



Samsung Renewable Energy Inc. and
Pattern Energy

6B Water Body Site Investigation
Report

For
South Kent Wind Project

SOUTH KENT WIND PROJECT **Water Body Site Investigation Report**

Prepared for:

Hatch Ltd.

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Project No. 1184

Date: May 2012



NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

SOUTH KENT WIND PROJECT
Water Body Site Investigation Report

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Report submitted on May 1, 2012



Andrew G. Ryckman

Water Body Site Investigation Report – Summary of Revisions from Layout 012 to Layout 020

Revisions to the Water Body Site Investigation Report were required based on modifications to the layout for the South Kent Wind Project (Layout 012 to Layout 020). These modifications included the removal of 6 proposed turbines, relocations of 39 proposed turbines (between 3m to 354m of their original locations), as well as changes to infrastructure, including access roads and cabling.

Revisions to the Site Investigation Report from Layout 012 to Layout 020 include:

- Twelve seepage areas were identified within the Project Area (compared to the eight seepage areas that were identified in Layout 012)
- Twenty waterbody observations from 2010 were no longer within the Project Area
- A total of 24 additional waterbody observations were made in 2011
- A number of Project components have changed distances from waterbodies, including the following:
 - o There are 31 waterbody sections within 120m of an access road in Layout 020 (compared to 9 waterbody sections within 120m of an access road in Layout 012)
 - o There are 145 waterbody sections within 120m of cabling in Layout 020 (compared to 102 waterbody sections within 120m of cabling in Layout 012)
 - o There are 26 waterbody sections within 120m of an access road/cabling in Layout 020 (compared to 38 waterbody sections within 120m of an access road/cabling in Layout 012)
 - o There are 3 waterbody sections crossing an access road in Layout 020 (compared to 9 waterbody sections crossing an access road in Layout 012)
 - o There are 189 waterbody sections crossing cabling in Layout 020 (compared to 171 waterbody sections crossing cabling in Layout 012)
 - o There are 73 waterbody sections crossing an access road/cabling in Layout 020 (compared to 69 waterbody sections crossing an access road/cabling in Layout 012)
 - o There are 51 different turbines within 120m of waterbody sections (compared to 45 different turbines in Layout 012)
 - o There are 54 locations where turbines are within 120m of waterbody sections (compared to 52 locations in Layout 012)
 - o There are 14 waterbodies within 30m of the turbine Project location (compared to 19 waterbodies in Layout 012)
- All references to overhead and underground cabling were removed from the report, and were replaced with the word 'cabling' to allow for some flexibility during the construction phase of this Project

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Appendix I: Site Investigation Field Notes

1.0 Introduction

Natural Resource Solutions Inc. (NRSI) was retained in September 2010 by Hatch Ltd. (“Hatch”), on behalf of Samsung Renewable Energy Inc. and Pattern Energy (the “Proponent”) to conduct a records review in accordance with the Renewable Energy Approval (REA) regulations for a proposed wind energy generating facility in the Regional Municipality of Chatham-Kent, Ontario. This assessment includes a detailed review of available background information from a variety of sources, including Ministry of Natural Resources (MNR), Lower Thames Valley Conservation Authority (LTVCA), municipal files, existing biological studies, and other available online or published resources.

The proposed South Kent Wind Project (“the Project”) is located in the southern half of the Regional Municipality of Chatham-Kent between Highway 401 and the shoreline of Lake Erie. This wind energy generating facility is proposed to be 270 MW in size, consisting of a total of 124 operational wind turbines, as well as supporting infrastructure, including access roads and buried and/or overhead collection/transmission lines. The collection/transmission system will include an approximately 34 km, 230 kV transmission line and two (2) substations to enable step-up of the voltage from 34.5 kV to 230 kV to connect to Chatham Switching Station (SS).

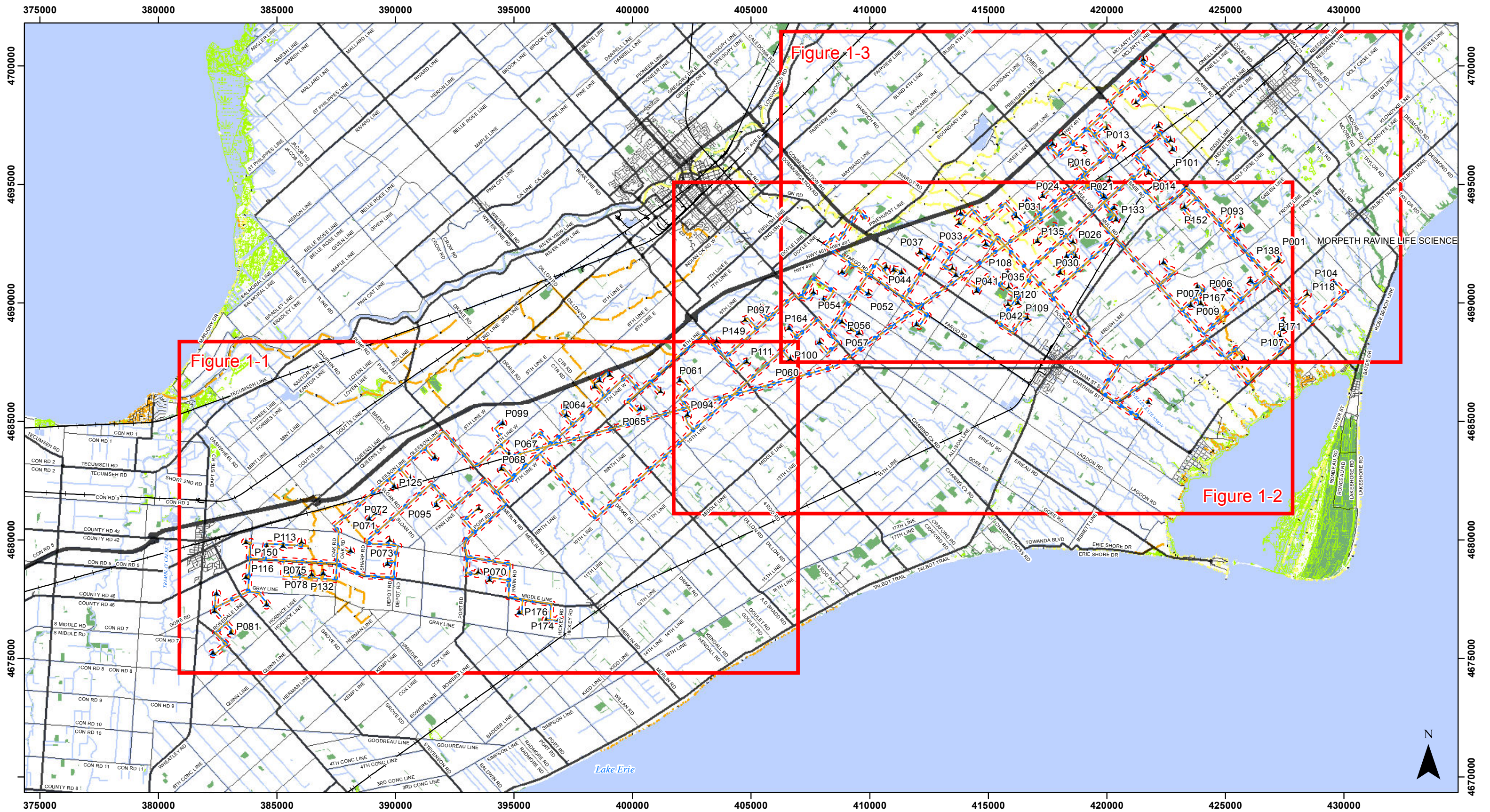
In accordance with the Renewable Energy Approval (REA) Regulation, NRSI has conducted a thorough records review of available background resources to identify any potentially significant natural features within 120 m of proposed development activities. This includes areas within 120 m of turbines (measured from blade tip), access roads, cabling (which includes distribution lines), and substations, collectively referred to as Project components.

As identified in the Ontario Regulation (O. Reg.) 359/09 – *Renewable Energy Approvals Under Part V.0.1 of the Act*, (herein referred to as the REA Regulation) made under the *Environmental Protection Act (EPA)*, the ‘Project location’, includes all development activities proposed to occur on land or in air. In order to ensure all areas within 120 m of the Project location were reviewed for the presence of water bodies, NRSI biologists have examined the ‘Project area’, which includes all water bodies within 120 m of the

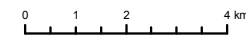
Project location. The Project is located in southwestern Ontario primarily between Highway 401 and Lake Erie and approximately between the towns of Tilbury and Ridgetown to the west and east respectively.

The Project is located primarily within areas of active agricultural practices, including rotational crops of corn and soy beans. Other land uses, including hayfields and agricultural pasture, are also expected to be present within the general Project area. Fragmented woodlands, hedgerows, and small wetland pockets are characteristic of this area of Ontario, and are expected to be occasionally present throughout the Project area.

The Project location, including the 120 m Project area surrounding Project components, as required by the REA Regulation, is identified in Figure 1-1, 1-2, and 1-3. These figures include all historical water bodies and appear as they do in the *Water Body Records Review Report* (NRSI 2012a). Any changes in water body presence or location, based on the site investigation, are shown in Section 7.2 - Site Investigation Results: Water Body Observation Summaries.



Key Map
South Kent Wind Project
 Project Area and Aquatic Features



April 23, 2012. Project No: NRSI-1184.
 UTM Zone 17, NAD 83 Scale: 1:150,000 (at 11x17")

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Legend			
	Project Area (April, 2012)		Access Road
	Constructible Area		Railway
	Proposed Turbine (L020)		Highway
	Substation		Primary Road
	Cabling		Secondary Road
	Fish Species at Risk		Wooded Area
	Mussel Species at Risk		Watercourse
	Fish Species at Risk		Waterbody
	Wetland Area		Mussel Species at Risk

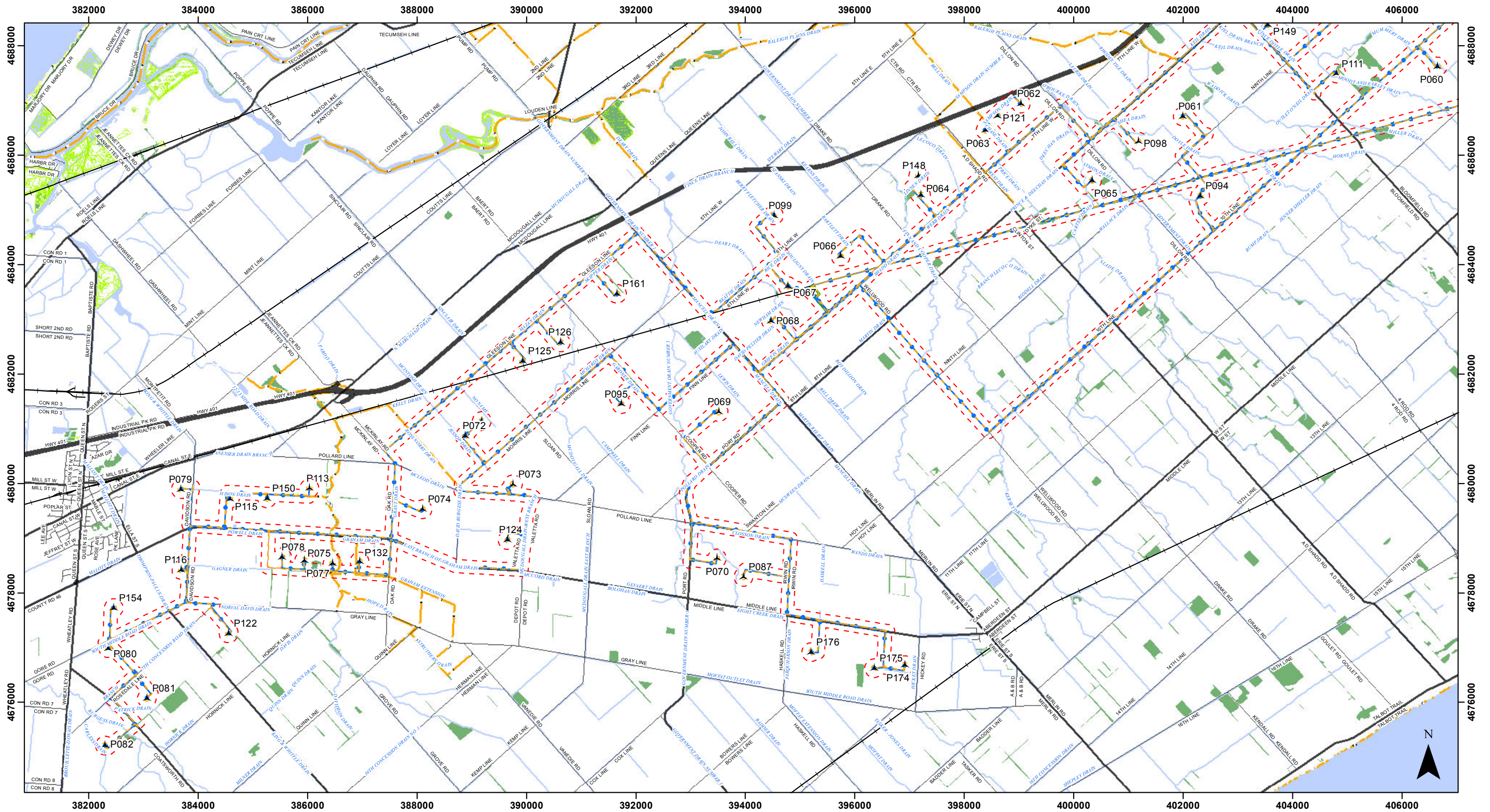
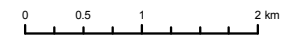


Figure 1-1
South Kent Wind Project
Project Area and Aquatic Features



April 23, 2012. Project No: NRSI-1184.
 UTM Zone 17, NAD 83 Scale: 1:65,000 (at 11x17")

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Legend			
	Project Area (April, 2012)		Access Road
	Constructible Area		Railway
	Proposed Turbine (L020)		Fish Species at Risk
	Substation		Mussel Species at Risk
	Cabling		Watercourse
	Highway		Wooded Area
	Primary Road		Waterbody
	Secondary Road		Wetland Area
			Mussel Species at Risk
			Fish Species at Risk

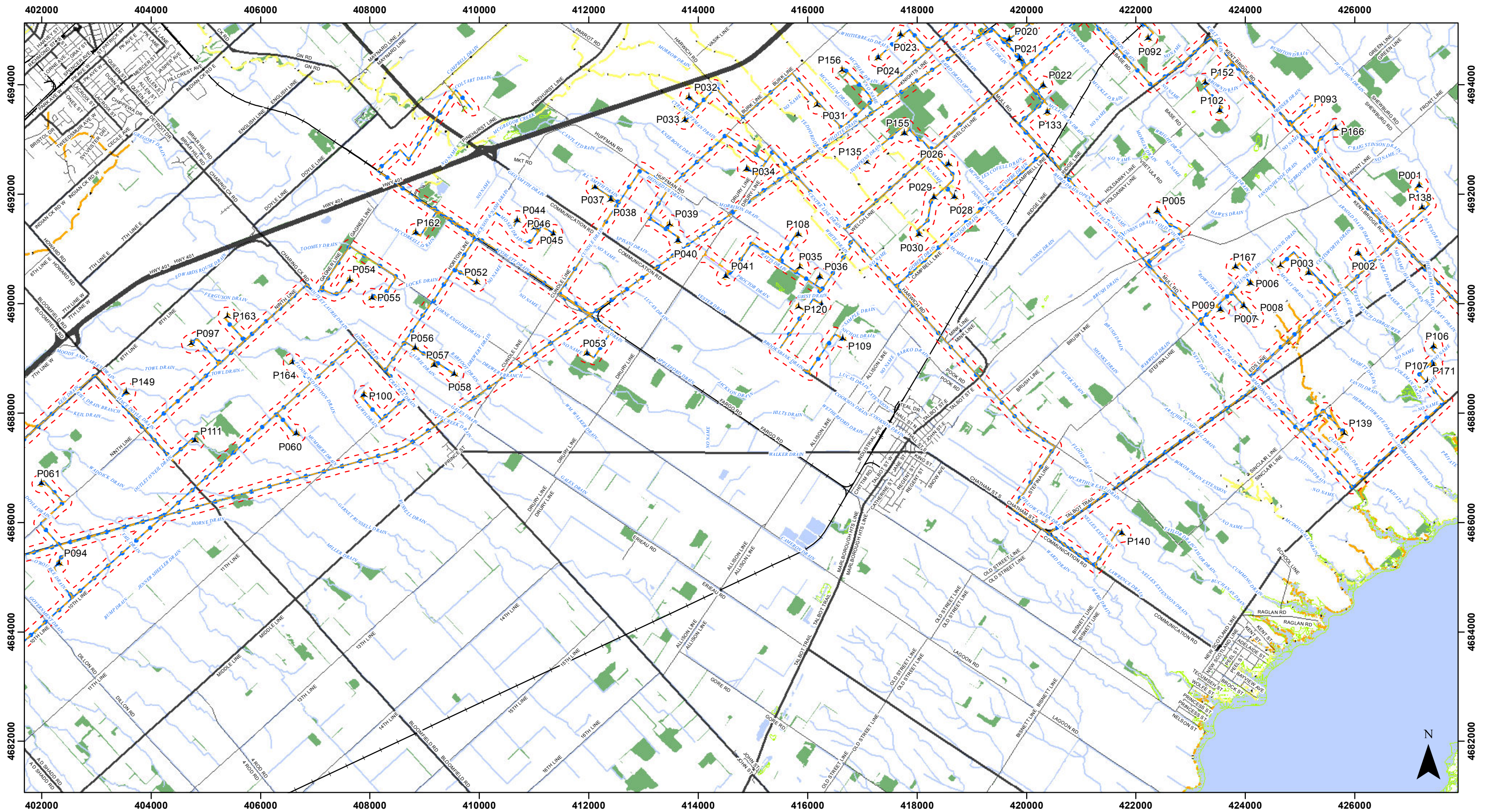


Figure 1-2
South Kent Wind Project
Project Area and Aquatic Features



0 0.5 1 2 km

April 23, 2012. Project No: NRSI-1184.
 UTM Zone 17, NAD 83 Scale: 1:65,000 (at 11x17")

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Legend

- | | | | |
|----------------------------|----------------|------------------------|------------------------|
| Project Area (April, 2012) | Access Road | Fish Species at Risk | Waterbody |
| Constructible Area | Railway | Mussel Species at Risk | Wetland Area |
| Proposed Turbine (L020) | Highway | Watercourse | Mussel Species at Risk |
| Substation | Primary Road | Wooded Area | Fish Species at Risk |
| Cabling | Secondary Road | | |

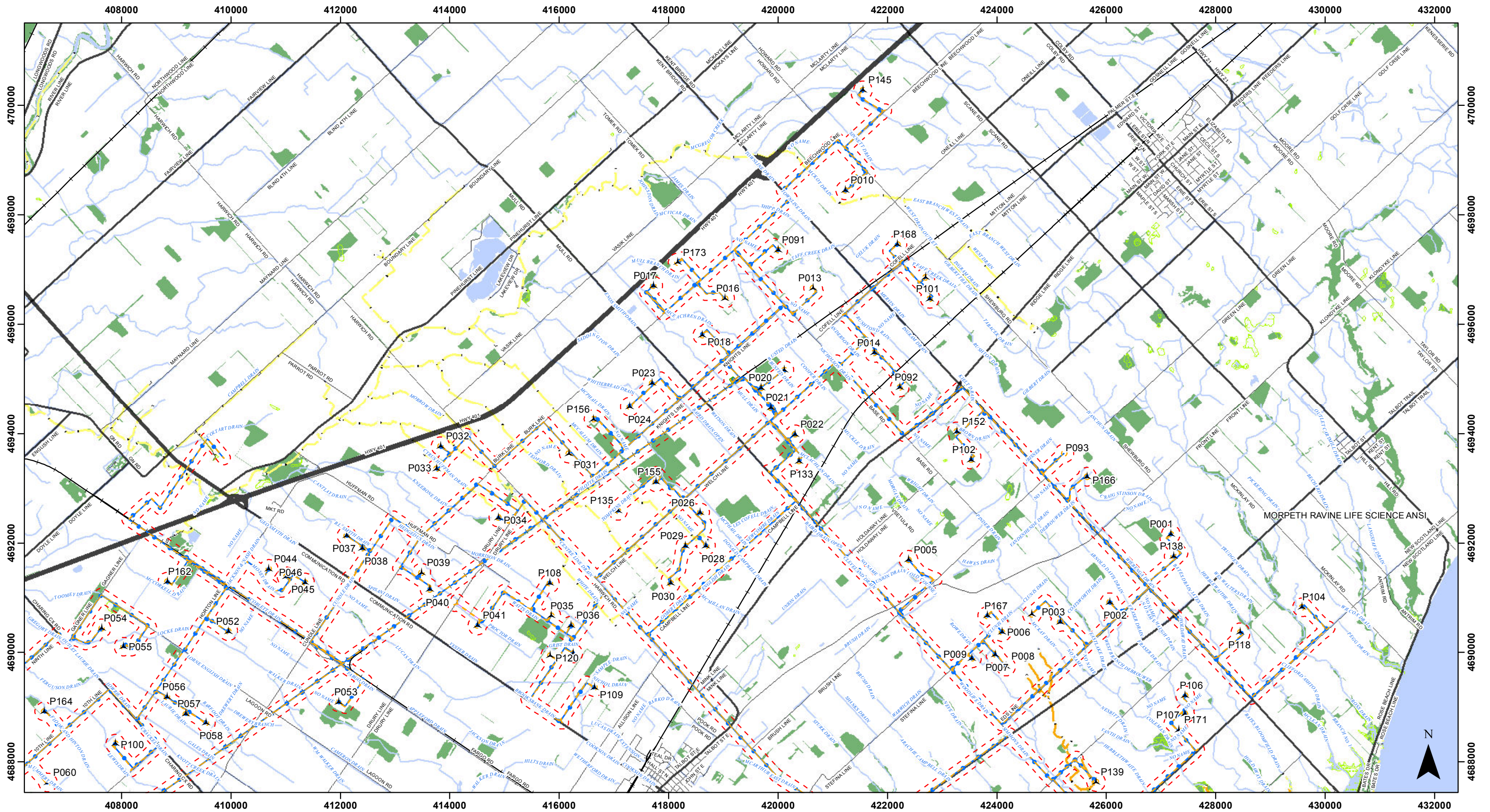


Figure 1-3
South Kent Wind Project
Project Area and Aquatic Features



0 0.5 1 2 km
 April 23, 2012. Project No: NRSI-1184.
 UTM Zone 17, NAD 83 Scale: 1:65,000 (at 11x17")

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Legend			
	Project Area (April, 2012)		Access Road
	Constructible Area		Railway
	Proposed Turbine (L020)		Highway
	Substation		Primary Road
	Cabling		Secondary Road
	Fish Species at Risk		Wooded Area
	Mussel Species at Risk		Waterbody
	Watercourse		Wetland Area
	Wooded Area		Mussel Species at Risk
	Fish Species at Risk		

2.0 REA Requirements

The REA Regulation identifies the requirements for the development of renewable energy projects on Ontario. In accordance with the REA Regulation, the Project is classified as a Class 4 wind facility, and is required to complete a REA submission.

Section 31 (1) subject to subsection (2) of the REA Regulation requires proponents of Class 4 wind projects to undertake a water site investigation for the purpose of determining:

- (a) whether the results of the analysis summarized in the report prepared under subsection 30(2) are correct or require correction, and identifying any required corrections;
- (b) whether any additional water bodies exist, other than those identified in the records review;
- (c) the boundaries, located within 120 m of the Project location, of any water body that was identified in the records review or the site investigation; and
- (d) the distance from the Project location to the boundaries determined under clause (c).

The REA Regulation has specific requirements if designated lake trout lakes are present within 300 m of the Project location.

A water body is defined in Section 1.1 of the REA Regulation to include a lake, a permanent stream, an intermittent stream or a seepage area, but does not include:

- a) grassed spillway,
- b) temporary channels for surface drainage, such as furrows or shallow, channels that can be tilled and driven through,
- c) rock chutes and spillways,
- d) roadside ditches that do not contain a permanent or intermittent stream,
- e) temporarily ponded areas that are normally farmed,
- f) dugout ponds, or
- g) artificial bodies of water intended for storage treatment or recirculation of runoff from farm animal yards, manure storage facilities and sites and outdoor confinement areas;

Subsection (3) of Section 31 of the REA Regulation requires the proponent to prepare a report setting out the following:

1. A summary of any corrections to the report prepared under subsection 30 (2) and the determinations made as a result of conducting the site investigation under subsection (1).
2. Information relating to each water body identified in the records review and in the site investigation, including the type of water body, plant and animal composition and the ecosystem of the land and water investigated.
3. A map showing,
 - i. The boundaries mentioned in clause (1) (c) or (2) (c) and (d),
 - ii. The location and type of each water body identified in relation to the Project location, and
 - iii. The distances mentioned in clause (1) (d) or (2) (e).
4. The dates and times of the beginning and completion of the site investigation.
5. The duration of the site investigation.
6. The weather conditions during the site investigation.
7. A summary of methods used to make observations for the purpose of the site investigation.
8. The name and qualifications of any person conducting the site investigation.
9. Field notes kept by the person conducting the site investigation.

This Water Body Site Investigation Report has been prepared to meet these requirements.

3.0 Staff Roles

The requirements of the REA process indicate that the name and qualifications of all staff participating in the site investigation be identified. As a result, the qualifications and roles of all staff participating in the completion of the Project have been outlined in the following sections.

3.1 Andrew G. Ryckman, B.Sc.

Andrew is a Terrestrial and Wetland Biologist with 7 years of environmental experience. He routinely manages the natural heritage aspects of renewable energy projects, with specific expertise relating to bats and herpetofauna. Andrew is certified in Ecological Land Classification (2010), and has successfully completed a Bat Conservation International (BCI) Acoustic Monitoring Workshop (2008).

Andrew's role for the Project was to act as the project manager, overseeing all aspects of the Water Body Assessment, including both field work and reporting. He assisted with the preparation and final review of the reports, but relied on aquatic resource specialists to complete the site investigations and most of the reporting for this Project.

3.2 Tara Lessard, B.Sc.

Tara is a Terrestrial and Wetland Biologist with more than 4 years of experience working in the environmental field. During her consulting experience, Tara has conducted bird and bat assessments, amphibian studies, and other fauna assessments throughout Ontario. Tara has participated in field investigations and reporting for wind power projects in Ontario and New Brunswick.

Tara's role for the Project was to act as the project manager, overseeing all aspects of the Water Body Assessment, including both field work and reporting. She assisted with the preparation and final review of the reports, but relied on aquatic resource specialists to complete the site investigations and most of the reporting for this Project.

3.3 Deanna Calhoun, B.Sc.

Deanna is an Aquatic Biologist with 6 years of experience in environment characterization, 4 years of which have been in environmental consulting. She

specializes in aquatic habitat assessment, fish community assessment, and field collection methods for fish and benthic invertebrates. Deanna is certified in the Ontario Stream Assessment Protocol (OSAP), Ontario Benthic Biomonitoring Network (OBBN), Ministry of Transportation (MTO) / Department of Fisheries and Oceans (DFO) / Ontario Ministry of Natural Resources (OMNR) Fisheries Protocol Training, and Royal Ontario Museum Fish Identification. Deanna regularly contributes to reports and routinely reviews scientific literature in support of projects.

Deanna assisted with some of the site specific field investigations, as well as completing the 2011 revisions to the Draft Water Body Records Review, Site Investigation and Impact Assessment reports. She also assisted with background information collection and review, mapping, and data analysis.

3.4 Gina MacVeigh, F.W.T., E.T.

Gina is an Aquatic Biologist with more than 5 years of work experience in the environmental field. Her areas of expertise are fish habitat surveys, habitat mapping, and fish community assessments, but she also has extensive knowledge and experience with benthic invertebrate surveys and species identification. Gina has been certified to the level two fish identification (2010) under the Ontario Stream Assessment protocol, and has also obtained her Ontario Benthic Biomonitoring Network Certificate (2009). She has also completed the Fish and Species at Risk Identification courses through the Royal Ontario Museum (2009).

Gina's role for the Project was to prepare the original Water Site Investigation Report and to provide input to the additional water reports. Gina also completed the 2012 revisions to the Water Records Review, Site Investigation, and Impact Assessment reports.

3.5 Steve P. G. Burgin, F.W.T. B.Sc.

Steve is a recent graduate from Trent University with a B.Sc. in Biology with honours and currently works as an Aquatic Biologist. Previous contract positions have provided him with more than 3 years of practical work experience in the environmental field. His areas of expertise include fish habitat surveys, habitat mapping, and fish community

assessments, but he also has experience with benthic invertebrate surveys and species identification.

Steve's role for the Project was to prepare the Water Records Review and to provide input to the additional water reports.

3.6 Valerie Evans, B.Sc. E.M.T.

Valerie is an Aquatic Biologist with 7 years experience in the environmental field. She has a degree in Agricultural and Environmental Science with a major in Environmental Biology and an Ecosystem Management Technician Diploma from Fleming College. She has sampled a wide variety of ecosystems across Canada including aquatic streams and rivers in Ontario. Furthermore she has been certified in the Ontario Stream Assessment Protocol (OSAP), Ontario Benthic Biomonitoring Network (OBBN), Royal Ontario Museum Fish Identification Course and has written a number of reports including a shoreline restoration plan.

Valerie's role for the Project was to collect aquatic habitat field data and compile 2011 and 2010 observations followed by preparing the June 2011 Water Site Investigation Report.

3.7 Ian Reimenschneider, B.Sc. F.W.T.

Ian recently graduated from Trent University with an Honours B.Sc. in Biology and has also graduated from the Fish and Wildlife Technology program at Fleming College. Now an Aquatic Biologist, Ian has been working with and studying fish for the past 6 years, 3 of which as a fisheries technician with the MNR and DFO. He specializes in the biology of freshwater fishes, fish habitat, and fish community assessments. Additionally, he possesses experience with benthic invertebrate surveys and species identification.

Ian conducted the site specific field investigations of the aquatic features surrounding proposed turbine locations and roadside transmission line cabling.

3.8 Siobhan Murray, F.W.T.

Siobhan is an Aquatic Biologist with more than 3 years of practical work experience in the environmental field. During these 3 years, she specialized in fish, fish habitat, and

benthic invertebrate monitoring using the Ontario Stream Assessment Protocol and the Ontario Benthos Biomonitoring Protocol. She obtained her Ontario Benthic Biomonitoring Network Certificate in 2009 and her Ecological Land Classification certificate in 2010.

Siobhan conducted the site specific field investigations of the aquatic features surrounding proposed turbine locations and roadside transmission line cabling.

3.9 Carolyn T. Knapper, E.M.T., F.W.T.

Carolyn is an Aquatic Biologist who recently graduated from the Fish and Wildlife Technician program at Fleming College. Her field experience also includes some terrestrial work as she also completed a diploma in Ecosystems Management which brought her to Costa Rica to study reptiles and amphibians. Carolyn is returning to Fleming this fall to complete the Fish and Wildlife Technologist program, and plans to complete her degree in Biology at Trent University after that.

Carolyn's role in the Project included helping to collect some of the field data, and compiling this data for reporting. She also helped complete the Records Review for the July report submission.

3.10 Blair Baldwin, B.Sc.

Blair is an Aquatic Biologist who recently graduated from the University of Guelph with an Honours B. Sc. in Marine and Freshwater Biology. His areas of experience include fish habitat surveys, habitat mapping, fish community assessments, and benthic invertebrate surveys.

Blair's role in the Project included summarizing field notes and measuring distances to project infrastructure.

3.11 Pamela Tucciarone

Pamela graduated from the University of Toronto in a Biology Specialist program. She has more than 2 years of practical work experience, focusing on urban forestry, insect identification, and insect pest management. During this time period, she specialized in detecting the presence of the emerald ash borer and delineating the extent of its

infestation. Pamela is a certified arborist (2011) and has participated in field investigations and reporting for several REA solar and wind power projects in southern and northern Ontario.

Pamela's role in the Project included collecting field data for the site investigation report.

3.12 Shawn MacDonald, B.A. GIS-AS

Shawn has more than 3 years' experience in renewable energy mapping, spatial analysis and asset management systems. As a Geographic Information Systems (GIS) Analyst Shawn specializes in projects relating to wind, solar and hydroelectric power. Shawn has a wide range of project and field experience using GIS, GPS, AutoCAD and other technologies throughout all stages of a renewable energy project. This experience is not limited to renewable energy alone as Shawn has been involved in a number of projects relating to terrestrial and aquatic habitat mapping, environmental restoration and spatial/3D analysis.

Shawn's role in the Project was the primary GIS Analyst. He collected and reviewed all available background mapping resources and was the primary contact of the GIS department for the Project.

3.13 Gerry Schaus, B.A. GIS-AS

Gerry has over 4 years' experience in the renewable energy sector and regularly does mapping for wind, solar and hydroelectric projects. This work includes mapping of natural features, vegetation communities, and aquatic habitats, terrestrial monitoring, constraints and proposed turbine layouts. Gerry has also completed a number of receptor surveys for proposed wind projects using Trimble GPS and a laser offset to accurately gather building points without ever needing to step on private property. Additionally, Gerry has significant experience working with AutoCAD and (AutoCAD) Map3D. This expertise allows for the easy integration of CAD plans with GIS layers or vice versa.

Gerry's role in the Project was as GIS technician. He reviewed and collected all available background mapping resources to compile into Project mapping.

4.0 Summary of Results of Records Review

In accordance with REA Regulation, NRSI biologists have conducted a comprehensive records review of all water bodies within the Project area (120 m of Project components). The record review began in September 2010 upon reviewing the first Project layouts and has subsequently been revised to align with the current Project layout as of January 2012. Table 1, below, from the *Water Body Records Review Report (NRSI, 2012a)* summarizes the number of water body observation locations within the Project area. These locations dictated the locations of the water body observation points conducted for this site investigation report.

Table 1. Summary of Water Body Records Review

Criteria	Yes/No	Result
i. In a water body	Yes	Based on available DFO mapping, a total of 297 project components were found to intersect with a water body. Based on mapping provided by the LTVCA, a total of 273 project components cross a water body.
ii. Within 120 m of the average annual high water mark of a lake, other than a lake trout lake that is at or above development capacity	No	No Project components are found within 120 m of the average annual high water mark of a lake, other than a lake trout lake that is at or above development capacity.
iii. Within 300 m of the average annual high water mark of a lake trout lake that is at or above development capacity	No	No Project components are found within 300 m of the average annual high water mark of a lake trout lake that is at or above development capacity.
iv. Within 120 m of the average annual high water mark of a permanent or intermittent stream	Yes	The South Kent Wind Project is located within 120 m of the average annual high water mark of 216 permanent and intermittent watercourses (refer to Appendix II). The majority of watercourses that fall within this 120 m boundary occur as linear agricultural drains which parallel roads and fields; and facilitate drainage for agricultural practices. The vast majority of these drains have been classified as Class-C and Class-F drains (DFO 2010). However there are several larger watercourses which actively drain water north of the Project Area

		into the Thames River, or south into Rondeau Bay and Lake Erie. Many of these larger drains have been classified as E-Class and C-Class.
iv. Within 120 m of a seepage area	No	No Project components are found within 120 m of any seepage areas.

5.0 Site Investigation Methodology

Comprehensive site investigations to document the water bodies of the Project area were undertaken in accordance with the REA Regulation and the requirements of the MNR. These site-specific field investigations focused on habitat characteristics and aquatic resources. The result of this site investigation will be used to identify water body locations around Project components requiring mitigation which will be addressed in the Environmental Impact Study. Although REA Regulations allow water bodies within 120 m of Project components in compliance with mitigation measures, no water body is permitted within 30 m from a turbine blade tip.

