

TOWN OF HALTON HILLS  
PLANNING DEPARTMENT

JUN 16 2010

## ENVIRONMENTAL IMPLEMENTATION REPORT

FOR  
PROPOSED RESIDENTIAL DEVELOPMENT  
2147925 ONTARIO INC. LOCATED IN  
GLEN WILLIAMS (McMASTER STREET AND MEAGAN DRIVE)

**FILE COPY**

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*prepared for*

**EDEN OAK HOMES  
1443 HURONTARIO STREET  
MISSISSAUGA, ONTARIO  
L5G 3H5**

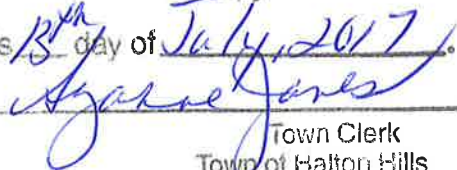
*by*



environmental research associates

Certified a true copy

this 13<sup>th</sup> day of July, 2017

  
Town Clerk  
Town of Halton Hills

JUNE 2010



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*prepared by:*



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JUNE 2010

**LGL PROJECT TA4886**



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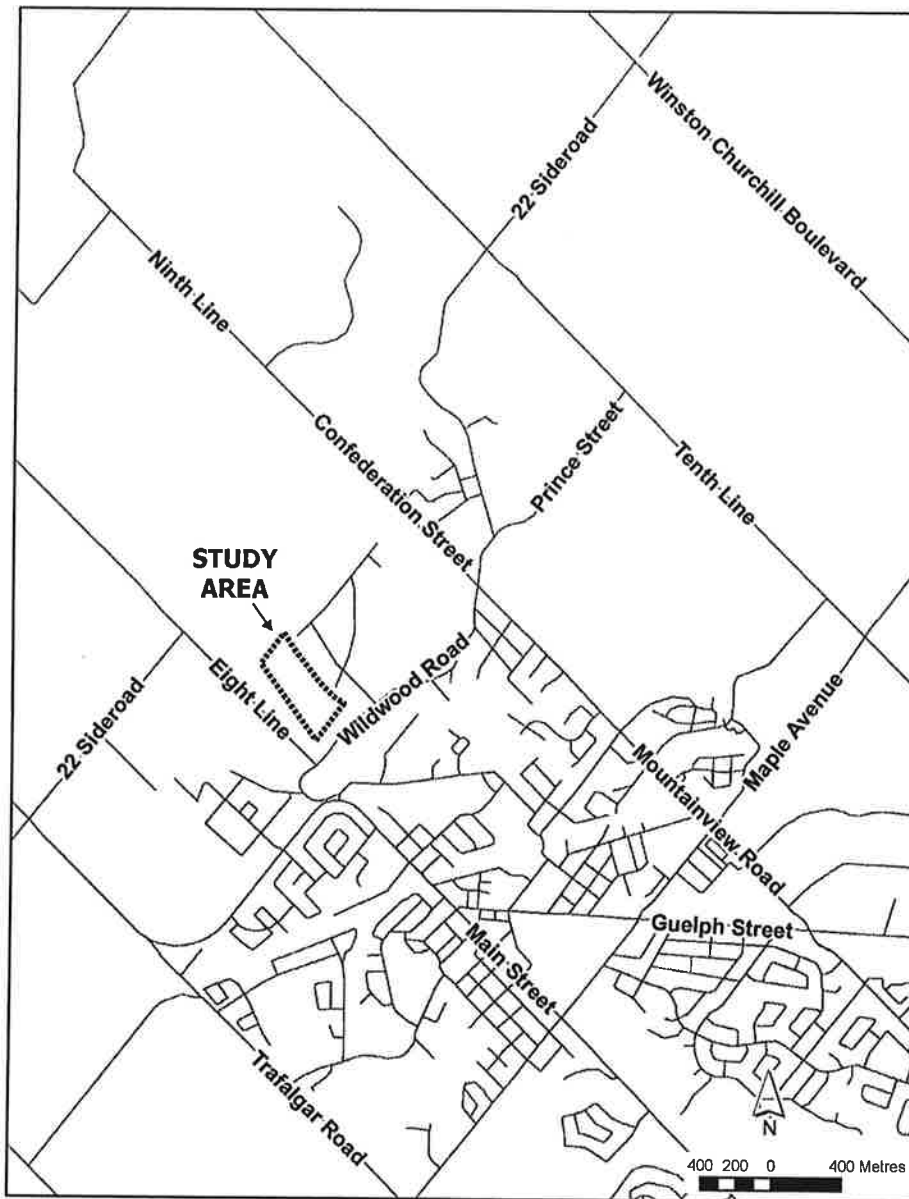
Appendix A. Fax from the Town of Halton Hills regarding the Hamlet Buffer
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## 1.0 INTRODUCTION

### 1.1 STUDY SITE LOCATION

The Hamlet of Glen Williams is situated along the banks of the Credit River, in the Town of Halton Hills, within the Region of Halton. The 2147925 Ontario Inc. property (the “Draft Plan of Subdivision”) is located at the westerly limit of the hamlet, at Eighth Line. The property consists of a field, bordered by trees and residential properties to the west, south and east. Lands to the north of the subject site consist of a rural/agricultural property. The subject property is approximately 6.88 ha in size. **Figure 1** presents the location of the study area in a regional context.



**Figure 1. Key Plan of the Study Area**

## 1.2 PURPOSE

LGL Limited has undertaken an investigation and review of environmental constraints for the draft plan approval of the Draft Plan of Subdivision; a residential development in the Hamlet of Glen Williams. The study site, west half of Lot 21, Concession 9, is owned by 2147925 Ontario Inc.

The Town of Halton Hills Official Plan (HHOP) designates the community of Glen Williams as a “Hamlet Area” and has prepared Official Plan Amendment No. 113 “The Hamlet of Glen Williams Secondary Plan” (GWSP 2005). Within this framework, Glen Williams is designated as a “Hamlet” within the Rural System of the Region of Halton, and the GWSP provides criteria that guides for “growth that maintains the hamlet character of the community.”

The GWSP (2005) identifies one environmental area, a “Hamlet Buffer” along the north-western boundary of the study site. Land Use Policies (Section 5.3c) of the GWSP specify that prior to draft plan approval, plans of subdivision within the Hamlet Residential designation must be supported by an Environmental Implementation Report (EIR). This EIR must implement the Glen Williams Integrated Planning Project Scoped Subwatershed Plan (Dillon 2003) at the tributary level for the subject property, and must also include a Stormwater Management Plan. The GWSP also states: *The Scoped Subwatershed Plan should be used as a reference when interpreting Plan policies particularly as they apply to lands designated as Greenlands* (Page 1, GWSP 2005).

A summary of issues related to functional servicing and storm water management are provided in this report. For a more complete discussion of this topic the reader is referred to the following report:

- Condeland Engineering Ltd. May 2009. Functional Servicing Report for Proposed Residential Development 2147925 Ontario Inc.

