE POND RIVER WARSH SWAMP DEGN
SUE OPEN WATER SHALLOW WATER SURFICAL DEP.	CARB, BEDRK.	TALUS CREVICE / CAVE ALVAR ROCKLAND BEACH / BAR SAND DUNE	COVER OPEN	CONFEROUS	BARREN MEDDOW D MEDDOW D PRAIRE THICKET SAVANNAH WOODULAND PLANTATION
STAND DESCRIPTION	PTION				
LAYER	HT CVR	SPECIES II	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)	CREASING DOI	MINANCE DUT EQUAL TO)
CANOPY		Norway Spru	Spruce > JUGNIGR		ZFRAAMER
1	1_	RHUTYPH =	ACENEGO		
HT CODES:	1=>25 m 2=10cHT	1 0/1908/58 (100/14/14/04/04) 2-104/1558 3-244/100 4-144/126 240/14/14 6-024/1658 7-14/402m 1-104-0/R-104 2-104-0/R-28 3-25-0/R-104 4-0/R-104	16.11.1000 A 0.5.411.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	15/C/5 <histm 6="0.2<His<br"><60% 4= CVR > 60%</histm>	.0.5 m 7 ≈ HT<0.2 m
STAND COMPOSITION:	TION:				BA:
SIZE CLASS ANALYSIS	LYSIS:	A < 10	A 10-24	Ø 25-50	> 50
STANDING SNAGS:	isi	O < 10	0 10.24	25 - 50	8 8
ABUNDANCE CODES;	i	NONE . R	- •	O = OCCASIONAL A = A	
COMM. AGE:	PIONEER	XYOUNG	MID-AGE	MATURE	OLD GROWTH
SOIL ANALYSIS Texture:		DEPTH TO MOTTLES / GLEY	rLES / GLEY	= 0	ď
MOISTURE:		DEPTH OF ORGANICS:	ANICS:		(cm)
HOMOGENEOUS / VARIABLE	/ VARIABLE	DEPTH TO BEDROCK:	30CK:		(cm)
MMUNITYCL	COMMUNITYCLASSIFICATION:	N.		l (
COMMUNITY CLASS:	SS:				51
COMMUNITY SERIES	IES:				FOM
ECOSITE:	- 1			CODE:	FOM9 *
VEGETATION TYPE:	F. Novicay	Spruce -	Hardwood	CODE	FOM9.2*
	Ш				

FIRE SITE	SITE			POLY	POLYGON: (26	
COMMUNICA	SURVEYOR(S):		DATE			UTME:
CLASSIDEATIONS S	START:	END		UTMZ	- 2	UTMN;
POLYGON DESCRIPTION	CRIPTION		. 1			
SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY		PLANT FORM	COMMUNITY
M TERRESTRIAL ☐ WETLAND ☐ AQUATIC	ORGANIC MINERAL SOIL PARENT MIN. ACIDIC BEDRIC BASIC BEDRIC.	DI LACUSTRINE DI RIVERINE DI BOTTOMILAND OTERRACE OT VALLEY SLOPE OTABLELAND CLIFF CLIFF CLIFF	□ NATURAL CULTURAL	<u> </u>	PLANKTON SUBMERGED FLOATING-LVO GRAMINOID FORB LICHEN BRYOPHYTE DECKLOUS	COLAKE COND STREAM CONMARSH COMMARSH CONMARSH CO
311E	CARB. BEDRK.	TALUS CREVICE / CAVE	COVER		ED ED	D BARREN D MEADOW
OPEN WATER SHALLOW WATER SURFICIAL DEP. BEOROCK		C ROCKLAND BEACH / BAR SAND DUNE C BLUFF	OPEN SHRUB			SAVANNAH SAVANNAH WOODILAND FOREST PLANTATION
STAND DESCRIPTION	PTION:					
LAYER	HT CVR	SPECIES IN ORDER (>> MUCH GREATER THAN;	SPECIES IN ORDER OF DECREASING DOMINANCE UCH GREATER THAN; * GREATER THAN; * ABOUT EQUAL	F DECRE	ASING DOI THAN; = AB(MINANCE SUT EQUAL TO)
1 CANOPY	7 4 6	Scotch Ane	6			
2 SUB-CANOPY	3 2	FRAMMER				
3 UNDERSTOREY	4-5 4	"	Ev Bug	noul		
4 GRD. LAYER HT CODES:	6-7 4 Seed 11-525 m 3-10-41-25	1 Seedling (01000 0000 0000 0000 0000 0000 0000 0000 0000	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	10 0224TX0.50	00 0.5 m 7 = HT<0.2 m
STAND COMPOSITION:	.	1				BA:
SIZE CLASS ANALYSIS	LYSIS:	4 < 10	A 10-	24 A	25 - 50	^ \$00
STANDING SNAGS:	S:	0 < 10	0 10-24	22	25 - 50) ^ 500
DEADFALL / LOGS:	S	e [']	읟	24	25	2 × 50
ABUNDANCE CODES:		PIONEER XOUNG	WID-		L'RE	OLD GROWTH
SOIL ANALYSIS						-
TEXTURE:		DEPTH TO MOTTLES / GLEY	TLES / GLE	<u>.</u> 6		<u>.</u>
MOISTURE:	Т	DEPTH OF ORGANICS:	ANICS:			(cm)
HOMOGENEOUS / VARIABLE		DEPTH TO BEDROCK:	ROCK:			(cm)
COMMUNITYCLASSIFICATION: COMMUNITY CLASS:	ASSIFICATION SS:	ž			CODE:	0.0
COMMUNITY SERIES:	IES:				CODE: (CUP
ECOSITE:					CODE:	CUP3
VEGETATION TYPE:	e: Scotol	Ane Cor Pantation	Conferou	Sc	CODE: (CUP3-3
INCLUSION	z				CODE:	
COMPLEX	×				CODE:	