A summary of the site investigation methods employed for this document is discussed below in sections 5.1 and 5.2.

5.1 Aquatic Habitat Mapping

NRSI initially reviewed aerial imagery and base mapping as part of the Records Review in order to identify the presence and proximity of aquatic features or water bodies within 120 m of all Project components including 120 m from blade turbine tips, access roads, and cabling. Figure 2-1 is the key map for the project area which is further broken down into more figures to show the observation point. In order to accurately identify these water bodies a 120 m buffer was added around all Project components and can be seen in Figure 2-3 through to Figure 2-10. Figure 2-2 was removed from the mapping as layouts changed. Preliminary site investigations began on September 8th, 2010 and were conducted through roadside observations at proposed development locations to verify water body information collected during the Records Review. Site-specific investigations were also completed in 2011 by biologists on foot.

NRSI Biologists developed the following criteria over the course of the field survey (or similar) to guide the collection of aquatic data; basic aquatic habitat assessments were to be conducted for water bodies within 120 m of cabling (including distribution lines) and detailed aquatic habitat assessments were to be conducted for water bodies near all other Project components within 120 m of a water body. All assessments were conducted in accordance with Section 1.1 of the REA Regulation.

Basic aquatic habitat characterization included identifying: water body name, location, natural corridor width and vegetation types, channel morphology classification and width, instream fish habitat which includes bank and channel vegetation as well as flow conditions. Flow conditions were used to classify the water body; if water was found to be flowing without small pools the stream was classified as a permanent stream. All other streams were classified as intermittent streams.

Detailed aquatic habitat characterization includes a more detailed description of all basic aquatic habitat characterization information. These details include additional information on channel morphology (bank height, slope, stability), channel substrate, instream habitat cover, wetted width and cross section as well as water temperature and a site drawing.

In compliance with the REA Regulation requirements each water body observation summary found in section 7.1 contains the date which the observation was made. The time taken to complete all detailed aquatic habitat assessments is recorded on each field note found in Appendix I and all basic habitat assessments took approximately 20 minutes.

All assessments are supported by habitat mapping and field notes (Appendix I).

5.2 Site Investigation Information

Table 2 below provides the staff names, investigation dates, and weather conditions for each site investigation day conducted by NRSI staff. Refer to Section 3.0, Staff Roles for the qualifications of each NRSI Biologist.

Table 2. Site Investigation Details Summary

Observer(s)	Date	Weather Conditions			
		Temp. (°C)	Beaufort Wind Speed	Cloud Cover (%)	Precipitation
Deanna Calhoun & Siobhan Murray	8-Sep-10	20	4	90	None (overcast)
	9-Sep-10	20	3	10-75	None (sunny)
	10-Sep-10	20	3	70	None (sunny)
Siobhan Murray	13-Sep-10	28	2	5	None (sunny)
	14-Sep-10	17	1	0	None (sunny)
	15-Sep-10	17	2	0	None (sunny)
	16-Sep-10	18	3	100	None (overcast)
	17-Sep-10	12	1	50	None (sunny)
Siobhan Murray	21-Sep-10	24	2	0	None (sunny)
	22-Sep-10	18	0	100	Rain
	23-Sep-10	21	2	0	None (sunny)
Siobhan Murray	5-Oct-10	13	1	100	Light Rain
	6-Oct-10	15	1	10	None (sunny)
	7-Oct-10	17	2	0	None (sunny)
Siobhan Murray	21-Oct-10	11	3	90	None (overcast)
	22-Oct-10	3	1	0	None (sunny)
Siobhan Murray	27-Oct-10	11	3	0	None (sunny)
	28-Oct-10	7	4	100	None (overcast)
	29-Oct-10	5	3	100	None (overcast)
Siobhan Murray	16-Nov-10	10	2	100	Light Rain
	17-Nov-10	11	4	0-80	None (overcast)
	18-Nov-10	7	2	80	None (overcast)
Deanna Calhoun & Valerie Evans	13-Apr-11	10	4-5	15	None
	14-Apr-11	7	2-3	90	None(Overcast)

Observer(s)	Date	Weather Conditions			
		Temp. (°C)	Beaufort Wind Speed	Cloud Cover (%)	Precipitation
Deanna Calhoun & Valerie Evans	19-Apr-11	2	4-5	100	None
	20-Apr-11	4	3	100	Some Rain
	21-Apr-11	6	4-5	80	Intermittent Rain
Deanna Calhoun	27-Apr-11	10	6-7	100	None
	28-Apr-11	10	7-8	100	Rain
	29-Apr-11	12	2-3	100	None
Valerie Evans & Ian Riemenschneider	27-Apr-11	17	4-6	100	Heavy Rain
	28-Apr-11	14	6-7	90	None
	29-Apr-11	12	2-3	100	None
Valerie Evans & Carolyn Knapper	15-Jun-11	22	2	85	None
Pam Tucciarone	29-Jun-11	19	2	20	None (Sunny)
Gina MacVeigh	4-Oct-11	10	1-2	0	None
Gina MacVeigh	5-Oct-11	10	1	5	None
Gina MacVeigh	6-Oct-11	16	1	0	None
Steve Burgin	10-Nov-11	8	3	10	None

6.0 Aquatic Resources

In accordance with the REA Regulation, water bodies within and around the Project area were reviewed by NRSI Biologists. The types of water bodies within the Project area, included lakes, streams, and seepage areas are defined in detail below.

6.1 Lakes

The definition of a water body as defined by the REA Regulation does not include “temporarily ponded areas that are normally farmed, dugout ponds, or artificial bodies of water intended for storage, treatment or recirculation of runoff from farm animal yards, manure storage facilities and sites and outdoor confinement areas” (O. Reg 359/09).

A review of available background information and detailed site investigation has revealed that no lakes are present within the Project. Several small ponds, created for agricultural purposes, were identified throughout the Project area, however since these features are not considered water bodies, they have not been discussed in detail in this report.

6.2 Lake Trout Lakes

The REA Regulation defines Lake Trout (*Salvelinus namaycush*) Lakes as “a lake that has been designated by the Ministry of Natural Resources for Lake Trout management, as set out in records maintained by and available from that Ministry” (O. Reg 359/09).

NRSI biologists have reviewed available background information, including the Inland Ontario Lakes Designated for Lake Trout Management (OMNR 2006), and have confirmed that no Lake Trout Lakes are present within the Aylmer District MNR. Therefore, no Lake Trout lakes are present within the Project area.

6.3 Permanent or Intermittent Streams

REA Regulation defines a Permanent Stream as “a stream that continually flows in an average year” (O. Reg. 359/09) and it defines Intermittent Stream “as a natural or artificial channel, other than a dam, that carries water intermittently and does not have established vegetation within the bed of the channel, except vegetation dominated by

plant communities that require or prefer the continuous presence of water or continuously saturated soils for their survival” (O. Reg. 359/09).

Both permanent and intermittent streams were identified through the review of background information and by NRSI biologists during the site investigations of the features within 120m of the Project area. All water bodies observed within this Project area are considered to be permanent or intermittent streams and are summarized in Site Investigation Results: Section 7.

6.4 Seepage Areas

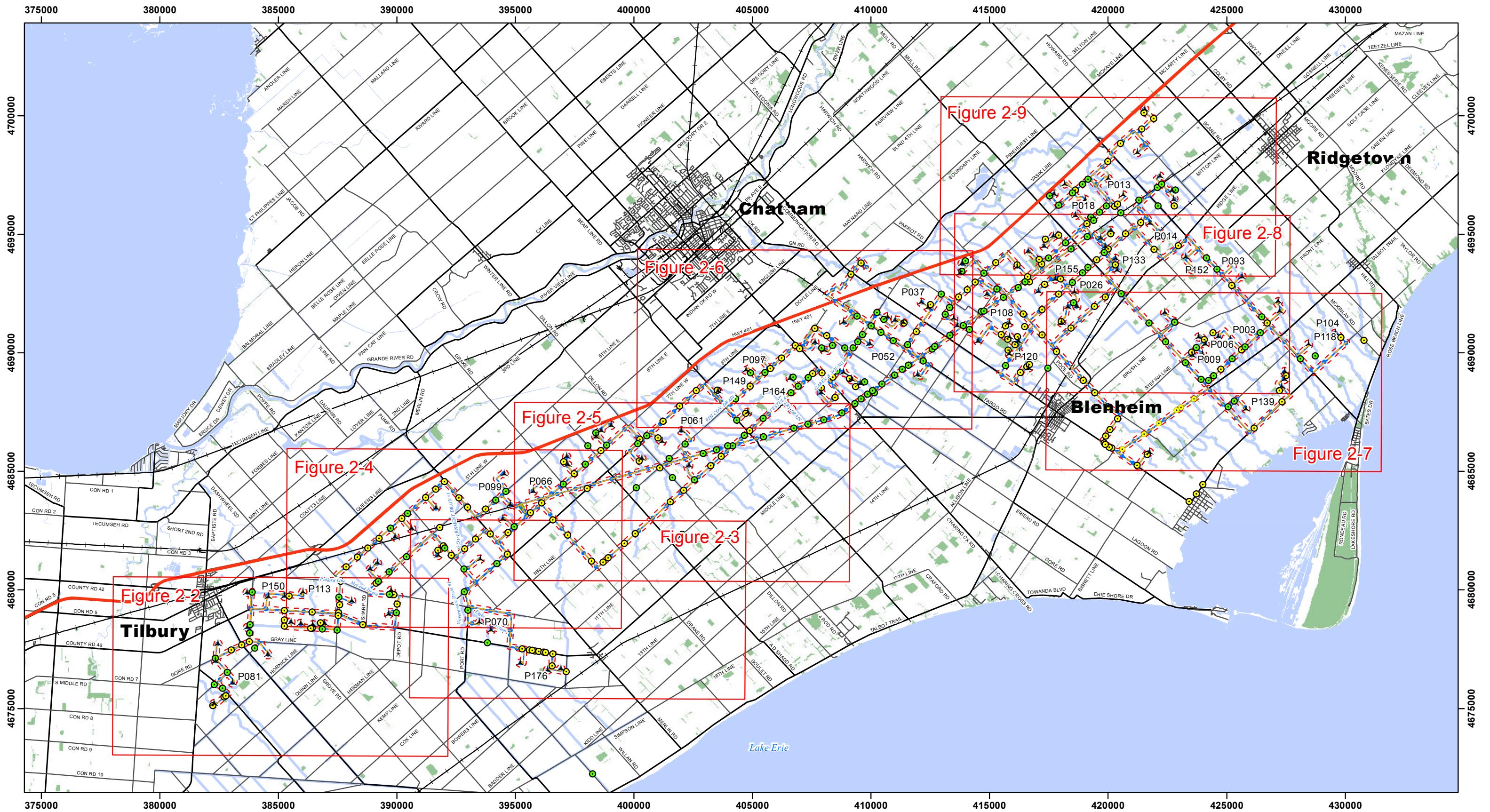
Seepage areas are defined with the REA Regulation as “a site of emergence of groundwater where the water table is present at the ground surface, including a spring” (O. Reg. 359/09). No seepages were identified in the Records Review but a total of twelve (12) sites were identified to occur within the Project area during the site investigation. Details of these water bodies can be found in Table 11 below with site-specific information provided in subsection 7.2 of this report.

7.0 Site Investigation around Project Components

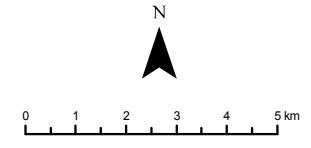
Over the course of the site investigations, 349 Water Body Observations were completed (152 from 2010 and 197 from 2011). These observations were taken at locations identified by the Records Review and include all water bodies within 120 m of all Project components and were assessed as being: adjacent to or crossing a Project component. None of the documented water bodies are found within 30 m of a turbine location. A total of 13 water bodies were documented within 30m of the project location, including measurements from access road, cabling, and the extent of blade sweep area surrounding the turbine location.

Section 7 contains all water body observation: figures (Subsection 7.1) summaries (Subsection 7.2) and summary tables (Subsection 7.3) and has been organized according to figure number. Figure 2-1 displays the extent of the entire Project overlain with the boundaries covered in more detail by each additional figure (Figures 2-3 to 2-10). Figure 2-2 will not appear in this report as it no longer exists due to Project layout changes made between 2010 and 2011. Figure 2-2 was excluded and all other Figure names will remain the same to maintain consistency with field notes. An additional Figure, Figure 2-6a, appears in this report as a result of the latest project layout. It was named 2-6a to avoid alterations to the map references in the field notes.

The last subsection, Subsection 7.4, found in Section 7 details the results of the water bodies containing groundwater seepage areas. Field notes are included in Appendix I.



Key Map
South Kent Wind Project
Waterbody Observations



April 23, 2012. Project No: NRSI-1184
 UTM Zone 17, NAD 83 Scale: 1:150 000 (11x17")

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- Legend**
- - - Project Area (April, 2012)
 - - - Constructible Area
 - - - Proposed Turbine (L020)
 - Substation
 - Cabling
 - Access Road
 - Water Body Observation Points 2010
 - Water Body Observation Points 2011
 - Pond/Lake
 - Highway
 - Primary Road
 - Secondary Road
 - Wooded Area

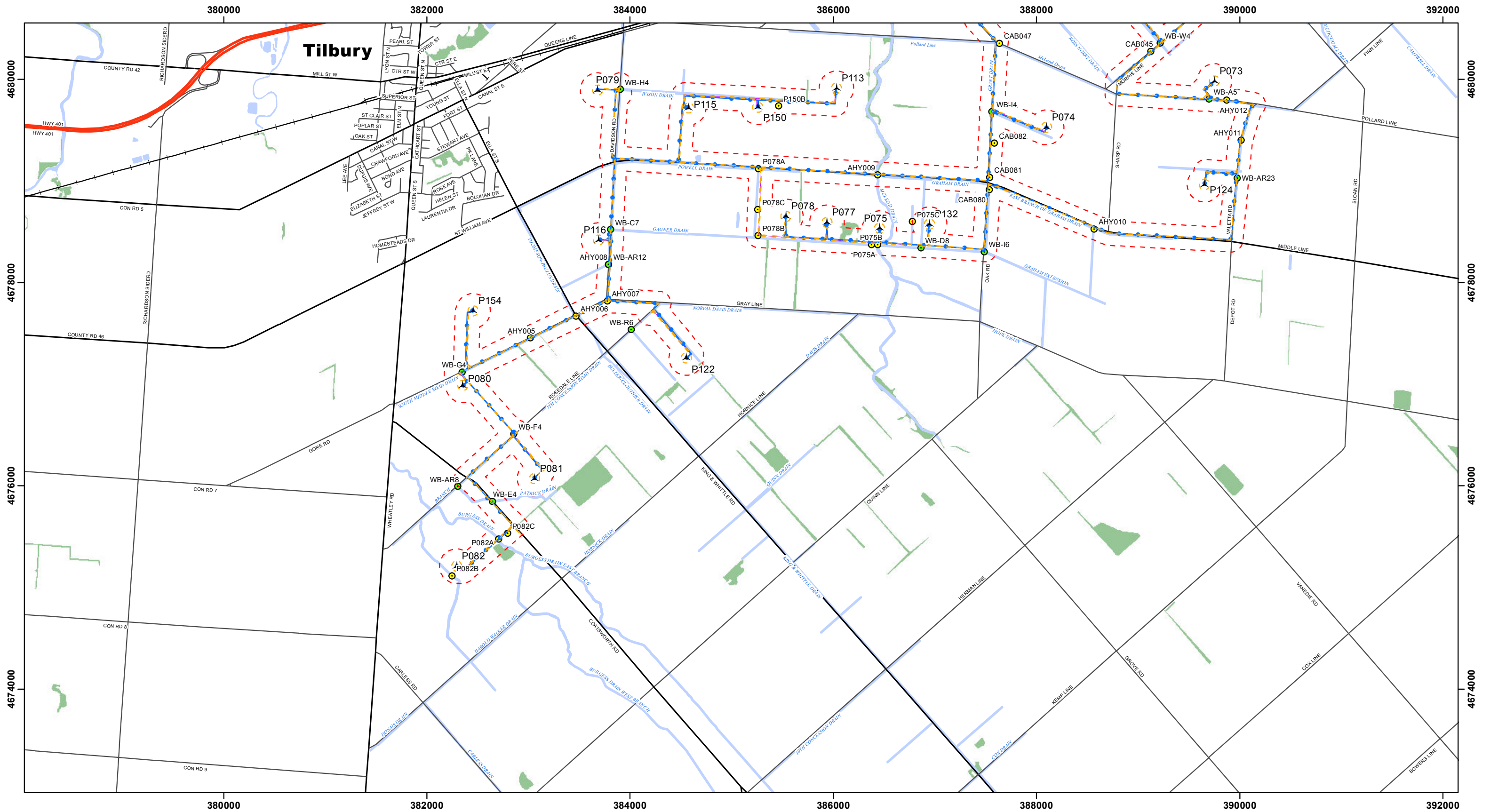
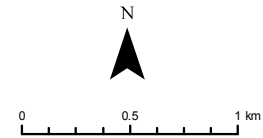


Figure 2-2
South Kent Wind Project
Waterbody Observations



April 23, 2012. Project No: NRSI-1184
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Legend

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- Secondary Road
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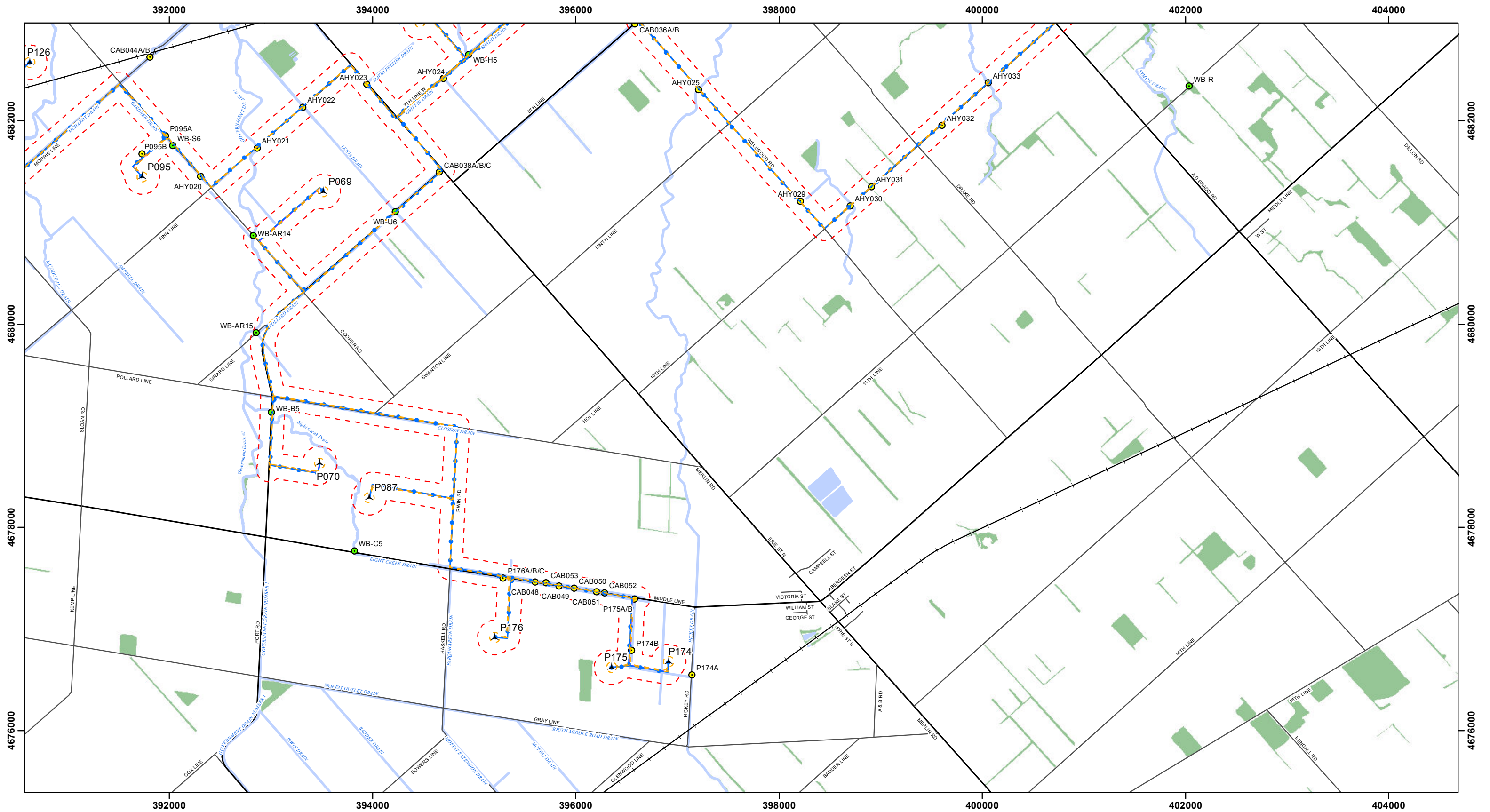
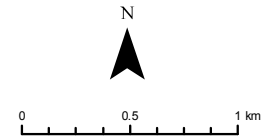


Figure 2-3
South Kent Wind Project
Waterbody Observations



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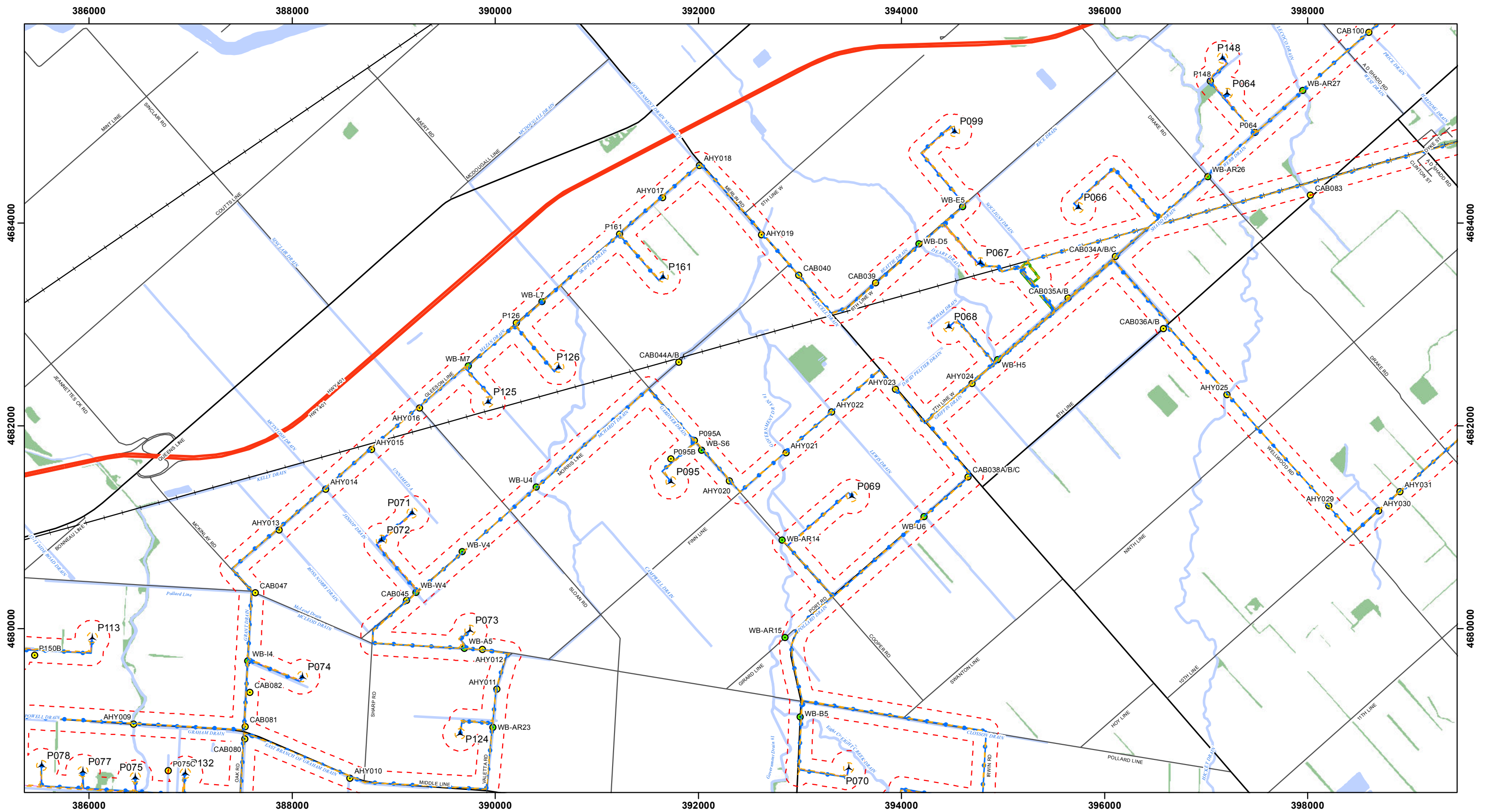
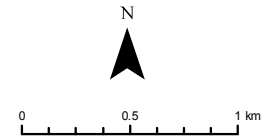


Figure 2-4
South Kent Wind Project
Waterbody Observations

NATURAL RESOURCE SOLUTIONS INC.
 Aquatic, Terrestrial and Wetland Biologists



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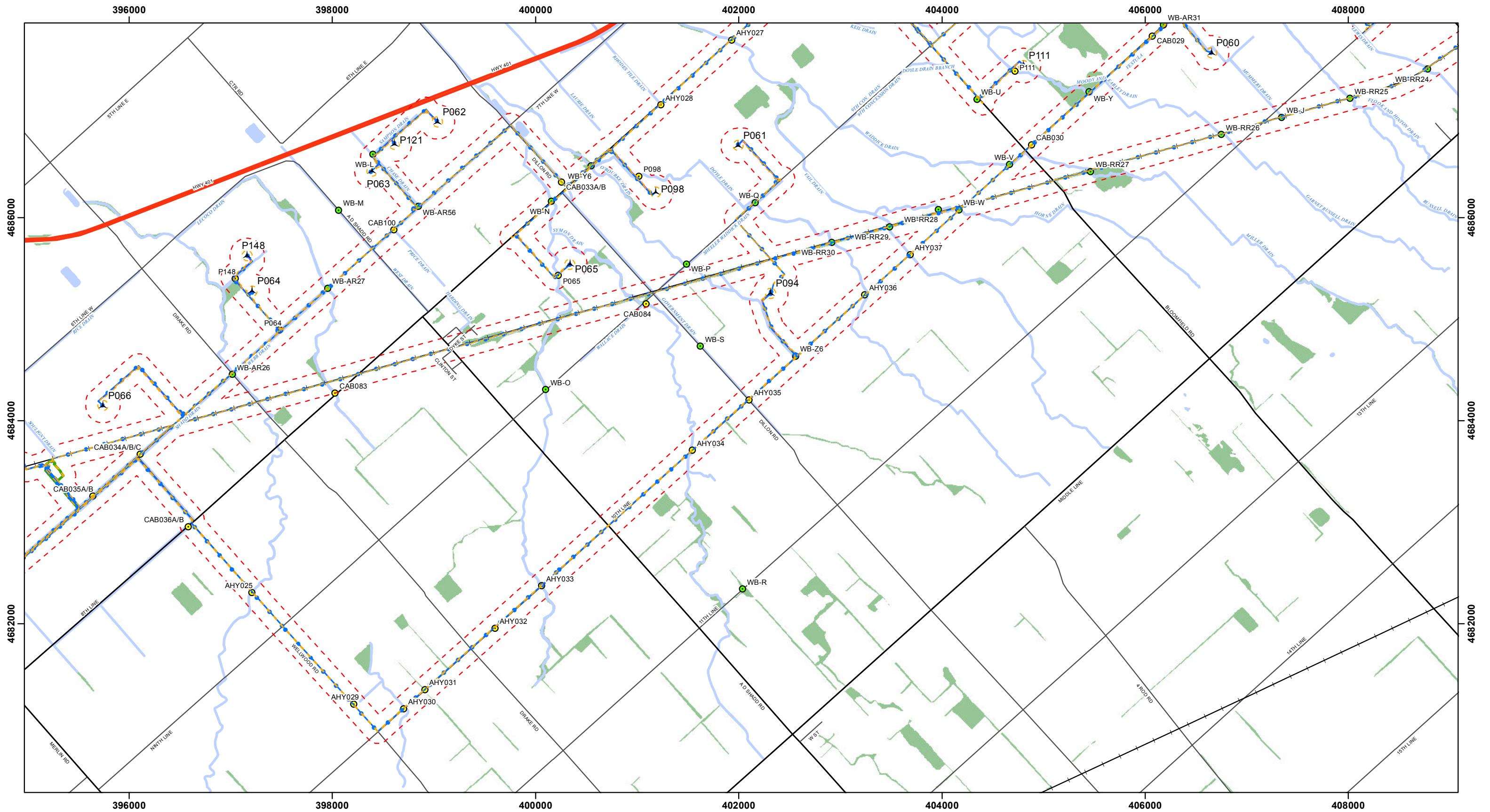
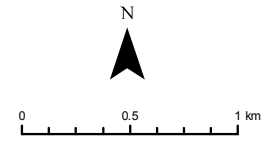


Figure 2-5
South Kent Wind Project
Waterbody Observations



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- - - Secondary Road
- Wooded Area

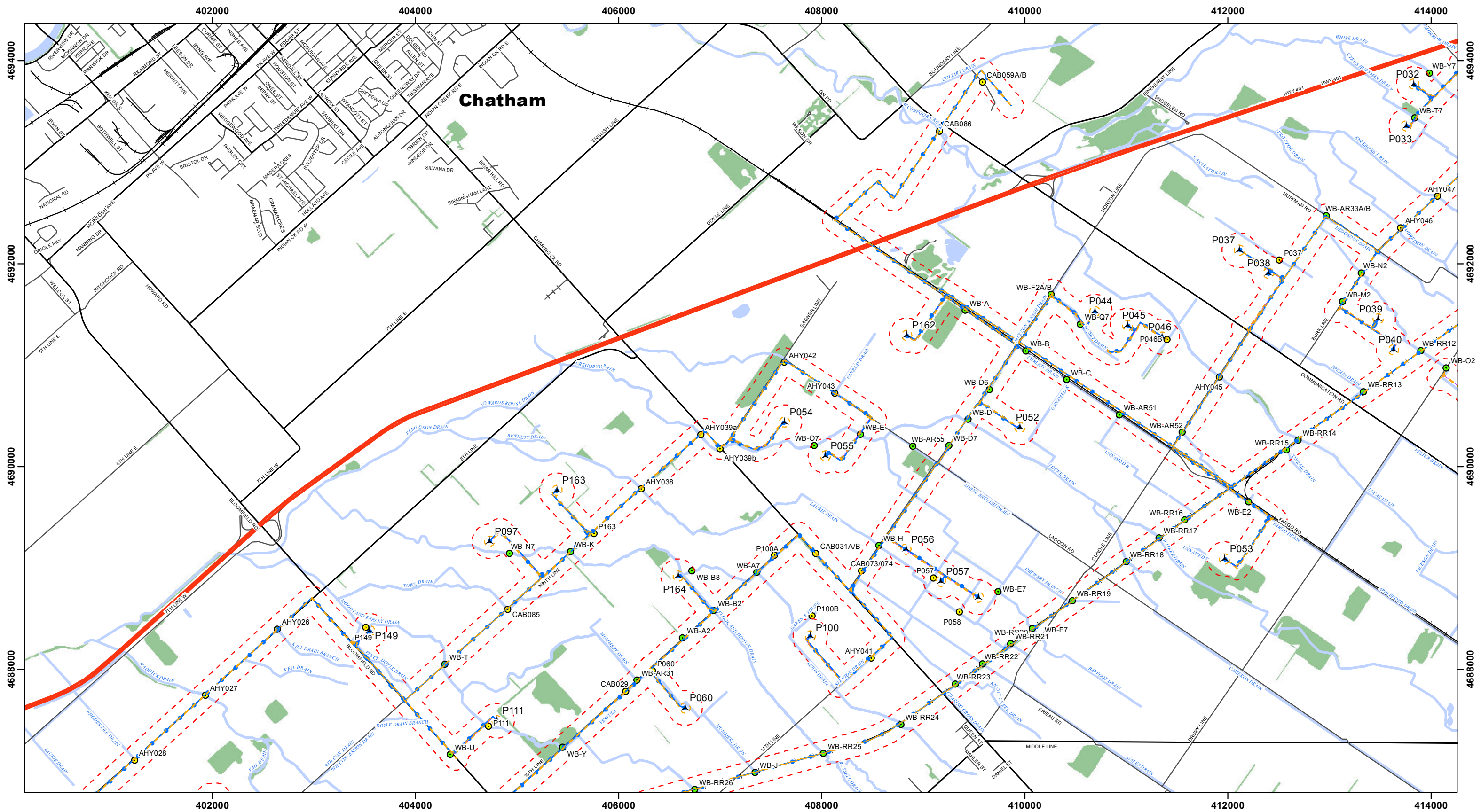
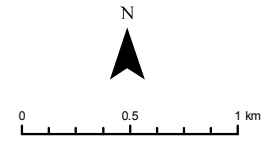


Figure 2-6
South Kent Wind Project
Waterbody Observations



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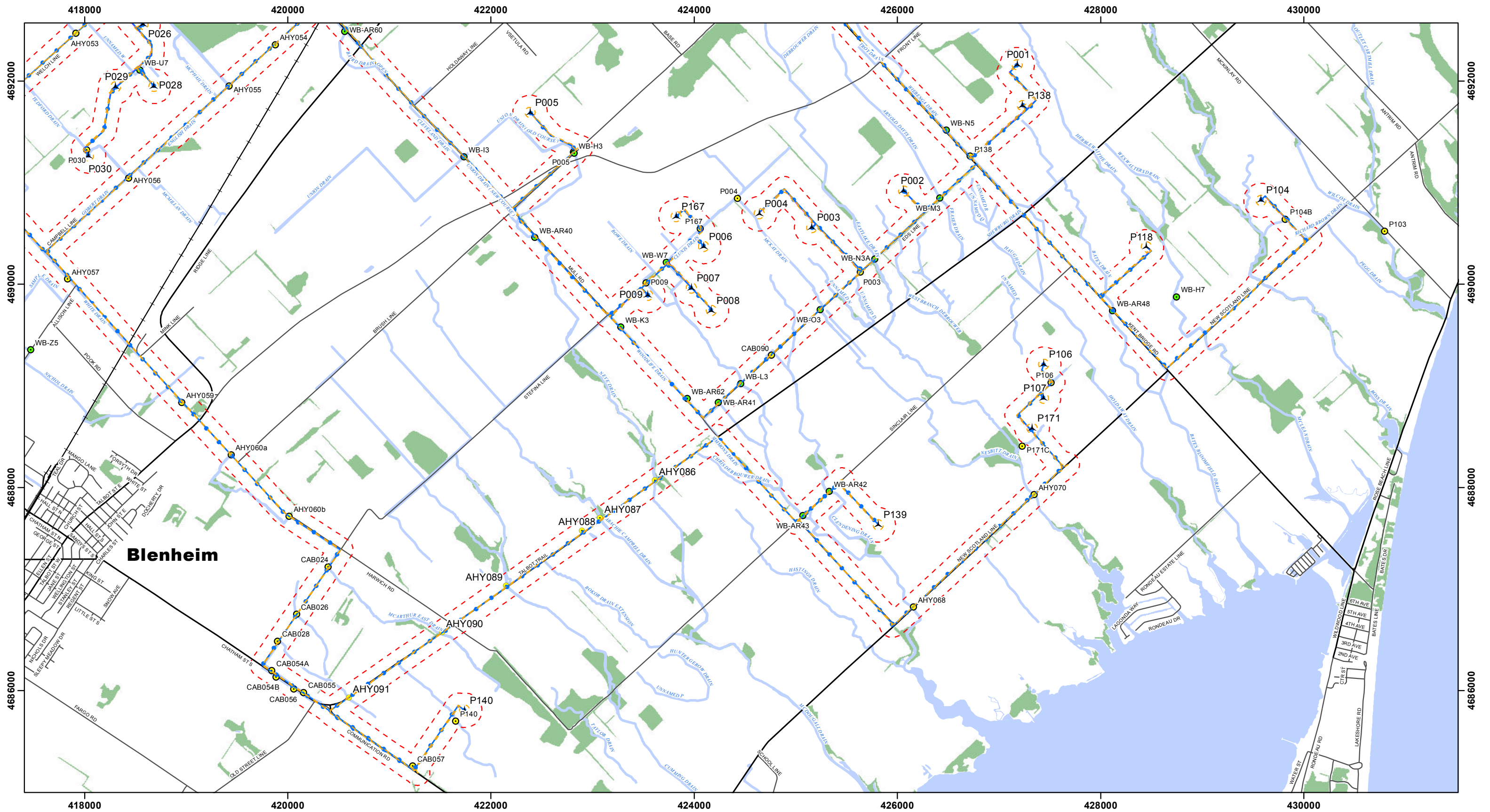
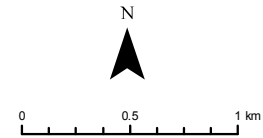