## 2.0 APPROACH AND METHODS

As provided by the GWSP, the required EIR has been undertaken by LGL Limited with a detailed review of environmental constraints for the Draft Plan of Subdivision. The EIR has been triggered by the submission of a proposed draft plan of subdivision, and is intended to provide guidance that will minimize environmental impacts both on and on lands adjacent to the study site. As a part of the EIR, the following tasks have been undertaken:

- an evaluation of the impacts of stormwater flows to fish and fish habitat on lands adjacent to the study area (Silver Creek);
- a review of the Glen Williams Integrated Planning Project Scoped Subwatershed Plan (Dillon 2003); and,
- an evaluation of the requirements for a Hamlet Buffer along the north-western boundary of the study site.

A survey of the plant and wildlife resources on the subject property will be carried out in late spring/early summer, and again in the fall 2010.

## 2.1 AGENCY CONSULTATION

Preliminary investigations and a review of pertinent background information were completed. This review within the Hamlet included information from the Credit Valley Conservation Authority (CVC), Town of Halton Hills (ToHH), Regional Municipality of Halton (RMoH), and the Ministry of Natural Resources (MNR) in order to gain a clear understanding of the natural features on site.

As mentioned above, the Glen Williams Integrated Planning Project Scoped Subwatershed Plan (Dillon 2003) and the GWSP (2005) were also reviewed to ensure that the Draft Plan of Subdivision conforms to the concerns and constraints outlined within those reports.

## **2.2 FIELD STUDIES**

Field studies will be carried out in the spring/summer and fall of 2010 to complete plant and animal surveys, and a tree survey on the subject property. Once the results of this field work have been completed, this EIR will be updated. The limit of development for the Draft Plan of Subdivision is presented in **Figure 2**.

## **2.3 EVALUATION AND IMPACT ANALYSIS**

Potential impacts to the natural features on the study site and their functions are documented in **Section 6.0** based on the proposed development concept, including a consideration of the impact from servicing and stormwater management. A review of the overall impacts include both short and projected long-term impacts from construction and the ultimate changes that will occur in the post development state as a result of the change in land use altering the site.

## **3.0 EXISTING CONDITIONS**

### **3.1 LANDFORM**

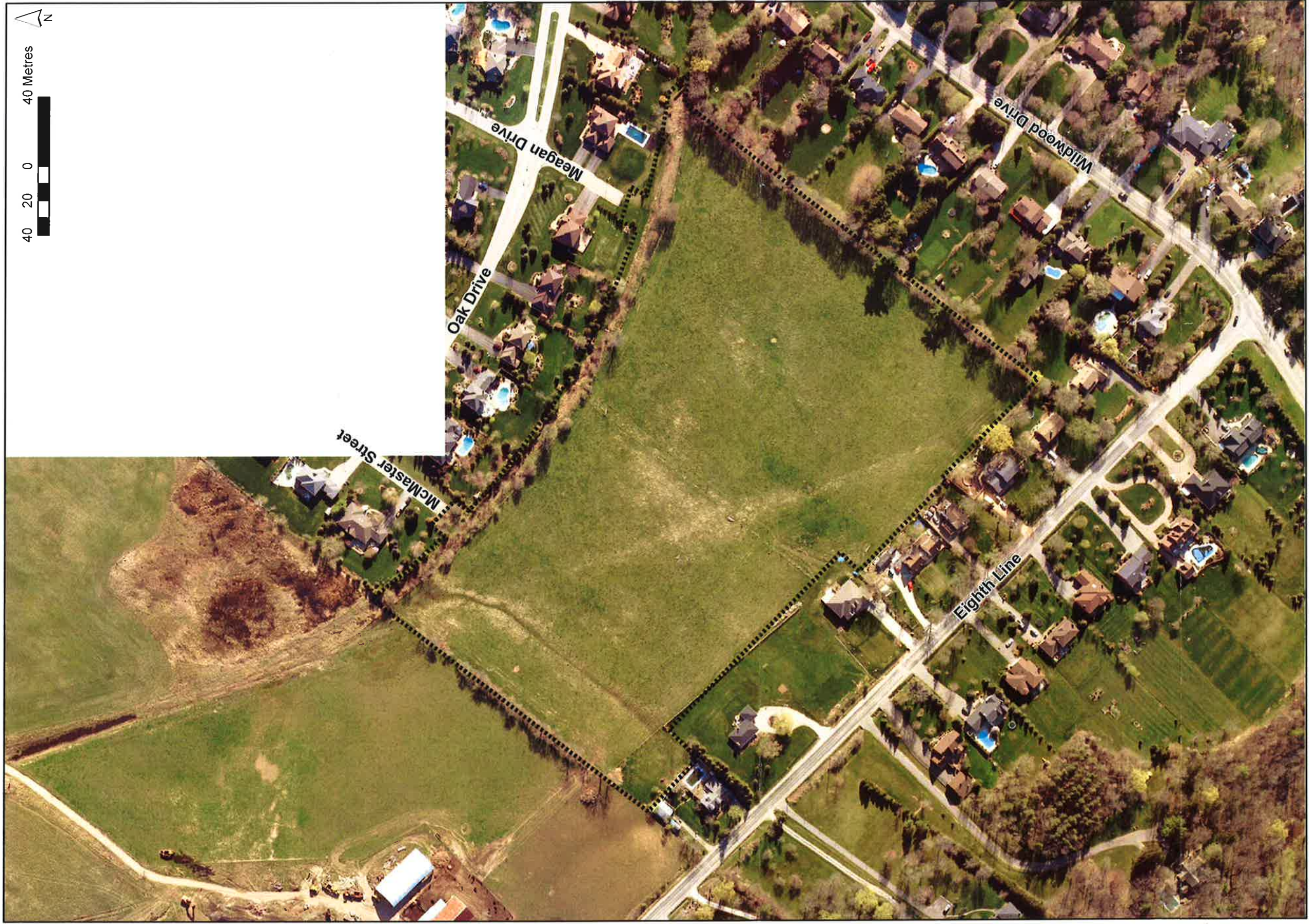
The Niagara Escarpment cuts diagonally across Halton Region from the southwest corner in the City of Burlington to the northeast corner at the Hamlet of Glen Williams. The escarpment presents an abrupt and major change in landscape. Below the escarpment and toward Lake Ontario, the topography is dominated by a broad till plain which has been dissected by numerous streams producing a strongly rolling landscape (Chapman and Putnam 1984). Above the escarpment, the topography is strongly bedrock controlled with numerous exposures of the Amabel/Lockport dolostone.

The study site is within the Credit River watershed which drains into Lake Ontario east of the Halton Region. The Credit River has a drainage area of 850 square km and a total length of 93 km from northeast of Orangeville to Port Credit, travelling through hilly areas which include moraines and gravel terraces (Chapman and Putman 1984). The study site is located over 1 km west of the Credit River, and is outside of the Limit of the Regulatory Flood Area (GWSP 2005). The main valley of the Credit River and some of its major tributaries north of Georgetown contain glacial outwash sand and gravels underlying the Halton Till. Modern alluvium including silt, muck, and sands and gravels also occur within the floodplain and terraces of the Credit River in the Glen Williams area.

There are no significant landform features on the study site. This site is located on relatively flat lands that are lined with trees along the north-western, north-eastern, south-eastern, and to a lesser extent along the south-western border of the site.