			•	
S E E	SITE 165000631		POLYGON: (27	
COMMUNITY DESCRIPTION &	SURVEYOR(S): GAW	DATE: UU	ne 14.07	UTME:
CLASSIFICATION	START		UTMZ:	UTMN:
NOITGIA SEG MOSK IOG	MOITGIGO	· 		

-3

SYSTEM	SYSTEM SUBSTRATE TOPOGRAPHIC FEATURE	TOPOGRAPHIC FEATURE		PLANTFORM	HISTORY PLANT FORM COMMUNITY
X TERRESTRIAL	O ORGANIC	LACUSTRINE	MNATURAL	PLANKTON	Z. Z. Z.
☐ WETLAND	MINERAL SOIL	LI RIVERINE	D CULTURAL	SUBMERGED TO FLOATING-LVD.	Pose Rivers
☐ AQUATIC	PARENT MIN.	TERRACE		GRAMINOID	U STREAM
	☐ ACIDIC BEDRK.	TABLELAND	•		SWAMP
	BASIC BEDRIK.	CLIFF UPLAND		U BRYOPHYTE	¥ 8 □□
<u>0</u>	CARB. BEDRIK	TALUS CAVE	COVED	CONIFEROUS	☐ BARREN ☐ MEADOW
		O ALVAR			PRAIRIE
OPEN WATER		U ROCKLAND I REACH / BAR	Oopen		U THICKET
SHALLOW WATER		SAND DUNE	□ sHRUB		WOODLAND
☐ BEDROCK			X TREED		PLANTATION

n	とうこと ひじり ひとく こく	2	_								
L	LAYER	Ħ	CVR		SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO	IN ORC	ER OF DI	ECRE/	SING DC	MINAN SOUT EQ	GE UAL TO
-	CANOPY	2	7	THUOCC!	Joc/						
2	SUB-CANOPY	3	h	JH1	THUCCCI						
m	UNDERSTOREY	4.5	7	JHC.	MUCCCI >	FR	>FRAAMER > E. Bickthorn	^ ∝	E. Ruc	17	3rh
4	AYER	6-7	-	ا القراد	Mes	ard	Seedli	Ca		-	
등 글	HT CODES: CVR CODES	1 = >25 m 0= NONE	ı	cHTs25 m 3 cVR s 109	2 = 10cHTs25 m 3 = 2cHTs10 m 4 = 1 cH 1= 0% < CVR s 10% 2= 10 < CVR s 25%	R . 25%	1:2m 8 = 0.5 3= 25 < CVR < 80%	54T<1.	m 6 = 0.2 <hts 4= CVR > 60%</hts 	Ts0.5 m 7	■ HT<0.2 m
S	STAND COMPOSITION:	HOIF								.: ::	
12	SIZE CLASS ANALYSIS:	LYSIS:		0	< 10	A	10 - 24	0	25 - 50	\square	> 50
12	STANDING SNAGS	iş;		0	× 10	0	10 - 24	B	25 50		> 50
님	DEADFALL / LOGS:	ij		С	× 10 ×	0	10 - 24	C	25 - 50	\	> 50
2	ABUNDANCE CODES:	ë		N= NONE		. R = RARE	0=0	O = OCCASIONAL		A = ABUNDANT	TN
181	COMM. AGE:		PIONEER		YOUNG	Ź	MID-AGE		MATURE		OLD
~	SOIL ANALYSIS	من								य	
l H	TEXTURE:			DEPT	DEPTH TO MOTTLES / GLEY	TLES /	GLEY	# 6		ng H	
¥	MOISTURE:			DEPT	DEPTH OF ORGANICS:	ANICS				·	(cm)
+	HOMOGENEOUS / VARIABLE	/ VAR	IABLE	П	DEPTH TO BEDROCK:	ROCK					(cm)
-81	COMMUNITY CLASSIFICATION:	ASSIF	ECAT.	:NOI							
К	COMMUNITY CLASS:	SS:					: 		CODE:	2	
18	COMMUNITY SERIES:	IES:							CODE:	η Ω	
ျှ	ECOSITE:								cope:	FOC 2	7
THE .	VEGETATION TYPE: D	1 3	7 5 0	Dry-fresh	white		Cedar		cope: +	$\frac{1}{2}$	F0C2-2
	INCTOSION	z	<u> </u>					_	CODE:		
	COMPLEX	×						ř	CODE:		