Figure 2-7
South Kent Wind Project
Waterbody Observations

NATURAL RESOURCE SOLUTIONS INC.
 Aquatic, Terrestrial and Wetland Biologists



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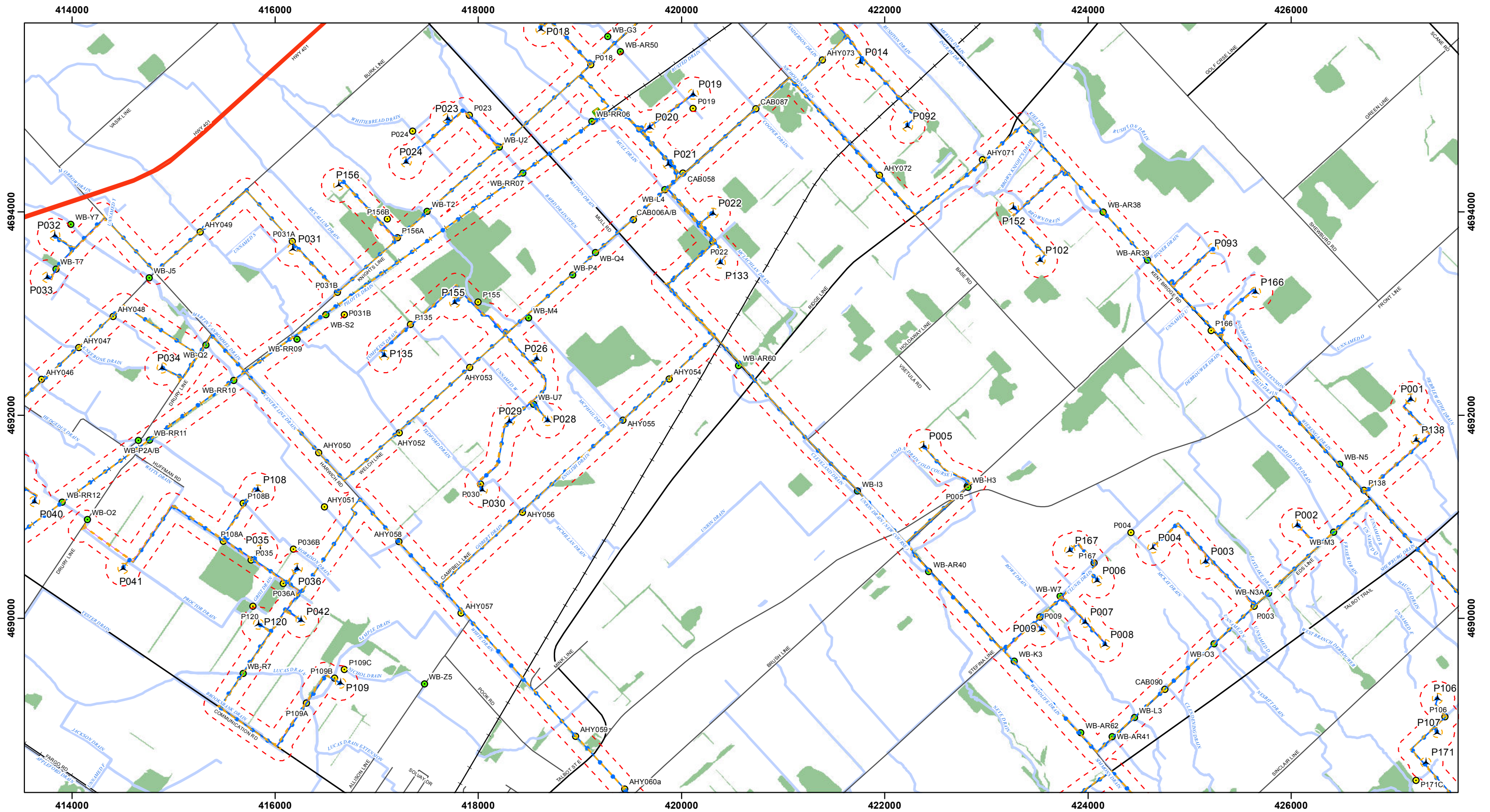
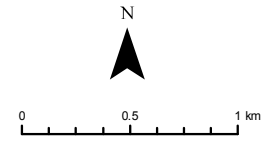


Figure 2-8
South Kent Wind Project
Waterbody Observations

NATURAL RESOURCE SOLUTIONS INC.
 Aquatic, Terrestrial and Wetland Biologists



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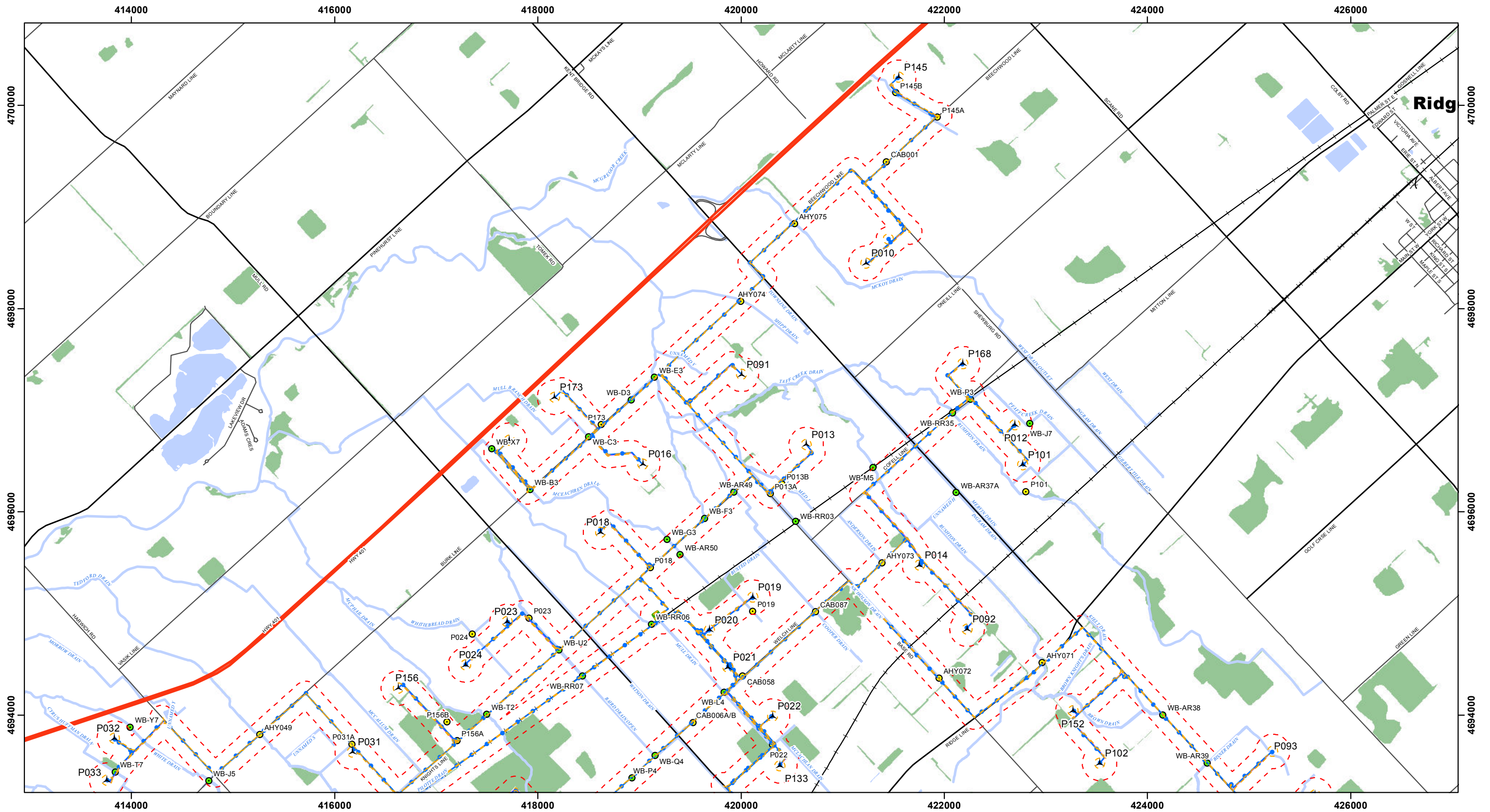
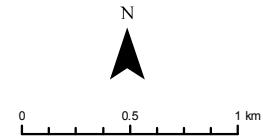


Figure 2-9
South Kent Wind Project
Waterbody Observations

NATURAL RESOURCE SOLUTIONS INC.
 Aquatic, Terrestrial and Wetland Biologists



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- Secondary Road
- Wooded Area

7.1 Site Investigation Results: Water Body Observation Summaries

Water Body Observations found on Figure 2-3:

15 Observations (2 from 2010, 13 from 2011)

1. WB-B5

Water body 'WB-B5' was identified as Eight Creek Drain and was observed where it crosses under Port Road. The natural corridor measured 10m, channel width was 1 m, and the high water mark was 2 m. Vegetation consisted of grass and herbaceous vegetation within the vicinity. The channel was vegetated with cattail and was dry on September 16th, 2010 and was therefore classified as an intermittent stream.

East (9 m) of observation point 'WB-B5' Eighth Creek Drain crosses the proposed cabling. Further south Eight Creek Drain comes within 71 m of proposed turbine P070. Eighth Creek then continues into the Project area of proposed turbine P087 which will be discussed in observation point 'WB-C5'.

2. WB-C5

Water body 'WB-C5' was identified as Eight Creek Drain and was observed where it crosses under Middle Line. The natural corridor measures 10 m, channel width is 1 m, and the high water mark is 1 m. Grass and herbaceous plants are present within the corridor and along the banks. When observed on September 16th, 2010 the channel was dry and lined and was therefore classified as an intermittent stream.

To the north of observation point 'WB-C5' Eight Creek Drain comes within 61 m of proposed turbine P087 and 113 m from its associated access road and cabling.

3. CAB048

Water body 'CAB048' was identified as Eighth Creek Drain and was observed on the south side of Middle Line (Victoria Street), parallel to the road and approximately 1.625 km west of Hickey Road. The natural corridor of the drain at this point measured approximately 5 m in width and consisted of predominantly grass and herbaceous plant species. The channel measured 0.5 m in width, with grass species lining the bank. The

channel contained cattails and Phragmites sp.. The water was clear and flowing on April 29th, 2011 and therefore was classified as a permanent stream.

'CAB048' is located within the Project area and runs 21 m parallel to the cabling for proposed turbine P176.

4. CAB049

Water body 'CAB049' was identified as Eight Creek Drain and was observed on the south side of Middle Line (Victoria Street), parallel to the road and approximately 1.25 km west of Hickey Road. The natural corridor of unnamed drain at this point measured approximately 6 m in width and consisted of grass, herbaceous plants and shrub species. The channel measured 0.5 m in width, with grass, herbaceous species and shrub vegetation growing along the bank and within the channel. The water within the channel was flowing clear on April 29th, 2011 and therefore was classified as a permanent stream.

CAB049 is located within the Project area 20 m from the proposed cabling that runs parallel to Middle Line (Victoria Street).

5. CAB050

Water body 'CAB050' was identified as Eight Creek Drain and was observed on the south side of Middle Line (Victoria Street), parallel to the road and approximately 1.4 km west of Hickey Road. The natural corridor of unnamed drain at this point measured approximately 3 m in width and consisted predominantly of grass and herbaceous plant species. Bank vegetation consisted of grass and herbaceous plant species. The channel was 1 m in width, with Phragmites sp. growing in the channel. The turbid water was flowing on April 29th, 2011 and therefore was classified as a permanent stream.

CAB050 is located within the Project area (19 m away) from the proposed cabling that runs parallel to Middle Line (Victoria Street).

6. CAB051

Water body 'CAB051' was identified as Eighth Drain and was observed on the south side of Middle Line (Victoria Street), parallel to the road and approximately 950 m west of Hickey Road. The natural corridor of unnamed drain at this point measured approximately 6 m in width and consisted of mixed vegetation: grass, herbaceous plants, shrubs, rose sp., juniper and deciduous trees. The channel measured 0.5 m in width, with grass, shrubs and rose bushes lining the bank. Phragmites sp. was growing in the channel and the water was flowing clear on April 29th, 2011 and therefore was classified as a permanent stream.

Water body 'CAB051' is located within the Project area 18 m from the proposed cabling that runs parallel to Middle Line (Victoria Street).

7. CAB052

Water body 'CAB052' was identified as unnamed drain and was observed on the north side of Middle Line (Victoria Street), parallel to the road and approximately 1.5 km east of Haskell Road. The natural corridor of unnamed drain at this point measured approximately 2 m in width and consisted of predominantly grass species. The bank vegetation consisted of grass species. The channel measured 0.5 m in width and was bare of vegetation. There was standing water observed in the channel on April 29th, 2011 and therefore was classified as an intermittent stream.

Water body CAB052 is located within the Project area 15 m from the proposed cabling that runs parallel to Middle Line (Victoria Street).

8. CAB053

Water body 'CAB053' was identified as unnamed ditch and was observed on the north side of Middle Line (Victoria Street), perpendicular to the road and approximately 900 m from Haskell Road. The natural corridor of unnamed ditch at this point measured 6 m in width and consisted of predominantly grass species. The bank vegetation consisted of grass species as well. The channel measured 0.5m in width and channel vegetation consisted of patches of Phragmites sp. amidst bare sections. There was standing water observed in the channel on April 29th, 2011 and therefore was classified as an intermittent stream.

Water body 'CAB053' is located within the Project area 13 m from proposed cabling parallel to Middle Line (Victoria Street).

9. P174A

Water body 'P174A' was identified as unnamed drain that runs perpendicular to the road approximately 500 m west of Hickey Road. Observations were taken 700 m from Gray Line. Land use surrounding this drain is mainly agricultural. The natural corridor of this portion of the drain measured 8 m in width and consisted of grass, herbaceous and shrub species, as well as deciduous and juniper trees that provided very good shade (70%) over the channel. The channel ranged in widths from 1 – 1.75 m with a bank height of 0.1 m. The wetted width of the channel at this section of run was 1.19 m with depths ranging from 3 – 12 cm. Instream habitat and cover found within the channel was provided by pools, riffles, backwater and boulder. Substrates within the channel consisted of clay, silt, boulder, muck and detritus. The 2 m high top of bank was noted as having good stability with dense vegetation comprised of herbaceous plants, raspberry and deciduous trees. Abundant grass and *Phragmites* sp. were observed within the channel. Water was flowing and the temperature was 10°C on April 29th, 2011 therefore this water body was classified as a permanent stream.

'P174A' is an unnamed water body located within the Project area that crosses the access road and cabling, as well as coming within 15 m of proposed turbine P174.

10. P174B

This unnamed drain was located south of Middle Line and west of Hickey Road and runs north south. The natural corridor measured 3 m and consisted of grasses, shrubs, juniper, strawberry, raspberry and some sumac. The drain channel was 1 m wide with banks of wild grape, strawberry and sedges and rushes were growing in the channel itself. On June 15th, 2011 no water was seen in the channel therefore this watercourse was classified as an intermittent stream.

This unnamed drain at observation point 'P174B' runs parallel to (17 m) to the access road and cabling for proposed turbine P174.

11-12. P175A/B

Water body 'P175A' was identified as Eight Creek Drain and was observed on the north side, running parallel to Middle Line, 600 m west of Hickey Road. Land use surrounding this drain is primarily agricultural. The natural corridor of this portion of Eight Creek Drain measured 8m in width and consisted of grass species. The channel ranged in widths from 0.25 – 0.5 m with grass and Phragmites sp. stalks abundant within the channel that provided 50% cover on April 29th, 2011 and likely 95% cover during the summer. The wetted width of the channel at this section was 1.7 m with depths ranging from 5 – 10 cm. Instream habitat and cover found within the channel was provided by pools and vegetation. Substrates within the channel consisted of clay, silt, muck, detritus and pebble. The bank height was 0.02 m and the top of bank was 1 m, and abundant grass provided good bank stability. There was standing water observed within the channel on April 29th, 2011 and was therefore classified as an intermittent stream.

Water body 'P175B' was identified as an unnamed drain and was observed on the south side of Middle Line, perpendicular to the road and approximately 600 m from Hickey Road. The natural corridor of unnamed drain at this point measured 8 m in width and consisted of mixed vegetation: grass and herbaceous plant species, deciduous trees and shrubs, and juniper. The channel measured 1 m in width with grass and herbaceous species, deciduous tree and shrub species lining the banks. The channel vegetation consisted of grass and Phragmites sp. Water appeared to be flowing within the channel on April 29th, 2011 and was therefore classified as a permanent stream.

'P175A' is located 17 m from the proposed cabling parallel to Middle Line between Hickey and Haskell Roads.

'P175B' is located within the Project area as it crosses the access road and cabling for proposed turbine P175.

13-15. P176A/B/C

Water body 'P176A' was identified as Eight Creek Drain and was observed on the south side of, and running parallel to, Middle Line, approximately 600m east of Haskell Road. Water temperature for Eight Creek Drain was 9.5°C on April 29th, 2011. Land use

surrounding this drain is for agricultural and municipal road purposes. The natural corridor of this portion of Eight Creek Drain measured 12 m in width and consisted of grass species, herbaceous plants including wild carrot, plantain, teasel, dandelion, and juniper. The channel width remained relatively uniform at 2 m and had a high water mark of 1.25 m. The wetted width of the channel at this section was 1.67 m with depths ranging from 12 – 24 cm. Instream habitat and cover found within the channel was provided by pools, riffles, backwater, cobble and vegetation including abundant *Phragmites* sp. and grass species. Substrates within the channel consisted of clay, silt, gravel, pebble, cobble and muck. The 2.5 m high top of bank was noted as having poor stability with sparse vegetation comprised of grass and herbaceous species. Within the channel water was noted to be turbid and flowing and was therefore classified as a permanent stream.

Water body 'P176B' was identified as unnamed drain and was observed on the north side of, and running parallel to, Middle Line. The natural corridor of unnamed drain at this point measured approximately 9 m in width and consisted of predominantly of grass and a dense cedar hedgerow. The channel measured 1m in width, and leaves and *Phragmites* sp. lined the channel. Bank vegetation consisted primarily of grass species. There appeared to be standing water within the channel on April 29th, 2011 and was therefore classified as an intermittent stream.

Water body 'P176C' was identified as unnamed drain and was observed on the south side of Middle Line, perpendicular to the road and approximately 750 m from Haskell Road. Water temperature for this drain was 9°C on April 29th, 2011. Land use surrounding this drain is primarily agricultural. The natural corridor of this portion of unnamed drain measured 5 m in width and consisted predominantly of grass species. At the time of observation no shade was provided by the grass, however summer growth would likely provide approximately 75% canopy over the drain. The channel ranged in width from 0.1 – 0.75 m and had a bank height of 0.08 m. The top of bank was 1.5 m above water surface and bank vegetation consisted of grass species. The bank was fairly stable with the right bank eroded where it intersected the field. The wetted width of the channel at this section was 0.12 m with depths ranging from 1 – 6 cm. Instream habitat and cover found within the channel was provided by pools and abundant grass

species. Substrates within the channel consisted of clay, silt, muck, detritus and pebble. The water within the channel appeared to be flowing north on April 29th, 2011 and was therefore classified as a permanent stream.

P176A is located within the Project area as it crosses the access road and cabling leading to proposed turbine P176 as well as running alongside (20 m) the proposed cabling along Middle Line.

P176B is located within the Project area 9 m from proposed cabling that runs parallel to Middle Line.

P176C is located within the Project area. It crosses the access road and the cabling to turbine P176 and is 22 m from the cabling running along Middle line.

Water Body Observations Found in Figure 2-4

41 water body observations (15 from 2010, 26 from 2011)

1. WB-A5

Water body 'A5' was identified as a roadside ditch and was observed along Pollard Line. It was observed to have a natural corridor that measured 2.5 m and a channel width of 0.5 m. Vegetation was predominantly grass species. The ditch was dry when viewed on September 16th, 2010.

Observation point 'WB-A5' has been identified as a intermittent and crosses the proposed cabling.

2. WB-AR8

Water body 'AR8' was identified as Patrick Drain and was observed where it intersects Branch Drain at Rosedale Line. Patrick Drain consists of natural meanders, and continues from northwest to east. 'Branch' drain is a ditch located along the south side of Rosedale Line. The natural corridor of Patrick Drain measured 8 m in width and consisted of grass and herbaceous species, including goldenrods and teasel, as well as scattered trees. The channel measured 1 m in width and had a high water mark of 1 m, with bank vegetation of grass and herbaceous species, including goldenrods and teasel. Vegetation in the channel consists of cattails, and the channel was dry when observed on November 16, 2010.

From this location Patrick Drain (a water body) follows southeast towards proposed turbine P082 and will be addressed at observation point 'WB-E4'. Furthermore Branch Drain follows 12 m adjacent to the cabling on Rosedale Line.

3. WB-AR12

Water body 'WB-AR12' was identified as the intersection of an unnamed drain and King and Whittle Drain and was observed along Davidson Road. The unnamed drain continues from southwest to northeast, ending at King and Whittle Drain on the west side of Davidson Road. The natural corridor measured 10 m in width and consisted of grass species and mixed trees. The channel measured 0.75 m in width and had a high water mark of 1 m, with bank vegetation of grasses and herbaceous species, including

goldenrods, as well as mixed shrubs. There was no vegetation in the channel, and the channel contained a small amount of rain runoff when the drain was observed on November 16, 2010.

At this location, King and Whittle Drain is a water body that falls within the Project area and is located 10 m from the cabling associated with proposed turbine P116.

4. WB-AR23

Water body 'WB-AR23' was identified as the intersection of an unnamed drain and McDougall Drain West Branch on Valetta Road. The unnamed drain runs west to east, crossing Valetta Road. McDougall Drain West Branch runs north-south along the east side of Valetta Road. The natural corridor of the unnamed drain measured 7 m in width and consisted of grasses, herbaceous species (including goldenrods), shrubs, and trees. The channel measured 0.75 m in width and had a high water mark of 1 m, with bank vegetation of grasses and herbaceous species, including goldenrods. The channel on the east side of Valetta Road was bare of vegetation, while the west side was overgrown with grasses and trees. Both Unnamed Drain and McDougall Drain West Branch were dry when observed on November 16th, 2010.

Both drains are water bodies occurring within the Project area at observation point 'WB-AR23'. The unnamed drain crosses cabling and follows alongside the access road and cabling (at a distance of 22 m) to proposed turbine P124. McDougall Drain West Branch comes within 7 m of the access road and proposed cabling but is situated on the east side of Valetta Road.

5. WB-C7

Water body 'WB-C7' was identified as King & Whittle Drain and was observed along Davidson Road in this section, and Gagner Drain which runs perpendicular. The natural corridor was 12 m wide and had vegetation consisting of grass species. The channel width ranged from 0.5 to 1 m, with a bank height of 5 m, and a high water mark of 2.5 m. Herbaceous plants and grass species composed the bank vegetation. Standing water with algae was present within the channel when observed on September 23rd, 2010. Gagner Drain had similar conditions and was dry when observed on September 23rd, 2010.

At observation point 'WB-C7' King & Whittle Drain is a water body located within the Project area crossing the access road of proposed turbine P116 and coming within 6 m from the cabling running along Davidson Road. It is also within 62 m of proposed turbine P116. At this same location, Gagner Drain is located within the Project area and is 58 m from the access road and 6 m from the cabling which runs parallel to Davidson Road.

6. WB-D8

Water body 'WB-D8' was identified as Gagner Drain and was observed where it crosses the access road and cabling at Graham Drain Extension. The observation point was located between Gary Line and Middle Line, to the west of Oak Road. The natural corridor was 0.5 m, channel width was 0.25 m, and the high water mark was 0.15 m. No vegetation was present along the banks, corridor, or within the channel. A few pockets of standing water were present along the drain when viewed on October 22nd, 2010.

The reach connecting Graham Drain and Gagner Drain had similar conditions and was dry when observed on October 22nd, 2010.

The unnamed intermittent reach connecting Graham Drain and Gagner Drain crosses and runs parallel to the access road, and is 21 m from proposed turbine P132. The reach also crosses cabling.

Graham Extension Drain at observation point 'WB-D8' is a water body within the Project area. It crosses the access road and cabling running east west and comes within 10 m of the access road and cabling leading to proposed turbine P132.

7. WB-E4

Water body 'WB-E4' was identified as Patrick Drain and was observed where it crosses Coatsworth Road to the south of Concession Road 7. The natural corridor measured 10 m, channel width was 1.5 m, and the high water mark was 1 m. Herbaceous plants, grass and trees composed the vegetation within the vicinity. The channel was bare and dry when observed on September 15th, 2010.

Patrick Drain is a water body within the Project area and crosses the cabling for proposed turbine P082. Further upstream to the east it does not fall within the boundary of proposed turbine P081.

8. WB-F4

Water body 'WB-F4' was identified as Branch/7th Concession Road Drain and was observed where it crosses under the access road and cabling for proposed turbine P081. The natural corridor measured 5 m, channel width was 0.5 m, and the high water mark was at 0.5 m. Grass species composed the majority of the vegetation along the corridor, banks, and along the channel. The channel was dry on September 15th, 2010 and was therefore classified as intermittent.

Branch Drain is a water body that lies within the Project area and crosses the cabling as well as the access road to proposed turbine P081. Southeast of the observation point, an unnamed drain is located 7 m from the access road and cabling and 91 m from proposed turbine P081. Branch Drain at this location also crosses the access road and cabling for proposed turbine P080, which is located on the north side of Rosedale Line.

9. WB-G4

Water body 'G4' was identified as South Middle Road Drain and was observed where it crosses the cabling for proposed turbine P080 and P154. The natural corridor for this area measured 7 m, channel width was 1 m, and the high water mark was 0.5 m. Grass was the predominant vegetation within the corridor and along the banks. Cattails were growing in the channel and it was dry when viewed on September 15, 2010.

South Middle Road Drain is a water body that lies within the Project area, crosses the cabling for proposed turbines P080 and P154 and comes within 69 m of proposed turbine P080.

10. WB-H4

Water body 'H4' was identified as Ivison Drain and was observed where it meets King & Whittle Drain at Davidson Road. Ivison Drain along this section had a natural corridor that measured 8 m and the vegetation consisted of shrubs, grass, and herbaceous plants. The channel width ranged from 0.5 to 1.5 m, with a bank height of 2 to 5 m, and

a high water mark of 1 m. The bank appeared stable with a high density of herbaceous plant and shrub species. Substrates within the channel included clay, silt, sand, cobble, muck, and detritus. The channel was dry when viewed on September 15, 2010. There is no water feature on the west side of Davidson.

At location 'WB-H4' Ivison Drain is a water body located within the Project area and is located 15 m from the access road and 30 m from the cabling for proposed turbine P079. East of the observation point, Ivison Drain is 20 m from the access road and cabling for proposed turbine P115, as well as 130 m from the turbine itself.

11. WB-I4

Water body 'I4' was identified as Grant Drain and was observed where it crosses the access road for proposed turbine no. P074. Grant Drain runs adjacent to the east side of McKinlay Road. The natural corridor measured 11 m, channel width was 1 m, and the high water mark was 0.5 m. Vegetation within the corridor and along the banks included a variety of grass and herbaceous plants. Phragmites was present with the channel which was dry when observed on September 15, 2010.

Ivison Drain runs east-west, had similar conditions and was dry when observed on September 15, 2010 and was therefore considered to be an intermittent stream.

Grant Drain at location 'WB-I4' is a water body located within Project boundaries. It crosses cabling and access road to proposed turbine P074. Ivison Drain at this location crosses the cabling that runs parallel to Oak Road and continues within 25 m of the access road and 20 m to the cabling for proposed turbine P074. East of the observation point, Ivison Drain comes within 26 m of proposed turbine P074.

12. WB-I6

Water body 'I6' was identified as Graham Extension Drain and was observed where it meets with Graham Drain at McKinlay road to the north of Gore Road. Agricultural fields composed the surrounding area. The natural corridor was 10 m wide and was vegetated through grass and herbaceous plants. Channel width was 1 m, bank height 3, and high water mark 2 m. Bank stability appeared good with a high density of herbaceous and grass species. Muck, sand, silt, and clay made up the channel substrates throughout

this section. The channel was bare of any vegetation and dry when viewed on September 22, 2010.

Graham extension Drain is a water body located within the Project area and it crosses cabling at Oak Road, as well as runs 5 m parallel to the cabling for proposed turbine P132.

13. WB-R6

Water body 'R6' was identified as 7th Concession Road Drain and was observed along Rosedale Line to the northeast of Ella Street south. The natural corridor measured 4 m, channel width was 1 m, and the high water mark was 0.5 m. Herbaceous plants and grass species composed the vegetation within the corridor and along the banks. Phragmites was found within the channel which was dry when visited on September 22, 2010.

Northeast of the observation point, 7th Concession Road Drain is located within Project boundaries and crosses the access road and cabling for proposed turbine P122, an extension of this drain runs 21 m adjacent to the access road and cabling, as well as within 26 m of proposed turbine P122.

14. WB-V4

Water body 'V4' was identified as Unnamed Drain A and was observed where it meets with Morris Line. The natural corridor measured 3 m, channel width was 0.5 m, and the high water mark was 0.5 m. Vegetation along the corridor was composed of a mixture of trees and shrubs. The bank had little vegetation consisting of grass species and the channel was bare. Unnamed Drain A was dry when viewed on September 16, 2010.

Unnamed Drain A at observation point WB-V4 is a water body located within the site area and is 10 m from the cabling along Morris Line. Further northwest it comes within 66 m from proposed turbine P071.

15. WB-W4

Water body 'W4' was identified as Jessop Drain and was observed where it crosses under Morris Line. The natural corridor throughout this section measured 7 m, channel

width was 1 m, and the high water mark was 1 m. Vegetation included herbaceous plants, trees, and a variety of grass species. The channel vegetation was limited to sections of grass species and was dry on September 16, 2010.

Jessop Drain is a water body located within the Project area and crosses the access road and cabling leading to proposed turbine P073. At the observation point, Jessop Drain also crosses the cabling that runs parallel to Morris Line. It also runs 23 m adjacent to the access road, 6 m from cabling and is within 31 m from the proposed turbine P072.

16-17. CAB045A/B

Water body 'CAB045A' was identified as an unnamed drain and was observed along the north side of Morris Line approximately 400 m from the intersection of Pollard Line. The natural corridor of McHardy Drain at this point measured approximately 3 m in width and consisted predominantly of grass species. The channel measured 1 m in width and vegetation was absent from the watercourse bed. Bank vegetation consisted of grass species. The water was flowing clear during observation on April 28, 2011.

Water body 'CAB045B' was identified as unnamed roadside ditch and was observed along the south side of Morris Line approximately 400 m from the intersection of Pollard Line. The natural corridor of unnamed roadside ditch was 3 m in width and consisted predominantly of grass species. The channel measured 0.5 m in width and vegetation was comprised of grass along the bank and within the channel. Clear, standing water was observed within the channel on April 28, 2011.

CAB045A lies within the Project area and crosses the cabling and access road for proposed turbine P072 and P071. CAB045B, the unnamed roadside ditch, crosses the access road and cabling for proposed turbine P073.

18. CAB047

Water body 'CAB047' was identified as McLeod Drain and was observed along Pollard Line at the junction of Oak Road, McKinlay Road and Pollard Line. The natural corridor of McLeod Drain at this location measured approximately 7 m in width and consisted of predominantly of grass species. The channel measured 1.5 m in width, with a dredged

bare channel. Bank vegetation consisted of grasses and the turbid water was flowing northwest on April 28, 2011.

At location 'CAB047' McLeod Drain is a water body located within the Project area and crosses the cabling that runs parallel to McKinley Road.

19. CAB080

Water body observation 'CAB080' was identified as Graham Drain and runs beside the south side of Middle line at the junction of Oak Road. The natural corridor of this drain is less than 6 m and vegetated with grass, grape vines and herbs. The channel is approximately 2 m and vegetated with grasses and bare soil while the banks have grass and herbs and vines. A slow flow was visible on June 15th, 2011.

Graham Drain is a water body located within the Project area as it crosses the cabling parallel to Middle Line and runs 13 m parallel to proposed cabling along Oak Road.

20. CAB081

Water body observation 'CAB081' was identified as Grant Drain as it runs alongside Oak Road N of Middle Line. The natural corridor is less than 5 m wide and like the banks is vegetated with grass and herbs. The channel width is approximately 1 m and is vegetated with a number of grass species as well as some cattail. The channel had no visible water on June 15th, 2011.

Grant Drain is a water body located within the Project area as it runs 3 m to cabling parallel to Oak Road. Grant Drain, just south of the observation point also crosses the cabling that runs parallel to Middle Line.

21. CAB082

Water body observation 'CAB082' was an Unnamed drain E of Oak Road and running NW into Grant Drain. It has a natural corridor of less than 4 m and like the banks was vegetated with grass and herbs. The channel was approximately 1m wide and vegetated with rushes and cattail. There was no water present on June 15th, 2011.

Unnamed Drain E at 'CAB082' is located within the Project area as it crosses cabling running alongside Oak Road.

22. P075A

Water body 'P075A' was identified as McLeod Drain and was observed mid-field between Middle and Gray Lines and runs south to north. Water temperature for McLeod Creek was 8.5°C on April 29th, 2011. Land use surrounding this drain is primarily agricultural. The natural corridor of this portion of McLeod Creek measured approximately 25 m in width and consisted of deciduous trees, including willow species, grass, and vine and berry species. Canopy cover was absent over the creek at this location. The channel ranged in widths from 1.25 – 4 m and had a high water mark of 4.5 m above the observed water level. The wetted width of the channel at this section was 2.85 m with depths ranging from 43 to 65 cm. Instream habitat and cover found within the channel was provided by pools, riffles, backwater, undercut banks, woody debris, vegetation and boulder. Substrates within the channel consist of clay, silt, muck, detritus and boulder. The 5 m high bank was noted as having fair stability with erosion evident in outside bends which had been reinforced by boulder and concrete slabs. Bank vegetation included sparse grass and vines. The turbid water within the channel flowed north on April 29th, 2011.

McLeod Drain is a water body located within the Project area and crosses the access road and cabling associated with proposed turbine P075 at observation 'P075A'. McLeod Drain also comes within 69 m of proposed turbine P075 itself.