40 20 0 40 Metres



LEGEND  
 Development Limit



DEVELOPMENT  
LIMIT

Project: 7A4886	Figure: 2
Date: April 2010	Prepared By: MWF
Scale: 1:2200	Checked By: NMF





## 3.2 REGIONAL CONTEXT

The Hamlet of Glen Williams is located in the Middle Watershed Unit of the Credit River Basin, which extends from the community of Norval to the south, to Inglewood to the north. Within this unit, the Hamlet boundaries lie within Subwatershed 11 and 12 as noted in the Scoped Subwatershed Plan (Dillon 2003). These subwatersheds include land within the Town of Halton Hills, the Town of Caledon and the Town of Erin. Subwatershed 11 and 12 contain several natural features including the Niagara Escarpment, the Credit River Valley, a number of wetlands, Environmentally Sensitive Areas (ESAs), and Areas of Natural or Scientific Interest (ANSIs) (Dillon 2003). The subject property lies immediately west and outside of Subwatershed 12, within Subwatershed 11. The subject property neither contains nor is in close proximity to Provincially Significant Wetlands, or designated ANSI or ESAs.

Silver Creek is located over 265 m to the southwest of the subject property, the Credit River is over 1 km to the east, and a small creek identified as "Tributary E" is almost 650 m to the east. The lands surrounding this property range in use from rural/agricultural to residential.

## 3.3 EXISTING LAND USE

The subject property contains a field surrounded by hedgerows and/or treed vegetation, some of which lies within the rear of existing lots, adjacent to the subject property. The lands that border the property on the southwest, southeast, and northeast sides are within the Glen Williams Secondary Plan area and contain single residential dwelling units. The residential dwellings on the southwest side of the property front onto Eighth Line. West of the study area, Silver Creek runs in a north-south direction parallel to Eighth Line. The lands northwest of the subject property are outside of the Glen Williams Secondary Plan, and contain agricultural structures and associated activities. This agricultural property has an access to Eighth Line. There is a row of trees along the property line located between the subject site and the agricultural property to the north.

Currently, the subject property is cleared of any shrubs or trees, except along the property's perimeter. This property was likely cleared for agricultural purposes. Currently, the property is used as pasture by the farmer to the north.

## 3.4 VEGETATION

The spatial extent, composition, structure and function of the vegetation communities will be identified through air photo interpretation and a field investigation. Currently, air photos were interpreted to determine the limits and characteristics of the vegetation communities identified. Follow-up field work will be carried out to confirm vegetation boundaries and complete the classification of vegetation types following the Ecological Land Classification for Southern Ontario (Lee *et al.* 1998). A field investigation on the subject property will be conducted in the spring/summer and fall of 2010. The main focus of these inventories will be to accurately map plant communities and to provide an inventory of plant species within each classified community type.

### 3.4.1 Vegetation Communities

Lands on and adjacent to the subject property have been cleared of original forest cover to accommodate existing agricultural, development and infrastructure. Based on aerial photograph interpretation of the subject property, Cultural Meadow (CUM1) is the dominant vegetation community on the subject site. This community makes up at least 90% of the property. This vegetation community is considered widespread and common in Ontario and secure globally. No other vegetation community is identified; however, there are several hedgerows along the perimeter of the property. These features are presented

on **Figure 3**. Some of the trees within the hedgerows are located at the rear boundary of adjacent residential lots.

### 3.4.2 Plant Species

Plant species typically found within cultural meadows are generally disturbance tolerant. Continued disturbance pressures on the natural environment are related to an increased diversity of non-native species due to increased dispersal of these plants. Vegetation surveys will be carried out in the spring/summer and fall of 2010.

### 3.4.3 Floristics

Once the field surveys are completed, the data will be entered into a database to determine the significance of plants and plant communities within the study site. A floristic evaluation will be undertaken in order to provide a quantitative evaluation of the plant communities within the study site.

## 3.5 TREE SURVEY

There are several hedgerows along the perimeter of the subject property. A tree inventory will be carried out during the vegetation survey later in 2010. This work will include a determination of species composition, tree diameter and health. Individual trees identified within the subject property will be presented on **Figure 3**.

## 3.6 FAUNA

### 3.6.1 Fisheries

No fish inventories were carried out as there is no direct fish habitat on the study site. However, the proposed development could indirectly impact fish habitat within Silver Creek, a large tributary of the Credit River, through issues related to discharge of stormwater and, possibly, recharge of groundwater. Currently, most of the drainage from the study site is conveyed to Silver Creek via ditches along Wildwood Road (Condeland Engineering 2009). This drainage outlets where Wildwood Road crosses Silver Creek. The distance along this path of existing ditches and the existing storm water system along Wildwood Road and Eighth Line, from the south-western corner of the subject property to Silver Creek, is approximately 390 m.

### 3.6.2 Fish Species


According to CVC mapping (MNR and CVC 2002), the study site is located in Subwatershed 11 (Silver Creek) in the Middle Zone of the Credit River watershed. Silver Creek contains a mixed coldwater/coolwater fish community and is managed for mixed coldwater/coolwater species. Brown Trout (*Salmo trutta*) and Rainbow Trout (*Oncorhynchus mykiss*) are the primary indicators of the health of this community type (MNR and CVC 2002). Coldwater fish habitat is generally more sensitive to outside disturbances than other fish community/habitat types.

One species at risk is known to inhabit Silver Creek in the location of the Wildwood Road crossing where stormwater from the study site is discharged. Redside Dace (*Clinostomus elongatus*) are ranked as Endangered both provincially and federally. This species is regulated as 'Endangered' under the Ontario *Endangered Species Act, 2007*. Federally, Redside Dace is designated as 'Endangered' by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), but is regulated as 'Special Concern' (Schedule 3) under the federal *Species at Risk Act*. Redside Dace have a specialized set of habitat





**LEGEND**

-  Development Limit
-  Vegetation Community Boundary
- Vegetation Communities**
-  Dry-Moist Old Field Meadow Type
-  Hedgerow



**NATURAL HERITAGE FEATURES**

Project: TA-4886	Figure: 3
Date: April 2010	Prepared By: MWF
Scale: 1 : 2200	Checked By: NMF

Data Sources: LGL Limited field surveys.





requirements which includes: a dominantly herbaceous riparian community; overhanging riparian vegetation; a coolwater temperature regime; riffle and pool morphology; clear water conditions; and a coarse substrate such as sand and gravel. Redside Dace are sensitive to thermal and water quality impacts resulting from urban development and other human disturbance (e.g., agriculture, industry, urbanization, etc.). The habitat requirements of the Redside Dace are also specialized as they utilize a feeding strategy which is based on sight predation and includes predominantly terrestrial insects. Redside Dace are particularly known for their leaping ability and large mouth used to capture terrestrial flying insects which hover above the water surface and within overhanging riparian, herbaceous vegetation. Riffles are used in late spring to early summer for spawning, where Redside Dace are known to use the nests of Creek Chub (*Semotilus atromaculatus*) and Common Shiner (*Luxilus cornutus*). Therefore, this species requires management of both aquatic and riparian habitat to ensure that populations remain healthy.

### 3.6.3 Fish Habitat

On-site Stormwater Management methods will be implemented to mitigate potential downstream impacts by implementing a Level 1 or Enhanced Protection stormwater management and diverting backyard drainage to infiltration trenches and existing overland drainage (swales). Level 1 treatment of stormwater has been recommended in the Scoped Subwatershed Plan (Dillon 2003) when the receiving watercourse contains species at risk. In addition, alternative, pro-active strategies for minimizing water quality impacts are suggested in **Section 6.1**.