ELC	SITE			POLYGON: (28)	(F)
COMMUNIC	SURVEYOR(S):		DATE		UTME:
CLASSIFICATION START	START:	END		UTMZ:	UTMN:
POLYGON DESCRIPTION	CRIPTION				
SYSTEM	SYSTEM SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
X TERRESTRIAL	ORGANIC	LACUSTRINE	K NATURAL	PLANKTON	O LAKE
☐ WETLAND	X MINERAL SOIL	C RIVERINE	□ CULTÜRAL	U SUBMERGED FLOATING-LVD.	C PONE RIVER
☐ AQUATIC	PARENT MIN.	TERRACE		C GRAMINOID	STREAM MARSH
	ACIDIC BEDRK	TABLELAND		CICHEN	SWAMP
	BASIC BEDRK.	ROLL UPLAND		S DECIDIOUS	
William Seed on Property	CARB. BEDRK.	TALUS		CONFEROUS	D BARREN
SITE		O ALVAR	COVER	U WIXED	PRAIRIE
OPEN WATER		L ROCKLAND BEACH / BAR	OPEN		☐ SAVANNAH
SHALLOW WATER		SAND DUNE	□ SHRUB		WOODLAND SEST
☐ BEDROCK			M TREED		PLANTATION

STAND DESCRIPTION	OLL	ż		
LAYER	불	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)	ASING DOMINANCE HAN; # ABOUT EQUAL TO)
1 CANOPY	7	4	ACENEGU > POPBALS > FRAX	?AX
2 SUB-CANOPY	60	7	<i>u</i>	Eu. Buckthorn
3 UNDERSTOREY 4-5	4-5	+	ACENEGO FRAX EV. Buckflown	l'ern
4 GRD. LAYER	1-9		4 Seedlings, Gardic must PAI	
HT CODES: CVR CODES	1 = >25 m 9= NONE		1=10cHTs25 m 3=2cfTs10 m 4=1cHTs2 m 6=0.5cHTs1 1=0% < CVR s 10% 2=10 < CVR s 25% 3=25 < CVR s 60%	m 6 = 0.2 <hts0.5 7="HT<0.2" m="" m<br="">4= CVR > 60%</hts0.5>
STAND COMPOSITION:	:NOIL!			BA:
SIZE CLASS ANALYSIS:	LYSIS		A <10 A 10-24 C	25-50 / >50
STANDING SNAGS:	ij		0 < 10 10-24	25 - 50 > 50
DEADFALL / LOGS:	iš		A <10 0 10-24	25 - 50 > 50
ABUNDANCE CODES:	ij		N = NONE R = RARE O = OCCASIONAL	NAL A = ABUNDANT
COMM. AGE:		PIONEER	R YOUNG MID-AGE	MATURE OLD GROWTH
SOIL ANALYSIS	in			
TEXTURE:			DEPTH TO MOTTLES / GLEY 9 =	= 9
MOISTURE:		-	DEPTH OF ORGANICS:	(ш)
HOMOGENEOUS / VARIABLE	/ VAF	NABLE	DEPTH TO BEDROCK:	(сш)
COMMUNITYCLASSIFICATION:	ASSI	FICATI	ON:	
COMMUNITY CLASS:	SS:			code: FC
COMMUNITY SERIES:	IES:			соре: FOD
ECOSITE:				CODE: FCD10*
VEGETATION TYPE:	ij	resh	Fresh-moist Maniteba Haple-	CODE: FOLLOW

The second secon					POLYGON:	(30)
COMMUNITY	SURVEYOR(S)	(S)		DATE:		OTME:
CLASSIFICATION START.	START:		END		UTMZ:	UTMN:
POLYGON DESCRIPTION	CRIPTION	z				
SYSTEM	SUBSTR	ATE.	TOPOGRAPHIC FEATURE	HISTORY	PLANTFORM	COMMUNITY
TERRESTRIAL NVFTI AND	ORGANIC MINERAL SOIL	ğ	O LACUSTRINE	M NATURAL □ CULTURAL	D PLANKTON	POND POND POND
AQUATIC	PARENT MIN.	Ž	TERRACE Valley 81 OP		CRAMINOID MEDIA	STREAM
	ACIDIC BEDRK	DRK.	O TABLELAND		CLICHEN CI BRYOPHYTE	☐ SWAMP ☐ FEN
	D BASIC BEDRK	ž š	Culff TALUS	A CONTRACTOR OF THE PARTY OF TH	Coniferous	□ Bog □ BARRÊN
SILE		Ė	CREVICE / CAVE	COVER	□ MIXED	☐ MEADOW ☐ PRAIRIE
OPEN WATER			ROCKLAND	K OPEN		O SAVANNAH
SHALLOW WATER SQ SURFICIAL DEP				SHRUB		☐ WOODLAND
BEDROCK				☐ TREED		PLANTATION
STAND DESCRIPTION:	IPTION:					
LAYER	HT CVR	Œ	SPECIES II (>> MUCH GREAT	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)	CREASING DON	MINANCE OUT EQUAL TO)
1 CANOPY	4	-	Reed Canary	,		
2 SUB-CANOPY	7	-	. "			
3 UNDERSTOREY	7		Sp. Joe Dyewseed	ed lewelweed		ONOSEINS
4 GRD. LAYER	7 1	-	/ 1	,	•	"
HT CODES:	1 = >25 m 2 = 0= NONE 1=	10cH	2=10 4 17 <u>435 m 3=24ff.10 m 4=14ff.2m 6=0.54ff.1m 6=0.24ff.0.5</u> m 7=HT<0.2 m 1=0% < CVR , 10% 2=10 < CVR , 28% 3=25 < CVR , 60% 4= CVR > 60%	4 = 1 < H < 2 m 6 = 0.5 2 < 25% 3 = 25 < CVR :	CHTs1m 6 = 0.2 <hts< p=""> c 60% 4 = CVR > 60%</hts<>	<u>.6.5 m 7 = HT<0.2 m</u>