23. P075B

Water body 'P075B' was identified as unnamed drain and was observed 10 m – 30 m west of Baptiste Creek, between Middle and Gray Lines. The water temperature for unnamed drain was 9°C on April 29th, 2011. Land use surrounding this drain is primarily agriculture. The natural corridor of unnamed drain at this point measured 4 m in width and consisted of grass and herbaceous species. The channel measured 1.5 – 2.3 m in width with dense phragmites stalks lining the channel to provide approximately 75% shade once grown. Currently no canopy is providing cover to the drain. The wetted width of the channel at this section was 2.15 m with depths ranging from 4 – 15 cm. Instream habitat and cover found within the channel was provided by pools, riffles,

backwater, woody debris, vegetation, boulder and cobble. Substrates within the channel consisted of clay, detritus, silt, gravel, pebble, muck, sand, cobble and boulder. The 0.5 m high bank was noted as having poor, dredged bare bank stability with sparse grass and herbaceous species. The slightly turbid water was flowing east swiftly within the channel toward Baptiste Creek.

This unnamed drain is a water body observed at 'P075B' and is located within the Project area. It runs 18 m adjacent to the access road and cabling which connects proposed turbine P077 to P075 and P132.

24. P075C

Water body 'P075C' was identified as an unnamed drain and was observed midfield between Middle and Gray Lines. The natural corridor of unnamed drain at this point measured approximately 5 m in width and consisted of predominantly grass species. The dredged channel measured 1 m in width and the sparse bank vegetation consisted of grass species. The channel was found to have turbid water flowing north on April 29th, 2011.

This unnamed drain is a water body located within the Project area and is located >120 m from proposed turbine P132. This water body crosses the cabling and access road leading to proposed turbine P132.

25. P078A

Water body 'P078A' was identified as Powell Drain and was observed along Middle Line approximately 1.4 km east of Davidson Road. Water temperature for Powell Drain was 10°C on April 28, 2011. Land use surrounding this drain is used primarily for agricultural and municipal road purposes. The natural corridor of Powell Drain at this point measured approximately 12 m in width and consisted of predominately grass species. The channel measured 2 m in width and had a high water mark of 2 m. Dense bank vegetation consisted of grasses and herbaceous plants that provided little canopy during the April 28, 2011 observation. It is expected that full summer vegetation, including Phragmites, would provide approximately 75% shade. The channel had been recently dredged with Phragmites stalks and grass abundant within the channel. The channel ranged in widths from 1.75 - 2.5 m and had a high water mark of 2 m. The wetted width

of the channel at this location was 1.85 m with depths ranging from 10 – 35 cm. Instream habitat and cover found within the channel was provided by pools and vegetation. Substrates within the channel consisted of clay, muck, detritus and silt. The 2 m high bank was noted as having fair stability with some areas of erosion and bank vegetation consisting of grass and herbaceous plant species. Within the channel the turbid water was flowing southeast on April 28, 2011.

Powell Drain was observed at 'P078A' and is a water body located within the Project area. It crosses the access road for proposed turbine P078 and comes within 15 m from the cabling that runs parallel to Middle Line and 15 m from the cabling and access road for proposed turbine P150.

26. P078B

Water body 'P078B' was identified as Gagner Drain and was observed midfield between Middle and Gray Lines. The natural corridor of Gagner Drain at this point measured 2 m in width and consisted of grass and wheat species. The channel measured 0.5 – 1 m in width. The wetted width of the channel at this location was 0.9 m with depths ranging from 1 – 3 cm. Instream habitat and cover found within the channel was provided by pools and vegetation, such as abundant grass and wheat species. Substrates within the channel consisted of clay, silt, muck and detritus. The 0.15 m high bank vegetation consisted of grass and wheat species and the bank was noted as having fair stability with areas of erosion evident. Within the channel there was slightly turbid, standing water on April 28, 2011.

Gagner drain was observed at 'P078B' and is a water body located within the Project area. It is 45 m adjacent to the access road, which is >120 m to proposed turbine P078.

27. P078C

Water body 'P078C' was identified as unnamed ditch and was observed approximately 370 m south of Middle Line, east of Davidson Road. The natural corridor of unnamed ditch at this point measured approximately 2 m in width and consisted of grass and wheat species. The channel measured 1 m in width. Bank and channel vegetation consisted of wheat and grass species. Standing water was observed in the channel on April 28, 2011.

This unnamed ditch was observed at 'P078C' and is a water body located within the Project area. It is a ditch running 17 m adjacent to the proposed access road for proposed turbines P078, P077, P075 and P132.

28. P082A

Water body 'P082A' was identified as Burgess Drain and crosses the access road and cabling leading to proposed turbine P082 SW of Coatsworth Road between Rosedale Line and Hornick Line. This drain is surrounded by agriculture predominantly corn and has a natural vegetation corridor approximately 10 m wide consisting of small trees such as locust, a few shrubs and a lot of grass and herbs as well as some wild grape. The riparian zone was 8 m wide consisting of shrubs including dogwood, herbs, grass and poison ivy. There was no canopy resulting in 0% shade. The channel width was approximately 3.0 m wide with instream vegetation of sedges, rushes a pondweed and two aquatic herbs. Instream substrates consisted of 55% clay, 15% detritus, 10% muck, 10% sand, 5% pebble and 5% gravel. Instream vegetation and cobble may serve as habitat cover. Banks measured 1.5 m high with vegetation of 50% herbs, 20% shrubs (dogwood), 20% grass, 5% treed and 5% bare soil. Bank stability was fair due to pockets of eroding bare soil. The drain was fairly clear, had a uniform flow to the NW, a temperature of 17°C and a wetted width of 3.0 m with depths of 6, 12, 17, 16 and 12 cm in cross section. All observations and measurements for this site were taken on June 15th, 2011.

Burgess Drain was observed at 'P082A' and is a water body located within the Project area. It crosses the access road and cabling for proposed turbine P082.

29. P082B

Water body 'P082B' was identified as Carless Drain and is located S of Rosedale Line and W of Coatsworth Road. The natural corridor was less than 10m consisting of small trees, a few shrubs and lots of herbs. The drain width is approximately 3m with banks vegetated with herbs, dogwood and vines. The channel vegetation consists of a pondweed, rushes and some algae. The flow was to the N and very slow. All observations made for this site were done on June 15th 2011.

Carless Drain is a water body observed at 'P082B' and is located within the Project area. It is 51 m away from proposed turbine P082 and 100 m away from the access road and cabling.

30. P082C

Water body 'P082C' is an unnamed drain running perpendicular to Coatsworth Road south of Rosedale Line and parallel to the access road for proposed turbine P082. The natural corridor is approximately 3 m and is vegetated with grass, grape vine, herbs including American vetch and poison ivy. The channel is approximately 1 m with banks of grass, vines and poison ivy. Instream vegetation consisted of grasses such as Phragmites that appears to have been cut the previous year and some poison ivy. On June 15th 2011 a few standing pools were observed. Water is expected to flow into Burgess Drain at high water levels.

Unnamed water body 'P082C' lies within the Project area and runs parallel to the access road and cabling at a distance of 23 m and 16 m respectively in addition to 100 m from proposed turbine P082.

31. P150B

Water body 'P150B' was identified as Ivison Drain and was observed near the location of the proposed turbine P150 midway between Pollard and Middle Lines. The natural corridor of Ivison Drain at this point measured 7 m in width and consisted predominately of grass species. The channel measured 0.5 m in width and bank vegetation consisted of grass species. The channel contained grass and algae in the standing water observed on April 28, 2011.

Ivison Drain is a water body observed at 'P150B' and is located within the Project area. It is found 7 m from the access road, 18 m from the cabling, and 40 m from proposed turbine P150. Immediately to the west of the observation point, Ivison Drain crosses the cabling that connects proposed turbines P115, P150, and P113.

32. AHY005

The water body observed at 'AHY005' was identified as South Middle Road Drain and flows along the south side of Gore Road. The natural corridor extends no further than

the road side ditch and is made up primarily of terrestrial grasses, herbaceous plants and Phragmites sp. The land use surrounding this drain is primarily agricultural. Though water was observed within South Middle Road Drain it appeared to be tile fed and showed no flow on October 4th, 2011. As flow was found further downstream past King & Whittle Road, this drain has been classified as an intermittent water course.

South Middle Road Drain at this location comes within 7 m of the proposed cabling that runs parallel to Gore Road.

33. AHY006

Water body 'AHY006' was identified as South Middle Road Drain and was observed at the intersection between Ella Street and Gore Road. King & Whittle Drain intersects South Middle Road Drain at this location. The natural corridor of South Middle Road Drain at this point extended no further than 5 m and was vegetated with herbaceous plants and terrestrial grasses. The channel throughout this section ranged from 0.5 to 2.5 m, with a bank height of 2m. The land use surrounding this drain is primarily agricultural. The South Middle Road Drain was found to be flowing on October 4th, 2011 with highly turbid water with an approximate depth of 0.4m.

South Middle Road Drain at this location runs 7 m adjacent to the cabling alongside Gore Road. King & Whittle Drain at this location crosses the cabling that runs parallel to Gore Road.

34. AHY007

The water body 'AHY-007' was identified to be Norval Davis Drain and was observed at the intersection, between Gore Road and Davidson Road, where it joins with South Middle Road Drain through a 4.5 m culvert. The land use surrounding this drain is primarily agricultural and tile drains were noted to be flowing into the drain. The natural corridor measured approximately 6 m and was vegetated by terrestrial grasses, cattails and Phragmites sp. The channel throughout this section measured 0.75 m and was found to be flowing on October 4th, 2011 with a water temperature of 14°C.

Norval Davis Drain at this observation point is located within the Project area and is 9 m adjacent to the cabling alongside Gore Road. Norval Davis Drain also crosses the cabling at Davidson Road.

35. AHY008

Water body 'AHY008' was identified as an unnamed drain located perpendicular to Davidson road, on the west side. It was found to be flowing on October 4th, 2011 with a water temperature of 14°C. It flowed under Davidson road at the observation point through a 0.5 m round culvert, connecting it to Norval Davis Drain, which runs parallel to Davidson Road on the east side. The natural corridor of this unnamed drain at this point measured 3.25 m in width and consisted predominately of grass species and Phragmites sp. The channel measured 1 m in width and was completely lined with Phragmites sp.

This unnamed drain at 'AHY008' crosses the cabling that runs parallel to Davidson Road.

36. AHY009

Water body 'AHY009' was identified as McLeod Drain and was observed where it crosses Middle Line, between Davidson Road and Oak Road, through 2 6 m wide box culverts. The natural corridor at this point extended approximately 30 m in width and consisted of maple, poplar, dogwood, elm, and herbaceous plants. The land use surrounding this drain is primarily agricultural. The channel measured approximately 12 m in width with a wetted width of approximately 8 m and max depth of 1 m. In stream habitat and cover found within the channel was provided by pools, riffles, woody debris, and vegetation. The substrates within the channel consisted primarily of muck, silt, and sand with deposits of gravel. The 1-6 m bank showed fair stability and bank vegetation consisted of terrestrial grasses, shrubs, and herbaceous vegetation, which provided 30% shade to the channel. In stream vegetation was made up of terrestrial grasses. McLeod Drain was found to be flowing on October 4th, 2011 with a water temperature of 14°C and evidence of high spring flows on bank side vegetation (i.e. high detritus line). Graham Drain and Powell Drain were also observed at this location, as they drain into McLeod Drain. Both Graham and Powell were flowing when observed. Graham Drain is located on the south side of Middle Line and to the east of McLeod Drain. Powell Drain

is also located on the south side of Middle Line, but is found to the west of McLeod Drain.

At observation point 'AHY009' McLeod drain crosses proposed cabling along Middle line. Graham Drain and Powell Drain at this location run alongside Middle Line, 7 m from the cabling.

37. AHY010

Water body 'AHY010' was identified as an unnamed drain that intersects with the east branch of Graham Drain. The unnamed drain is found running perpendicular to the south side of Middle Line, to the west of Sharp Road and empties into Graham Drain at the observation point. The land use surrounding this drain is primarily agricultural. The unknown drain had a 3-4 m natural corridor consisting mainly of grass species. The unnamed drain was straight and the 0.75 m channel was lined with terrestrial grass species. Pockets of water were found within the channel on October 4th, 2011 with a water temperature of 15°C.

At observation point AHY010, this unnamed drain comes with 5 m of the cabling that runs parallel to Middle Line. Graham Drain at this location also runs parallel to Middle Line, 20 m adjacent to the cabling.

38. AHY011

Water body 'AHY011' was identified as the Valetta Road Drain and was observed along the east side of Valetta Road between Middle Line and Pollard Line. The natural corridor of Valetta Road Drain at this point measured approximately 7 m in width and consisted of goldenrod, aster species, and other herbaceous plant species. The land use surrounding this drain is primarily agricultural. The ditch was lined with terrestrial grasses and there was no defined channel present. This water body was found to have flowing water on October 4th, 2011, but may be as a result of recent precipitation.

At observation point 'AHY011', Valetta Road Drain runs 10 m adjacent to the cabling that are alongside Valetta Road.

39. AHY012

Water body 'AHY012' was identified as an unnamed drainage ditch and was observed running parallel to the north side of Pollard Line. This ditch was completely lined with grasses and had no defined channel. The land use surrounding this ditch is primarily agricultural. This ditch was found to be flowing on October 4th, 2011 but all water present may be a result of recent precipitation.

At this observation point, this grassed ditch runs 5 m parallel to cabling, which follows alongside Pollard Line.

40. AHY013

Water body 'AHY013' was identified as Ross Norry Drain and was observed along Gleeson Line, to the northeast of McKinlay Road. The land use surrounding this drain was classified as mainly agricultural. The natural corridor for Ross Norry Drain at this location was approximately 10 m in width and was vegetated predominantly by shrubs and terrestrial grasses which provided 65% shade over the channel. The channel measured 3.5 m in width, with a wetted width of 1.5-2 m, and a depth of approximately 0.25 m. Instream habitat within the channel was provided by pools, vegetation, and the culvert at the road crossing. The substrates within the channel were found to be primarily muck and detritus, with deposits of sand, silt, and clay. The 2-2.5 m bank showed moderate stability and was covered in a combination of terrestrial grasses and herbaceous plants. In stream vegetation was made up of terrestrial grasses. Ross Norry Drain was found to be flowing on October 4th, 2011 with a water temperature of 14°C.

Another unknown drain was found at this observation point and it ran parallel to Gleeson Line. The unknown drain was found to be flowing when observed on October 4th, 2011. The unknown drain had a 10 m natural corridor comprised of grasses, herbaceous vegetation, and shrub species. The channel was grass lined and the bank was 1.5-2 m.

Ross Norry Drain at observation point 'AHY013' crosses the proposed cabling that runs parallel to Gleeson Line. The unknown drain at this observation point runs 17 m, adjacent to the cabling along Gleeson Line.

41. AHY014

Water body 'AHY014' was identified as Jessop Drain and was observed perpendicular to Gleeson Line. The land use surrounding Jessop Drain is primarily agricultural. The natural corridor for this drain is approximately 10 m in width and was vegetated predominantly by deciduous trees, shrubs (including dogwood), and herbaceous plants. The channel measured 3 m in width, with a wetted width of 0.75 to 1.5 m. Instream habitat was provided through pools, riffles, vegetation, and the culvert at the road crossing. The substrates within the channel were found to be primarily muck with deposits of detritus, silt, sand, gravel, and pebble. The bank was 1-2 m at the observation point and appeared to be moderately stable. The bank vegetation consisted of a variety of grass species and herbaceous plants and provided 60% shade to the channel. In stream vegetation consisted of terrestrial grasses and cattail. Jessop Drain was found to be flowing on October 4th, 2011 with high turbidity and a water temperature of 15°C.

An unknown drain is also located at this observation point and runs parallel to south side of Gleeson Line. This unknown drain is a roadside ditch which was lined with cattails. The unknown drain was wet, most likely due to the recent rain, and drained into Jessop Drain.

At observation point 'AHY014' Jessop Drain intersects with the proposed cabling along Gleeson Line and continues south to travel through the project area surrounding P072. The unknown drain is located 20 m from the proposed cabling that runs parallel to Gleeson Line.

Water Body Observations Found on Figure 2-5

45 water body observations (15 from 2010, 30 from 2011)

1. WB-AR14

Water body 'AR14' was identified as Government Drain # 1 and was observed where it crosses cabling at Cooper Road between Port Road and Finn Line. Land use surrounding this drain is agricultural and residential. The natural corridor measured 25 m in width and consisted of grasses and herbaceous species, including goldenrods, as well as mixed shrubs and trees which provided 25% shade over the channel. The channel ranged in widths from 0.5 to 4 m, averaging 1.5 m, and had a high water mark of 2.5 m. The wetted width of the channel at this section was 1.68 m with depths ranging from 3 to 12 cm. Water was turbid at the time of site investigation on November 16, 2010. The channel contained filamentous algae, and the 5 m high bank contained grasses and herbaceous species, including goldenrods. The bank appeared stable. Substrates within the channel consisted of clay, silt, sand, gravel, pebbles, cobbles, muck, and detritus. In-stream habitat consisted of pools, riffles, backwaters, undercut banks, and woody debris. Although no cyprinids were observed, this stream appears to contain good fish habitat.

Government Drain # 1 was observed at 'WB-AR14' and is a water body located within the Project area. It comes within 80 m of the access road and 83 m from cabling for proposed turbine P069. Furthermore an unnamed intermittent drain branches off of Government Drain # 1 and comes within 35 m from the access road and 15 m from cabling for proposed turbine P069.

2-3. WB-AR15A/B

Water body 'WB-AR15A' was identified as Government Drain #1 and was observed where it crosses Girard Line. Land use surrounding this drain is agricultural. The natural corridor measured 25 m in width and consisted of grasses and herbaceous species, including goldenrods, as well as mixed shrubs and trees that provided 15% shade over the channel. The channel ranged in widths from 0.5 to 4.5 m, averaging 1 m, and had a high water mark of 2 m. The wetted width of the channel at this section was 1.17 m with depths ranging from 4 to 15 cm. Water was turbid at the time of site investigation on November 16th, 2010. The channel contained filamentous algae, and

the 3.5 m high bank contained grasses and herbaceous species, including goldenrods. The bank appeared stable. Substrates within the channel consisted of clay, silt, sand, gravel, pebbles, cobbles, muck, and detritus. In-stream habitat consisted of pools, riffles, backwaters, undercut banks, woody debris, vegetation, and cobbles. Cyprinids were observed within this water body, and raccoon and great blue heron tracks were also observed along the banks.

Observation point 'WB-AR15B' was identified as Pollard Drain and was observed alongside Girard Line southwest of Cooper Road. The natural corridor was less than 25 m and consisted of mixed trees and shrubs, goldenrod, grass and herbs. The channel of this drain was approximately 1 m with banks vegetated with grass and goldenrod. The channel was flowing northeast and contained filamentous algae. All observations for this site were made on November 16th 2010.

Government Drain #1 'WB-AR15B' is within the Project area and crosses the cabling leading to proposed turbine P070. Pollard Drain is also a water body located within the Project area at 'WB-AR15B' and crosses the cabling along Port Road. East of the observation point Pollard Drain continues to run 5 m parallel to the cabling alongside Port Road.

4. WB-AR26

Water body 'AR26' was identified as Finn and Cooper Drain and was observed where it crosses the 7th Line West. This drain runs south to north. At the observation point Webb Drain, which runs east to west criss-crosses Finn and Cooper Drain. Land use surrounding this drain is agricultural. The natural corridor of Finn and Cooper Drain measured 15 m in width and consisted of grasses and mixed shrubs that provided 5% shade over the channel. The channel ranged in widths from 0.5 to 3.5 m, and had a high water mark of 2.5 m. The wetted width of the channel at this section was 1.98 m with depths ranging from 11 to 20 cm. Water was turbid at the time of site investigation on November 16, 2010, and flows north. The channel did not contain any vegetation, and the 4 m high bank contained grasses and herbaceous species, including goldenrods and teasel. The bank appeared stable. Substrates within the channel consisted of clay, silt, sand, gravel, pebbles, cobbles, muck, and detritus. In-stream habitat consisted of pools, riffles, backwaters, undercut banks, woody debris, and cobbles. Although

cyprinids were not observed, this drain appears to have good habitat. An eastern cottontail was observed within this drain.

Finn Cooper Drain and Webb Drain were both observed at 'WB-AR26' and are both water bodies located within the Project area. Finn Cooper Drain crosses the cabling at the junction of Drake Road and 7th Line. Southeast of the observation point, Finn and Cooper Drain also crosses the cabling that runs along the rail way tracks. Webb Drain at the observation point crosses the cabling beside 7th Line.

5. WB-D5

Water body 'WB-D5' was identified as Deary Drain and was observed where it crosses 6th Line West, to the northeast of Merlin Road. The natural corridor measured 10 m, channel width was 1 m, and the high water mark was 2 m. Vegetation for the corridor and banks consisted of grass, herbaceous plants and a few trees. The channel had grass and cattail species present and was dry when viewed on September 16, 2010.

Deary Drain was observed at 'WB-D5' and is a water body located within the Project area as it crosses the cabling which runs parallel to 6th Line West.

6. WB-E5

Water body 'E5' was identified as Rice Drain and was observed where it crosses the access road and cabling for proposed turbine P067. The natural corridor measured 6 m, channel width was 1.5 m, and the high water mark was 1 m. Vegetation along the corridor was a grass and tree mixture. The banks were vegetated with herbaceous plants, grass, and a tree and shrub mixture. The channel was bare with sections of grass and herbaceous plants and was dry on September 16, 2010.

Rice Drain was observed at 'WB-E5' and is a water body located within the Project area and crosses the access road and cabling leading to proposed turbine P067 as well as running 6 m alongside the cabling along 6th Line. Rice Drain at this observation point is also located 20 m from the cabling and access road for proposed turbine P099.

7. WB-H5

Water body 'WB-H5' was identified as Deary Drain and was observed where it crosses 7th Line West. The natural corridor measured 8 m, channel width was 1.5 m, and the high water mark was 1 m. Vegetation was composed of grass and herbaceous plants. The channel was vegetated with grass species and was dry when viewed on September 16, 2010.

Deary Drain was observed at 'WB-H5' and is a water body located within the Project area. It crosses the cabling which runs parallel to 7th Line West and comes within 45 m of the access road and cabling for proposed turbine P068. North of the observation point, Newham Drain connects to Deary Drain. Newham Drain is located within the Project area and comes within 68 m to proposed turbine P068.

8. WB-L7

Water body 'L7' was identified as Mazan Drain and is located along Gleeson Line W of Cooper Road. The natural corridor measured 5 m, channel width was 1 m, and the high water mark was at 1 m. Grass, herbaceous plants and tree species composed the vegetation within the vicinity. The surrounding area was being used mainly for agriculture purposes. The channel was bare of vegetation and turbid standing water was present when observed on October 6, 2010.

Mazan Drain was observed at 'WB-L7' and is a water body located within the Project area and comes within 1 m of the cabling which runs alongside Gleeson Road.

9. WB-M7

Water body 'WB-M7' was identified as Mazan Drain and was observed along Gleeson Drive to the northeast of Sloan Road. The natural corridor through this section measure 5 m, channel width was 1 m, and the high water mark was 0.5 m. Grass species were the dominant vegetation within the corridor, along the banks, and lining the channel. The channel was dry when viewed on October 6, 2010.

Mazan Drain was observed at 'WB-M7' and is a water body located within the Project area and crosses the access road and cabling leading to proposed turbine P125. It is also 5 m from the cabling that runs parallel to Gleeson Line at this observation point.

10. WB-S6

Water body 'WB-S6' was identified as Gardner Drain and was observed between Morris and Finn Line on Cooper Road. The natural corridor measured 3 m, channel width 0.5 m, and the high water mark 0.5 m. Grass was the predominant vegetation present within the channel and along the corridor and banks. The channel was dry when observed on September 22, 2010.

Gardener Drain was observed at 'WB-S6' and is a water body located within the Project area as it runs 15 m alongside the cabling on Cooper Road.

11. WB-U4

Water body 'WB-U4' was identified as McDougall Drain and was observed where it crosses Morris Line. Water temperature within the channel was 19°C on September 16, 2010. The natural corridor measured 18 m with vegetation consisting of a mixture of trees, grass, and herbaceous plants. The channel width ranged from 0.5 to 2 m, with a bank height of 4 m, and a high water mark of 1 m. Bank stability was good throughout the section with vegetation made up of herbaceous plants and grass species.

Substrates within the channel included clay, silt, sand, cobble, muck, and detritus. The channel was dry of the north side and had standing water on the south side beside the culvert on Morris Line.

McDougall Drain was observed at 'WB-U4' and is a water body located within the Project area as it crosses the cabling alongside Morris Line.

12. WB-U6

Water body 'WB-U6' was identified as Cooper-Stevenson Drain and was observed along Port Road. The natural corridor measured 10 m and was vegetated with tree and grass species, including honey locust, maples, and bur oak. The channel width was 1.5 m, bank height was 3 m, and the high water mark was at 2 m. Herbaceous plants, trees, and grass species composed the vegetation along the banks. Substrates within the channel included clay, silt, sand, cobble, and lots of detritus. Standing water was present within the channel when viewed on September 22, 2010. Lewis Drain was observed at the same location and ran south perpendicular to the road.

Cooper Stevenson Drain was observed at 'WB-U6' and is a water body within the Project area running 10 m parallel to the cabling. Lewis Drain is a second water body at this observation point and crosses the proposed cabling.

13-15. CAB034A/B/C

Water body 'CAB034A' was identified as Shadd Drain and was observed on the southeast side of 7th Line West. The natural corridor of Shadd Drain at this point measured 7 m in width and consisted of grass and herbaceous species. The bank vegetation was comprised of grass and herbaceous plant species. The channel measured 1.5 m in width with algae clumps. The water was observed to be turbid and flowing northeast on April 28, 2011.

Water body 'CAB034B' was identified as unnamed roadside ditch and was observed on the northwest side of 7th Line West. The natural corridor of the unnamed ditch at this point measured 4m in width and consisted predominantly of grass species. The bank vegetation was comprised of grass species. The channel was bare of vegetation and dry on April 28, 2011.

Water body 'CAB034C' was identified as unnamed roadside ditch and was observed on both sides of Wellwood Road. The natural corridor of the unnamed ditch at this point measured 4 m in width and consisted of grass on the southwest and grass and herbaceous plants on the northwest side. The channels measured 0.5 m in width and appeared to be flowing on April 28, 2011. The southwest channel contained grass species and the northeast channel contained phragmites.

Shadd Drain was observed at 'CAB034A' and is located within the Project area 10 m adjacent to the proposed cabling that runs parallel to 7th Line West. CAB034B is located within the Project area 13 m adjacent the proposed cabling that runs parallel to 7th Line West. CAB034C is located within the Project area as it crosses and runs 15 m adjacent to the proposed cabling that runs parallel to Wellwood Road. Northeast of the observation point, Shadd Drain crosses the cabling that runs along the rail way tracks and comes within 14 m of the access road and cabling associated with proposed turbine P066. The unnamed ditch 'CAB034B' also crosses the cabling that runs along the rail

way tracks and crosses the cabling and access road associated with proposed turbine P066.

16-17. CAB035A/B

Water body 'CAB035A' was identified as Shadd Drain and was observed running parallel to the southeast side of 7TH Line West approximately 1.125 km east of Merlin Road. The natural corridor of Shadd Drain at this point measured 8 m in width and consisted of grasses and herbaceous plant species. The channel measured 1.5 m and the bank vegetation consisted of grass and herbaceous plant species. The channel contained clumps of phragmites and appeared to be turbid and flowing on April 28, 2011.

Water body 'CAB035B' was identified as unnamed roadside ditch and was observed running parallel along the northwest side of 7th Line West. The natural corridor of unnamed roadside ditch at this point measured approximately 4 m in width and consisted predominantly of grass species. The channel measured 0.5 m in width and contained in-channel vegetation of grass, isolated watercress patches (*Armoracia* sp.) and bare sections of substrate. The bank was bare of vegetation. Clear, standing water was observed within the channel on April 28, 2011.

Shadd Drain was observed at 'CAB035A' and is a water body located within the Project area 3 m adjacent to the proposed cabling that runs parallel to 7th Line West.

Observation 'CAB035B' is an unnamed water body located within the Project area and runs 17 m adjacent to the proposed cabling that runs parallel to 7th Line West. This unnamed water body has been identified as a seepage area due to the presence of watercress (*Armoracia* sp.). West of 'CAB035B' the unnamed roadside ditch crosses proposed cabling.

18-19. CAB036A/B

Water body 'CAB036A' was identified as unnamed roadside ditch and was observed on the northwest side of 8th Line, approximately 375 m west of Wellwood Road. The natural corridor of unnamed roadside ditch at this point measured approximately 5 m in width and consisted of predominantly grass species. The channel measured 0.5 m in width with bank and channel vegetation consisting of grass species. There was clear, standing water observed within the channel on April 28, 2011.

Water body 'CAB036B' was identified as unnamed drain and was observed running parallel along the southeast side of 8th Line, approximately 375 m west of Wellwood Road. The natural corridor of unnamed drain at this point measured 8 m in width and consisted of grass and herbaceous species. The channel measured 1.5 m in width with channel vegetation comprised of phragmites. Bank vegetation consisted of grass and herbaceous species. The turbid water was observed flowing northeast within the channel on April 28, 2011.

Observation point 'CAB036A' and 'CAB036B' are both unnamed water bodies located within the Project area and the both cross the cabling at the junction of 8th Line and Wellwood Road.

20-22. CAB038A/B/C

Water body 'CAB038A' was identified as Cooper-Stevenson Drain and was observed running parallel on the southeast side of Port Road. The natural corridor of Cooper-Stevenson Drain at this point measured approximately 4 m in width and consisted of predominantly grass species. The channel measured 0.5 m in width and contained grass species. Bank vegetation was comprised of grass species. Water appeared clear and flowing on April 28, 2011.

Water body 'CAB038B' was identified as unnamed roadside ditch and was observed running parallel on the northwest side of Port Road. The natural corridor of unnamed ditch at this point measured approximately 0.5 m in width and consisted predominantly of grass species. The channel measured 0.5 m in width and contained grass species. Bank vegetation was comprised of grass species. The water within the channel appeared to be clear and standing on April 28, 2011.

Water body 'CAB038C' was identified as Mancell Drain and was observed along the southwest side of Merlin Road between 8th Line and Port Road. The natural corridor of Mancell Drain at this point measured 8 m in width and consisted predominantly of grass species. The channel measured 1.5 m in width and was bare of vegetation. Bank vegetation was comprised of grass and herbaceous plant species, including teasel. The water was observed to be flowing on April 28, 2011.

Cooper Stevenson Drain was observed at 'CAB038A' as water body and is located within the Project area adjacent (17 m) to proposed cabling that runs parallel to Port Road. 'CAB038B' was a water body observation on an unnamed drain located within the Project area adjacent (12 m) to proposed cabling that runs parallel to Port Road. It also crosses the proposed cabling that runs along Merlin Road. Mancell Drain was observed at 'CAB038C' and is a water body located within the Project area as it crosses (at Port Road) and runs directly adjacent (3 m) to proposed cabling that runs parallel to Merlin Road. There was no water feature observed along the northeast side of Merlin Road.

23. CAB039

Water body 'CAB039' was identified as Beattie Drain and was observed running parallel to, and on the southeast side of, 6th Line. The natural corridor of Beattie Drain at this point measured 5 m in width and consisted of mixed vegetation: tree, shrub, grass and herbaceous plant species. The channel measured 2 m in width and was bare of vegetation. Bank vegetation was mixed: grass, herbaceous plants, shrub, and tree species. The water within the channel appeared to be flowing northeast on April 28, 2011.

Beattie Drain was observed at 'CAB039' and is a water body located within the Project area adjacent (12 m) to the proposed cabling that runs parallel to 6th Line.

24. CAB040

Water body 'CAB040' was identified as Mancell Drain and was observed running parallel to, and on the southwest side of, Merlin Road. The natural corridor of Mancell Drain at this point measured approximately 14 m in width and consisted predominantly of grass species. The channel measured 2 m in width and contained algae clumps, corn husks and duckweed. Bank vegetation was comprised predominantly by grass species. The water within the channel appeared turbid and flowing on April 28, 2011.

Mancell Drain was observed at 'CAB040'. This water body is located within the Project area and runs adjacent (2 m) to the proposed cabling along Merlin Road where it eventually crosses the cabling at 6th Line W.

25-26. CAB044A/B

Water body 'CAB044A' was identified as McHardy Drain and was observed along the southeast side of Morris Line. The natural corridor of McHardy Drain at this point measured approximately 6 m in width and consisted predominantly of grass species and Queen Anne's Lace. The channel measured 1.5 m in width and contained Phragmites. Bank vegetation was comprised of grass species and Queen Anne's Lace. Water was observed to be flowing and turbid on April 28, 2011.

Water body 'CAB044B' was identified as unnamed roadside ditch and was observed parallel, and on the northwest side of Morris Line. The natural corridor of unnamed roadside ditch measured approximately 3 m in width and consisted of predominantly grass species. The channel measured 0.5 m in width and was bare of vegetation. Bank vegetation was comprised of grass species. There were pockets of standing water within the channel on April 28, 2011.

McHardy Drain at observation point 'CAB044A' is no longer within the Project area. McHardy Drain further west on Morris Line is within the Project area and crosses the cabling at Cooper Road. McHardy Drain is also 2 m from the proposed cabling that runs parallel to Morris Line. The unnamed water body at 'CAB044B' is also no longer within the Project area but further west it crosses cabling and travels adjacent to cabling at a distance of 10 m from the cabling alongside Morris Line.

27. P064

Water body 'P064' was identified as unnamed roadside ditch and was observed parallel to, and along the northwest side of, 7th Line West. The natural corridor of unnamed roadside ditch at this point measured approximately 4 m in width and consisted of predominantly grass species. The channel measured 0.5 m in width and contained grass species and bare patches. Bank vegetation consisted of grass species. The channel was dry on April 28, 2011.

This unnamed water body was observed at 'P064' and is located within the Project area and crosses the access road and cabling leading to proposed turbine P064 and P148.

28. P095A

Water body 'P095A' was identified as Gardner drain and was observed parallel to Cooper Road. The natural corridor of Gardner drain at this point measured approximately 5 m in width and consisted of predominantly grass species. The channel measured 1 m in width and contained grass. Bank vegetation was comprised of grass. The channel was found to contain turbid flowing water on April 28, 2011.

Gardener Drain was observed at 'P095A' and is a water body located within the Project area as it crosses the access road and cabling leading to proposed turbine P095.

29. P095B

Water body 'P095B' was identified as unnamed drain and was observed perpendicular to Cooper Road, approximately 650 m south of Morris Line. The natural corridor of unnamed drain measured approximately 2 m in width and consisted of grass and herbaceous plant species. The channel measured 0.5 m in width and contained grass. The channel was observed to contain clear flowing water on April 28, 2011.

This unnamed drain was observed at 'P095B' and is a water body located within the Project area and is 37 m from the proposed access road and 27 m from cabling within >120 m of the proposed turbine P095.

30. P126

Water body 'P126' was identified as Mazan Drain and was observed to be perpendicular to, and located on the southeast side of, Gleeson Line. Water temperature for Mazan Drain was 10°C on April 28, 2011. Land use surrounding this drain is agricultural and municipal road. The natural corridor of Mazan Drain at this point measured approximately 8 m in width and consisted of predominantly grass species. No vegetative cover provided shade over the drain. The channel ranged in widths from 0.75 m – 1 m. Bank height was 1m with top of bank at 3 m and poor bank stability from sparse grass. The wetted width of the channel at this section was 1.0 m with depths ranging from 5 – 8 cm. Instream habitat and cover found within the channel was provided by sparse grass. Substrates within the channel consisted of clay, muck, silt, detritus, sand and gravel. Within the channel water was noted as turbid and flowing on April 28, 2011.