## 3.7 BIRDS

Typical bird species found in cultural meadows within urbanized areas include Song Sparrow (*Melospiza melodia*), American Robin (*Turdus migratorius*), Northern Cardinal (*Cardinalis cardinalis*) and Mourning Dove (*Zenaida macroura*). Presence of such bird species and any additional species will be determined during the bird survey that will be carried out prior to July 10, 2010 to ensure that the survey is completed within the breeding season.

## 3.8 MAMMALS

Within urbanized settings, typical animal species found include Gray Squirrel (*Sciurus carolinensis*), Raccoon (*Procyon lotor*) and Striped Skunk (*Mephitis mephitis*). Presence of such animal species and any additional species will be determined during a wildlife survey to be carried out at the same time as the bird survey, noted above.

# 4.0 EXISTING REGULATORY POLICIES

## 4.1 PROVINCIAL POLICY STATEMENT

The Provincial Policy Statement (PPS 2005) provides direction on matters of provincial interest in municipal land use planning, and is issued under section 3 of the *Planning Act*. The *Planning Act* requires that planning authorities “shall be consistent with” the PPS in planning matters so that natural features will be protected from incompatible development.

There are two categories of natural heritage areas specified in the PPS for protection. Areas where no development or site alteration is permitted, including: Provincially Significant Wetlands; and significant habitats of endangered and threatened species. The second category of natural heritage areas specified in the PPS are areas where development and site alteration *may* be permitted if it can be demonstrated that no negative impacts will occur on the natural features or their ecological functions. These areas include: fish habitat; wetlands, significant valley lands; significant wildlife habitat; Provincially Significant Areas of Natural and Scientific Interest (ANSI's); and Significant Woodlands.

There are no Provincially Significant Wetlands, ANSIs, or Woodlands on or within 120 m of the subject property. There are also no Environmentally Significant Areas (ESAs) on or on lands adjacent to the study site.

## **4.2 GREENBELT PLAN**

The Halton Hills Official Plan policies are intended to implement the Greenbelt Plan which came into effect on February 28, 2005. Within the Town of Halton Hills, areas located within the Greenbelt Plan are designated “Protected Countryside” (see Schedule A1, HHOP 2006), and within the Protected Countryside there are areas the Greenbelt Plan defines as Natural Heritage System (NHS). The NHS includes areas with the highest concentration of the most sensitive and/or significant natural features and functions and these areas are to be managed as a connected and integrated NHS.

The subject property is located outside of the Greenbelt Plan area. The Greenbelt Plan boundary is located northwest of the subject property at the northerly limit of the Draft Plan of Subdivision. The lands within the Plan area are designated as “Protected Countryside” and are not part of the Greenbelt Plan Natural Heritage System.

## **4.3 REGIONAL MUNICIPALITY OF HALTON**

The Regional Municipality of Halton (RMOH) specifies that local official plans for each Municipality are extensions of The Regional Official Plan (ROP 2006). These local official plans are intended to guide development to meet local needs and issues. The Plan also requires that “Secondary Plans be prepared by Local Municipalities for new communities, Nodes, Corridors and Hamlets in accordance with the ROP” (RMOH 2006). Secondary Plans shall conform to Regional and Local Official Plans and be incorporated as amendments to the Local Official Plan (Section 49, ROP 2006). The Glen Williams Secondary Plan (GWSP, 2005) conforms to the ROP and provides a guide to development within the Hamlet of Glen Williams and was reviewed to ensure conformity of the proposed Draft Plan of Subdivision with the policies of the secondary plan.

Within the ROP [Section 51(3)], the Greenlands System, a system of connected natural areas and open spaces, are denoted to preserve the more sensitive parts of the natural environment which are also intended to provide recreational opportunities. The designations are as follows:

- Escarpment Natural Area;
- Greenlands A;
- Greenlands B; and
- Regional Waterfront Parks.

The GWSP identifies Core Greenlands and Supportive Greenlands as areas designated as having environmental importance. Environmentally Sensitive Areas (ESA) are part of the Greenlands System (Greenland B) as shown on Map 1 of the ROP (2006). There are no Escarpment Natural Areas, Greenlands, or ESA designated lands within the subject property.

## **4.4 THE HAMLET OF GLEN WILLIAMS SECONDARY PLAN (GWSP)**

The Hamlet of Glen Williams Secondary Plan (GWSP 2005), Official Plan Amendment 113 to the Town of Halton Hills Official Plan, is the guiding document for planning within the study area. Schedule A of the GWSP (Figure 4) has designated the site as “Hamlet Residential”. Schedule A also shows a “Hamlet Buffer” which is located along the limit of the Secondary Plan boundary (the Hamlet).

The GWSP (2005) designates two categories of Greenlands as follows:

- **Core Greenlands** (Greenlands A) which are areas that have the natural heritage components that include regulatory floodplains; fish habitat; woodlands within or adjacent to the main valley system of the Credit River; riparian corridors linked to watercourses with fish habitat; and provincially significant wetlands; and,
- **Supportive Greenlands** (Greenlands B) which are areas that have natural heritage features that may not have specific provincial policy to regulate development. Such areas include woodlots; unevaluated wetlands, steep slopes and minor tributaries of the Credit River.

There are no areas within or adjacent to the subject site with Core or Supportive Greenlands designations. The Glen Williams Integrated Planning Project Scoped Subwatershed Plan (Dillon Consulting 2003) was prepared and the GWSP (2005) indicates that this document should be used as a reference when interpreting Plan policies particularly as they apply to lands designated as Greenlands. No Greenlands are identified within or on lands adjacent to the study site. The Subwatershed Plan was used as a reference for the fisheries analysis (**Sections 3.6.1 to 3.6.3**).