SITE

STAND DESCRIPTION	IPTIO	×		
LAYER	Ŧ	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)	ING DOMINANCE AN; = ABOUT EQUAL TO)
1 CANOPY	7	3	FRANIGR > BETPAPY > ACERRUBR	ERRUBR
2 SUB-CANOPY	3	4	Glossy Buckthown	
3 UNDERSTOREY	5-4	7	SYGSENS	SOLRUGO talline
4 GRD. LAYER	1-9	1	4 ONOSENS Lady Fern Reld !	
HT CODES: CVR CODES	1 = >25 m 0= NONE		2=10 <h7;25 3="2<H7;10" 4="1<H7;2" 5="0.5<H2;1" m="" m<br="">1=0% < CVR : 10% 2=10 < CVR : 25% 3=25 < CVR : 60% 4=</h7;25>	6 = 0.24H s0.5 m 7 = HT<0.2 m 4= CVR > 60%
STAND COMPOSITION:	HON			BA:
SIZE CLASS ANALYSIS:	LYSIS		A <10 A 10-24 O 3	25-50 / >50
STANDING SNAGS:	ij		O < 10 R 10-24	25 - 50 > 50
DEADFALL / LOGS:	S:		0 <10 0 10-24	
ABUNDANCE CODES:	ii.		N = NONE . R = RARE O = OCCASIONAL	L A = ABUNDANT
COMM. AGE:		PIONEER	YOUNG MID-AGE	MATURE OLD GROWTH
SOIL ANALYSIS:				
TEXTURE:			DEPTH TO MOTTLES / GLEY g =	ΞĐ
MOISTURE:			DEPTH OF ORGANICS:	(cm)
HOMOGENEOUS / VARIABLE	/ VAR	IABLE	DEPTH TO BEDROCK:	(cm)
COMMUNITYCLASSIFICATION:	ASSI	ICAI	ON:	
COMMUNITY CLASS:	SS:		35	CODE: SW
COMMUNITY SERIES:	IES:		33	CODE: SWD
ECOSITE:			33	CODE: SWD2
VEGETATION TYPE: Bivch Dec	E 8	PE: Black A Deciduous	Black Ash - Red Maple - White cobesidences Swamp	5
INCLUSION	z		33	CODE:
COMPLEX	×	_	00	CODE:
Notae.				

SOIL ANALYSIS: TEXTURE:

STAND COMPOSITION:

MAM2-

Mineral

ECOSITE: Mixed

COMMUNITYCLASSIFICATION: COMMUNITY CLASS: COMMUNITY SERIES: TERRESTRIAL ECOSYSTEMS EXISTING CONDITIONS REPORT HIGHWAY 6 (HANLON EXPRESSWAY) IMPROVEMENTS, GUELPH (GWP 3002-05-00)
DECEMBER 2007 (UPDATED MAY 2009)



APPENDIX C

WILD LIFE LIST FROM BACKGROUND SOURCES

COMMON NAME	SCIENTIFIC NAME	ONTARIO STATUS	GLOBAL	COSSARO	COSEWIC	REGION	AREA	COMMENTS
BUTTERFLIES								
European Skipper	Thymelicus lineola	SE	G5					Stantec
Cabbage White	Pieris rapae	SE	G5					Stantec
Orange Sulphur	Colias eurytheme	SS	G5					Stantec
Northern Crescent	Phycoides pascoensis	SS	G5					Stantec
Red Admiral	Vanessa atalanta	SZB	G5					Stantec
Common Ringlet	Coenonympha tullia	SS	G5					Stantec
Monarch	Danaus plexippus	S4	G4	NIAC	SC			Stantec
AMPHIBIANS								
Mudpuby	Necturus maculosus	S4	G5	NIAC	NAR		10	OHSA
Red-spotted Newt	Notophthalmus viridescens	SS	G5T5					OHSA
Blue-spotted Salamander	Ambystoma laterale	S4	G5					OHSA
Jefferson Salamander	Ambystoma jeffersonianum	S2	G5	THR	THR	9		OHSA / MNR
Spotted Salamander	Ambystoma maculatum	S4	G5					OHSA
Four-toed Salamander	Hemidactylium scutatum	S4	G5	NIAC	NAR			OHSA
Northern Redback Salamander	Plethodon cinereus	SS	G5					OHSA
American Toad	Bufo americanus	SS	G5					OHSA
Tetraploid Gray Treefrog	Hyla versicolor	SS	G5					OHSA
Western Chorus Frog	Pseudacris triseriata	S4	G5		NAR			OHSA
Spring Peeper	Pseudacris crucifer	SS	G5					OHSA
Bullfrog	Rana catesbeiana	S4	G5				1	OHSA
Northern Green Frog	Rana clamitans	S5	G5					Stantec
Pickerel Frog	Rana palustris	S4	G5	NIAC	NAR			OHSA
Wood Frog	Rana sylvatica	S5	G5					OHSA
Northern Leopard Frog	Rana pipiens	S5	G5	NIAC	NAR			Stantec
Mink Frog	Rana septentrionalis	SS	G5					OHSA
REPTILES								
Snapping Turtle	Chelydra serpentina	SS	G5					OHSA
Midland Painted Turtle	Chrysemys picta marginata	SS	G5T5					OHSA
Common Map Turtle	Graptemys geographica	S3	G5	SC	SC		30-20	OHSA
Blanding's Turtle	Emydoidea blandingi	S3?	G4	THR				OHSA
Eastern Gartersnake	Thamnophis sirtalis	SS	G5					OHSA
Ribbon Snake	Thamnophis sauritus	S3	G5	SC	SC			OHSA
Northern Watersnake	Nerodia sipedon sipedon	SS	G5T5		NAR		1	OHSA
Queen Snake	Regina septemvittata	S2	G5	THR	THR	9		OHSA
Redbelly Snake	Storeria occipitomaculata	S5	G5					OHSA