Mazan Drain was observed at 'P126' and is a water body located within the Project area as it crosses the access road and cabling leading to proposed turbine P126. At the observation point it also runs 10 m alongside the cabling adjacent to Gleeson Road.

31. P148

Water body 'P148' was identified as Linnen Drain and was observed midfield between 6th and 7th Lines, approximately 400 m from the confluence with Finn and Cooper Drain. Water temperature for Linnen Drain was 11°C on April 28, 2011. Land use surrounding this drain is used primarily for agricultural purposes. The natural corridor of this portion of Linnen Drain measured 18 m in width and consisted of mixed vegetation: deciduous trees and shrubs, grass, herbaceous plants, hawthorn, rose and berry species. On April 28, 2011 poor canopy cover was provided by deciduous trees and shrubs; however it is expected when leaves have grown to provide over 80% shade over the channel. The channel ranged in width from 1.25 – 2 m. Bank height was 0.1 m with top of bank reaching 3 m. The wetted width of the channel at this section was 1.85 m with depths ranging from 3 – 10 cm. Instream habitat and cover found within the channel was provided by pools and woody debris. Substrates within the channel consisted of clay, muck, silt and detritus. Bank stability was noted as fair with low to moderate mixed vegetation of deciduous trees and shrubs, herbaceous plants and moss. No instream vegetation was noted within the channel. Turbid standing water was observed within the channel on April 28, 2011.

Linnen Drain was observed at 'P148' and is a water body located within the Project area as it crosses and then runs 30 m adjacent to the proposed access road and 15 m cabling. Northeast of the observation point, Linnen Drain comes within 85 m to proposed turbine P148.

32. P161

Water body 'P161' was identified as Skipper Drain and was observed on the southeast side of Gleeson Line. Water temperature for Skipper Drain was 10°C on April 28, 2011. Land use surrounding this drain is for agricultural and municipal road purposes. The natural corridor of this portion of Skipper Drain measured 7 m in width and consisted of grass and herbaceous plant species. No shade was provided by any vegetation over

the drain. The channel ranged in width from 1 – 1.5 m with moderate abundance of grass and Phragmites. The wetted width of the channel at this section was 1.6 m with depths ranging from 16 – 21 cm. Instream habitat and cover found within the channel was provided by pools, riffles, backwater and vegetation. Substrates within the channel consisted of clay, muck, silt, sand, detritus and gravel. Bank height was 0.15 m and the top of bank was 2.5 m high. Bank stability was observed to be good with dense vegetation of grass and herbaceous species. Within the channel the water was noted as turbid and flowing northeast.

Skipper Drain was observed at 'P161' and is a water body located within the Project area and crosses the access road and cabling leading to proposed turbine P161. It also flows within 10 m of the cabling which runs parallel to Gleeson Line.

33. AHY015

Water body 'AHY015' was identified as Unnamed A Drain and was observed where it runs parallel to the rail way, and intersect with Gleeson Line, to the west of Sloan Road. This water body was found to have a natural vegetation corridor of 8 m and was vegetated by terrestrial grasses, cattails, and Phragmites. The land use surrounding this drain was primarily agricultural. The drain was also found to have no defined channel and had no water present on October 4th, 2011.

Unnamed A Drain at the observation point 'AHY015' crosses the proposed cabling which runs parallel to Gleeson Line.

34. AHY016

Water body 'AHY016' was identified as Sinclair Drain and was observed where it intersects with Gleeson Line at Sloan Road. The natural corridor extended 6-8 m and was vegetated with terrestrial grasses. The channel had a width of 0.5-0.75 m and was lined with terrestrial grasses, and cattails. The land use surrounding this drain is primarily agricultural. Sinclair drain at this location was found to have a water temperature of 14°C when observed on October 4th, 2011. Sinclair Drain intersects the proposed cabling along Gleeson Line and continues south along Sloan Road toward Morris Line.

Sinclair Drain at observation point 'AHY016' intersects the proposed cabling at Gleeson Line

35. AHY017

Water body 'AHY017' was identified as Skipper Drain and was observed running parallel to Gleeson Line on the south side of the road. The surrounding land use within this area is primarily agricultural. The natural corridor at this point was approximately 6 m in width and was vegetated by numerous grass species (including goldenrod and asters) and herbaceous plants. Skipper Drain at this location had a channel width of 0.75-1 m which was lined with grass and other terrestrial plants. On October 4th, 2011 AHY-017 was found to have flowing water with a water temperature of 16°C.

Skipper Drain at observation point 'AHY017' runs 14 m from the cabling which runs parallel to Gleeson Line.

36. AHY018

Water body 'AHY018' was identified as Government Drain #1 and was observed at the intersection of Gleeson Line and Merlin Road. Government Drain #1 at this location runs parallel to Merlin Road on the south side of the road. The land use surrounding this area is primarily agricultural with a few residences. The natural corridor at the observation point is approximately 10 m in width and was vegetated with grass, herbaceous plants (including goldenrod and asters), and Phragmites. The channel measured 8-12 m in width and instream habitat was provided through pools, vegetation, boulders, and cobble. The substrates within the channel were found to be primarily muck and sand, with deposits of clay, silt, gravel, pebble, cobble, and boulder. The bank at this point was 6-10 m in height and had a fair stability with some signs of erosion. The bank was heavily vegetated with terrestrial grasses and herbaceous plants which provided 10% of shade along the edges of the channel. Instream vegetation was limited to terrestrial grasses along the edges. Government Drain 1 was found to be flowing with high turbidity on October 4th, 2011 and had a water temperature of 14°C. Fish species were noticed at the time of the survey but due to the high turbidity the species were unable to be identified.

Government Drain #1 at observation point 'AHY018' is within the Project area and crosses the proposed cabling at Gleeson Line. Government Drain #1 runs parallel to Merlin Road and is 10 m from the proposed cabling.

37-39. AHY019A/B/C

Water body 'AHY019A' was identified as Government Drain 1 and was observed along the south side of Merlin Road approximately 500 m south of 5th Line. The land use surrounding this area was primarily agricultural. The natural corridor of Government Drain 1 at this location was approximately 10 m in width and consisted of grass species, Phragmites, and herbaceous plants. The channel measured 8-10 m in width and instream habitat was provided through pools, vegetation, boulders, and cobble. The bank appeared moderately stable with a high density of grass and herbaceous plants which provided 20% shade to the channel. Instream habitat was limited and consisted of terrestrial grasses along the edges. On October 4th, 2011 Government Drain 1 was found to be flowing (in a northerly direction) and had a high turbidity. It also had a water temperature of 14°C at the time of sampling.

Water body 'AHY019B' was identified as Mancell Drain and was looked at where it connected with Government Drain 1. The natural corridor for Mancell Drain at this location was approximately 6 m in width and consisted of grass species and herbaceous plants. The banks were approximately 4 m high and appeared stable. The channel measured 0.5-0.75 m in width, was straight, dry, and was lined with grasses and Phragmites when observed on October 4th, 2011.

Water body 'AHY019C' was identified as unnamed drain and was observed perpendicular to Merlin Road. This drain when flowing would empty in Government Drain 1 through a culvert under Merlin Road. The natural corridor of this unnamed drain was approximately 7 m in width and consisted of grass species and herbaceous plants. This drain originates within the agricultural field and is fed through tile drains. The channel was undefined, straight, dry, and lined with grass species and Phragmites when observed on October 4th, 2011.

Government Drain #1 at observation point 'AHY019A' is within the Project area and comes within 21 m of the proposed cabling that runs parallel to Merlin Road. Mancell

Drain at observation point 'AHY019B' is within the Project area and was found to be 21 m of the proposed cabling that runs parallel to Merlin Road. The unnamed drain at observation point 'AHY019C' crosses the proposed cabling that runs parallel to Merlin Road.

40. AHY020

Water body 'AHY020' was identified as Gardiner Drain and was observed along the south side of Cooper Road. The land use surrounding this observation point was found to be primarily agricultural. The natural corridor around Gardiner Drain at this location measured approximately 6 m in width and was heavily vegetated with terrestrial grasses. The channel of Gardiner Drain at this location was 0.25 m in width and was completely lined with grasses. When observed on October 4, 2011, Gardiner Drain at this location had standing pockets of water (no flow was evident) with a water temperature of 16°C. It is believed that the water present is due to the recent rain events and tile drains.

Gardiner Drain at observation point 'AHY020' is within the Project area and comes within 10 m of the proposed cabling that runs parallel to Cooper Road.

41. AHY021

Water body 'AHY021' was identified as Government Drain 1 and was observed where it crosses under Finn Line through a 10 m box culvert. Land use for the surrounding area was found to be primarily agricultural. The natural corridor of Government Drain 1 at this location measured approximately 10 m in width and was vegetated with dogwood, maple, willow, terrestrial grasses, and herbaceous plants. The channel measured approximately 15 m, had a wetted width of 5-8 m, and had instream habitat provided through pools, vegetation, and boulders. Substrate within the channel was comprised of primarily much with deposits of sand, silt, clay, gravel, pebbles, boulder, and detritus. The 4-7 m bank was found to have moderate stability and was covered in a combination of shrubs and herbaceous plants. Instream vegetation was found to be willow sp and provided 55% shade to the channel. On October 4th, 2011 Government Drain 1 was found to be turbid and flowing with a water temperature of 14°C. Fish were observed but due to the turbid waters were unable to be identified.

Government Drain 1 at observation point 'AHY021' is within the Project area and was found to intersect the proposed cabling which runs parallel to Finn Line.

42. AHY022

Water body 'AHY022' was identified as Lewis Drain and was observed where it crossed under Finn Line through a 4 m wide box culvert, approximately 700 m southwest of Merlin Road. The land use surrounding this observation point is primarily agricultural. The natural corridor of Lewis Drain at this observation point measured approximately 10 m in width and was vegetated by different grass and shrub species. The bank height at this location was 3 m, was vegetated by grass, shrubs and herbaceous plants, and provided approximately 65% shade for the channel. The channel ranged from 4-5 m in width, had a wetted width of 0.75-1.5 m, and had instream habitat provided through pools and vegetation. The instream vegetation consisted of terrestrial grass species. Substrates within the channel were found to be primarily muck with deposits of clay, silt, sand, and gravel. The banks were approximately 3 m in height and were found to be moderately stable with a high density of vegetation. Bank vegetation consisted of different grass and herbaceous plant species. Lewis Drain was flowing, the water was highly turbid, and had a water temperature of 14°C when observed on October 4th, 2011.

Lewis Drain at observation point 'AHY022' is located within the Project area and was found to cross the proposed cabling which runs alongside Finn Line.

43. AHY023

Water body 'AHY023' was identified as Mancell Drain and was observed along the southwest side of Merlin Road, between Finn Line and 7th Line West. The surrounding land use is primarily agricultural. The natural corridor of Mancell Drain at this location measured approximately 8 m in width and the vegetation consisted of different grass species and herbaceous plants. The channel measured 1-1.15 m in width and had a depth of 0.25 m. Mancell Drain had a visible flow, was highly turbid, and had a water temperature of 14°C when observed on October 4th, 2011. David Peltier Drain was indicated on mapping to be at this location, running perpendicular to Merlin Road on the northwest side, but upon observation it was nonexistent.

Mancell Drain at observation point 'AHY023' is located within the Project area and is 3 m from the proposed cabling that runs along Merlin Road.

44. AHY024

Water body 'AHY024' was identified as the merger of an unnamed drain with Griffin Drain. These drains were observed along 7th Line W, with Griffin Drain running parallel along the south side of the road, and the unnamed drain running perpendicular. The natural corridor for Griffin Drain was approximately 10 m in width and had vegetation consisting of grass, shrubs, and herbaceous plant species. The channel was approximately 2.0 m in width and contained duckweed sp., milfoil sp., algae sp., and terrestrial grasses. Substrates within the channel were made up primarily of muck and detritus, with deposits of sand. The banks ranged in height from 2-3 m, had moderate stability, and had a high density of vegetation. Bank vegetation was made up of terrestrial grasses, and herbaceous plants. When observed on October 4th, 2011 Griffin Drain had a slight flow, had the smell of stagnant water, and had a water temperature of 16°C.

The unnamed drain which emptied in to Griffin Drain at this location was found to have a natural corridor of 8-10 m which was made up of grass and herbaceous plants. The channel ranged from 0.5-1.0 m in width and was visually flowing at the time of the survey. Tile drains were observed along this unnamed drain but were not flowing at the time of the survey. The channel was lined with grasses and a small pool had formed at the confluence with Griffin Drain. This unnamed drain, when observed on October 4th, 2011 was slightly turbid, had a water temperature of 16°C, and also had the smell of stagnant water.

Griffin Drain and the unnamed drain at the observation 'AHY024' are within the Project area and are located 7 m from the proposed cabling that runs parallel to 7th Line West.

45. AHY025

Water body 'AHY025' was identified as Finn and Cooper Drain and was observed where it crosses under Wellwood Road, between 8th and 9th Line. The land use is the surrounding area is primarily agricultural. The natural corridor for Finn and Cooper Drain at this location was approximately 10 m wide and was made up of deciduous trees,

terrestrial grasses, and herbaceous plants. Bank stability was good, with a high density of grass species, herbaceous plants, and vine species. The channel ranged from 4-5 m in width and had instream habitat provided through pools, vegetation, boulders, and the culvert. The instream vegetation was mainly found around the edges and in clumps within the channel and was made up of terrestrial grasses. Substrates through this section of channel consisted primarily of muck, silt, and sand, with deposits of gravel, pebble, and boulder. On October 4th, 2011 Finn and Cooper Drain was found to be flowing, turbid and had a water temperature of 14°C .

On the northeast side of Wellwood Road, an unnamed drain was observed where it joined to Finn and Cooper Drain. This drain had a natural corridor of 4 m in width and was vegetated with grass, goldenrod species, and herbaceous plants. The channel measured approximately 0.25 m in width and was lined with Phragmites and grass species. Water was present within this unnamed drain when observed on October 4th, 2011.

Finn and Cooper Drain at observation 'AHY025' is within the Project area and crosses the proposed cabling that runs parallel to Wellwood Road. The unnamed drain also observed at 'AHY025' is within the Project area and is 6 m adjacent to the proposed cabling alongside Wellwood Road.

Water Body Observations Found on Figure 2-6

56 Water body observations (31 from 2010 and 25 from 2011)

1. WB- A2

Water body 'WB-A2' was identified as Vsetula drain and was observed along the N side of 10th Line. The observation point is surrounded by agricultural purposes. The natural corridor measured 8 m, channel width was 1 m, and the high water mark was 2 m.

Vegetation within the corridor was made up of grass and herbaceous plants. The bank vegetation was composed of various herbaceous species. When observed on September 9, 2010 the channel bed was dry with cattails and grasses present.

At observation 'WB-A2' Vsetula Drain is a water body located within the Project area and runs 15.5 m alongside the proposed cabling adjacent to 10th Line.

2. WB-A7

Water body 'WB-A7' was identified as Lewis Drain and was observed where it crosses under a cement culvert at 10th Line. The natural corridor was 11 m wide with a mixture of tree and grass species composing the vegetation. The channel width was 1 m, with a bank height of 4 m, and a high water mark of 2.5 m. Herbaceous plants, grass and tree species made up the vegetation along the banks. Land use within the area was mainly used for agriculture and residential purposes. Muck, detritus, sand, clay, and silt composed the substrates within the channel. When viewed on September 22, 2010 the channel was mostly dry with pools of standing water on either side of the culvert under 10th Line. Heron and raccoon tracks were also observed along the channel.

Observation point 'WB-A7' on Lewis Drain is located within the Project area. At this location Lewis Drain crosses the cabling which runs alongside 10th Line. Further south this drain is >120 m of proposed turbine P100, and 100 m from proposed turbine P100's access road and cabling.

3. WB-AR27

Water body 'WB-AR27' was identified as Lecoco Drain and was observed where it crosses the 7th Line West. This drain runs south to north. Land use surrounding this drain is agricultural and residential. The natural corridor of Lecoco Drain measured 25 m

in width and consisted of grasses, herbaceous species (including goldenrods and teasel) and mixed shrubs that provided 75% shade over the channel. The channel ranged in widths from 0.5 to 4 m, and had a high water mark of 3.5 m. The wetted width of the channel at this section was 1.28 m with depths ranging from 3 to 15 cm. The water in this drain was flowing slowly northward at the time of site investigation on November 16, 2010. The channel contained small amounts of filamentous algae, and the 4.5 m high bank contained herbaceous species and mixed shrubs and trees. The bank appeared stable. Substrates within the channel consisted of clay, silt, sand, gravel, pebbles, cobbles, and detritus. In-stream habitat consisted of pools, riffles, backwaters, undercut banks, woody debris, vegetation, and cobbles. Cyprinids were observed within this drain.

Lecoco Drain is a water body observed at point 'WB-AR27' and is located within the Project area crossing under the proposed cabling.

4. WB-AR31

Water body 'AR31' was identified as Vsetula Drain and was observed where it intersects with Mummery Drain where it crosses 10th Line. This drain runs northeast to southwest. The natural corridor of Vsetula Drain measured 8 m in width and consisted of grasses. The channel measured 1 m in width and had a high water mark of 1 m as well, with bank vegetation of herbaceous species, including goldenrods and mixed grasses. The channel contained typha and was dry when it was observed on November 17, 2010.

Vestula Drain runs parallel to 10th Line, where it also runs adjacent to the cabling. At this observation point Mummery Drain crosses 10th Line and the cabling and then runs 10 m adjacent to the cabling and access road that lead to turbine P060.

5. WB-AR56

Water body 'WB-AR56' was identified as Chase Drain and was observed NW of 7th Line. The natural corridor of Chase Drain at this point measured approximately 4 m in width and consisted of predominantly grass species. The channel measures 0.25 m in width and had a high water mark of 0.5 m. Bank vegetation consisted of mixed grasses and herbaceous plants (primarily goldenrod). The channel was found to be dry with and

grown in with grass and herbaceous plants when it was observed on November 18, 2010.

Chase Drain at observation point 'WB-AR56' is located within the Project area. Chase Drain runs 13 m alongside the access road and 15 m along cabling leading to proposed turbine P063 from 7th Line. This drain also crosses cabling parallel to 7th Line. There is another crossing of Chase Drain further N which is discussed in observation 'WB-L'.

6. WB-B2

'WB-B2' was identified as Flook and Hinton Drain and was observed where it crosses under 10th Line. The natural corridor measured 4 m, channel width was 0.5 m, and the high water mark was 0.75 m. Vegetation within the corridor consisted of grass and herbaceous plants. Bank vegetation was dominated by different grass species. When observed on September 9, 2010 the channel bed was bare and dry.

Water body observation 'WB-B2' occurs within the Project area and crosses the cabling at 10th Line. As the Flook and Hinton Drain continues north it runs 20 m adjacent to the access road, 6 m from cabling and 41 m from the proposed turbine P164.

7. WB-B8

Water body observation 'WB-B8' was identified as Lewis Drain and was observed NW of 10th Line and W of Charing Crossing Road. The natural corridor measured 8 m with vegetation composed predominantly of grass species. The channel width was 1 m, with a bank height of 5 m, and a high water mark of 2 m. Herbaceous plants, grass, and maple trees composed the bank vegetation. Substrate within the channel included clay, silt, sand, and muck. Standing water was found in spots when viewed on October 21, 2010 and flowing water was seen on April 27th, 2011.

Water body observation 'WB-B8' on Lewis Drain is located within the Project area and comes within 45 m of proposed turbine P164.

8. WB-J

Water body 'J' was identified as Mummery Drain and was observed at 11th Line, in between Charing Crossing Road and Bloomfield Road. The observation point was

conducted roadside and the surrounding land use was identified as agricultural. The natural corridor was measured at 5 m and consisted of grasses, herbs, and tree species. The channel width was 1.5 m and had a high water mark of 2.5 m. The bank height was 5 m and the bank stability appeared to be good. Vegetation along the banks consisted of herbaceous species. Channel substrates throughout this section were made up of clay, gravel, and muck. The channel was dry and had cattails and grass species present when observed on September 8, 2010.

WB-J is a water body located within the Project area and is within 6 m of proposed cabling that runs along the railway..

9. WB-K

Water body observation 'WB-K' was identified as Flook and Hinton Drain and was observed along 9th line, west of Charing Crossing Road. The natural corridor was measured at 15 m and the vegetation was made up of grasses, goldenrods, and other herbaceous plants. The surrounding area was used mainly for agriculture purposes. The channel width was 1.5 m and had a high water mark of 2.5 m. The bank height was 5 m and the bank stability appeared to be good. Vegetation along the banks was made up of herbs and grasses. Channel substrates were composed of clay, silt, gravel, cobble, and muck. The channel had willow and grass species growing in the bed and was dry when observed on September 8, 2010. Two (2) live muskrats, as well as 10-20 dead freshwater mussels, were seen during this site visit.

Observation 'WB-K' is located within the Project area and crosses the cabling.

10. WB-L

Water body observation 'WB-L' was identified as Chase Drain and was observed where it meets with Sampson Drain. The observation point was located north of 7th Line west and in between AD Shadd Road and Dillon Road. The natural corridor was measured at 10 m and the vegetation consisted of a cedar hedgerow, shrubs, and herbs. The surrounding area was used mainly for agriculture. The channel width throughout this section ranged from 1 to 1.5 m and had a high water mark of 0.5 to 1.5 m. Bank height was 0.3 m and the bank stability was good. Bank vegetation was composed of sumac, grapevine, shrubs, herbs, and grasses. Clay, silt, muck, and grasses made up the

channel substrates throughout this section. The channel was dry when observed on September 9, 2010.

Chase Drain is a water body located within the Project area and at the observation point crosses the cabling and access roads for proposed turbines P121 and P062. South of the observation point, Chase Drain comes within 120 m of proposed turbine P063. Sampson Drain through this area runs 30 m from the cabling and access roads for proposed turbines P121 and P062.

11. WB-M

Water body 'WB-M' was identified as West Drain and was observed along the west side of AD Shadd Road, north of 7th Line. The surrounding area was being used mainly for agriculture. The natural corridor was measured at 7 m and the vegetation consisted of grass, goldenrod, and other herbaceous plants. The channel width throughout this section was 1 m and had a high water mark of 1.5 m. Bank height was 0.5 m and the bank stability was in good condition. The vegetation along the banks was composed mainly of herbaceous species. Substrates within the channel were made up of clay, silt, muck, and detritus. When observed on September 9, 2010, the channel was dry and cattails, phragmites, herbaceous plants, and grasses were growing in the channel bed.

Southeast of the observation point 'WB-M' West Drain is located within the Project area and crosses the cabling at the junction of 7th Line and AD Shadd Road.

12. WB-N

Observation 'WB-N' identified as Carter Drain where it crosses 8th Line between Dillon Road and AD Shadd Road. The natural corridor is 18m and composed of poplar trees, shrubs, goldenrod and herbs. The channel was 2.5 m wide and the banks were vegetated with herbs, goldenrod and willows. The channel contained detritus with some woody debris and was fairly dry with pockets of water on September 8th, 2010.

'WB-N' is a water body within the Project area and crosses the cabling along 8th Line. North of the observation point Carter Drain also crosses the cabling that runs parallel to Dillon Road.

13. WB-N7

Water body 'WB-N7' was identified as Flook & Hinton Drain and was observed N of 9th Line between Bloomfield and Charing Crossing Road. Water temperature was 11°C when taken on October 6, 2010. The natural corridor measured 25 m and the vegetation was composed of predominantly grass species. The channel width was 2.5 m, bank height was 4.5 m, and the high water mark was at 3 m. Wetted width was 2.59 m with depths ranging from 15 to 26 cm. Vegetation along the banks included shrubs, herbaceous plants, and grass species. Substrates within the channel consisted of clay, silt, sand, gravel, and detritus. Instream habitat was provided through pools, backwater, undercut banks and some grassy vegetation. A slight northwest flow was observed in the turbid water.

Flook and Hinton Drain at observation point 'WB-N7' is located within the Project area and crosses the access road and cabling for proposed turbine P097. It also comes within 51 m of this turbine.

14. WB-O

Water body 'WB-O' was identified as Carter Drain and was observed along 9th Line, just east of AD Shadd Road. The natural corridor was 23 m, channel width was 4 m, and the high water mark was 2.5 m. The vegetation along the natural corridor consisted of trees, herbs, and vines. The vegetation along the banks of the channel was made up of tree species and herbaceous plants. The channel bed was bare with a small number of standing pockets of water when observed on September 9, 2010.

Further north of observation point 'WB-O' Carter drain is located within the Project area as it crosses the cabling proposed to run along the railroad.

15. WB-P

Water body 'WB-P' was identified as the confluence of O'Rourke Drain and Sheeler Waddick Drain. The observation point was located at a concrete culvert on 9th Line, east of Dillon Road. The natural corridor width was 8 m, channel width was 1.5 m, and the high water mark was 1.5 m. Grass species made up a significant portion of the vegetation along the corridor with tree species flanking the sides. The vegetation along the banks consisted of shrubs and herbs. The channel bed was mostly bare with

patches of grass in some locations. The channel was dry when observed on September 9, 2010.

South of the observation point 'WB-P' O'Rourke Drain is located within the Project area as it crosses the cabling proposed to run along the railway.

16. WB-Q

Water body 'WB-Q' was identified as Doyle Drain and Sheeler Waddick Drain and was observed along 9th Line. The observation point was broken down into 'Qi' and 'Qii' to better represent the aquatic features observed at the site.

'Qi' had a natural corridor width of 10 m, a channel width of 0.5 m, and a high water mark of 2 m. Vegetation along the natural corridor was made up of trees and herbaceous species. Vegetation along the channel banks consisted of shrubs, herbs, and grasses. The channel bed was mainly bare with patches of grass and duckweed noticed. The channel was dry when observed on September 9, 2010.

'Qii' had a natural corridor width of 8 m, a channel width of 1 m, and a high water mark of 1.5 m. The vegetation along the natural corridor consisted of mainly grasses. Bank vegetation was composed of herbaceous species, including goldenrod, and phragmites. The channel bed was bare with cattails growing in places. The channel was dry when observed on September 9, 2010.

Doyle Drain at observation point 'WB-Q' is a water body located within the Project area as it crosses the cabling along 9th Line. Sheeler Waddick Drain is also within the Project area at 'WB-Q' as it runs 20 m adjacent from the cabling along 9th Line.

17. WB-RR24

Water body 'WB-RR24' was identified as Lewis Drain and was observed where it crosses under the railway corridor. Lewis Drain through this section had a slow northerly flow with a water temperature of 9°C on October 28, 2010. Land use surrounding this drain was being used primarily for agricultural purposes. The natural corridor of this section measured 25 m in width and consisted of grass, herbaceous plants (goldenrod), and a mixture of tree and shrub species that provided 75% (excellent) shade over the

channel. The channel width was 3 m and had a high water mark of 3 m. The 4 m high bank was noted as having good stability with vegetation comprised of herbaceous plants and grass species. Instream habitat and cover found within the channel was provided through pools, backwater, undercut banks, riffles, cobble, backwater, and woody debris. Substrates within the channel consisted of clay, silt, sand, gravel, cobble, muck, and detritus. The wetted width of the channel at this section was 2.95 m with depths ranging from 7 to 15 cm.

Lewis Drain is a water body at observation point 'WB-RR24' occurs within the Project area and crosses the cabling running along the railway.

18. WB-RR25

Water body 'WB-RR25' was identified as Flook and Hinton Drain and was observed where it crosses under the railway corridor. Flook and Hinton Drain through this section had standing turbid water with a water temperature of 9°C on October 28, 2010. Land use surrounding this drain was being used primarily for agricultural purposes. The natural corridor of this section measured 15 m in width and consisted of grass, herbaceous plants (goldenrod), and a mixture of tree and shrub species that provided 20% (poor) shade over the channel. The channel widths ranged from 0.5 - 2 m and had a high water mark of 2.5 m. The 3 m high bank was noted as having good stability with vegetation comprised of herbaceous plants and grass species. Instream habitat and cover found within the channel was provided through pools, undercut banks, backwater, and woody debris. Substrates within the channel consisted of clay, silt, sand, muck, and detritus. The wetted width of the channel at this section was 1.42 m with depths ranging from 4 to 12 cm.

Flook and Hinton Drain at observation point 'WB-RR25' is a water body located within the Project area and the cabling along the railway.

19. WB-RR26

Water body 'RR26' was identified as Garnet Russel Drain and was observed where it crosses under the railway corridor. The natural corridor measured 8 m wide and consisted of grass and herbaceous plants (goldenrod). The channel was 1 m in width

and had a high water mark of 2.5 m, with bank vegetation comprised of herbaceous plants. The channel was bare and dry when observed on October 28, 2010.

Garnet Russel Drain at observation point 'WB-RR26' is located within the Project area and crosses the cabling along the railway.

20. WB-RR27

Water body 'WB-RR27' was identified as Miller Drain and was observed where it crosses under the railway corridor. Miller Drain through this section had a slow northerly flow with a water temperature of 9°C on October 28, 2010. Land use surrounding this drain was being used primarily for agricultural purposes. The natural corridor of this section measured 18 m in width and consisted of grass, herbaceous plants (goldenrod), and a mixture of tree and shrub species that provided 20% (poor) shade over the channel. The channel width was 1 m and had a high water mark of 2 m. The 3.5 m high bank was noted as having good stability with vegetation comprised of herbaceous plants and grass species. Instream habitat and cover found within the channel was provided through pools, riffles, undercut banks, backwater, cobble, and woody debris. Substrates within the channel consisted of clay, silt, sand, muck, gravel, cobble, and detritus. The wetted width of the channel at this section was 0.98 m with depths ranging from 2 to 6 cm.

Miller Drain at observation 'WB-RR27' is located within the Project area and crosses the cabling along the railway.

21. WB-RR28

Water body 'WB-RR28' was identified as Horne Drain and was observed where it crosses under the railway corridor. Horne Drain through this section had a slow northerly flow and turbid pools with a water temperature of 9°C on October 28, 2010. Land use surrounding this drain was being used primarily for agricultural purposes. The natural corridor of this section measured 20 m in width and consisted of grass, herbaceous plants (goldenrod), and a mixture of tree and shrub species that provided 75% (excellent) shade over the channel. The channel width was 2 m and had a high water mark of 2.5 m. The 3.5 m high bank was noted as having good stability with vegetation comprised of herbaceous plants, grass and shrub species. Instream habitat

and cover found within the channel was provided through pools, riffles, undercut banks, backwater, cobble, and woody debris. Substrates within the channel consisted of clay, silt, sand, muck, gravel, cobble, and detritus. The wetted width of the channel at this section was 2.08 m with depths ranging from 2 to 12 cm.

Horne Drain at observation point 'WB-RR28' is located within the Project area and crosses the cabling along the railway.

22. WB-RR29

Water body 'WB-RR29' was identified as Vail Drain and was observed where it crosses under the railway corridor. Vail Drain through this section had a slow northerly flow and black water with a water temperature of 9°C on October 28, 2010. Land use surrounding this drain was being used primarily for agricultural purposes. The natural corridor of this section measured 20 m in width and consisted of grass, herbaceous plants (goldenrod), and a mixture of tree species that provided 85% (excellent) shade over the channel. The channel width was 2.5 m and had a high water mark of 2 m. The 3 m high bank was noted as having good stability with vegetation comprised of grass and tree species. Instream habitat and cover found within the channel was provided through pools, undercut banks, backwater, and woody debris. Substrates within the channel consisted of clay, silt, sand, muck, and detritus. The wetted width of the channel at this section was 2.36 m with depths ranging from 4 to 10 cm.

Vail Drain at observation point 'WB-RR29' is located within the Project area and crosses the cabling along the railway.

23. WB-RR30

Water body 'WB-RR30' was identified as Doyle Drain and was observed where it crosses under the railway corridor. The natural corridor measured 25 m wide and consisted of grass, herbaceous plants (goldenrod), and a mixture of tree species. The channel was 3 m in width and had a high water mark of 3 m, with bank vegetation comprised of herbaceous plants, and a variety of grass and shrub species. The channel was bare with pockets of standing water when observed on October 28, 2010.

Observation point 'WB-RR30' is located on Doyle Drain and is within the Project area and crosses the proposed cabling the railway.

24. WB-S

Water body 'WB-S' was identified as Government Drain and was observed along the east side of Dillon Road, north of 10th Line. The surrounding area is used mainly for agriculture. The natural corridor measured 15 m and the vegetation consisted of grasses and trees. The channel width was 2 m with a bank height of 3 m. The bank appeared stable with vegetation composed of herbs, grasses, and shrub species. Substrates within the channel were made up of clay, silt, sand, gravel, and muck. When observed on September 9, 2010, the channel bed was bare and dry.

Northwest of observation point 'WB-S' Government Drain is located within the Project area as it crosses the proposed cabling alongside the railway.

25. WB-T

Water body 'WB-T' was identified as Moody and Earley Drain and was observed along 9th Line, east of Bloomfield Road. The natural corridor measured 15 m and it had a channel width of 1 m. Vegetation along the natural corridor was made up of different grass species. The bank vegetation was composed of grasses, herbs, and shrubs. The channel bed was overgrown with grasses and duckweed was present under the bridge. When observed on September 9, 2010, the channel bed was moist and there was standing water under the bridge.

Moody and Earley Drain at observation point 'WB-T' is a water body located within the Project area as it crosses the cabling running along 9th Line.

26. WB-U

Water body 'WB-U' was identified as O'Neil Drain and was observed where the drain crossed under Bloomfield Road, in between 9th and 10th Line. The natural corridor measured 5 m, channel width of 0.5 m, and a high water mark of 1 m. Vegetation within the natural corridor and along the bank was dominated by grass species. The channel bed was bare and dry when observed on September 9, 2010.

Water body observation 'WB-U' is located within the Project area as it crosses the proposed cabling that runs along Bloomfield Road. O'Neil Drain at this location is also 60 m from the access road and cabling for proposed turbine P111.

27. WB-V

Water body 'WB-V' was identified as Miller Drain and was observed where it crosses under a concrete box culvert at 10th Line. The surrounding area was used mainly for agriculture purposes. The observation point was broken down into 'Vi' and 'Vii' to better represent the aquatic features seen.

'Vi' had a natural corridor width of 15 m, a channel width of 1.5 m, and a high water mark of 3.5 m. Vegetation within the corridor consisted of grasses, shrubs, and herbaceous plants. Bank height was 3.5 m with a stable bank and vegetation of herbaceous plants. Channel substrates included clay, silt, cobble, and muck. Instream habitat was provided by pools, undercut banks, boulders, cobble, and algae. When observed on September 9, 2010 standing water was found at one side of the culvert but was dry on the other side.

'Vii' was a ditch along the side of 10th line that emptied into Miller Drain at the observation point. The ditch had a natural corridor width of 4.5 m, a channel width of 1 m, and a high water mark of 2 m. Herbaceous and grass species made up the vegetation within the corridor and banks of the channel. The channel bed was overgrown with grass species and was dry when observed on September 9, 2010.

Miller Drain at observation point 'WB-V' crosses the proposed cabling that runs alongside 10th Line.

28. WB-W

Water body 'WB-W' was identified as Horne Drain and was observed along where it crossed through a concrete box culvert under 10th Line. The surrounding area was being used for agriculture and the railway tracks. Water temperature was 17°C on September 9, 2010. The natural corridor measured 15 m and the vegetation consisted of herbaceous plants, goldenrod species, and willow species. The channel width was 3 m, with a bank height of 0.25 m, and a high water mark of 4 m. The wetted width was

3.5 m at this section with depths ranging from 11 to 24 cm. The water appeared turbid and had no flow, just standing water present. The bank appeared stable with vegetation of herbaceous plants. Substrates within the channel were composed of clay, silt, sand, and muck. Instream cover was provided through pools, undercut banks, woody debris, and cobble.