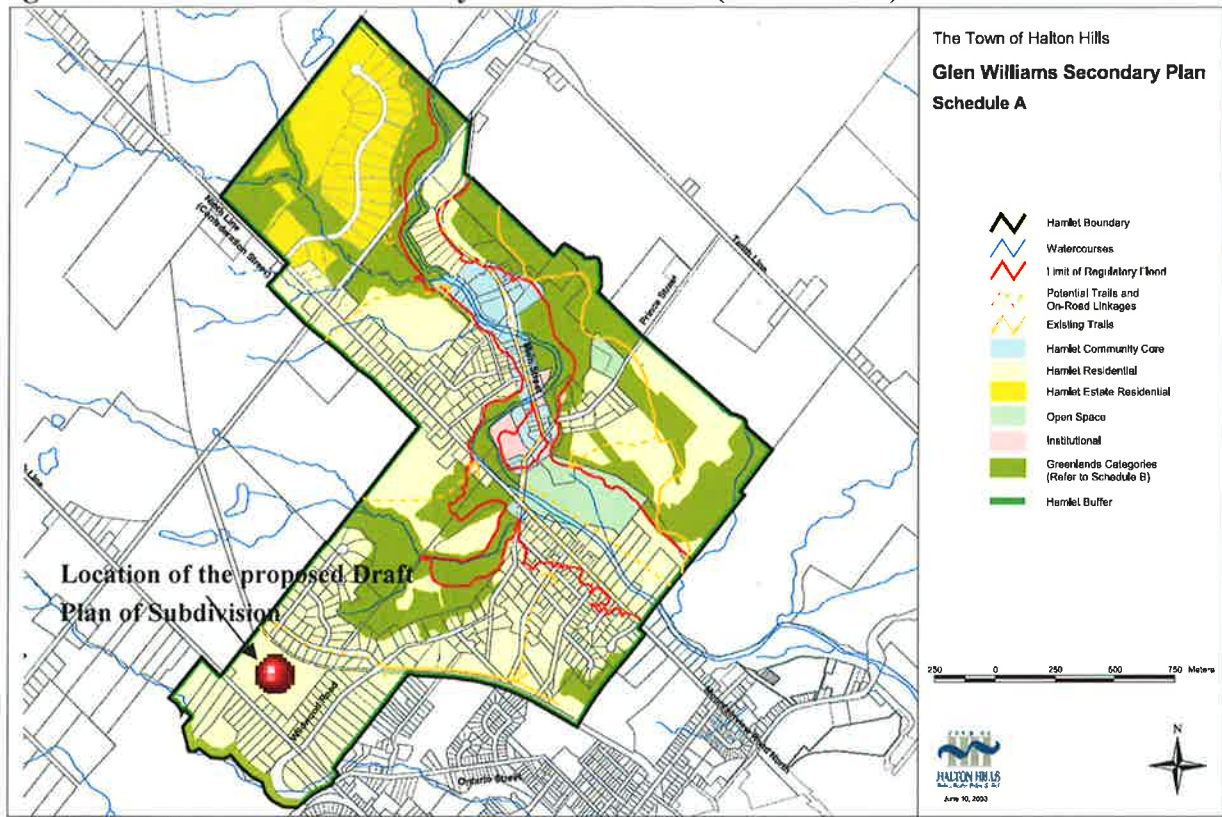
The north-western border of the study site forms part of the Hamlet boundary and this area is identified as part of the **Hamlet Buffer**. The boundaries of the Hamlet shown on both **Schedules A and B** have been determined to permit growth but maintain the Hamlet's scale and character (**Section 3.8**; GWSP 2005) (**Figures 4 and 5**). Towards preserving the hamlet character, the GWSP (2005) directs new development to include a general lot line setback of 20 m from the hamlet boundary. However, lesser widths may be approved where it can be shown to the Town of Halton Hills, that this objective has been achieved. Lands within this setback will be allowed to regenerate as private natural areas or be used for public park purposes such as trail systems.

#### **4.5 CREDIT VALLEY CONSERVATION AUTHORITY**

The CVC implements policies to ensure the protection of people and property from environmental hazards such as flooding and steep slopes and the agency also protects the environmental integrity of the Credit River watershed. Credit Valley Conservation policies identify standards that can be used to determine the location and setbacks from features such as watercourses, valleys and ravines, wetlands, woodlands, fish habitat and other significant environmental features.



**Figure 4. Glen Williams Secondary Plan Schedule A (GWSP 2005).**











## 5.0 DESCRIPTION OF PROPOSED DEVELOPMENT

### 5.1 DESCRIPTION OF SUBDIVISION

The proposed Draft Plan of Subdivision consists of 32 single detached residential units over an area of approximately 5.43 ha. The lot sizes range between 0.12 ha to 0.34 ha (**Figure 6**). Access to the Draft Plan of Subdivision will be along both McMaster Street and Meagan Drive, along the north-eastern side of the study site. The road makes up 1.02 ha of the development which includes a 20 m right-of-way. The proposed development includes a stormwater management facility (Block 33) that is approximately 0.43 ha. Overall, the Draft Plan of Subdivision covers a total area of approximately 6.89 ha. The Subdivision is for residential lots only; no commercial development creating extensive hard surfaces for customer parking are planned.

### 5.2 FUNCTIONAL SERVICING CONCEPT

The sanitary sewage conveyance and treatment, water supply and distribution, grading, Stormwater Management design, and erosion control measures for the proposed Draft Plan of Subdivision will follow the criteria established in the Functional Servicing Report for the Proposed Residential Development 2147925 Ontario Inc. Located in the Hamlet of Glen Williams, McMaster Street & Meagan Drive, Town of Halton Hills (Georgetown) prepared by Condeland Engineering (2009).

#### 5.2.1 Existing Drainage

The elevation at the northern portion of the study site is at 275 m and the lands decrease in elevation to 271 m along the southern portion of the study site with an average 1.0% slope (Condeland 2009). Currently, the site drains primarily toward the west, to Eighth Line. Ultimately, runoff is conveyed along swales, catchment basins, and culverts to Silver Creek (Condeland 2009).

#### 5.2.2 Sanitary Sewage

A gravity sanitary sewer system is proposed to service all 32 lots on the subject property. The proposed outlet for this sewer will be to the southeast, the future sanitary sewer which will service the Eden Oak Glen Williams Subdivision sanitary system via an external sanitary conveyance sewer which is proposed to be constructed along the former railway corridor (currently a public walkway); and further south along the connection from the Glen Williams Subdivision through the connection with the Georgetown Investments Phase 2 subdivision, and eventually to the John Street Sewage Pump Station located outside the limits of the Hamlet of Glen Williams. Treatment will be carried out at the Georgetown Wastewater Treatment Plant (Condeland 2009).

Specifications for the Sanitary Sewer Design are detailed in the Functional Servicing Report (Condeland 2009).

#### 5.2.3 Water Supply and Distribution



Currently, the subject site is within an area that is serviced by an integrated water supply system that is fed by several ground water wells including the Cedervale Well field, the Princess Anne Well field, and the Lindsay Court Well. The Georgetown water Purification Plant treats ground water pumped from the Cedervale Well field. Future and additional water supplies are currently being investigated by the Region of Halton (Condeland 2009).







**LEGEND**

-  Development Limit
-  Proposed Tree Removal
-  Hamlet Buffer



**PROPOSED DEVELOPMENT**

Project: T-44886	Figure: 6
Date: April 2010	Prepared By: MWF
Scale: 1 : 2200	Checked By: NMF

Data Sources: Glen Williams Secondary Plan Schedule A and B.





Water servicing distribution for the study site will be provided by the proposed installation of a 250 mm diameter watermain along Street A that will connect to the existing 250 mm diameter watermain stubs on both McMaster Street and Meagan Drive (Condeland 2009). A proposed interconnection to the existing 200 mm / 300 mm diameter watermain on Eighth Line is proposed via an existing 10 m wide Regional Servicing Easement between the existing residential properties (Condeland 2009).

#### 5.2.4 Grading

The proposed Street A on the subject property is a crescent type road which will be graded to approximately meet the existing grades of McMaster Street and Meagan Drive, at the northeast side of the study site. The proposed road grades are designed to direct major storm overland flow away from McMaster Street and Meagan Drive in a south-westerly direction to an overall low point adjacent to the proposed Stormwater Management (SWM) Pond (Block 33) (**Figure 6**), and to mitigate any external drainage from the existing municipal right-of-ways into the study site. Due to downstream storm outlet constraints, the proposed SWM Pond will be elevated to the extent possible. To achieve this, Street A has been designed with flatter grades with low-points designed to ensure effective drainage while still providing major overland flow. Overall, Street A will be slightly elevated as compared to the site perimeter where existing grades must be matched. Consequently, front lot grades will be slightly higher than the rear lot grades. To accommodate this grading condition, a split-lot drainage style is proposed for all of the residential lots. Overall, the grade differential between the front and rear of lots is minimal. Also, the majority of the proposed lots back onto the existing rear of residential units. Rear yard drainage will be intercepted by rear lot swales to allow for infiltration. Additional flows will be captured by rear lot catchbasins to direct storm drainage to the proposed storm sewer system.