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COMMON NAME	SCIENTIFIC NAME	ONTARIO	GLOBAL	COSSARO	COSEWIC	REGION	AREA	COMMENTS
Brown Snake	Storeria dekayi	S5	G5		NAR			OHSA
Smooth Greensnake	Opheodrys vernalis	S4	G5					OHSA
Ringneck Snake	Diadophis punctatus	S4	G5			7		OHSA
Eastern Milksnake	Lampropeltis triangulum	S3	G5	SC	SC			OHSA / MNR
BIRDS								
Canada Goose	Branta canadensis	S5	G5					OBBA
Wood Duck	Aix sponsa	S5	G5					OBBA
American Black Duck	Anas rubripes	S5	G2					OBBA
Mallard	Anas platyrhynchos	S5	G2					Stantec
Ruffed Grouse	Bonasa umbellus	S5	G5				25	OBBA
Wild Turkey	Meleagris gallopava	S4	G5					OBBA
Pied-billed Grebe	Podilymbus podiceps	S4	G2					OBBA
American Bittern	Botaurus lentiginosus	S4	G4				10	OBBA
Great Blue Heron	Ardea herodias	S5	G2					OBBA
Green Heron	Butorides virescens	S4	G5					OBBA
Turkey Vulture	Cathartes aura	S4	G5					OBBA
Osprey	Pandion haliaetus	S4	G5			2		OBBA
Sharp-shinned Hawk	Accipiter striatus	S5	G5	NIAC	NAR		30	Stantec
Cooper's Hawk	Accipiter cooperii	S4	G5	NIAC	NAR		4-20+	OBBA
Broad-winged Hawk	Buteo platypterus	S5	G5				100	OBBA
Red-tailed Hawk	Buteo jamaicensis	S5	G5	NIAC	NAR			Stantec
American Kestrel	Falco sparverius	S5	G5					OBBA
Virginia Rail	Rallus limicola	S4	G5					OBBA
Sora	Porzana carolina	S4	G5					OBBA
Killdeer	Charadrius vociferus	S5	G5					OBBA
Spotted Sandpiper	Actitis macularia	S5	G2					OBBA
Wilson's Snipe	Gallinago delicata	S5	G2					OBBA
American Woodcock	Scolopax minor	S5	G5					OBBA
Ring-billed Gull	Larus delawarensis	S5	G5					OBBA
Caspian Tern	Sterna caspia	S3	G 2	NAR	NAR			OBBA
Rock Pigeon	Columba livia	SE	G5					OBBA
Mourning Dove	Zenaida macroura	S5	G5					OBBA
Black-billed Cuckoo	Coccyzus erythropthalmus	S4	G2					OBBA
Yellow-billed Cuckoo	Coccyzus americanus	S4	G5					OBBA
Eastern Screech-Owl	Megascops asio	S5	G5		NAR			OBBA
Great Horned Owl	Bubo virginianus	S5	G5					OBBA
Long-eared Owl	Asio otus	S4	G5					OBBA
Common Nighthawk	Chordeiles minor	S4	G5		THR			OBBA