Observation 'WB-W' is a water body located within the Project area and crosses the proposed cabling along 10th Line.

29. WB-Y

Water body 'WB-Y' was identified as Garnet and Russell Drain and was observed where the tributary crossed under 10th Line, east of Bloomfield Road. The surrounding area was mainly agricultural, with some residential. Water temperature was taken in the standing water present and was found to be 21°C when observed on September 9, 2010. The natural corridor measured 13 m and the vegetation consisted of grass and herbaceous plants. The channel width measured 3 m and the bank height and high water mark was 5 m. Wetted width was 3 m, with depths ranging from 1 to 4 cm. Bank stability appeared good with a high density of herbaceous vegetation. Channel substrates included clay, silt, cobble, and muck. Greater duckweed (*Spirodela polyrhiza*), along with small pools, undercut banks, woody debris, and cobble provided instream habitat and cover.

Observation 'WB-Y' on Garnet and Russell Drain is located within the Project area as it crosses the cabling along 10th Line.

30. WB-Y6

Water body 'WB-Y6' was identified as O'Rourke Drain and was observed where it crosses under a culvert along 8th Line. When visited on September 22, 2010 standing water was present and had a water temperature of 19°C. The natural corridor was 14 m and was consisted of deciduous and coniferous trees, and a variety of grass species. The channel width measured 1 m and had a high water mark of 3 m. Bank height was 4.5 m and the vegetation included grass and herbaceous plants. Channel substrates were composed of clay, silt, sand, muck, and detritus. Watercress (*Armoracia* sp.) was

present along the south side of 8th Line. Raccoon tracks and frog species were also observed at this location.

O'Rourke Drain at observation 'WB-Y6' is located within the Project area and crosses the cabling alongside 8th Line. This location has been identified as a seepage area due to the presence of watercress (*Armoracia* sp.).

31. WB-Z6

Water body 'WB-Z6' was identified as the most southern observation point along O'Rourke Drain. The observation point was located along 10th Line to the east of Dillon Road. The natural corridor measured 8 m, channel width was 1 m, and the high water mark was at 1.5 m. Cedar trees along with other grass and herbaceous plant species composed the vegetation along the banks and within the corridor. Grass and cattail species lined the channel bed, which only had standing water at the culvert along 10th Line when observed on September 22, 2010.

O'Rourke Drain at observation 'WB-Z6' is located within the Project area and runs 20 m from the access road and 5 m from the cabling to proposed turbine P094. North of the observation point, O'Rourke Drain comes within >120 m from proposed turbine P094.

32. CAB029

Water body 'CAB029' was identified as unnamed drain and was observed perpendicular to, and on the southeast side of 10th Line. Water temperature was 6°C on April 20, 2011. Land use surrounding this drain is mixed: municipal road, agricultural field and residence lawn. The natural corridor of this portion of unnamed drain measured 12 m in width and consisted of grass, herbaceous plant, shrub and deciduous trees species. Poor shading by shrub and grass species was evident on April 20, 2011. The channel ranged in width from 1 – 1.5 m and had bank heights ranging from 0.05 m on the south bank and 2.5 m on the north bank. Poor bank stability was noted with some grass and shrubs present as bank vegetation. The wetted width for the channel at this section was 2 m and depths ranged from 12 – 23 cm. Instream habitat and cover found within the channel was provided by pools, riffles, backwater, undercut banks, woody debris, boulder and vegetation. Dense patches of watercress (*Armoracia* sp.) were present within the otherwise bare channel. Substrates within the channel consisted of clay, silt,

muck, detritus, boulder and gravel. Water within the channel was recorded as flowing and turbid on April 20, 2011.

'CAB029' is an unnamed water body located within the Project area and crosses the cabling on 10th Line. This location has been identified as a seepage area due to the presence of watercress (*Armoracia* sp.).

33. CAB030

Water body 'CAB030' was identified as unnamed roadside ditch and was observed parallel to, and on the southeast side of 10th Line, approximately 175 m east of Bloomfield Road. The natural corridor of unnamed roadside ditch at this point measured approximately 4 m in width and consisted of predominantly grass and herbaceous plant species. The channel measured 1 m in width and contained grass and standing water on April 27, 2011. Bank vegetation was comprised of grass and herbaceous plant species.

'CAB030' is located within the Project area which runs 1 m adjacent to the proposed cabling that runs parallel to 10th Line.

34-35. CAB033A/B

Water body 'CAB033A' was identified as Government Drain and was observed parallel to, and on the northeast side of, Dillon Road approximately 250 m north of 8th Line. The natural corridor of Government Drain at this point measured approximately 11 m in width and consisted of mixed vegetation: grass, herbaceous plant, shrub and tree species. The channel measured 4 m in width and contained phragmites. Bank vegetation consisted of grass, herbaceous plant and tree species. The water was flowing northwest on April 27, 2011.

Water body 'CAB033B' was identified as unnamed roadside ditch and was observed parallel to, and on the southwest side of, Dillon Road approximately 250 m north of 8th Line. The natural corridor of unnamed roadside ditch at this point measured approximately 4 m in width and consisted of predominantly grass species. The channel measured 0.5 m in width and contained grass species. Bank vegetation was comprised of grass species. Standing water was observed within the channel on April 27, 2011.

'CAB033A' is a water body located within the Project area adjacent (8 m) to the proposed cabling that runs parallel to Dillon Road. 'CAB033B' is also a water body located within the Project area adjacent (5 m) to the proposed cabling that runs parallel to Dillon Road. South of the observation point both the Government Drain and the unnamed ditch cross the proposed cabling at the junction of Dillon Road and 8th Line.

36. CAB083

Observation 'CAB083' was identified as Lecoco Drain and was assessed on 8th Line between Drake Road and AD Shadd Road. The natural corridor of this drain is less than 20 m wide with deciduous trees, shrubs, grass and dense herbs. The channel is approximately 5 m wide with banks vegetated with deciduous tree, some Rhus typhna, grass, herbs and dog strangling vine. The water was flowing to the N and the channel vegetation was comprised of algae, a rush, sedge and a few pondweeds. All observations for this point were made on June 15th, 2011.

North of the observation point 'CAB083' Lecoco Drain is a water body located within the Project area as it crosses the proposed cabling.

37. CAB084

Observation 'CAB084' was identified as Symon Drain and was assessed on 9th Line just SW of Dillon Road. The natural vegetation corridor is less than 15 m wide consisting of deciduous trees, shrubs, some Rhus typhina, grass and herbs. The channel is approximately 4 m wide with banks vegetated similar to the corridor and the channel vegetated with algae and some flooded grass. Water was seen flowing to the NW. All observations for this site were made on June 15th, 2011.

Approximately 100 m north of observation 'CAB084' on Symon Drain there will be a crossing of cabling and therefore this observation is within the Project area.

38. CAB085

Observation 'CAB085' was made on Towl Drain on 9th Line between Bloomfield and Charing Cross Road. This drain has a natural corridor of less than 15 m wide and vegetated with mixed trees, shrubs, wild grape, grass and herbs. The channel was approximately 2 m wide with banks vegetated with grass, herbs and vines. The channel

itself was vegetated with some grass and there was a very slow flow seen on June 15th, 2011.

Towl Drain at observation 'CAB085' is a water body located within the Project area as it crosses the cabling on 9th Line.

39. CAB100

Observation 'CAB100' was taken on Price Drain off 7th Line between Dillon and AD Shadd Road. The natural corridor measured approximately 4 m with vegetation of sedges, grass, garlic mustard and raspberry. The channel measured 0.75 m and the bank vegetation consisted of goldenrod and Ash species while the channel contained garlic mustard, raspberry and herbaceous species. On June 29th, 2011 the channel was observed to be dry.

Price Drain is a water body located in the Project area and was observed at 'CAB100' where it crosses the cabling along 7th Line.

40. P060

Water body 'P060' was identified as Mummery Drain and was observed along the southeast side of 10th Line, perpendicular to the road. The natural corridor of Mummery Drain at this point measured approximately 8 m in width and consisted of mixed vegetation: grass, herbaceous plant, shrub and tree species. The channel measured 1.5 m in width and contained phragmites. Bank vegetation consisted of herbaceous plant species. The water observed within the channel was flowing southeast on April 27, 2011. Southeast of this observation point Terrestrial field staff confirmed the presence of water within the channel directly adjacent to proposed turbine P060 on April 4th, 2011.

Mummery Drain at observation point 'P060' is a water body located within the Project area and runs 20 m from the access road and 15 m from the cabling for the proposed turbine P060, and is within 40 m of proposed turbine P060.

41. P065

Water body observation 'P065' was identified as Carter Drain and was observed where it crosses the access road and cabling leading to proposed turbine P065. Terrestrial field staff observed water in the drain between the 4th and 8th of April.

42. P098

Water body 'P098' was identified as a watercourse segment connecting the Doyle and O'Rourke Drains and was observed approximately 400 m southeast of 8th Line. Land use surrounding this drain is primarily agricultural (corn / wheat). The natural corridor of the watercourse segment connecting Doyle and O'Rourke Drains at this point measured approximately 11 m in width and consisted predominantly of grass species. The channel ranged in width from 3 -4 m. Within the channel patches of phragmites were observed on April 27, 2011 to provide little shade, however in full summer growth will likely provide over 75% canopy over the watercourse. The wetted width of the channel at this section was 2.75 m with depths ranging from 18 – 25 cm. Instream habitat and cover found within the channel was provided by pools, riffles, backwater and vegetation. Substrates within the channel consisted of clay, silt, muck and detritus. The bank height ranged from 0.4 – 1.5 m and top of bank was 2 m. Bank vegetation was comprised of grass, shrub and rose species. The water within the channel appeared turbid and flowing on April 27, 2011.

P098 is a water body located within the Project area and crosses the access road and cabling leading to proposed turbine P098 as well as following 30 m adjacent to the access road and 14 m from cabling.

43. P100A

Water body 'P100A' was identified as unnamed roadside ditch and was observed along the southeast side of 10th Line, parallel to the road and approximately 375 m west of Charring Cross Road. The natural corridor of unnamed roadside ditch at this point measured approximately 3 m in width and consisted predominantly of grass species. The channel measured 0.5 m in width and contained grass species. Bank vegetation consisted of grass species. The channel was reported to be dry on April 27, 2011.

P100A is a water body located within the Project area and is adjacent 8 m to the proposed cabling that runs along 10th Line.

44. P100B

Water body 'P100B' was identified as Garen and Young Drain and was observed midfield, approximately 375 m west of the Horton Line / Charring Cross Road intersection. Water temperature for Garen and Young Drain was 10°C on April 27, 2011. Land use surrounding this drain is primarily for agricultural purposes (corn and wheat). The natural corridor of Garen and Young Drain at this point measured approximately 6 m in width and consisted of predominantly grass species and sparse tree species. A sparse canopy over the drain was provided by phragmites on April 27, 2011, however it during full growth would likely provide over 75% shade. The channel ranged in widths from 0.3 – 1 m. The wetted width of the channel at this section was 1.16 m with depths ranging from 5 – 21 cm. Instream habitat and cover found within the channel was provided by pools, backwater, and dense patches of phragmites. Substrates within the channel consisted of clay, detritus, silt and muck. Bank height was 0.05 m, high water mark 0.55 m and top of bank was approximately 2 m. Bank stability was good with dense bank vegetation comprised of phragmites and grass and herbaceous plant species, including dandelion and teasel. Isolated areas of bank erosion were noted. The water was reported to be turbid, whitish in colour, and flowing on April 27, 2011.

P100B is a water body located within the Project area positioned 80 m to turbine P100.

45. P111

Water body 'P111' was identified as a tributary to Moody and Earley Drain and was observed midfield approximately 450 m northwest of Bloomfield Road. Water temperature for tributary to Moody and Earley Drain was 12°C on April 27, 2011. Land use surrounding this drain is primarily for agricultural purposes. The natural corridor of tributary to Moody and Earley Drain at this point measured approximately 10 m in width and consisted predominantly of grass species with some sparse deciduous trees. Clumps of Phragmites provided 50% shade over the water body. The channel ranged in width from 2 – 3 m. Bank height was 2.5 m with the high water mark at 1.5 m. Bank stability was good with dense grass and sparse herbaceous plants. There were isolated

areas of erosion noted. The wetted width of the channel at this section was 2.5 m with depths ranging from 16 – 33 cm. Instream habitat and cover found within the channel was provided by pools, backwater and dense clumps of Phragmites. Substrates within the channel consisted of clay, muck, detritus and silt. Within the channel water was noted as turbid and flowing north-northwest on April 27, 2011.

'P111' is a water body located within the Project area and crosses the access road and cabling to proposed turbine P111 and also comes within 18 from this turbine.

46. P149

Water body 'P149' was identified as Moody and Earley Drain and was observed midfield approximately 250 m northeast of Bloomfield Road. Water temperature for Moody and Earley Drain was 10°C on April 27, 2011. Land use surrounding this drain is used primarily for agricultural purposes. The natural corridor of this portion of Moody and Earley Drain measured 12 m in width and consisted of grass, plantain and other herbaceous plant species, several shrub species including red osier dogwood, cedar and sumac. The channel ranged in width from 3.5 – 4 m and contained abundant phragmites that on April 27, 2011 provided poor shade, however summer growth would likely provide over 75% canopy. The wetted width of the channel at this section was 4.1 m with depths ranging from 10 – 25 cm. Instream habitat and cover found within the channel was provided by pools, backwater and vegetation. Substrates within the channel consisted of clay, detritus, silt and muck. Bank height ranged from 2.5 – 3 m, had good bank stability and abundant vegetation including grass, shrub and herbaceous species.

'P149' is a water body located within the Project area and intersects the proposed turbine location for P149. Southwest of this observation point, Vince Doyle Drain is located and is connected to Moody and Earley Drain. Vince Doyle Drain is located within the Project area and crosses the access road and cabling leading to proposed turbine P149.

47. P163

Water body 'P163' was identified as unnamed roadside ditch on the northwest side of Ninth Line. The natural corridor of unnamed roadside ditch at this point measured approximately 4 m in width and consisted of predominantly grass species. The channel measured 1 m in width and contained grass species. Bank vegetation consisted of grass species. The channel was found to be dry on April 27, 2011.

Observation 'P163' is a water body and is located within the Project area and crosses the proposed access road and cabling for proposed turbine P163.

48. AHY026

Water body 'AHY026' was identified as a branch of Keil Drain and was observed perpendicular to 8th Line. At the time of the observation on October 5th, 2011 the water body was found to be non-existent and appears to have been plowed under as all that exists is a soya field.

49. AHY027

Water body 'AHY027' was identified as Waddick Drain and was observed where it crosses under 8th Line through two 8 m wide box culverts. The land use adjacent to the water body is primarily agricultural with a residence on the northwest side of Waddick Drain. The natural corridor extended approximately 15 m and consisted of deciduous trees, grasses, and herbaceous plants. The channel width ranged from 2-5 m, with a pool of approximately 10 m. Substrates within the channel were found to be made up primarily of sand, and gravel, with deposits of silt, pebble, cobble, muck, and detritus. Instream habitat was provided through pools, riffles, vegetation, woody debris, and cobble. The instream vegetation was found to be made up of terrestrial grasses. The bank found to have moderate stability with bank vegetation made up of terrestrial grasses and herbaceous plants. On October 5th, 2011 Waddick Drain was found to be flowing, had a high turbidity, and had a water temperature of 14°C. Tile drains were also observed on both sides of Waddick Drain and one had a slight trickle of water.

Waddick Drain at observation point 'AHY027' is within the Project area and crosses the cabling that runs alongside 8th Line.

50. AHY028

The observation point “AHY-028” was identified as a branch of Rhodes Tile Drain. On October 5th, 2011, Rhodes Tile Drain was a soya field. It was found to be non-existent and will not be discussed further as it does not affect any of the project components.

51. AHY034

Water body ‘AHY034’ was identified as Symon Drain and was observed where it crosses under 10th Line through a 6 m box culvert. The surrounding land use is primarily agricultural. The natural corridor was approximately 10 m and was made up of cedar, spruce, shrubs, and terrestrial grasses. The channel width was approximately 6-7 m, with a wetted width of 2-6 m, and an average depth of 0.5 m. Instream habitat was provided through pools, vegetation (terrestrial grasses), and boulder. Substrates within the channel consisted of muck, sand, silt, gravel, pebble, and boulder. The 3-5 m bank was found to have a moderate stability with bank vegetation made up of terrestrial grasses, willow species, and other herbaceous plants. On October 5th, 2011 Carter drain was observed to be flowing, had a high turbidity, and had a water temperature of 14°C.

Symon Drain at observation point ‘AHY034’ is located within the Project area and crosses the proposed cabling that runs alongside 10th Line.

52. AHY035

Water body ‘AHY035’ was identified as Government Drain and was observed along the east side of Dillon Road, at the junction with 10th Line. The surrounding area is used mainly for agriculture. The natural corridor measured approximately 10 m and the vegetation consisted of grasses, herbaceous plants and deciduous trees. The channel width was 2 m with a bank height of 3 m. The bank appeared stable with vegetation composed of herbs, grasses, and shrub species. Substrates within the channel were made up of clay, silt, sand, gravel, and muck. When observed on October 5, 2011 Government Drain had water present which was flowing and had a high turbidity.

At observation point ‘AHY035’ Government Drain crosses the cabling that runs along 10th Line, at the intersection with Dillon Road.

53. AHY036

Water body 'AHY036' was identified as Doyle Drain and was observed where it crosses under 10th Line through a 5 m wide box culvert. The surrounding land use is primarily agricultural. The natural corridor measured approximately 10 m and consisted of a variety of shrubs, grasses, Phragmites, and herbaceous plants. The bank was 4-5 m in height, appeared to have moderate stability, and had a high density of vegetation made up of grasses and herbaceous plants. Through the vegetation, approximately 60% of the channel was provided shade. The channel width ranged from 0.75-3 m with an average depth of 0.15 m. Habitat within the channel was provided through pools and vegetation (terrestrial grasses). Substrates within the channel primarily consisted of muck, detritus, and sand, with deposits of silt and gravel. When Doyle Drain was observed on October 5th, 2011 it appeared turbid, had a slow flow, and had a water temperature of 15°C. No fish were observed during the survey.

Doyle Drain at 'AHY036' is located within the Project area and crosses the proposed cabling that runs parallel to 10th Line.

54. AHY037

Water body 'AHY037' was identified as Vail Drain and was observed where it crosses under 10th Line through a 6 m wide box culvert. The surrounding land use was primarily agricultural. The natural corridor measured approximately 10 m in width, was made up of a variety of grasses, shrubs, willow sp., and herbaceous plants, and provided 60% shade to the channel. The banks were heavily vegetated with grasses and herbaceous plants. The channel was straight, measure approximately 1-3 m wide, and had an average depth of 0.45 m. Substrates within the channel consisted of gravel, silt, sand, and muck. When observed on October 5th, 2011 Vail Drain appeared turbid, had a slow flow, and had a water temperature of 14°C.

Vail Drain at observation point 'AHY037' is located within the Project area and crosses the proposed cabling that runs alongside 10th Line.

55. AHY038

Water body 'AHY038' was identified as Ferguson/Laurie Drain and was observed where it crosses under 9th Line through a 4 m wide box culvert. Land use within the

surrounding area is primarily agricultural. The natural corridor measured approximately 10 m and was made up of a variety of grasses and shrubs (including goldenrod). The bank consisted of the same vegetation as the natural corridor and together they provided shade to 10% of the channel. The channel width ranged from 2-4 m in width, with a wetted width of 1-3 m, and an average depth of 0.20 m. Instream habitat was provided through pools and terrestrial grasses. Substrates within the channel primarily consisted of muck, detritus, and sand, with deposits of silt, and gravel. On October 5th, 2011 Ferguson/Laurie Drain was observed to have a water temperature of 15°C, was flowing and the turbid water was starting to clear.

At observation point 'AHY038' Ferguson/Laurie Drain crosses the proposed cabling that runs along 9th Line.

56. AHY041

Water body 'AHY041' was identified as Stenton Drain and was observed parallel to 11th Line, approximately 400 m from Charing Crossing Road. Stenton Drain did not exist at this location and in place was a grass lined roadside ditch. This ditch had no defined channel and no natural corridor. Standing water was observed within the ditch on October 5th, 2011.

'AHY041' is located within the Project area and is found 17 m adjacent to the proposed cabling that run along 11th Line.

Water Body Observations Found on Figure 2-6a

5 Observations (all from 2011)

1. AHY029

Water body 'AHY029' was identified as an unnamed drain running parallel to, and on the north side of Wellwood Road. The natural corridor measures 7-8 m in width and is made up of cedar, maple, oak, terrestrial grasses, and herbaceous plants. The land use surrounding this observation point is primarily agricultural. The channel width ranged from 0.5-1 m and when observed on October 5th, 2011 a few murky pools with a water temperature of 14°C.

At observation point 'AHY029' the unnamed drain is within the Project area and runs 5 m adjacent to the proposed cabling that is along Wellwood Road.

2. AHY030

Water body 'AHY030' was identified as an unnamed drain and was observed where it crosses under 10th Line through an 8 m box culvert. The surrounding land use was found to be primarily agricultural. The natural corridor measured approximately 10 m in width and was made up of deciduous trees, and a variety of grasses and herbaceous plants. The vegetation within the corridor provides shade for 60% of the channel. The channel width ranged from 2-7 m, with a maximum depth of 0.75 m. Habitat provided within the stream consisted of pools, riffles, vegetation, and a few boulders. The vegetation within the channel was found mainly along the edges and was made up of terrestrial grasses. Channel substrates at this location were primarily sand, muck, and detritus, with deposits of silt, gravel, pebble, clay, and boulder. The bank height ranged from 0.5-4 m, appeared to be moderately stable, and had a high density of vegetation including grass species and herbaceous plants. When observed on October 5th, 2011 the unnamed drain had a water temperature of 14°C, was turbid, and had a steady flow. Raccoon prints were also observed along the banks at the time of the survey.

On the southeast side of this unnamed drain is another unnamed drain that runs parallel to 10th line and empties into the large drain. This unnamed drain was flowing at the time of the survey through a 0.25-0.5 m defined channel. The channel was lined with a variety of grass and herbaceous plants. The natural corridor ranged from 10-12 m and

the vegetation consisted of cattail, Phragmites, sumac sp., dogwood, and herbaceous plants.

At observation point 'AHY030' both unnamed drains come within 6 m of the proposed cabling that runs along 10th Line.

3. AHY031

Water body 'AHY031' was identified as an unnamed drain running perpendicular to the south side of 10th Line, between Wellwood Road and Drake Road. The surrounding land use is primarily agricultural within this area. The natural corridor measured approximately 10 m in width and consisted of sumac, maple, elm, ash, and herbaceous plants (including goldenrod) which provides 80% shade to the channel. The channel lacked definition, was lined with a variety of terrestrial grasses and herbaceous plants, had a slow flow, and had a water temperature 14 °C when observed on October 5th, 2011.

At observation point 'AHY031' both unnamed drains come within 5 m of the proposed cabling that runs alongside 10th Line.

4. AHY032

Water body 'AHY032' was identified as a non-existent water body with no natural corridor, defined channel, or water. It was observed on October 5th, 2011.

5. AHY033

Water body 'AHY033' was identified as Carter Drain and was observed where it crosses under 10th Line through a 6 m round culvert. The land use surrounding this drain is primarily agricultural. The natural corridor measured approximately 10 m in width and was made up of maples, poplars, terrestrial grasses, and herbaceous plants, which provided 60% shade to the channel. The channel ranged from 6-7 m in width, with a wetted width of 3-5 m, and depths ranging from 0.25-0.5 m. Habitat within the drain was provided through pools and terrestrial vegetation. Channel substrates consisted primarily of muck with deposits of sand, silt, pebble, and gravel. Bank height ranged from 1-2 m, was fairly stable, and had a good density of vegetation consisting of a variety of grass and herbaceous plant species. When observed on October 5th, 2011

Carter Drain had a water temperature of 14°C, was highly turbid, and was found to be flowing.

Carter Drain at observation point 'AHY033' is located within the Project area and crosses the proposed cabling that runs parallel to 10th Line.

Water Body Observations Found on Figure 2-7
81 Observations (47 from 2010, 34 from 2011)

1. WB-A

Water body 'WB-A' was identified as McCorkell Drain and was observed along Fargo Road, north of Horton Line. The natural corridor width was more than 50 m and consisted of deciduous trees and grasses. The channel width was 2 m, with bank vegetation consisting of cedar and aspen trees, herbaceous species and vines. The channel was bare and no water was observed when visited on September 8, 2010 and was therefore classified as an intermittent stream.

'WB-A' is a water body located within the Project area and comes within 10 m of the cabling that runs alongside Fargo Road. North of the observation point, McCorkell Drain crosses the cabling and access road for proposed turbine P162.

2-3. WB-AR33A/B

Water body 'AR33A' was identified as a McGregor Creek tributary and was observed where it crosses Huffman Road. At this point Hedgedus Drain also flows parallel to the road, crossing the tributary. The observation point was broken into two separate components to represent all the aquatic features at this location.

Hedgedus Drain (WB-AR33A) continues from northwest to southeast, falling within the Project area adjacent to the proposed distribution line. The natural corridor measured 8 m wide and consisted of grass. The channel was 1m in width and had a high water mark of 1 m, with bank vegetation of grass and herbaceous species. Within the channel standing rain water was found and overgrown grasses were present when observed on November 17th, 2010 and was therefore classified as an intermittent stream.

WB-AR33B is a tributary to McGregor Creek crossing Huffman Road. This drain intersects with Hedgedus Drain at the observation point and is within the Project area for the proposed distribution line. The natural corridor measured 8 m wide and consisted of grass species and a mixture of trees and shrubs. The channel was 1 m in width and had a high water mark of 1 m, with bank vegetation of grass and herbaceous species, including goldenrods. The vegetation in the channel consisted of typha and there was

no water was present when observed on November 17th, 2010 and is therefore classified as an intermittent stream.

'WB-AR33A' and 'B' are both water bodies that fall within the Project area. Hedgedus Drain at this location comes within 8 m of the proposed cabling that runs alongside Huffman Road. McGregor Creek at this location crosses the proposed cabling.

4. WB-AR51

Water body 'WB-AR51' was identified as Unnamed Drain B and was observed where it meets with Corlett Drain and where it crosses Fargo Road. The natural corridor of these Drains measured approximately 10 m in width and consisted of predominantly grass species. The channel measures 0.5 m in width and had a high water mark of 1 m. Bank vegetation consisted of mixed grasses and herbaceous plants (primarily goldenrod). The channel was found to be dry and grown in with grass and herbaceous plants when observed on November 18th, 2010 and was therefore classified as an intermittent stream.

Unnamed Drain B is a water body and falls within the Project area at this observation point. It crosses the proposed cabling that runs parallel to Fargo Road. Corlett Drain at 'WB-AR51' runs 40 m adjacent to the cabling along Fargo Road.

5. WB-AR52

Water body 'WB-AR52' was identified as Fargo Branch Drain and was observed where it crosses Cundle Line. The natural corridor of Fargo Branch Drain at this point measured approximately 6 m in width and consisted of predominantly grass species. The channel measured 0.5 m in width and had a high water mark of 0.75 m. Bank vegetation consisted of mixed grasses and herbaceous plants (primarily goldenrod). The channel was found to have standing water with algae and watercress (*Armoracia* sp.) present on November 18th, 2010 and was therefore classified as an intermittent stream.

Fargo Branch Drain is a water body within the Project area and at the observation point it crosses the proposed cabling that runs along Cundle Line. South of the observation point, between Cundle Line and Drury Line, Fargo branch Drain also crosses additional proposed cabling which runs parallel to Fargo Road and that follow the rail way. Fargo

Branch Drain at this location has also been identified as a seepage area due to the presence of watercress (*Armoracia* sp.).

6. WB-AR55

Water body 'WB-AR55' was identified as Lorne English Drain and was observed along Lagoon Road. The natural corridor of Lorne English Drain at this point measured approximately 5 m in width and consisted of predominantly grass species. The channel measured 1 m in width and had a high water mark of 0.5 m. Bank vegetation consisted of mixed grasses and herbaceous plants (primarily goldenrod). The channel was found to be dry and grown in with cattails and Phragmites when it was observed on November 18th, 2010 and was therefore classified an intermittent stream

Northeast of the observation point, Lorne English Drain is a water body located in within the Project area and crosses the access road and cabling for proposed turbine P055. South of the observation point, Lorne English Drain crosses the proposed cabling at the junction of Lagoon Road and Horton Line.

7. WB-B

Water body 'WB-B' was identified as Corlett Drain and was observed on the south side of Fargo Road, just south of Horton Line. Corlett Drain continues southeast along the south side of Fargo road. The natural corridor measured 6 m and consisted of grass and herbaceous species. The channel was 1.5 m in width, with bank vegetation of mainly grass species. The vegetation in the channel bed was made up of grasses and cattail species and no water was present when observed on September 8th, 2010 and was therefore classified as an intermittent stream.

Corlett Drain is a water body observed at 'WB-B' and is within the Project area. It comes within 38 m from the proposed cabling on Fargo Road. Northeast of the observation point, Corlett Drain intersects the proposed cabling at the Fargo Road and Horton Line junction.

8. WB-C

Water body 'WB-C' was identified as Unnamed Drain K and was observed along Fargo Road, between Horton Line and Cundle Line. The natural corridor was 7 m and channel

width was 2 m. The vegetation along the natural corridor consisted of mixed deciduous and coniferous trees and herbaceous plants, including goldenrod species. The vegetation along the banks of the channel was made up of grasses and the channel bed consisted of grasses and herbaceous species. The channel was dry when observed on September 8th, 2010 and was therefore classified as an intermittent stream.

Unnamed K Drain is a water body observed at 'WB-C' and is located within the Project area. It comes within 10 m from the proposed cabling that run along Fargo Road and also comes within 90 m of proposed turbine P052.

9. WB-D

Water body 'WB-D' was identified as Locke Drain and was observed along Horton Line between Fargo Road and Charing Crossing Road. This observation point was recorded as a drain in an agricultural area. Water temperature was 16°C on September 8, 2010. The natural corridor was measured at 16 m and consisted of grasses, herbs, and a mixture of tree species. The channel width ranged from 1.5 m to 2.5 m with a bank height of 0.75 m. The bank appeared reasonably stable with vegetation of goldenrod, grasses and tree species. Channel substrates throughout this section were made up of silt, sand, gravel, detritus, muck, and clay. Instream habitat and cover were provided through small pools, riffles, backwater, and woody debris, and fish species were observed. The wetted width for this section was 2.5 m with depths ranging from 15 to 28 cm. The water was very turbid, was flowing at a very slow rate and was therefore classified as a permanent stream.

Locke Drain is a water body observed at 'WB-D' and is located within the Project area. It crosses the proposed cabling running parallel to Horton Line.

10. WB-D6

Water body 'WB-D6' was identified as Jackson and Nash Drain and was observed where it crosses under Horton Line. The natural corridor measured 11 m, channel width was 1.5 m, and the high water mark was 2 m. A variety of tree and grass species made up the vegetation along the corridor. Bank vegetation was composed of herbaceous plants, grass, and shrub species. The channel was bare with patches of cattails, was

dry when viewed on September 21st, 2010 and was therefore classified as an intermittent stream.

Jackson and Nash Drain is a water body observed at 'WB-D6' and is located within the Project area. It crosses the access road and cabling leading to proposed turbine P052 and runs parallel to the proposed cabling running along Horton Line at a distance of 17 m.

11. WB-D7

Water body 'WB-D7' was identified as Jackson & Nash Drain and was observed along Horton Line. This observation point was located between Fargo Road and Lagoon Road. The natural corridor width was 20 m, channel width was 2 m, and the high water mark was at 2 m. Vegetation with the corridor and along the banks consisted of herbaceous plants and grass species. The channel was bare with turbid standing water located along Horton Line when viewed on September 23rd, 2010 and was therefore classified as an intermittent stream.

Jackson & Nash Drain is a water body observed at 'WB-D7' and is located within the Project area. It is located 2 m from the proposed cabling that runs adjacent to Horton Line. At the junction of Horton Line and Lagoon Road, Jackson & Nash Drain also crosses the proposed cabling.

12. WB-E

Water body 'WB-E' was identified as Locke Drain and was observed on Lagoon Road between Horton Line and Gagner Line, in an agricultural area. Water temperature was 19°C on September 8th, 2010. The natural corridor was measured at 9 m and consisted of grasses. The channel width was 1.5 m and had a high water mark of 4 m. The bank stability appeared to be good with vegetation of grass and herbaceous species. Channel substrates throughout this section were made up of silt, detritus, muck, and clay. Instream habitat and cover were provided through pools and aquatic vegetation. Fish species were observed within the pools. The wetted width for this section was 1.35 m with depths ranging from 10 to 12 cm. The pools had shallow water connections and a slight flow was observed and was therefore classified as an intermittent stream.

Locke Drain is a water body observed at 'WB-E' and occurs within the Project area. It crosses cabling and the access road leading to proposed turbine P055. Observation point 'WB-O7' further discusses Locke Drain at P055.

13. WB-E2

Water body 'WB-E2' was identified as Fargo Drain and was observed on Fargo Road, between Cundle Line and Drury Line. The natural corridor measured 8m, channel width was 2 m, and the high water mark was 4 m. Herbaceous and grass species composed the vegetation within the corridor and banks of the channel. When observed on September 10th, 2010 the channel bed was bare and dry therefore being classified as intermittent. North of the observation point, Fargo Drain crosses under the railway tracks and the associated infrastructure.

Fargo Drain is a water body observed at 'WB-E2' that occurs within the Project area and is located within 5 m from the proposed cabling that runs parallel to Fargo Road. Approximately 300 m southeast of this point Fargo Drain crosses the cabling and access road for proposed turbine P053. North of this observation point Fargo Drain crosses the proposed cabling that runs along the rail way tracks.

14. WB-E7

Water body 'WB-E7' was identified as Barfoot Drain and was observed along the north side of Cundle Line, between Charing Crossing and Lagoon Road. The natural corridor measured 12 m, channel width was 1 m, and the high water mark was 1.5 m. Vegetation along the corridor and banks consisted of grass and herbaceous plant species. The channel was vegetated with grass species and standing water in some locations when observed on September 23rd, 2010; it was therefore classified as intermittent.

Barfoot Drain is a water body observed at 'WB-E7' and is located within the Project area as it comes with 80 m from proposed turbine P058.

15-16. WB-F2A/B

Water body 'WB-F2' was identified as Mosey Drain and was observed where it meets with Jackson and Nash Drain. This observation point is located along Horton Line

between Fargo and Communication Road. To better understand the two drains at this location, 'F2' was broken into 'F2A' and 'F2B'.

'F2A' looked at the Jackson and Nash Drain. The natural corridor measured 7 m, channel width was 1 m, and the high water mark was 3 m. Vegetation along the corridor and the channel banks was made up of various herbaceous and grass species. Substrates within this drain consisted of clay and muck. This stream was classified as intermittent as the channel was dominantly bare with patches of grass species and was dry when observed on September 10th, 2010.

'F2B' looked at the Mosey Drain that runs adjacent to Horton Line. The natural corridor measured 7 m, channel width was 1.5 m, and the high water mark was 3 m. Vegetation within the natural corridor was dominantly grass species. The banks of the channel were lined with both herbaceous and grass species. This stream was classified as intermittent as the channel was bare and dry when observed on September 10th, 2010 and grass was starting to sprout in the channel bed.

'WB-F2A' and 'B' are water bodies located within the Project area, with Mosey Drain (WB-F2A) located 9 m from the access road and intersects proposed turbine P044. It crosses the access road and cabling southeast of the observation point.