#### 5.2.5 Stormwater Management

Condeland Engineering (2009) proposes to maintain the flows as these currently exist on the subject property. Drainage has been divided into three sub-catchments. The majority of drainage from the subject property will discharge via roads, driveways, homes and front yards to catchbasins along the proposed subdivision road, and directed into the SWM Pond (Condeland 2009).

Flows from the north and west portions of the study site will be directed towards Eighth Line into the existing stormwater system. For these sub-catchments, given the soil types, infiltration trenches along the rear lot lines will be feasible. Details of the SWM Pond design and control structure will be provided at the Detailed Engineering Design Stage (Condeland 2009).

Water Quality control will be addressed by storage and extended storage within the proposed SWM Pond. Quality control within the Stormwater Management Pond will be based on Level 1 or Enhanced Protection in accordance with Table 3.2 of the Storm Water Planning and Design Manual (March 2003) (Condeland 2009).

Details of the SWM Pond design and control structure will be provided at the Detailed Engineering Design Stage. More detailed information is available in the Functional Servicing Report (Condeland 2009), available under separate cover.

## **6.0 ANALYSIS OF NATURAL FEATURES, POTENTIAL IMPACTS FROM DEVELOPMENT AND PROPOSED MITIGATION**

A fisheries investigation was undertaken for Silver Creek, south of the subject property to evaluate potential indirect impacts to fish habitat. Additional analysis of natural features including vegetation, tree retention, and wildlife will be completed at a later stage.

Below is a discussion of the fisheries issues related to the proposed development of the Draft Plan of Subdivision identifying appropriate protection measures based on the PPS (2005), the GWSP (2005) and the Scoped Subwatershed Plan completed by Dillon (2003), where appropriate.

Potential impacts that are addressed in this section include impacts to natural features associated with development, short-term impacts associated with construction, and long-term direct and indirect impacts associated with the change in land use from the proposed Draft Plan of Subdivision.

### **6.1 FISH HABITAT**

#### **6.1.1 Impacts and Mitigation**

Potential changes to recharge and discharge as a result of the proposed development are expected, but the influence on water quality will be addressed by storage and extended storage, as well as with the implementation of a Level 1 or Enhanced Protection stormwater management.

##### ***Infiltration***

While at a site level the local recharge function may seem insignificant, the cumulative effect of the loss of such recharge throughout the watershed could have an impact on baseflow rates and surface flow volumes in the receiving watercourses, as well as to the recharge of deeper aquifers. Therefore, it is important to maintain the quantity and quality of recharge over the subject site to the extent feasible. In this case, it is particularly important to maximize infiltration as the receiving watercourse downstream is a mixed coldwater/coolwater system supporting a sensitive endangered species. As such, mitigation for the increase in impervious areas proposed should include measures to encourage infiltration (e.g., rear yard swales, soak-away pits, 'French drains', large pervious areas, etc.). The increase in impervious surface areas from the proposed development, will likely result in an increase in runoff (to the stormwater management facility) and an associated decrease in infiltration. This could negatively impact the local aquifer and groundwater discharge to the receiving watercourse, Silver Creek. As discussed in **Section 3.6**, Silver Creek is managed as a mixed cool/coldwater fish community which is likely dependent, at least in part, on groundwater discharge and requires a high level of protection. Therefore, all on-site measures should maintain or enhance the local infiltration function to mitigate any negative impacts. Maintenance of stormwater infiltration has also been recommended in the Scoped Subwatershed Plan (Dillon 2003).

##### ***Stormwater Management***

An enhanced level of storm water control, Level 1 or Enhanced Protection, will be implemented in the stormwater management facility to provide water quality control of water stored, and subsequently discharged from the stormwater facility. This level of protection is in accordance with Table 3.2 of the Storm Water Planning and Design Manual, March 2003 (Condeland 2009) and the Scoped Subwatershed Plan (Dillon 2003). As a result, effects from the proposed development on the downstream receiving watercourses and direct fish habitat are expected to be minimal.



The treatment of stormwater produced by the proposed development should be provided at an enhanced level to protect the receiving watercourses, Silver Creek, from impacts related to water quantity and quality. Stormwater at all events should be released at a rate which does not negatively impact the receiving watercourse. Specifically, this should address erosion thresholds and fluvial geomorphological considerations related to increased discharge to Silver Creek. Although the volume of stormwater produced from the subject site is expected to be low and impacts to the receiving watercourses will likely be small, cumulatively, stormwater inputs from multiple sources can negatively affect the receiving watercourses. According to the Silver Creek Subwatershed Study, Phase I (Halton Hills and CVC 2002), the reach of Silver Creek downstream of the Wildwood Road crossing (Reach 7) has been negatively impacted, in part, by increased stormwater discharge from upstream areas. There is a high level of protection placed on Silver Creek due to the sensitive nature of the fish community. As mentioned above, measures to mitigate water quality include Level 1 or Enhanced Protection stormwater management with extended volume storage and extended drawdown. Means to reduce runoff and encourage infiltration should also be implemented where possible.

Redside Dace and other fish within Silver Creek depend upon cold or coolwater conditions, thus the moderation of water temperatures within the stormwater management facility should be addressed further. One way to moderate temperatures is to plant shrub and tree species along the berm surrounding the SWM Pond to provide shade to the standing water. Plantings should take place as soon as possible post construction. A possible alternative is to construct the stormwater management facility as a constructed wetland in which all open water is contained within the vegetated areas. Another alternative is to construct a subterranean stormwater management facility in which water quality is treated underground. In this system, water would remain cool and not have the opportunity to heat up as it would not be exposed to the thermal energy of the sun. This type of facility can be planted with terrestrial vegetation above it which can be used as a park or other open space. The need and implementation of either of these two alternatives, or whether the preferred enhanced level of stormwater control (Level 1 or Enhanced Protection), are adequate, would require further investigation. It is also important to give consideration to reducing the amount of water that reaches any stormwater facility through infiltration trenches and bio-retention, etc. Several Low Impact Development practices for stormwater management are presented in the Scoped Subwatershed Plan (see Dillon 2003), as well as in the Low Impact Development Stormwater Management Manual (CVC and TRCA 2009). The regulation of thermal effects on downstream receiving watercourses is recommended in Dillon (2003).

## 6.2 TREE RETENTION

### 6.2.1 Impacts and Mitigation

To be discussed once the tree survey has been completed in 2010.