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COMMON NAME	SCIENTIFIC NAME	ONTARIO	GLOBAL	COSSARO	COSEWIC	REGION	AREA	COMMENTS
Chimney Swift	Chaetura pelagica	S5	G5		THR			OBBA
Ruby-throated Hummingbird	Archilochus colubris	SS	G5					OBBA
Belted Kingfisher	Ceryle alcyon	S5	G5					OBBA
Red-headed Woodpecker	Melanerpes erythrocephalus	S3	G5	SC	THR			OBBA
Red-bellied Woodpecker	Melanerpes carolinus	S4	G5					OBBA
Downy Woodpecker	Picoides pubescens	S5	G5					OBBA
Hairy Woodpecker	Picoides villosus	SS	G5				10	OBBA
Northern Flicker	Colaptes auratus	S5	G5					OBBA
Pileated Woodpecker	Dryocopus pileatus	S4S5	G5				30-20	OBBA
Eastern Wood-Pewee	Contopus virens	S5	G5					Stantec
Acadian Flycatcher	Empidonax virescens	S2	G5	END	END		30	OBBA
Alder Flycatcher	Empidonax alnorum	SS	G5					OBBA
Willow Flycatcher	Empidonax traillii	S5	G5					OBBA
Least Flycatcher	Empidonax minimus	S5	G5					OBBA
Eastern Phoebe	Sayornis phoebe	S5	G5					OBBA
Great Crested Flycatcher	Myiarchus crinitus	S5	G5					OBBA
Eastern Kingbird	Tyrannus tyrannus	SS	G5					Stantec
Blue-headed Vireo	Vireo solitarius	S5	G5			2'9	100	OBBA
Warbling Vireo	Vireo gilvus	SS	G5					OBBA
Red-eyed Vireo	Vireo olivaceus	SS	G5					OBBA
Blue Jay	Cyanocitta cristata	S5	G5					Stantec
American Crow	Corvus brachyrhynchos	S5	G5					Stantec
Horned Lark	Eremophila alpestris	S5	G5					OBBA
Tree Swallow	Tachycineta bicolor	S5	G5					OBBA
Northern Rough-winged Swallow	Stelgidopteryx serripennis	SS	G5					OBBA
Bank Swallow	Riparia riparia	S5	G5					OBBA
Cliff Swallow	Hirundo pyrrhonota	SS	G5					OBBA
Barn Swallow	Hirundo rustica	S5	G5					OBBA
Black-capped Chickadee	Poecile atricapilla	SS	G5					OBBA
Red-breasted Nuthatch	Sitta canadensis	S5	G5				10	OBBA
White-breasted Nuthatch	Sitta carolinensis	SS	G5				10	10 OBBA
Brown Creeper	Certhia americana	SS	G5				30	30 OBBA
House Wren	Troglodytes aedon	SS	G5					OBBA
Winter Wren	Troglodytes troglodytes	S5	G5				30	OBBA
Sedge Wren	Cistothorus platensis	S4	G5		NAR			OBBA
Marsh Wren	Cistothorus palustris	SS	G5					OBBA
Eastern Bluebird	Sialia sialis	S4S5	G5	NIAC	NAR			OBBA
Veery	Catharus fuscescens	S4	G5				10	10 OBBA
Wood Thrush	Hylocichla mustelina	S5	G5				4	4 OBBA

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COMMON NAME	SCIENTIFIC NAME	ONTARIO STATUS	GLOBAL STATUS COSSARO	COSEWIC	REGION	AREA	COMMENTS
American Robin	Turdus migratorius	S5	G5				Stantec
Gray Catbird	Dumetella carolinensis	S5	G5				OBBA
Northern Mockingbird	Mimus polyglottos	S4	G5				OBBA
Brown Thrasher	Toxostoma rufum	SS	G5				OBBA
European Starling	Sturnus vulgaris	SE	G5				Stantec
Cedar Waxwing	Bombycilla cedrorum	S5	G5				OBBA
Blue-winged Warbler	Vermivora pinus	S4	G5				OBBA
Golden-winged Warbler	Vermivora chrysoptera	S4	G4	THR			OBBA
Nashville Warbler	Vermivora ruficapilla	SS	G5				OBBA
Yellow Warbler	Dendroica petechia	SS	G5				OBBA
Chestnut-sided Warbler	Dendroica pensylvanica	SS	G5				OBBA
Yellow-rumped Warbler	Dendroica coronata	SS	G5			7	30 OBBA
Black-throated Green Warbler	Dendroica virens	S5	G5			3	30 OBBA
Pine Warbler	Dendroica pinus	S5	G5			3	30 OBBA
Black-and-white Warbler	Mniotilta varia	S5	G5			10	100 OBBA
American Redstart	Setophaga ruticilla	S5	G5			3	30 OBBA
Ovenbird	Seiurus aurocapilla	S5	G5			2	20 OBBA
Northern Waterthrush	Seiurus noveboracensis	S5	G5			2	20 OBBA
Mourning Warbler	Oporornis philadelphia	S5	G5			3	30 OBBA
Common Yellowthroat	Geothlypis trichas	S5	G5				OBBA
Scarlet Tanager	Piranga olivacea	S5	G5			3	30 OBBA
Eastern Towhee	Pipilo erythrophthalmus	S4	G5				OBBA
Chipping Sparrow	Spizella passerina	S5	G5				OBBA
Clay-colored Sparrow	Spizella pallida	S4	G5			7	OBBA
Field Sparrow	Spizella pusilla	S5	G5				Stantec
Vesper Sparrow	Pooecetes gramineus	S4	G5				OBBA
Savannah Sparrow	Passerculus sandwichensis	S5	G5				OBBA
Grasshopper Sparrow	Ammodramus savannarum	S4	G5				OBBA
Song Sparrow	Melospiza melodia	S5	G5				Stantec
Swamp Sparrow	Melospiza georgiana	S5	G5				OBBA
White-throated Sparrow	Zonotrichia albicollis	SS	G5			2	20 OBBA
Northern Cardinal	Cardinalis cardinalis	SS	G5				OBBA
Rose-breasted Grosbeak	Pheucticus Iudovicianus	S5	G5				OBBA
Indigo Bunting	Passerina cyanea	S5	G5				OBBA
Bobolink	Dolichonyx oryzivorus	S4	G5				10 OBBA
Red-winged Blackbird	Agelaius phoeniceus	S5	G5				Stantec
Eastern Meadowlark	Sturnella magna	S5	G5				OBBA
Common Grackle	Quiscalus quiscula	S5	G5				Stantec
Brown-headed Cowbird	Molothrus ater	SS	G5				OBBA