Jackson and Nash Drain (WB-F2B) crosses the access road and cabling for proposed turbine P044 where it meets with Horton Line.

17. WB-F7

Water body 'WB-F7' was identified as Barfoot Drain and was observed where it crosses under Cundle Line, between Erieau Road and Lagoon Road. The natural corridor throughout this section measured 17 m, channel width was 3 m, and the high water mark was 3 m. The vegetation along the natural corridor and within the banks consisted of grass and herbaceous plants, including goldenrod species. Seepage features were indicated by the presence of watercress (*Armoracia* sp.) located within the channel, which had a slight northerly flow when observed on September 23rd, 2010. Therefore this watercourse was identified as a permanent stream

Barfoot Drain is a water body observed at 'WB-F7' and is located within the Project area. It is considered a seepage area (due to the presence of watercress (*Armoracia* sp.)) and crosses the proposed cabling which runs along the rail way.

18. WB-H

Water body 'WB-H' was identified as Laurie Drain and was observed along Horton Line, east of Charing Crossing Road, south of Lagoon Road. The natural corridor was 12 m and channel width was 1.5 m. The vegetation along the natural corridor consisted of grass species. The vegetation along the banks of the channel and in the channel was dominated by grasses and herbaceous species. The channel was dry when observed on September 8th, 2010 and was therefore classified as an intermittent stream.

Laurie Drain is a water body observed at 'WB-H' and occurs within the Project area. This drain crosses the proposed cabling that runs alongside Horton Line and also comes within 74 m of proposed turbine P056.

19. WB-J5

Water body 'WB-J5' was identified as White Drain and was observed where it crosses Burke Line to the immediate southwest of Harwich Road. The natural corridor measured 15 m wide, had a channel width of 1.5 m and a high water mark of 2 m. The vegetation consisted of trees (poplar, maple), shrubs, herbaceous plants, and grasses. There was dry standing water underneath the culvert at Burke Line when visited on September 16th, 2010.

White Drain is a water body observed at 'WB-J5' and is located within the Project area. It comes within 81 m of the proposed cabling along Burke Line and Harwich Road.

20. WB-M2

Water body 'WB-M2' was identified as R.L. Smyth Drain and was observed where it crosses Burk Line, between Huffman and Communication Road. The natural corridor measured 8 m, channel width was 0.5 m, and the high water mark was 1 m. Vegetation within the corridor consisted of herbaceous and grass species. Bank vegetation was composed of herbaceous plants and cattails. The channel bed was bare, dry to the

north and moist at the south side of the culvert; it was therefore classified as an intermittent stream.

R.L. Smyth Drain is a water body observed at 'WB-M2' and is located within the Project area. It crosses proposed cabling and continues within 60 m to the access road to proposed turbine P039.

21. WB-N2

Water body 'WB-N2' was identified as Proctor Drain and was observed where it crosses Burk Line, between Huffman Road and Communication Road. The natural corridor measured 15 m, channel width was 2 m, and the high water mark was 3 m. Vegetation along the corridor was made up of various trees, grass, and herbaceous species. The bank was lined with shrubs, grass and herbaceous vegetation. The channel was bare with some woody debris and was dry when observed on September 13th, 2010; therefore this channel was classified as an intermittent stream.

Proctor Drain is a water body observed at 'WB-N2' and is located within the Project area. It crosses proposed cabling at the observation site. Further downstream the drain comes within 84 m of proposed turbine P039. Observation point WB-RR12 discusses details on where this drain reaches P040.

22. WB-O2

Water body 'WB-O2' was identified as Proctor Drain and was observed where it crosses Drury Line, between Communication Road and Huffman Road. The natural corridor measured 10 m, channel width was 1 m, and the high water mark was 2 m. Vegetation within the corridor consisted of mixed deciduous and coniferous trees along with a variety of grass species. Bank vegetation consisted of shrubs, grasses, and herbaceous plants. The channel at the observation point was bare but north cattails were growing in the channel. The channel was dry when observed on September 13th, 2010 and was therefore classified as an intermittent stream.

Proctor Drain is a water body located within the Project area and was observed at 'WB-O2'. It crosses the access road and cabling for proposed turbine P041 and southeast of the observation point, Proctor Drain is 29 m from proposed turbine P041. Proctor

continues towards proposed turbine P120 and is further explained under observation point 'P120'.

23. WB-O7

Water body 'WB-O7' is located south of the junction between Gagner Line and Lagoon Road and was identified as Locke. This stream was classified as permanent and had a slow northwest flow was observed when visited on October 6th, 2010 with a water temperature of 12°C. Locke Drain through this section had a natural corridor width of 12 m, channel width of 1 m, and a high water mark of 2.5 m. The vegetation consisted of predominantly of grass species. In stream vegetation consisted of filamentous algae with habitat being provided through pools, backwater, and undercut banks. A wetted width of 2.0 m was taken with depths ranging from 12 to 20 cm. Cyprinid species, a muskrat, and benthic invertebrates were also observed.

Locke Drain is a water body within the Project area and was observed at 'WB-O7' and it comes within 86 m from proposed turbine P055. West of the observation point the same drain runs directly alongside (115 m) proposed access road for turbine P054.

24-25. WB-P2A/B

Water body 'WB-P2' was identified as Watts Drain where it joins Morrison Drain. The observation point was taken along Drury Line, to the immediate east of Huffman Road. 'P2' was broken into 'P2A' and 'P2B' to represent the different drains.

'WB-P2A' was located on Morrison Drain. The natural corridor measured 10 m, channel width was 1.5 m, and the high water mark was 2 m. Vegetation along the corridor was dominated by grass species. Bank vegetation was made up of herbaceous plants and shrubs, including cattails. The channel was bare and dry when observed on September 13th, 2010 and was therefore classified as an intermittent stream.

'WB-P2B' was located on Watts Drain. The natural corridor measured 5m, channel width was 1 m, and the high water mark was 0.5 m. Grass, shrubs, and herbaceous plants made up the vegetation within the corridor and along the channel banks. The channel had a variety of grasses sprouting and was dry when observed on September 13th, 2010 and was therefore classified as an intermittent stream.

South of 'WB-P2A' is another observation point ('RR11'), which will be discussed later in this section. South of observation point 'WB-P2B', Watts Drain crosses under the railway tracks and the proposed cabling.

26. WB-Q2

Water body 'WB-Q2' was identified as White Drain and was observed where it passes under a culvert at the junction of Drury Line and Harwich Road. White Drain was classified as an intermittent stream as water was standing with a temperature of 18°C on September 13th, 2010. The natural corridor measured 15 m and was composed of cedar trees and different grass species. The channel width was 2 m, with a bank height of 4.5 m, and the high water mark of 4 m. Wetted width at this section was 1.42 m, with depths ranging from 9 to 11 cm. Bank stability was good and vegetation consisted of grass, shrubs and herbaceous plants. Channel substrates included clay, silt, sand, gravel, and cobble. Instream habitat was provided through pools, undercut banks, woody debris, grass, and cobble. A single dead Central Mudminnow (*Umbra limi*) was also observed at this location.

White Drain is a water body located within the Project area and was observed at 'WB-Q2'. It crosses cabling on Drury Line and runs 100 m adjacent to cabling along Harwich Road. Observation points 'WB-RR10' and 'WB-J5' further discuss White Drain.

27. WB-Q7

Water body 'WB-Q7' was identified as Mosey Drain and is located to the north of Fargo Road, between Horton Line and Cundle Line. The natural corridor measured 10 m and the vegetation was composed of predominantly grass species. The channel width was 1 m, with a bank height of 1 m, and a high water mark of 2 m. Bank vegetation consisted of a mixture of tree species, grass, and herbaceous plants. Substrates within the channel included clay, silt, and sand. Woody debris provided instream habitat and cover. Mosey Drain was classified as an intermittent stream as standing water was present on October 6th, 2010. Furthermore deer tracks were present around this site.

At this location the water body Mosey Drain falls within 75 m of proposed access road and 60 m of proposed cabling for turbine P045.

28. WB-R7

Water body 'WB-R7' was identified as Lucas Drain and is located to the north of Communication Road. On October 6th, 2010 there was a slow flow to the northwest which had a water temperature of 14°C; therefore this watercourse was identified as an intermittent stream. The natural corridor measured 10 m and was composed of grass species. The channel width ranged from 0.5 to 2.5 m and had a high water mark of 2 m. The bank height was 3 m with a high density of grass, herbaceous plants and tree species. Instream habitat and cover was provided through pools, riffles, backwater, undercut banks, and aquatic vegetation.

At observation 'WB-R7' Lucas Drain crosses the access road and cabling for proposed turbine P120 and P042.

29. WB-S2

Water body 'WB-S2' was identified as Pilotte Drain and was observed along the railway tracks adjacent to Knights Line. The natural corridor width was 2.5 m, channel width was 2 m, and the high water mark was at 1 m. Vegetation within the corridor and along the banks was dominated by grass species. This drain was classified as an intermittent stream as the channel was bare with patches of grass and was dry when observed on September 13th, 2010.

Pilotte Drain is a water body observed at 'WB-S2' and is located within the Project area as it runs adjacent (10 m) to the cabling that runs along the railway.

30. WB-T7

Water body 'WB-T7' was identified as Cyrus Huffman Drain and was observed to the north of Burk Line and the west of Harwich Road. The natural corridor measured 8m and the vegetation was made up of predominantly grass species. The channel width was 1m, with a high water mark of 1.5 m. Grass and herbaceous plant species composed the vegetation along the banks. Substrates within the channel included clay, sand, and silt. The channel was dry when viewed on October 6th, 2010 and was therefore classified as an intermittent stream.

Cyrus Huffman Drain is a water body located within the Project area and was observed at 'WB-T7'. It crosses the access road and cabling for proposed turbine P033. This drain is also 62 m from proposed turbine P033.

31. WB-Y7

Observation point 'WB-Y7' taken just south of the 401 and west of Harwich Road. White Drain was located at the observation point. This watercourse was classified as an intermittent stream at 'WB-Y7' as water was observed to be standing with a temperature of 10°C when observed on October 21st, 2010. The natural corridor measured 12 m and the vegetation included shrubs, grass, and herbaceous plants. The channel width was 1.5 m, with a bank height of 2.5 m, and a high water mark of 2 m. Vegetation along the banks was provided through herbaceous plants and grass species. Substrates along this stretch consisted of clay, sand, silt, and muck. Pools, backwater, undercut banks, and woody debris provided instream cover.

White Drain at observation point 'WB-Y7' crosses the cabling and access road to proposed turbine P032.

32. WB-RR09

Water body 'WB-RR9' was identified as Tedford Drain and was observed where it crosses under the railway corridor northeast of Harwich Road. The natural corridor measured 10 m wide and consisted of grasses, and a mixture of tree and shrub species. The channel was 1m in width and had a high water mark of 2 m, with bank vegetation comprised of grass and herbaceous plant species. The channel was dry and bare when observed on October 27th, 2010 and was therefore classified as an intermittent stream

Tedford drain is a water body that was observed at 'WB-RR09' and is located within the Project area as it crosses the proposed cabling that runs along the railway.

33. WB-RR10

Water body 'WB-RR10' was identified as White Drain and was observed where it crosses under the railway corridor northeast of Harwich Road. The natural corridor measured 12 m wide and consisted of grasses, and a mixture of tree and shrub species. The channel was 1 m in width and had a high water mark of 1.5 m, with bank vegetation

comprised of grass and herbaceous plant species. Standing water was found within the channel at the culvert and was dry in other locations when observed on October 27th, 2010; therefore this watercourse was identified as an intermittent stream.

White Drain was observed at 'WB-RR10' and is a water body located within the Project area as it crosses the proposed cabling that runs along the railway. Southeast of the observation point, White Drain also comes within 97 m of the cabling that runs parallel to Harwich Road.

34. WB-RR11

Water body 'WB-RR11' was identified as Morrison Drain and was observed where it crosses under the railway corridor. Water was flowing with a water temperature of 10°C on October 27th, 2010; therefore classifying this water body as an intermittent stream. Land use surrounding this drain was being used primarily for agricultural purposes. The natural corridor of this portion measured 25 m in width and consisted of grass species, herbaceous plants (goldenrod), and a mixture of tree species that provided 50% (good) shade over the channel. The channel ranged in widths from 0.5 – 4 m and had a high water mark of 3 m. The 5 m high bank was noted as having good stability with vegetation comprised of herbaceous plants and grass species. Instream habitat and cover found within the channel was provided through pools, backwater, undercut banks, riffles, cobble, backwater, and woody debris. Substrates within the channel consisted of clay, silt, sand, cobble, muck, and detritus. The wetted width of the channel at this section was 0.68m with depths ranging from 1 to 5 cm. Cyprinids were observed within the channel along with raccoon tracks.

Morrison Drain was observed at 'WB-RR11' and is a water body located within the Project area as it crosses the proposed cabling that runs along the railway.

35. WB-RR12

Water body 'WB-RR12' was identified as Proctor Drain and was observed where it crosses under the railway corridor between Huffman Road and Communication Road. The natural corridor measured 10 m wide and consisted of grasses, herbaceous plants (goldenrod), and a mixture of tree species. The channel was 1 m in width and had a high water mark of 0.5 m, with bank vegetation comprised of grass, shrub and

herbaceous plant species. The channel was dry with some vegetation growing within the bed when observed on October 27th, 2010; therefore this watercourse was classified as an intermittent stream.

Proctor Drain was observed at 'WB-RR12' and is a water body located within the Project area. At this location it crosses the proposed cabling that runs along the railway. Northwest of the observation point, Proctor Drain comes within 82 m of the access road to proposed turbine P040. The drain also comes within 90 m of this turbine.

36. WB-RR13

Water body 'WB-RR13' was identified as Spisani Drain and was observed where it crosses under the railway corridor between Huffman Road and Communication Road. Water temperature for Spisani Drain was 9°C on October 28th, 2010. Land use surrounding this drain was being used primarily for agricultural and residential purposes. The natural corridor of this portion measured 18m in width and consisted of grass species, herbaceous plants (goldenrod), and a mixture of tree and shrub species that provided 50% (good) shade over the channel. The channel ranged in widths from 0.5 – 4 m and had a high water mark of 2 m. The 3 m high bank was noted as having good stability with vegetation comprised of herbaceous plants, shrubs, and grass species. Instream habitat and cover found within the channel was provided through pools, backwater, undercut banks, riffles, cobble, backwater, and woody debris. Substrates within the channel consisted of clay, silt, sand, cobble, muck, and detritus. The wetted width of the channel at this section was 1.92 m with depths ranging from 3 to 11 cm. The channel had a slow northerly flow and was therefore classified as a permanent stream.

Spisani Drain was observed at 'WB-RR13' and is a water body located within the Project area. It crosses the proposed cabling that runs along the railway at the observation point.

37. WB-RR14

Water body 'WB-RR14' was identified as Lucas Drain and was observed where it crosses under the railway corridor between Drury Line and Cundle Line. Lucas Drain was classified as a permanent stream through this section as it had a northerly flow with

a water temperature of 9°C on October 28th, 2010. Land use surrounding this drain was being used primarily for agricultural and residential purposes. The natural corridor of this portion measured 25 m in width and consisted of grass species, herbaceous plants (goldenrod), and a mixture of tree species that provided 40% (poor) shade over the channel. The channel ranged in widths from 0.5 – 1 m and had a high water mark of 2m. The 4 m high bank was noted as having good stability with vegetation comprised of herbaceous plants and grass species. Instream habitat and cover found within the channel was provided through pools, backwater, undercut banks, riffles, cobble, backwater, and woody debris. Substrates within the channel consisted of clay, silt, sand, gravel, cobble, muck, and detritus. The wetted width of the channel at this section was 0.86 m with depths ranging from 2 to 6 cm.

Lucas Drain was observed at 'WB-RR14' and is a water body located within the Project area and crosses the proposed cabling that runs along the railway.

38. WB-RR15

Water body 'WB-RR15' was identified as Conrail Drain and was observed where it crosses under the railway corridor between Drury Line and Cundle Line. The natural corridor measured 15 m wide and consisted of grasses and herbaceous plants (goldenrod). The channel was 1 m in width and had a high water mark of 2 m, with bank vegetation comprised of grass and herbaceous plant species. The channel had standing turbid water with cattails growing within the channel bed when observed on October 28th, 2010 and was therefore classified as an intermittent stream.

Conrail Drain is a water body located within the Project area and was observed at 'WB-RR15'. At this point, Conrail Drain it crosses the proposed cabling that runs along the railway.

39. WB-RR16

Water body 'WB-RR16' was identified as Locke Drain and was observed where it crosses under the railway corridor between Fargo Road and Lagoon Road. The natural corridor measured 15 m wide and consisted of grasses, herbaceous plants (goldenrod), and a mixture of tree species. The channel was 0.5 m in width and had a high water mark of 1m, with bank vegetation comprised of grass and herbaceous plant species.

The channel was dry and was overgrown with grass species when observed on October 28th, 2010 and was therefore classified as an intermittent stream.

Locke Drain is a water body located within the Project location and was observed at 'WB-RR16'. It crosses the proposed cabling that runs along the railway.

40. WB-RR17

Water body 'WB-RR17' was identified as Locke Drain and was observed where it crosses the railway corridor between Fargo Road and Lagoon Road. The natural corridor measured 12 m wide and consisted of grasses, herbaceous plants (goldenrod), and a mixture of tree species. The channel was 1.5 m in width and had a high water mark of 3 m, with bank vegetation comprised of grass and herbaceous plant species. The channel was dry and was overgrown with vegetation when observed on October 28th, 2010 and was therefore classified as an intermittent stream.

Locke Drain was observed at 'WB-RR17' and is a water body located within the Project area. It crosses the proposed cabling that runs along the railway.

41. WB-RR18

Water body 'WB-RR18' was identified as Locke Drain and was observed where Unnamed Drain G branches off, between Fargo Road and Lagoon Road. The observation point was located along the railway corridor. The natural corridor measured 5m wide and consisted of grass species. The channel was 0.5 m in width and had a high water mark of 0.5 m, with bank vegetation comprised of grass species. The channel was dry and was overgrown with grass when observed on October 28th, 2010 and was therefore classified as an intermittent stream.

Locke Drain was observed at 'WB-RR18' to be a water body located within the Project area and as it crosses the proposed cabling that runs along the railway.

42. WB-RR19

Water body 'WB-RR19' was identified as Drewery Branch Drain where it crosses under the railway corridor, south of Lagoon Road. The natural corridor measured 6m wide and consisted of grass and a mixture of tree species. The channel was 1 m in width and had

a high water mark of 1 m, with bank vegetation comprised of grass and herbaceous plant species. The channel had standing water at the culvert, under the railway corridor, with cattails growing within the channel bed when observed on October 28th, 2010 and was therefore classified as an intermittent stream.

Drewery Branch Drain was observed at 'WB-RR19' and is a water body located within the Project area. It crosses the proposed cabling that runs along the railway.

43. WB-RR20

Water body 'WB-RR20' was identified as Barfoot Drain and was observed where it crosses under the railway corridor, south of Lagoon Road. The natural corridor measured 6 m wide and consisted of grass species. The channel was 0.5 m in width and had a high water mark of 0.5m, with bank vegetation comprised of grass and herbaceous plant species, including goldenrod. The channel had standing water at the culvert, under the railway corridor, and was overgrown with grass and herbaceous plants when observed on October 28th, 2010; therefore classified as an intermittent stream.

Barefoot Drain was observed at 'WB-RR20' and is a water body located within the Project area. It crosses the proposed cabling that runs along the railway.

44. WB-RR21

Water body 'WB-RR21' was identified as Laurie Drain and was observed where it crosses under the railway corridor, south of Lagoon Road. The natural corridor measured 18 m wide and consisted of grasses, herbaceous plants (goldenrod), and a mixture of tree species. The channel was 1.5 m in width and had a high water mark of 2.5 m, with bank vegetation comprised of grass and herbaceous plant species. The channel was dry and was overgrown with vegetation when observed on October 28th, 2010 and was therefore classified as an intermittent stream.

Laurie Drain was observed at 'WB-RR21' and is a water body located within the Project area. It crosses the proposed cabling that runs along the railway.

45. WB-RR22

Water body 'WB-RR22' was identified as Gales Drain and was observed where it crosses under the railway corridor, south of Lagoon Road. The natural corridor measured 20 m wide and consisted of grasses, herbaceous plants (goldenrod), and a mixture of tree species. The channel was 2 m in width and had a high water mark of 3.5 m, with bank vegetation comprised of grass and herbaceous plant species. The channel had standing water present and was overgrown with vegetation, including Phragmites, when observed on October 28th, 2010. This watercourse was classified as an intermittent stream.

Gales Drain was observed at 'WB-RR22' and is a water body located within the Project area. It crosses the proposed cabling that runs along the railway.

46. WB-RR23

Water body 'WB-RR23' was identified as Knott Creek Drain and was observed where it crosses under the railway corridor, south of Lagoon Road. Knott Creek Drain was classified as a permanent stream through this section as it had a slow northerly flow with a water temperature of 9°C on October 28th, 2010. Land use surrounding this drain was being used primarily for agricultural purposes. The natural corridor of this section measured 20 m in width and consisted of grass, herbaceous plants (goldenrod), and a mixture of tree species that provided 75% (excellent) shade over the channel. The channel ranged in widths from 0.5 – 2 m and had a high water mark of 4 m. The 5 m high bank was noted as having good stability with vegetation comprised of herbaceous plants and grass species. Instream habitat and cover found within the channel was provided through pools, backwater, undercut banks, riffles, cobble, backwater, and woody debris. Substrates within the channel consisted of clay, silt, sand, gravel, cobble, muck, and detritus. The wetted width of the channel at this section was 2.19 m with depths ranging from 3 to 10 cm.

Knott Creek Drain was observed at 'WB-RR23' and is a water body located within the Project area as it crosses the proposed cabling that runs along the railway.

47-48. CAB031A/B

Water body 'CAB031A' was identified as Charing Cross Drain and was observed parallel to, and southwest of Charing Cross Road. The natural corridor of Charing Cross Drain at this point measured approximately 8 m in width and consisted of predominantly grass species. The channel measured 2 m in width and contained Phragmites. Bank vegetation was comprised of trees and shrubs. Considerable bank erosion was observed as well as turbid water flowing on April 27th, 2011 therefore classifying this as a permanent stream.

Water body 'CAB031B' was identified as an unnamed roadside ditch and was observed parallel to, and on the northeast side of, Charing Cross Road. The natural corridor of Charing Cross Drain at this point measured approximately 4 m in width and consisted predominantly of grass species. The channel measured 0.5 m in width and contained grass. Bank vegetation was comprised of grass species. Turbid, flowing water was observed on April 27th, 2011 therefore classifying this as a permanent stream.

Charing Crossing Drain was observed at 'CAB031A' and is a water body located within the Project area adjacent to (8 m) to the proposed cabling running parallel to Charing Cross Road. CAB031B is an unnamed water body and is located within the Project area adjacent to (10 m) the proposed cabling that runs parallel to Charing Cross Road. Northwest of the observation point, Charing Crossing Drain crosses cabling at the junction of Charing Crossing Road and 10th Line.

49-50. CAB059A/B

Water body 'CAB059A' was identified as unnamed drain and was observed along the southeast side of Boundary Line, perpendicular to the road. The natural corridor of unnamed drain at this point measured approximately 4 m in width and consisted of grass and shrub species, as well as cedar. The channel measured 1 m in width and contained grass, herbaceous plants and Cattail within the channel. Bank vegetation was comprised of grass, herbaceous plant and shrub species. Standing water was observed within the channel on April 28th, 2011 therefore classifying this as an intermittent stream.

Water body 'CAB059B' was identified as an unnamed drain and was observed parallel to the southwest side of a secondary road, south of Boundary Line, east of Communication

Road. The natural corridor of unnamed drain at this point measured 3 m in width and consisted of grass species. The channel measured 1m in width and contained grass species within the channel. Bank vegetation was comprised of grass species and Queen Anne's lace. Standing water was observed within the channel on April 28th, 2011 classifying this as an intermittent stream.

Unnamed drains CAB059A and CAB059B are water bodies located within the Project area and crossing proposed cabling.

51. CAB073A

Waterbody 'CAB073A' is an unnamed drain following the northwest side of Horton Road, east of Charing Crossing Road. The natural corridor and channel were 3 m and 0.5 m wide respectively and vegetated only with grass (including the banks). The channel itself had evidence of cattails. Standing water was observed on April 28th 2011 therefore this watercourse was classified as an intermittent stream.

This unnamed drain was observed at 'CAB073A' and is a water body located within the Project area adjacent (20 m) to the proposed cabling running parallel to the northwest side of Horton Road.

52. CAB073B

Waterbody 'CAB073B' is an unnamed drain on the southeast side of Horton Road E of Charing CX Road. Similar to CAB073A this drain also has a natural corridor of 3 m and a channel of 0.5 m. Grass is the predominant vegetation covering the natural corridor, banks and channel. On April 28th 2011 standing water was observed at this location therefore classifying this as an intermittent stream.

This unnamed drain was observed at 'CAB073B' and is a water body located within the Project area adjacent (10 m) to the proposed cabling along Horton Road.

53. CAB074

Waterbody 'CAB074' is an unnamed drain on the southwest side of Charing Cross road north of Horton Line. The natural corridor is 6m wide and is vegetated with grass. The channel is 1.5 m wide with grassy banks and Typha sp. growing within the channel itself.

Standing water was observed in the channel on April 28th 2011, classifying this as an intermittent stream.

This unnamed drain was observed at 'CAB074' and is a water body located within the Project area adjacent (10 m) to the proposed cabling.

54. CAB086

Water body 'CAB086' was identified as McGregor Creek and is located southwest of Communication Road north of Hwy 401 and south of Boundary Line. The natural corridor is approximately 30 m wide and composed of small groupings of deciduous trees, a few shrubs, a lot of grass and some herbs. This natural creek was flowing and is approximately 15 m wide with banks of predominantly grasses and herbs including some vines such as the Dog Strangling Vine. Within the channel small clumps of grass and algae are present. All observations for this permanent stream were made on June 15th, 2011.

McGregor Creek was observed at 'CAB086' and is located within the Project area as it crosses the cabling near the substation.

55. P031A

Water body 'P031A' was identified as unnamed drain and was observed midfield approximately 750 m northwest of Knight's Line. Unnamed drain begins in the middle of the field and extends approximately 500 m southwest to join with Tedford Drain. Water temperature for unnamed drain was 5°C on April 21st, 2011. Land use surrounding this drain is used primarily for agricultural purposes. The natural corridor of this portion of unnamed drain measured 7 m in width and consisted of grass, shrub and herbaceous plant species, including wild strawberry, dandelion, rose and wild carrot. Grass and herbaceous plant species provided 10% shade to the channel, however during full growth in summer 50% shade is expected. The channel ranged in width from 0.25 – 0.75 m and contained abundant dead grass. The wetted width of the channel at this section was 0.5 m with depths ranging from 5 – 7 cm. Instream habitat and cover found within the channel was provided by pools and vegetation. Substrates within the channel consisted of clay, detritus, silt and muck. Bank height was recorded to be 0.1 m with top

of bank at 1.5 m. Bank stability was noted to be good with dense grass and herbaceous species, including wild carrot and wild strawberry. Clear standing water was noted within the channel on April 21st, 2011 classifying this watercourse as an intermittent stream.

This unnamed drain was observed at 'P031A' and is a water body located within the Project area 11 m to proposed turbine P031 and 60 m from its associated access road and crosses the proposed cabling.

56. P031B

Water body 'P031B' was identified as unnamed drain and was observed along Knight's Line. The natural corridor of unnamed drain at this point measured approximately 4 m in width and consisted of grass and shrub species. The channel measured 0.5 m and contained grass species. Bank vegetation was comprised of grass species. Clear standing water was reported within the channel on April 21st, 2011 therefore classifying this water body as an intermittent stream.

This unnamed drain was observed at 'P031B' and is a water body located within the Project area. It runs 100 m adjacent to cabling that runs parallel to Knight's Line. At the observation point, this drain also crosses the access road and cabling for proposed turbine P031.

57. P035

Waterbody 'P035' has been identified as Watts Drain and runs parallel to Communication Road approximately half way between Communication Road and Harwich Road. Surrounding land use includes a woodlot to the south and an agricultural field to the north. Natural vegetation consists of grass, raspberry, herbs extending 2 m to the N and woodlot extending more than 30 m to the southwest. Canopy is deciduous trees and the cover is approximately 30%. The channel is 0.4m wide with banks of grass, herbs and shrubs and channel vegetation of flooded grass. Channel substrate is clay, Silt and detritus. The water was brown, 10°C with a wetted width of 0.4 m and depths of 0.1, 0.2, 0.3, 0.3 and 0.1 m in cross section. Water was not flowing when observed and is therefore classified as an intermittent stream. All observations and measurements for this site were made on April 28th 2011. It should be noted that

historically 'P035' and 'P108A' should be linked together as they are both part of Watt Drain.

Watt Drain is a water body observed at 'P035' and crosses the access road and cabling for proposed turbine P035, and follows 15 m adjacent to proposed cabling running parallel to the road. It also comes within 87 m of the turbine itself. Please see observation 'P108A' for further details on the current status of Watts Drain.

58. P036A

Water body 'P036A' has been identified as Grist Drain and runs parallel with Communication Road, southwest of Harwich Road. Surrounding land use includes a woodlot to the south and an agricultural field to the north. Natural vegetation consists of grass, raspberry, herbs extending 2 m to the north and woodlot extending more than 30 m to the southwest. Canopy is deciduous trees and the cover is approximately 30%. The channel is 1.5 m wide with banks of grass, herbs and shrubs and channel vegetation of flooded grass. Channel substrate is clay, Silt and detritus. The water was brown, 10°C with a wetted width of 1 m and depths of 14, 20, 21, 20 and 17 cm in cross section. There is no flow but the water is expected to drain northwest into Proctor Drain due to visual observations made at water body 'P120'. This drain is classified as an intermittent stream and all observations and measurements for this site were made on April 28th 2011.

Grist Drain was observed at 'P036A' and is a water body located within the Project area. It crosses the proposed access road and cabling to turbine P036.

59. P036B

Water body 'P036B' has been identified as Morrison Drain flowing west. The natural corridor is 6 m wide consisting of primarily grass and with some dogwood and Queen Anne's Lace. The channel is 2 m wide with similar vegetation to the corridor and the channel, with some flooded grass. It should be noted an additional observation was made directly to the south where an historical drain may have been located but shows no sign of a formed channel. All observations and measurements for this site were made on April 28th, 2011.

Morrison Drain was observed at 'P036B' and is considered to be a permanent stream located within 78 m of proposed turbine P035. Southeast of the observation point, Morrison Drain crosses proposed cabling.

60. P037

Water body 'P037' was identified as RL Smyth Drain and was observed northeast of Communication Road. This was a historical drain but was observed to show no features of a drain on June 29th, 2011 and is therefore not considered to be a water body.

61. P046B

Water body 'P046B' was not historically present but now runs northeast and appears to empty into Lucas Drain. The natural corridor is approximately 10 m in width consisting of shrubs trees and grass, while the channel is approximately 1m and completely overgrown with grass. No water was observed in the channel although evidence of water draining into Lucas drain can be seen in the photographs suggesting this is an intermittent stream. Observations and measurements for the site were made on April 29th 2011 and this water body is considered to be an intermittent stream.

This water body was observed at 'P046B' within the Project area and comes within 12 m of proposed turbine P046.

62. P057

Water body 'P057' is an unnamed drain that empties into Laurie drain southeast of Horton Line and east of Charing Crossing Roads. Land use surrounding this drain is entirely agricultural. The natural corridor and riparian zone is approximately 4 m wide and is composed of a high density of grass and Queen Anne's Lace while the fairly stable banks are predominately grassy. Bank heights of less than 0.7 m and lack of tall vegetation renders the amount of in stream shade as 0%. The channel of this straight drain is approximately 1 m wide, is composed of clay, detritus and silt and is vegetated with some flooded grass. The wetted width was 0.5 m with a depth cross section of 7, 7, 9, 8 and 7 cm. This drain was classified as an intermittent stream as water in the channel was observed to be standing, somewhat cloudy with a temperature of 14°C. Although water was standing, water is expected to flow southwest into Laurie Drain

during high water. All observations and measurements for this site were made on April 28th, 2011.

This unnamed drain was observed at 'P057' and is a water body located within the Project area. It comes within 27 m of proposed turbine P057, and crosses the associated access road and cabling.

63. P058

Historically 'P058' was located approximately 1 km south of Horton Line draining southwest into Laurie Drain however field observations indicate there is no longer an established channel to the northeast of Laurie Drain. Remnants of a previous channel include a small grassy ditch and a small puddle of water. Please note a drain still exists to the southwest of Laurie Drain. As of April 28th 2011 there is no established watercourse at this location and it is not considered to be a water body.

64. P108A

Water body 'P108A' should be named as Watt Drain and be located along the north edge of the woodlot; however upon making field observations there appears to be no establish channel where there once was.

Watt Drain was a historical drain but is no longer considered a water body at location 'P108A' when observed on April 28th, 2011 near the proposed access road leading to turbine P108.

65. P108B

Water body '108B' was identified as Morrison Drain and flows northwest between Harwich Road and Chatham Street. Surrounding land use includes agriculture on both sides while the natural corridor and riparian zone is approximately 5m wide and was composed entirely of grass and a bit of Queen Anne's Lace. The channel width and grassy bank height are both 2 m with a straight morphology and fairly stable banks. Channel substrates are composed mostly of clay with some silt and detritus. Cattails were also present in 40% of the channel and appeared to have been cut the previous summer. The 2 m wetted width had water depths of 14, 19, 24, 20 and 16 cm in cross

section. The water was brown, cloudy, 10°C and with a steady flow classifying it as a permanent stream.

Morrison Drain was observed at 'P108B' and is a water body located within the Project area as a drain scheduled to be crossed by an access road and cabling.

66. P109A

Water body 'P109A' was identified as the junction of Lucas and Sample Drain, around 600 m northeast of Communication Road. Surrounding land use was identified as agriculture including some corn. The extent of natural vegetation was approximately 13 m and was composed of grass, herbs, shrubs and deciduous trees similar to the riparian vegetation which also included some Queen Anne's Lace. Canopy cover was noted as poor or 20% cover however this number is expected to increase somewhat with summer leaf growth. Instream habitat and cover was limited to a few flooded herbs along the edge. Channel morphology was straight and included a channel width of 1.5 m, low gradient with fairly stable banks of 2.5 m height. Although banks were somewhat vegetated with trees, shrubs, grass and herbs there were some bare soil visible. Channel substrates in order of decreasing abundance were: clay, silt, pebble, gravel and detritus. The wetted width of Lucas Drain is 1.5 m had a depth cross section of 9, 15, 20, 25 and 30 cm. Water was 10°C, brown and with a uniform flow northwest. Sample Drain is of similar status and drains southwest into Lucas Drain. Please see water body 'P109B' for details of Sample drain approximately 350m northeast of 'P109A'. All observations and measurements taken for this site were made on April 28th, 2011.

The junction of Lucas and Sample Drain was observed at 'P109A' and are permanent streams located within the Project area. They cross the access road and cabling leading to proposed turbine P109.

67. P109B

Water body 'P109B' was identified as Sample Drain and is a tributary to Lucas Drain. Observation P109B is located approximately 350 m north of observation P109A. Similar to 'P109A' surrounding land use is agriculture including corn. Natural vegetation corridor is less than 10 m wide and is composed of deciduous trees, dense shrubs including dogwood and rose as well as grass, Queen Anne's Lace and a few herbs. The riparian

zone is approximately 6 m wide and vegetated similarly to the corridor. Bank vegetation is mostly grass with some shrubs and the canopy of trees provides around 20% shade which is estimated to somewhat increase during summer. Channel width measures 2.6 m with fairly stable banks 2 m high although isolated pockets of erosion were observed. The channel is straight and naturalizing and instream habitat cover includes *Typha* sp. covering approximately 50% of the stream bed. Channel substrate in order of most to least abundance includes: clay, silt, detritus, muck and sand in order of decreasing abundance. The 2.6 m wetted width had depths of 28, 28, 37, 24 and 27 in cross section. The water was light brown, 10°C and has a uniform flow to the south. All observations and measurements for this site were made on April 28th, 2011.