## 6.3 HAMLET BUFFER

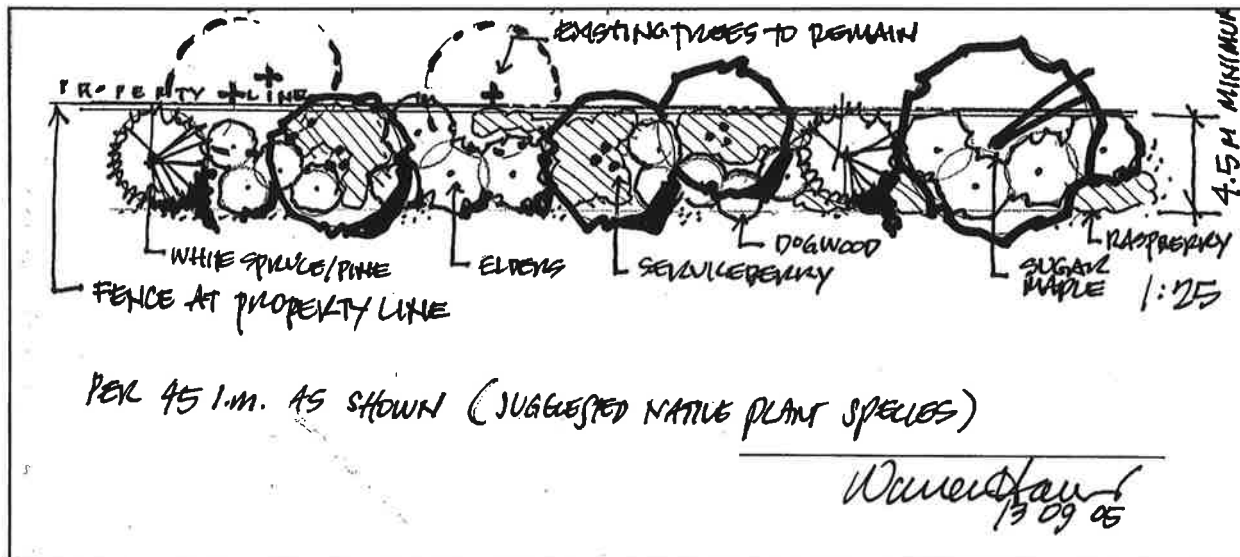
An area designated as Hamlet Buffer (**Figures 4 and 5**) is located along the north-western perimeter of the study site. The Hamlet Buffer serves to maintain the Hamlet's scale and character, and provides a natural screen along the perimeter of the Hamlet of Glen Williams that serves to define the boundaries of the Hamlet as noted in **Section 4.4**. The rear of Lots 16 to 21 occur along the area designated as Hamlet Buffer. There is an existing hedgerow along the north-western perimeter of the study site.

### 6.3.1 Impacts and Mitigation

The Town of Halton Hills has approved an enhanced buffer measuring 4.5 m in depth that will be retained in private ownership (Appendix A: Fax from Warren Harris, Recreation and Parks, September 13, 2005).

Any additional plantings should consist only of plant species that are native to Ontario. The schematic provided by Mr. Harris is presented in Figure 7.

Figure 7. Schematic of Enhanced Buffer (Town of Halton Hills 2005)



## 6.4 POTENTIAL SHORT-TERM CONSTRUCTION-RELATED IMPACTS

The main impacts to be addressed in this section include:

- disturbances from construction traffic and activity (access roads, and stockpiling of materials); and,
- impacts associated with the potential removal of additional vegetation and increased disturbance to vegetation.

### 6.4.1 General Disturbance of Vegetation Communities from Construction

Short-term impacts from construction may be associated with equipment operations.

#### Mitigation

- natural features on adjacent property that require protection should be clearly identified (including individual trees where applicable) and fenced (1 m outside of the drip line of trees) to ensure no construction traffic, or equipment or materials storage intrude on these areas;
- stockpiling of soil should be done away from protected natural areas and silt fencing used to prevent sediment transport;
- where possible fill removed in the process of grading on the subject property (i.e., cutting) should be used again on the property as fill where appropriate;
- for those areas designated for development, soil disturbance and disturbance of the existing vegetation on site should be limited to those areas requiring grading or excavation;
- development limits should be fenced with page wire fencing to delineate areas for protection and non-disturbance. Filter cloth should also be placed on the development side of the fencing, toe-in with earth; and

- disturbed soils should be stabilized to prevent water and wind erosion.

#### 6.4.2 Erosion and Siltation

Prior to the building construction program, the installation of a silt control fence will be completed surrounding the proposed disturbance areas of the subject site with allowance for construction access. This will control the quality of runoff and localize the areas of intense erosion and sedimentation. The perimeter properties will be protected using a siltation control fence. Regular maintenance and all necessary repairs shall be performed regularly, including the safe disposal of all sediment material (Condeland 2009).

An approved sediment control plan should be in place prior to the start of construction. The proposed erosion control measures should be implemented prior to the commencement of construction activities, they should be inspected regularly (more frequently prior to periods of rainfall), and they should be repaired or replaced where damaged by construction activities or where they have become ineffective due to silt build-up.

##### Mitigation

- development should follow an approved erosion and sediment plan;
- prior to commencement of any construction activities (area grading, road construction, vegetation removal, *etc.*), appropriate temporary, followed by permanent storm water management facilities should be installed to mitigate sedimentation from surface water runoff;
- perimeter silt fencing of a size and type capable of containing runoff should be installed down slope of all construction areas to retard and filter surface water runoff;
- the timing of construction should avoid periods of high rainfall in the spring and fall;
- exposed soils should be re-vegetated as soon as possible and re-vegetation should be completed prior to the onset of winter; and,
- site drainage should be designed to prevent direct concentrated or channelized surface runoff from flowing directly over slopes, and onto adjacent properties;

#### 6.4.3 Soil and Water Contamination

Soil and water contamination can arise from fuel storage or re-fuelling of vehicles on site.

##### Mitigation

- fuel storage on site should only use approved (preferably double-wall containment) fuel storage tanks;
- vehicle re-fuelling should be carried out using appropriate precautions to prevent spillage and in designated refuelling zones; and,
- Spill kits should be on-site and located at the refuelling zones.

### 6.5 POTENTIAL LONG-TERM IMPACTS

#### 6.5.1 Invasive Non-native Plants and Animals

Non-native invasive plants and animals can establish in natural areas displacing native plants and animals. Efforts to control non-native species that have become established, as well as prevent the establishment of new non-native plants and animals are important to maintain the health and diversity of natural ecological systems.

### **Mitigation**

- restore disturbed areas to native vegetation communities, such as the berm surrounding the SWM Pond using appropriate native species of local stock;
- do not use invasive, non-native ornamentals plants for landscaping (e.g., Norway maple, purple loosestrife, Japanese knotweed, Japanese honeysuckle, etc.); and,
- do not allow cats and dogs to roam freely within natural areas.

### **6.5.2 Impacts on Water Quality and Fisheries**

The proposed Draft Plan of Subdivision has the potential for local impacts on Silver Creek due to reduced infiltration of water into the ground and changes in the amount, quality and timing of surface and sub-surface water flows to Silver Creek (Dillon 2003).

### **Mitigation**

- best management practices be utilized to ensure the maintenance of both water quality and quantity as a part of the stormwater management facilities proposed;
- infiltration of surface water should be facilitated as much as possible to mitigate surface water flows to the stormwater management facility (and downstream fish habitat) and to enhance groundwater recharge;
- alternatives to standard stormwater management facility design should be explored (e.g., constructed wetland, plantings, etc.) to further mitigate water quality (especially water temperature) and quantity; and,
- residents should avoid using chemicals (e.g., pesticides, herbicides, cleaning products, etc.) that may contaminate surface water and no deleterious substances (e.g., paint, oil, soapy water, etc.) should be dumped into storm sewers.