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COMMON NAME	SCIENTIFIC NAME	ONTARIO	GLOBAL STATUS COS	COSSARO	COSEWIC	REGION	AREA	COMMENTS
Orchard Oriole	Icterus spurius	SZB	G5					OBBA
Baltimore Oriole	Icterus galbula	SS	G5					Stantec
Purple Finch	Carpodacus purpureus	SS	G5					OBBA
House Finch	Carpodacus mexicanus	SE	G5					OBBA
Pine Siskin	Carduelis pinus	SS	G5			7		OBBA
American Goldfinch	Carduelis tristis	S5	G5					Stantec
House Sparrow	Passer domesticus	SE	G5					OBBA
MAMMALS								
Virginia Opposum	Didelphis virginiana	S4	G5					AMO
Masked Shrew	Sorex cinereus	S5	G5					AMO
Smoky Shrew	Sorex fumeus	SS	G5					AMO
Water Shrew	Sorex palustris	S5	G5			7		AMO
Northern Short-tailed Shrew	Blarina brevicauda	SS	G5					AMO
Hairy-tailed Mole	Parascalops breweri	S4	G5					AMO
Star-nosed Mole	Condylura cristata	SS	G5					AMO
Little Brown Bat	Myotis lucifugus	SS	G5					AMO
Red Bat	Lasiurus borealis	S4	G5					AMO
Big Brown Bat	Eptesicus fuscus	S5	G5					AMO
Hoary Bat	Lasiurus cinereus	S4	G5					AMO
Eastern Cottontail	Sylvilagus floridanus	S5	G5					AMO
Snowshoe Hare	Lepus americanus	S5	G5			7	20	20 AMO
European Hare	Lepus europaeus	SE	G5					AMO
Eastern Chipmunk	Tamias striatus	S5	G5					Stantec
Woodchuck	Marmota monax	S5	G5					AMO
Grey Squirrel	Sciurus carolinensis	S5	G5					AMO
Red Squirrel	Tamiasciurus hudsonicus	S5	G5					Stantec
Northern Flying Squirrel	Glaucomys sabrinus	SS	G5			7		AMO
Beaver	Castor canadensis	S5	G5					AMO
White-footed Mouse	Peromyscus leucopus	SS	G5					AMO
Deer Mouse	Peromyscus maniculatus	SS	G5					AMO
Muskrat	Ondatra zibethicus	SS	G5					AMO
Meadow Vole	Microtus pennsylvanicus	SS	G5					AMO
Norway Rat	Rattus norvegicus	SE	G5					AMO
House Mouse	Mus musculus	SE	G5					AMO
Meadow Jumping Mouse	Zapus hudsonicus	SS	G5					AMO
Woodland Jumping Mouse	Napaeozapus insignis	S5	G5					AMO
Porcupine	Erethizon dorsatum	S5	G5			7		AMO
Coyote	Canis latrans	S5	G5	-				AMO

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Highway 6 (Hanlon Expressway) - GWP 3002-05-00 Wildlife List - 2007

COMMON NAME	SCIENTIFIC NAME	ONTARIO STATUS	GLOBAL STATUS	COSSARO	COSEWIC	REGION	AREA	COMMENTS
Red Fox	Vulpes vulpes	SS	G5					AMO
Raccoon	Procyon lotor	S5	G5					Stantec
Ermine	Mustela erminea	S5	G5					AMO
Long-tailed Weasel	Mustela frenata	S4	G5					AMO
Mink	Mustela vison	SS	G5					AMO
Striped Skunk	Mephitis mephitis	SS	G5					AMO
White-tailed Deer	Odocoileus virginianus	S5	G5					Stantec
SUMMARY								
Total Butterflies: 7								
Total Amphibians: 17								
Total Reptiles: 13								
Total Birds: 118								
Total Breeding Birds:								
Total Mammals: 37								
Explanation of Status and Acronymns	ymns							
COSSARO: Committee on the Status of Species at	tus of Species at Risk in Ontario							
COSEWIC: Committee on the Status of Endangered Species in Canada	us of Endangered Species in Car	nada						
REGION: Rare in a Site Region								
S1: Extremely rare in Ontario; usually fewer than 5 occurrences	ally fewer than 5 occurrences							
S1S2: Extremely rare to very rare in Ontario	n Ontario							
S2: Very rare in Ontario; usually be 5-20 occurrence	5-20 occurrences							
S2S3: Very rare to uncommon in Ontario	Intario							
S3: Rare to uncommon in Ontario; usually between	usually between 20-100 occurrences	nces						
S3S4: Rare to common in Ontario								
S4: Common in Ontario: apparently secure, usually	more than 100	occurrence	es					
S4S5: Common to very common in Ontario	ı Ontario							
S5: Very common in Ontario, demonstrably secure	onstrably secure							
SE: Exotic; not believed to be a native component of Ontario's fauna	tive component of Ontario's fauna	а						
SH: Hypothetical; not positively confirmed in Ontario	nfirmed in Ontario							
SHB: Hypothetical breeder; not positively confirmed	sitively confirmed breeding in Ontario	tario						
SZ: Not of practical conservation concern as there are no clearly definable occurrences	oncern as there are no clearly de	finable oc	currences					
SZB: No clearly definable occurrences of breeding	ices of breeding							
SZN: no clearly definable occurrences of a non-breeding species	ces of a non-breeding species							
?: Not yet ranked; or, following a ranking, rank inexact or uncertain	inking, rank inexact or uncertain							

COMMON NAME SCIENTIFIC NAME STATUS STATUS COSS	COSSARO COSEWIC REGION AREA	COMMENTS
G1: Extremely rare globally; usually fewer than 5 occurrences in the overall range		
G1G2: Extremely rare to very rare globally		
G2: Very rare globally; usually between 5-10 occurrences in the overall range		
G2G3: Very rare to uncommon globally		
G3: Rare to uncommon globally; usually between 20-100 occurrences		
G3G4: Rare to common globally		
G4: Common globally, usually more than 100 occurrences in the overall range		
G4G5: Common to very common globally		
G5. Very common globally; demonstrably secure		
T: Denotes that the rank applies to a subspecies or variety		
END: Endangered		
THR: Threatened		
VUL: Vulnerable		
SC: Special Concern		
NAR: Not At Risk		
NIAC: Not In Any Category of risk		
IND: Indeterminant, insufficient information to assign status		
DD: Data Deficient		
6: Rare in Site Region 6		
7: Rare in Site Region 7		
Area: Minimum patch size for area-sensitive species (ha)		
NOTE		
All rankings for birds refer to breeding birds unless the ranking is followed by N		

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TERRESTRIAL ECOSYSTEMS EXISTING CONDITIONS REPORT HIGHWAY 6 (HANLON EXPRESSWAY) IMPROVEMENTS, GUELPH (GWP 3002-05-00) DECEMBER 2007 (UPDATED MAY 2009)



APPENDIX D

SUMMARY OF

MTO REVIEW OF

THE CITY OF GUELPH'S

PHASE 2 NATURAL HERITAGE STRATEGY

Summary of MTO Review of Natural Heritage Stragey Phase 2: Terrestrial Inventory and Natural Heritage System

Figure*	Areas of Concern	Areas Where No Concern is Evident
5 - Ecological Land Classification	Cultural meadows at Kortright Rd., College Ave., Paisley Rd., Westwood Rd., Willow Rd, and Speedvale Ave.	No aquatic/swamp vegetative communities noted, except south-east of Kortright Rd.
6 - 2004-2005 Amphibian Survey Results	None	Areas from College Ave. to Paisley Rd. were surveyed, where no presence was recorded
	Natural Areas from Paisley Rd to Hanlon Creek.	No Endangered or Threatened Species, or their habitat were noted in the Hanlon Expressway study area.
7 - Primary Criteria Application	Permanent streams/woodlots/floodplains from Paisley Rd. to Wellington St. and south-east of Kortright Rd.	No areas of natural and scientific interest were noted in Hanlon Expressway study area.
Application	South-west of Kortright Rd., some provincially rare vegetation species have been recorded in the Hanlon Creek Floodplain.	
	Waterfowl over wintering areas around Wellington St.	No natural slope concentrations (=>15%) in the Hanlon Expressway study area.
9 - Secondary Criteria Application	A natural area between Wellington St. and Paisley contains a wetland. There has also been some significant wildlife observations in this area.	No local rare significant vegetation species in the Hanlon Expressway study area.
	Also there is a natural area with a wetland located within the Hanlon Creek Valley.	
9A -Presence	The natural area between Wellington St. and Paisley Rd. have had both wildlife and vegetation observations including:	All areas north-west and south-east of the natural area between Wellington St. and Paisley Rd. have no significant wildlife or vegetation observations in the Hanlon Expressway study area.
of Significant Species	Vegetation: Black Maple, Heart-leaved Aster	
	Wildlife: American Redstart, Baltimore Oriole, Eastern Kingbird, Eastern Meadowlark, Field Sparrow, Northern Flicker, Savannah Sparrow.	
11 - Ecological Linkages/Conn	Ecological linkages/connectivity at Hanlon Creek and between Wellington St. and Paisley Rd along the North-west drain and across the Hanlon.	No significant linkages north of Paisley or south of Hanlon Creek.
ectivity	Confirmed deer migration movement corridors at the Hanlon Creek crossing.	

^{*} Figure number in City of Guelph, 2009. Natural Heritage Strategy.