## **7.0 MONITORING**

### **7.1 SHORT-TERM (CONSTRUCTION) MONITORING**

Regular inspection and monitoring of environmental protection measures identified in this report are recommended. Construction activities should be monitored to ensure that there are no impacts to environmental features or properties adjacent to the study site, and special attention should be paid when there are periods of unusually high rainfall or rapid snowmelt. When serious environmental impacts are discovered there should be immediate notification to the following persons to remedy the problem: the contractor responsible for activities on the site, the developer for the site, and the appropriate contacts at the Town of Halton Hills and the CVC.

The recommended monitoring tasks may include:

1. In consultation with contractors identify in the field the location of areas for protection and ensure the installation of appropriate fencing for the protection of these areas.
2. Verify the placement and construction of sediment and erosion control measures as identified in sediment and erosion control plans.
3. Site inspections should consider the need to vegetate areas of exposed soil that may be prone to wind and/or water erosion.

4. Undertake regular site inspections to monitor the efficacy of all erosion and sediment control measures.
5. Monitoring to ensure the appropriate de-watering and erosion control measures are taken to avoid impacts to water quality within Silver Creek. Additional erosion control mats may be needed to mitigate impacts associated with unforeseen circumstances that may arise when soils are exposed and rainfall events occur.
6. Site inspections should be conducted to monitor for any toxic spills. Particular attention should be given to the maintenance practices for construction equipment, diesel and gasoline filling tanks/pumps (if present on site) and any other toxic materials that may be brought on site as a part of site development.
7. Verify that all construction activities, including the movement of heavy equipment, parking of vehicles and placement of construction materials takes place outside of designated protection zones.
8. Large garbage containers used on site should have covers to minimize the amount of garbage blown around both on and off the site, during the construction of homes. Verify that garbage is disposed of responsibly on site, and garbage carried off by the wind should be collected and disposed of properly. This is an ongoing issue at many construction sites and should be carefully monitored.
9. Verify the completion of planting plans for the stormwater management facility, or verify the completion of planting plans for the proposed constructed wetland in place of the SWM pond.

## 7.2 LONG-TERM MONITORING

The environment is dynamic and changes will occur over time. Due to the change in surrounding land use, some changes in the environment may be considered negative and appropriate steps may be taken to prevent further impact and/or reverse the existing change. Some of the long-term monitoring required to ensure the health of protected open space include the following:

- inspection of SWM facilities to determine their continued functioning as intended, to look for erosion at outlets and to determine the need to remove accumulated silt;
- field surveys may look for invasive species requiring removal; and,
- restoration areas may be examined to determine if follow up stewardship measures are required.

The CVC has a long-term environmental monitoring program that examines ecological integrity at landscape, community and species scales. CVC should be contacted to determine what appropriate long-term monitoring protocols would complement existing monitoring in the Credit River watershed that could be implemented within the Draft Plan of Subdivision.

## 8.0 CONCLUSION AND RECOMMENDATIONS

Development within Credit River Subwatershed requires careful planning to minimize the overall impact to the immediate and surrounding natural areas. The protection of fisheries habitat, the provision of a Hamlet Buffer, and plantings along sloped areas (SWM Pond) post grading that are recommended in this report, are based on the objective to maintain and improve the essential natural features.

The Draft Plan of Subdivision addresses these protection issues while also accommodating an area of development.

This study has identified the following environmental features and recommended protection measures as follows:

1. There is no fish habitat on the study site, however, fish habitat within Silver Creek southwest of the study site, could be impacted indirectly as a result of the proposed Draft Plan of Subdivision. Issues are related to the potential changes to recharge and discharge. However, an enhanced level of stormwater control, Level 1 or Enhanced Protection, will be implemented in the Stormwater Management facility to mitigate water quality of water stored, and subsequently discharged from the stormwater pond. This level of protection is in accordance with Table 3.2 of the Storm Water Planning and Design Manual, March 2003 (Condeland 2009). In addition, several recommended alternatives to the proposed SWM Pond (see **Section 6.1**) could additionally reduce impacts to the mixed coldwater/coolwater system within Silver Creek that supports a sensitive and endangered species, Redside Dace. To this end, it is critical that all on-site measures should maintain or enhance the local infiltration functions on the subject site, to the extent possible.
2. It is possible that several trees will need to be removed from the subject property due to issues of grading and road alignment. This will be evaluated at a later date, in 2010. Any tree replacement that might be necessary should include only native trees, and cues could be taken from tree species that currently occur on-site.
3. There is an existing hedgerow located along the north-western perimeter of the proposed Draft Plan of Subdivision where the Hamlet Buffer is located, as identified by the GWSP (2005) (see **Figures 4 and 5**). A 4.5 m enhanced buffer has been approved by the Town of Halton Hills as shown on **Figure 7** (see **Appendix A**). Enhanced plantings should consist only of plant species native to Ontario.

## 9.0 REFERENCES

- Chapman, L.J. and D.F. Putnam. 1984. The Physiography of Southern Ontario; Ontario Geological Survey, Special Volume 2, 270 p. Accompanied by Map P.2715 (coloured), scale 1:600 000.
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**APPENDIX A**  
**FAX FROM THE TOWN OF HALTON HILLS**  
**REGARDING THE HAMLET BUFFER**





Recreation and Parks Department  
 (905) 873-2601 extension 2274  
 FAX (905) 873 1587  
 warrenh@haltonhills.ca

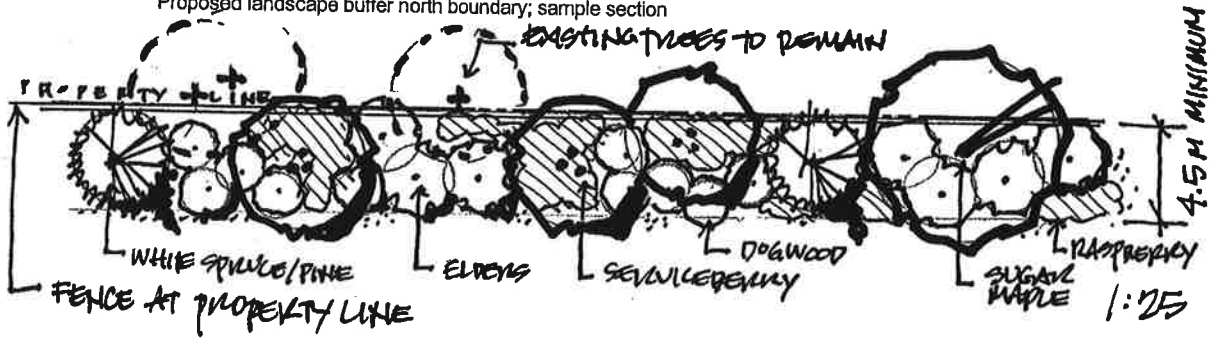
# Fax

To: Glenn J. Wellings Wellings Planning Consultants Inc	From: Warren Harris, Recreation and Parks
Fax: 905 681 8741	Pages: 1
Phone: 905 681 1769	Date: September 13, 2205
Re: D12 Devins Subdivision Hamlet Buffer	CC: Andrew Marshall, CVC 905 670 2210 Steve Burke, Planning

Urgent     For Review     Please Comment     Please Reply     Please Recycle

**Comments:**

Proposed landscape buffer north boundary; sample section



PER 45 I.M. AS SHOWN (SUGGESTED NATIVE PLANT SPECIES)

*Warren Harris*  
 13 09 05