Sample Drain was observed at 'P109B' and is a permanent stream located within the Project area. It crosses the access road and cabling leading to proposed turbine P109. It also comes within 24 m of this turbine.

68. P109C

Water body '109C' has been identified as Nichol Drain flowing west into Sample Drain. The natural features of this drain are similar to that of observation P109C: the natural corridor is approximately 6m wide with grass, shrubs and dogwood. The banks are also vegetated by grass shrubs and dogwood and the channel is 2 m wide and contains some flooded grass.

Nichol Drain was classified as a permanent stream and was observed at 'P109C' and is located within the Project area. Nichol Drain comes within 79 m from proposed turbine P109.

69. P120

Water body 'P120' occurs at the junction of Proctor and Grist Drain. Grist Drain flows southwest into Proctor Drain which then flows northwest. This junction occurs on the periphery of 2 deciduous woodlots with a natural corridor of over 30 m on the woodlot side of the drains and 2 m on the agricultural side of the drains. Banks adjacent to the agricultural field are predominantly covered by grass and some herbs with a few bare locations. The headwaters of Proctor Drain (Intermittent stream), however, originates from within a woodlot and is therefore surrounded on both sides by deciduous forest.

The junction of Proctor and Grist Drain was observed at 'P120' and is a water body located within the Project area 130 m from turbine P120.

70. AHY039A/B

Water body 'AHY039A' and 'B' was identified as Gregory Drain and was viewed at two locations, where it crosses under 9th Line and where it crosses under Charing Crossing Road. The surrounding land use within this area is primarily agricultural. The natural corridor at these two locations was found to be 12-14 m in width and consisted of a variety of shrubs and grass species. The channel measured 1-2.5 m in width, had an average depth of 0.4 m, and had no aquatic vegetation present. Instream habitat was provided through pools, riffles, and the culverts. The banks were heavily vegetated with shrub, grass, and herbaceous plant species when observed on October 5, 2011.

Gregory Drain at observation point 'AHY039A' is located within the Project area and crosses the cabling that runs along 9th Line. At 'AHY039B' Gregory Drain comes within 20 m to the cabling along Charing Crossing Road. It also comes within 20 m of the cabling and access road of proposed turbine P054.

71. AHY042

Water body 'AHY042' was identified as a channelized road side drain running parallel to Gagner Line, where it intersects with Lagoon Road. This road side drain was found to have no defined channel and no water on the west side of Lagoon Road. On the east side the natural corridor measured 7 m in width and was made up of grass and herbaceous plant species. The channel was undefined and completely lined with grass species when observed on October 5th, 2011.

This unnamed water body is located 10 m adjacent to the cabling along Gagner Line.

72. AHY043

Water body 'AHY043' was identified as Vanraay Drain and was observed perpendicular to Lagoon Road, between Gagner Line and Horton Line. This drain is located in an agricultural field and had tile drains present along the banks. The natural corridor measured approximately 10 m in width and consisted of grass species, herbaceous plants, and Phragmites. The channel was undefined and completely lined with cattails

and Phragmites. When observed on October 5th, 2011 pockets of water were noticed but there was no flow.

Vanraay Drain at 'AHY043' is located within the Project area and comes within 10 m of the cabling that runs along Lagoon Road.

73. AHY045

Water body 'AHY045' was identified as Lucas Drain and was observed where it crosses under Cundle Line through a box culvert. The natural corridor was observed to extend 10 m wide downstream of Cundle Line and 20 m wide upstream of Cundle Line, being made up primarily of poplar, elm, cedar, goldenrod, dogwood, and a variety of grasses. Bank vegetation was observed to provide shade for 60% of the main channel. The adjacent land was primarily agricultural. The channel at this observation point measures 4-2 m in width with a wetted width of 2 m, and an average depth 0.5 m. Instream habitat was provided by riffles, pools, woody debris, vegetation, boulder, and undercut banks. Instream vegetation was observed to be terrestrial vegetation grasses and was located mainly around the edges. Channel substrates were made up primarily of sand, muck, gravel, and pebble, with deposits of silt, boulder, and detritus. The 1-3 m bank was observed to have moderate bank stability, with bank vegetation being made up of grass species. On October 5th, 2011 Lucas Drain was observed to be flowing with a high rate of flow, high turbidity, and a water temperature of 13°C.

An unnamed drain was also present, running parallel to the north side of Cundle Line, at the confluence with Lucas Drain. This drain had a 10 m wide natural corridor with a few deciduous trees, cattails, Phragmites, goldenrod, and a variety of grass species. The channel was 1 m or less in width and there was grass located within the channel.

At observation point 'AHY-045' Lucas Drain was observed to cross the proposed cabling running parallel Cundle Line. The unnamed drain at this location is also within 10 m of the same cabling.

74. AHY046

Water body 'AHY047' was identified as Morrison Drain and was observed where it crosses under Burk Line through a 3 m round culvert. The natural corridor was

observed to measure approximately 10-12 m on the upstream side and 7-9 m in width on the downstream side and was made up of cattails, goldenrod, aster sp., and different grasses. Morrison Drain was observed to be channelized ditch draining adjacent agricultural fields. The channel at the observation point was found to be lined with cattails and had unconnected pools with no overall flow. Substrates within the channel were observed to be muck, sand, and silt. When observed on October 5th, 2011 the water temperature of the pools was 15°C.

At observation point 'AHY046' Morrison Drain was observed to cross the proposed cabling running parallel to Burk Line.

75. AHY047

Water body 'AHY047' was identified Kneeborne Drain and was observed where it crosses under Burk Line through a 1 m round culvert. The natural corridor was observed to measure 10 m in width being made up of willow sp., goldenrod, aster sp., cattail, shrubs, and a variety of grass species, which provided shade for 60% of the channel. The channel was observed to be 0.75-0.25 m in width with substrates consisting of muck, silt, sand, and detritus. Instream habitat was provided through terrestrial grasses. The bank appeared to have a moderate stability with bank vegetation made up of a variety of grass species. On October 5th, 2011 Kneeborne Drain was found to have turbid unconnected pools (no flow) with a water temperature of 15°C.

Kneeborne Drain was observed to intersect the proposed cabling running parallel to Burk Line at observation point 'AHY047'.

76. AHY048

Water body 'AHY048' was identified as Cyrus Huffman Drain and was observed where it crosses under Burk Line through a culvert. This drain is a straight channelized drainage ditch which is lined with cattails and drains the adjacent agricultural fields. The natural corridor was observed to measure approximately 10 m in width being made up of grasses, goldenrod, and aster sp. The channel was found to be 0.75 m in width with substrates made up of muck, detritus, sand, and silt. The bank was found to have high

stability with bank vegetation made up of herbaceous plants and grass species. On October 5th, 2011 Cyrus Huffman Drain was found to have pockets of turbid water, with no flow.

At observation point 'AHY048' Cyrus Huffman Drain is located within the Project area and intersects the cabling that run alongside Burk Line.

77. AHY049

Water body 'AHY049' was identified as Tedford Drain and was observed where it crosses under Burk Line through a 5 m wide box culvert. The natural corridor extends 10 m in width being made up of goldenrod, oak sp., red osier dogwood, and aster sp.,. The bank had a moderate stability, with a high density of vegetation, which was comprised of primarily grass species. The adjacent land use is primarily agricultural. The channel was observed to be 1.5 m in width with channel substrate being comprised primarily of muck and sand, with deposits of silt, gravel, pebble, and boulder. In channel habitat was provided by pools, riffles, vegetation, and the box culvert. Instream vegetation was comprised of cattail, and bullrush sp. On October 5th, 2011 Tedford Drain was observed to be flowing with high turbidity and had a water temperature of 13°C. Tile drains from the adjacent fields were flowing also at this time.

An unnamed drain was found also at this observation point. It had been recently dug and ran parallel to Burk Line, out letting into Tedford Drain. The banks were comprised of grass and herbaceous plants and the channel had limited vegetation. This drain was very turbid and was flowing when observed on October 5th, 2011.

Tedford Drain at this observation is within the Project area and crosses the cabling that runs along Burk Line. The unnamed drain at this location also comes within 10 m adjacent to the cabling.

78. AHY050

Water body 'AHY050' was identified as Centre Line Drain and was observed parallel to Harwich Road, north of Welch Line. The natural corridor measures approximately 5 m in width and was made up of goldenrod, grasses, and asters. The primary land use for the surround area was agricultural. The channel ranged from 0.5-0.75 m in width and was

lined with cattails and Phragmites. When observed on October 5th, 2011 Centre Line Drain had pockets of unconnected water.

Centre Line Drain at observation point 'AHY050' is located within the Project area and comes within 20 m of the cabling which runs along Harwich Road.

78. AHY051

Water body 'AHY051' was identified as White Drain and was observed southeast of the Harwich Road and Welch Line junction. This drain is located within an agricultural area and was completely lined with grass and herbaceous plant species. No defined channel was observed within this drain at observation point 'AHY051'. No water or signs of water were observed on October 5th, 2012.

Southeast of the observation point 'AHY051' is located within the Project area and crosses the proposed cabling for proposed turbine P036.

80. AHY052

Water body 'AHY052' was identified as Tedford Drain and was observed where it crosses under Welch Line through a 5 m wide box culvert. The natural corridor measures approximately 10 m in width as was made up of red osier dogwood, goldenrod, cattail, sumac sp., aster sp., and a variety of grasses. The adjacent land use within the area is primarily agricultural. The bank had a moderate stability and was densely vegetated with grass species and herbaceous plants. The channel was defined and was 1-3 m in width with bank vegetation providing shade to 60% of the main channel. Channel substrates were comprised primarily of muck, with deposits of detritus, sand, and silt. Instream habitat was provided by pools and vegetation. The instream vegetation was made up of cattail, and bullrush species. On October 5th, 2011 Tedford Drain was observed to be flowing, had a high turbidity, and a water temperature 12°C.

Tedford Drain at 'AHY052' is within the Project area and intersects the proposed cabling that runs parallel to Welch Line.

81. AHY058

Water body 'AHY058' was identified as a branch of White Drain and was observed where it crosses under Harwich Road through a small round culvert and also where it runs parallel to Harwich Road. Adjacent land use for the area is primarily agricultural. The natural corridor measures approximately 10 m in width and was made up primarily of goldenrod, red osier dogwood, cattail, Phragmites, and aster sp. The bank showed moderate stability and had a high density of grass species, which provided shade to 65% of the main channel. The channel was found to be 1.25 m in width, with an average depth of 0.1 m, and with substrate composition consisting primarily of muck, with deposits of clay, sand, and detritus. Instream habitat was provided by pools, and vegetation. In channel vegetation was made up of cattails and Phragmites. On October 6th, 2011 White Drain was observed to have unconnected pools showing high turbidity and a water temperature of 12°C.

At observation point 'AHY058' White drain is located within the Project area. At this location it crosses the proposed cabling and is also 18 m adjacent to the cabling along Harwich Road.

Water Body Observations Found on Figure 2-8
59 observations (30 from 2010, 29 from 2011)

1. WB-AR37A

Water body 'WB-AR37A' was identified as Ingram Drain where it flows parallel to Kent Bridge Road. On the opposite side of the road Mervin drain runs parallel as well. The observation point was broken into two separate components to represent all the aquatic features at this location.

Ingram Drain, 'WB-AR37A', continues from east to west. The natural corridor measured 7 m wide and consisted of grasses, herbaceous plants, as well as a mixture of shrubs and trees. The channel was 0.75 m in width and had a high water mark of 1m, with bank vegetation of grass, herbaceous species, and mixed shrubs. This channel was classified as an intermittent stream as it was observed to be dry with overgrown grasses on November 18th, 2010.

North of the observation point Ingram Drain is located within the Project area and crosses the proposed cabling at Cofell Line. Mervin Drain also crosses the proposed cabling at the same location.

2. WB-AR38

Water body 'WB-AR38' was identified as Brown Drain and was observed where it crosses Kent Bridge Road. This drain runs east to west. The natural corridor of Brown Drain at this point measured 6 m in width and consisted of grasses and mixed trees. The channel measures 1 m in width and has a high water mark of 1.5 m as well, with bank vegetation consisting of mixed grasses and herbaceous plants (primarily goldenrod). The channel was found to have standing water with some Typha and Phragmites when it was observed on November 18th, 2010. Further west Brown Drain was observed by Terrestrial field staff, across the access road and cabling leading to proposed turbine P152 and P102. The channel was observed to contain cattails therefore this water body was classified as an intermittent stream.

The water body Brown Drain at 'WB-AR38' is a located within the Project area and crosses cabling running parallel to Huffman Road. Further west Brown Drain comes

within 18 m away from proposed turbine P152 and crosses its associated access road and cabling.

3. WB-AR39

Water body 'WB-AR39' was identified as Bisner Drain and was observed where it crosses Kent Bridge Road and intersects with the roadside Bernie Debrouwer Drain. This drain runs northeast to southwest and turns sharply to the southeast 525 m north of Kent Bridge Road. The natural corridor of Bisner Drain at this point measured 10 m in width and consisted of grasses and mixed trees. The channel measured 1.5 m in width and had a high water mark of 1 m as well, with bank vegetation consisting of mixed grasses and shrubs in addition to herbaceous plants (primarily goldenrod). The channel was found to be dry with some Phragmites present when it was observed on November 17th, 2010 and was therefore classified as intermittent.

Bisner Drain was observed at 'WB-AR39' and is a water body located within the Project area crossing proposed cabling along Huffman Road and also crossing the access road and cabling, and comes within 24 m from proposed turbine P093. South of the observation point, unnamed drain U crosses the cabling along Kent Bridge Road.

4. WB-AR49

Water body 'WB-AR49' was identified as Cooper Drain and was observed where it crosses Knights Drain. Land use surrounding this drain is agricultural and residential land. The natural corridor of this portion of Cooper Drain measured approximately 30m in width and consisted of herbaceous plants (goldenrod) and a mixture of shrubs and trees that provided 95% (excellent) shade over the channel. The channel ranged in widths from 0.5 – 4 m, and had a high water mark of 3 m. The wetted width of the channel at this section was 1.12 m with depths ranging from 4 – 15 cm. Instream habitat and cover found within the channel was provided by pools, riffles, backwater, undercut banks, and woody debris. Substrates within the channel consisted of clay, silt, sand, muck and detritus. The 5 m high bank was noted as having fairly good stability with vegetation comprised of herbaceous plants, grasses, as well as a mixture of shrubs and trees. Within the channel water was noted as turbid and flowing slowly west when it was viewed on November 18th, 2010 and was therefore classified as an intermittent stream.

At observation location 'WB-AR49' Cooper Drain is a water body located within the Project area and crosses proposed cabling along Knights Line.

5. WB-AR50

Water body 'AR50' was identified as McEachren Drain and was observed where it crosses Knights Line. The natural corridor of McEachren Drain at this point measured approximately 8 m in width and consisted of mixed shrubs, and grass species. The channel measures 1 m in width and had a high water mark of 1 m. Bank vegetation consisted of mixed grasses and herbaceous plants (primarily goldenrod). The channel was found to be dry and grown in with cattails when it was observed on November 18th, 2010 and was therefore classified as an intermittent stream.

McEachren Drain was observed at 'WB-AR50' and is a water body located in the Project area. It crosses the cabling along Knights Line. This drain is further discussed in 'WB-G3'.

6. WB-AR60

Water body 'WB-AR60' was identified as Baird Drain and was observed where it crosses Mull Road, to the north of Holdaway Line. The natural corridor throughout this section measured approximately 6 m in width and consisted of mixed trees, grass and herbaceous plants. The channel measured 1 m in width and had a high water mark of 1 m. Bank vegetation consisted of mixed grasses and herbaceous plants (primarily goldenrod). The channel was found to be dry and overgrown with Phragmites when it was observed on November 18th, 2010 and was therefore classified as an intermittent stream.

Baird Drain was observed at 'WB-AR60' and is a water body located within the Project area as it crosses cabling along Mull Road. It also runs 20 m adjacent to the cabling along Mull Road.

7. WB-B3

Water body 'WB-B3' was identified as McEachren Drain and was observed where it crosses under Burk Line. The natural corridor measured 10m, channel width was 0.5 m, and the high water mark was at 1.5 m. Vegetation within the corridor and along the

banks included grass, shrub, and herbaceous plant species. The channel was classified as intermittent as it was bare with patches of grass and appeared dry when observed on September 14th, 2010.

McEachren Drain was observed at 'WB-B3' and is a water body located within the Project area. It runs 8 m directly alongside the access road and cabling which is 111 m to the proposed turbine P017. Please see observation point 'WB-X7' for details of this water body closer to the turbine.

8. WB-C3

Water body 'WB-C3' was identified as the upper part of Mull Branch Drain and was observed along Burk Line. The natural corridor measured 10 m, channel width was 1 m, and the high water mark was at 1 m. Vegetation within the corridor and along the banks consisted of trees and herbaceous plant species. The channel was classified as an intermittent stream as vegetation was composed of cattails and was dry when observed on September 14th, 2010.

Mull Branch Drain is a water body observed at 'WB-C3' and occurs within the Project area. It crosses the proposed cabling along Burk Line, comes within 22 m of the access road and 30 m of the cabling associated with proposed turbine P016, and also comes within 108 m of the access road and 115 m of the cabling associated with proposed turbine P173.

9. WB-D3

Water body 'WB-D3' was identified as a roadside ditch and was observed along Burk Line, to the southwest of Base Road. The natural corridor measured 6 m, channel width was 0.5 m, and the high water mark was at 1m. Vegetation was the same within the corridor and along the banks and included grass and herbaceous plant species. The channel classified as an intermittent stream as it was dry and bare when observed on September 14th, 2010.

Water body 'WB-D3' is located within the Project area and runs alongside (25 m) cabling along Burke Line.

10. WB-E3

Water body 'WB-E3' was identified as an unnamed tributary to Shipp Drain and was observed at the corner of Burk Line and Base Road. The natural corridor measured 18m, and the vegetation was composed of grass, herbaceous plants, and shrub species. The channel width was 2 m, with a bank height of 3 to 6 m, and a high water mark of 3 m. The bank vegetation consisted of grass and herbaceous plant species. Channel substrates included clay, silt, sand, gravel, cobble, and muck. Instream habitat was provided through small pools, undercut banks, woody debris, and cobble. On September 14th, 2010, fish were observed in the standing water near the concrete culvert.

This intermittent stream was observed at 'WB-E3', occurs within the Project area and crosses the cabling running alongside Burk Line. A tributary (Taff Creek Drain) to Shipp Drain is located upstream of the observation point and also crosses the cabling that runs alongside Base Road.

11. WB-F3

Water body 'WB-F3' was identified as the top of the unnamed tributary to Shipp Drain. 'WB-F3' was observed along Knights Line, to the southwest of Base Road. The natural corridor measured 8 m, channel width was 1.5 m, and the high water mark was 0.5 m. Vegetation within the corridor and along the banks consisted of trees, grass and herbaceous plant species. The channel was classified as an intermittent stream as it was bare and dry when observed on September 14th, 2010.

The water body at observation location 'WB-F3' occurs within the Project area and crosses cabling along Knights Line.

12. WB-G3

Water body 'WB-G3' was identified as a section of McEachren Drain and was observed along Knights Line. The natural corridor measured 11 m, channel width was 1 m, and the high water mark was 0.5 m. Vegetation within the corridor consisted of cedar trees and herbaceous plants. Bank vegetation was made up of a variety of shrubs and herbaceous plants. The channel was classified as an intermittent stream as it was overgrown with cattails and was dry when observed on September 14th, 2010.

McEachren Drain was observed at 'WB-G3' and is a water body located in the Project area crossing the proposed cabling along Knights Line. North of observation point 'WB-G3' McEachren Drain comes within 86 m of the access road and cabling >120 m from proposed turbine P018.

13. WB-H3

Water body 'WB-H3' was identified as Union Drain (Old Course) and was observed where it crosses under Brush Line and the cabling for proposed turbine P005. The natural corridor measured 15 m and was composed of maple species and shrubs and herbaceous vegetation. The channel width was 1 m, with a bank height of 6 m, and a high water mark of 4 m. The bank stability was good with a high density of shrubs, grass, and herbaceous vegetation. Channel substrates included clay, silt, sand, cobble, muck and detritus. Instream habitat was provided through small pools of standing water, woody debris, cobble and duckweed (*Lemna sp.*). This water body was classified as an intermittent stream with young of the year cyprinids were observed in the small pools on September 14th, 2010.

Union Drain was observed at 'WB-H3' and is a water body located within the Project area. At Brush line it crosses cabling and follows directly beside the access road (20 m) and cabling (17 m) leading to proposed turbine P005. Please see observation P005B for details on the roadside ditch along Brush Line.

14. WB-I3

Water body 'I3' was identified as Union Drain (Old Course), Union Drain (New Course) and Cleveland Drains where they all intersect. The observation point was located along Mull Road. 'I3' has been broken down into 'I3i', 'I3ii', and 'I3iii' to represent each Drain.

'I3i' was located of Union Drain (Old Course) where it crossed Mull Road. The natural corridor measured 12 m, while the channel width was 2 m, with a high water mark of 3 m. Vegetation within the corridor was predominately grass species. The bank vegetation consisted of herbaceous plants and cedar trees. The channel had standing water with cattails and arrowhead (*Sagittaria sp.*) present on September 14, 2010.

'I3ii' was located on Cleveland Drain, which runs immediately adjacent to the south side of Mull Road. The natural corridor measured 6 m, channel width 1 m, and the high water mark was 2 m. Vegetation within the corridor and along the banks was composed of grass and herbaceous plant species. The channel was bare with grass in places and dry on September 14, 2010.

'I3iii' was located on Union Drain (New Course) where it runs adjacent to the north side of Mull road. The natural corridor measured 4 m, channel width 0.5 m, and a high water mark of 1 m. The channel, corridor and bank vegetation consisted of grass and herbaceous plants. The channel was dry when observed on September 14, 2010.

At this observation point, Union Drain (old course) is located within the Project area crosses the cabling that runs parallel to Mull Road. Union Drain (new course) is also located within the Project area and comes within 6 m to cabling. Cleveland Drain is also 45 m adjacent to the cabling at this location.

15. WB-J7

Water body 'WB-J7' was identified as Pfaff Creek Drain and was observed along the south side of Shewburg Road. The natural corridor through this section was 15 m wide and the vegetation included a mixture of trees, herbaceous plants, and grass species. The channel width was 2 m, bank height was 3 m, and the high water mark was 3m. Channel substrates included clay, sand, and silt. The channel was classified as an intermittent stream as it was dry when viewed on October 5th, 2010.

Pfaff Creek Drain is a water body observed at 'WB-J7' and is located within the Project area coming within 21 m of proposed turbine P012 and 80 m from its associated access road and cabling.

16. WB-L4

Water body observation 'WB-L4' was identified as Mull Drain where it crosses Mull Line. The natural corridor through this section measured 10 m, channel width was 1 m, and the high water mark was 1 m. Land use for the surrounding area was predominantly agriculture. Vegetation within the corridor and along the banks consisted of shrubs, herbaceous plants and grass species. Grass and herbaceous plants lined the channel

which was dry when viewed on September 15th, 2010 therefore classifying it as an intermittent stream. At this location there is also a roadside drain running along Welch Line.

Mull Drain was observed at 'WB-L4' and was a water body located within the Project area. At the observation point Mull Drain crosses the cabling which runs parallel to Mull Line.

17. WB-M4

Water body 'WB-M4' was identified as McPhail Drain and was observed where it crosses Welch Line. The natural corridor measured 15 m, channel width was 1.5 m, bank height was 3 m, and the high water mark was 2 m. The surrounding land use was predominantly agriculture. Vegetation within the area included a mixture of grass, shrubs, trees and herbaceous plants. Substrates throughout this section consisted of clay, silt, sand, and muck. The channel was moist when viewed on September 16th, 2010 and was therefore classified as an intermittent stream.

McPhail Drain at location 'WB-M4' is a water body located within the Project area and crosses cabling along Welch Line.

18. WB-M5

Water body 'WB-M5' was identified as Taff Creek Drain and was observed as it flowed under Cofell Line and intersects with Anderson Drain. The natural corridor measured 12 m, channel width was 1 m, and the high water mark was 1.5 m. Vegetation within the corridor and along the banks was composed of grass and herbaceous plants. The channel was classified as an intermittent stream as it was bare and dry when viewed on September 17th, 2010.

Taff Creek Drain was observed at 'WB-M5' and is a water body located within the Project area. It crosses cabling and comes within 90 m of the access road and cabling which is >120 m to proposed turbine P014.

19. WB-N5

Water body 'WB-N5' was identified as Wiebenga Drain and was observed along Kent Bridge Road, from Front Line to Talbot Trail. The natural corridor within this section measured 6m and was composed predominantly by grass species. The channel was 1m wide with a bank height of 2.5 m, and a high water mark of 1.5 m. Substrates within the channel included clay, silt, and sand. The channel was classified as an intermittent stream as it was dry when viewed on September 17th, 2010.

Wiebenga Drain at location 'WB-N5' is a water body existing within the Project area and runs adjacent (20 m) to cabling that follows Kent Bridge Road. It also crosses the cabling and access road for proposed turbine P138 and P001.

20. WB-P3

Water body 'WB-P3' was identified as Pfaff Creek Drain and was observed where it crosses under Cofell Line and railway tracks. The natural corridor measured 18 m, channel width was 1.5 m, and the high water mark was 3 m. Vegetation throughout this area consisted of grass, trees, shrubs, and herbs, including goldenrod and jewelweed (*Impatiens capensis*). The channel was bare with woody debris present and standing water was located at the culvert and was therefore classified as an intermittent stream.

Pfaff Creek Drain was observed at 'WB-P3' and is a water body located within the Project area. It crosses the access road and cabling leading to proposed turbines P012 and P101. It also flows adjacent (30 m) to cabling along Cofell Line. At the observation point it is also located 20 m from the access road and cabling associated with proposed turbine P168.

21. WB-P4

Water body 'WB-P4' was identified as an unnamed ditch and was observed along Welch Line to the southeast of Mull Road. The vegetation within the area was composed of grass species and was dry when viewed on September 16th, 2010; therefore classifying this ditch as an intermittent stream.

'WB-P4' is a water body located within the Project area and runs 15 m alongside cabling on Welch Line.

22. WB-Q4

Water body 'WB-Q4' was identified as Baird Drain Open and was observed where it crosses Welch Line to the southeast of Mull Road. The natural corridor measured 7 m, channel width was 1 m, and the high water mark was 2 m. Grass was the predominant vegetation within the corridor and along the banks. Phragmites and cattails were present within the channel which was dry when viewed on September 16th, 2010; therefore classified as an intermittent stream.

At observation 'WB-Q4' Baird Drain Open is a water body located within the Project area as it crosses cabling along Welch Line.

23. WB-RR03

Water body 'WB-RR3' was identified as Nicholson Drain and was observed where it crosses under the railway tracks. This drain was classified as an intermittent stream as it contained standing water with a temperature of 9°C on October 27th, 2010. Land use surrounding this drain was being used primarily for agricultural purposes. The natural corridor of this portion measured 12 m in width and consisted of herbaceous plants (goldenrod), grass species and a mixture of trees that provided 15% (poor) shade over the channel. The channel ranged in widths from 0.5 – 1 m and had a high water mark of 2 m. The 2.5 m high bank was noted as having good stability with vegetation comprised of herbaceous plants, and a variety of tree and grass species. Instream habitat and cover found within the channel was provided through pools, undercut banks, woody debris, and vegetation. Substrates within the channel consisted of clay, silt, sand, muck, and detritus.

South of the observation point, Nicholson Drain is located within the Project area and crosses the cabling at the Welch Line and Base Road junction.

24. WB-RR06

Water body 'WB-RR6' was identified as Mull Drain and was observed where it crosses under the railway corridor. When viewed on October 27th, 2010, the channel had standing water on the south side of the culvert and was therefore classified as an intermittent stream. Land use surrounding this drain was being used primarily for agricultural purposes. The natural corridor of this portion measured 10 m in width and

consisted of herbaceous plants (goldenrod), and a mixture of trees and shrubs that provided 55% (good) shade over the channel. The channel ranged in widths from 0.5 – 1 m and had a high water mark of 1.5 m. The 3 m high bank was noted as having good stability with vegetation comprised of herbaceous plants, and a variety of grass and shrub species. Instream habitat and cover found within the channel was provided through pools, undercut banks, and woody debris. Substrates within the channel consisted of clay, silt, sand, muck, and detritus.

Mull Drain was observed at 'WB-RR6' and is a water body located within the Project area. It crosses the proposed cabling that run adjacent to the railway corridor. North of the observation point, Mull Drain also crosses cabling that runs parallel to Knights Line.

25. WB-RR07

Water body 'WB-RR7' was identified as Baird Drain Open and was observed where it crosses under the railway corridor and its adjacent proposed cabling. This drain was classified as an intermittent stream as water was flowing and the temperature for was 10°C on October 27th, 2010. Land use surrounding this drain was being used primarily for agricultural purposes. The natural corridor of this portion measured 15 m in width and consisted of herbaceous plants (goldenrod), and a mixture of trees and shrubs that provided 50% (good) shade over the channel. The channel ranged in widths from 0.5 – 2 m and had a high water mark of 3.5 m. The 1 to 4 m high bank was noted as having good stability with vegetation comprised of herbaceous plants, and a variety of grass and shrub species. Instream habitat and cover found within the channel was provided through pools, backwater, undercut banks, riffles, backwater, cobble, and woody debris. Substrates within the channel consisted of clay, silt, sand, cobble, muck, and detritus. The wetted width of the channel at this section was 2.17 m with depths ranging from 3 to 11 cm.

Baird Drain Open was observed at 'WB-RR7' and is a water body located within the Project area as it crosses the cabling along the railway.

26. WB-RR35

Water body 'RR35' was identified as Rushton Drain and was observed where it crosses under the railway corridor. Rushton Drain through this section had a slow northerly flow

with a water temperature of 7°C on October 29, 2010. Land use surrounding this drain was being used primarily for agricultural purposes. The natural corridor of this section measured 18 m in width and consisted of grass, herbaceous plants (goldenrod), and a mixture of tree and shrub species that provided 65% (good) shade over the channel. The channel width ranged from 0.5 - 10 m and had a high water mark of 3 m. The 5 m high bank was noted as having good stability with vegetation comprised of grass, herbaceous plants and shrub species. Instream habitat and cover found within the channel was provided through pools, riffles, undercut banks, backwater, gravel, cobble, and woody debris. Substrates within the channel consisted of clay, silt, sand, gravel, cobble, muck, and detritus. The wetted width of the channel at this section was 1.11 m with depths ranging from 2 to 9 cm.

WB-RR35 is located within the Project area and crosses under the railway corridor and the proposed cabling.

27. WB-T2

Water body 'WB-T2' was identified as McPhail Drain and was observed where it crosses under Knights Line. The natural corridor measured 17 m, channel width was 2 m, and the high water mark was at 1.5 m. Vegetation within the corridor was composed of herbaceous plants, including goldenrod species, and sumac. Bank vegetation consisted of grass and herbaceous species. When observed on September 13, 2010, the channel was bare and dry and was therefore classified as an intermittent stream.

McPhail Drain was observed at 'WB-T2' and is a water body located within the Project area as it crosses cabling along Knights Line and along the railroad.

28. WB-U2

Water body 'WB-U2' was identified as Baird Drain Open and was observed where it crosses Knights Line, to the west of Mull Road. The natural corridor measured 8 m, channel width was 1.5 m, and the high water mark was at 1 m. Vegetation along the banks and within the corridor consisted of grass, trees and herbaceous species. The channel had grass and cattail species growing and was dry when observed on September 13th, 2010 and was therefore classified as an intermittent stream.

Baird Drain Open was observed at 'WB-U2' and is a water body located within the Project area and crosses cabling at Knights Line and follows the access road and cabling for proposed turbine P023 and P024 at a distance of 20 m.

29. WB-U7

Water body 'WB-U7' was identified as Unnamed Drain W and was observed where it crosses through the access road and cabling for proposed turbine no. P028. The observation point was located to the north of Campbell Line and west of Mull Road. The natural corridor measured 8 m and the vegetation was composed of grass, tree, and herbaceous plant species. The channel width was 1.5 m, with a bank height of 2 m, and a high water mark of 0.5 m. A mixture of shrub, tree, herbaceous plant, and grass species composed the vegetation along the bank. Channel substrates included clay, silt, and sand. The channel was dry when observed on October 7th, 2010 and was therefore classified as an intermittent stream.

Unnamed Drain W is a water body located within the Project area as it crosses the access road and cabling for proposed turbine P028 and P029. This drain also comes within 58 m of proposed turbine P028.

30. WB-X7

Water body 'X7' was identified as McEachren Drain and was observed between the 401 and Burk Line. The natural corridor measured 8 m and the vegetation was composed of herbaceous plants, shrubs, grass, and a mixture of tree species. The channel width was 2 m, with a bank height of 3 m, and a high water mark of 2.5 m. Substrates included clay, silt, and sand. The channel was dry with vegetation lining the channel bed when observed on October 21st, 2010 and was therefore classified as an intermittent stream.

McEachren Drain was observed at 'WB-X7 and is a water body located within the Project area. It does not come within 120 m of proposed turbine P017 but is 10 m from the access road and 15 m from the cabling. Please see observation 'WB-B3' for more information on this drain.

31-32. CAB006A/B

Water body 'CAB006A' was identified as unnamed roadside ditch and was observed along the northwest side of Welch Line immediately northeast of Mull Road. The natural corridor of unnamed roadside ditch at this point measured approximately 4 m in width and consisted of predominantly grass. The channel measured 0.5 m in width and had sparse detritus within the channel. Bank vegetation was comprised of grass species. Standing water was reported within the ditch on April 13th, 2011 and was therefore classified as an intermittent stream.

Water body 'CAB006B' was identified as unnamed roadside ditch and was observed along the southeast side of Welch Line immediately northeast of Mull Road. The natural corridor of unnamed roadside ditch at this point measured approximately 3 m in width and consisted of predominantly grass species. The channel measured 1.0 m in width and contained detritus. Bank vegetation was comprised of grass and wheat species. Standing water was reported within the ditch on April 13th, 2011 and was therefore classified as an intermittent stream.

'CAB006A' is located within the Project area adjacent (15 m) to the proposed cabling that runs parallel to Welch Line. 'CAB006B' is located within the Project area adjacent (10 m) to the proposed cabling that runs parallel to Welch Line.

33. CAB058

Water body 'CAB058' was identified as unnamed drain and was observed along the northeast side of Welch Line. The natural corridor of unnamed drain measured 3 m in width and consisted of predominantly grass species. The channel measured 1 m in width and contained grass species and detritus. Bank vegetation consisted of predominantly grass species. The channel was observed to contain standing water on April 27th, 2011 and was therefore classified as an intermittent stream.

'CAB058' is a water body located within the Project area and crosses the access road and cabling leading to proposed turbine P133. At the same location this drain runs immediately adjacent (15 m) to the cabling proposed to run parallel to Welch Line.

34. CAB087

Observation 'CAB087' was identified as Cooper Drain as it crossed Welch Line west of Base Road. The natural corridor was approximately 8 m wide with vegetation consisting of deciduous trees, some shrubs such as *Rhus typhina*, herbs, few grasses and some poison ivy. The channel measured 2 m with banks vegetated with deciduous trees, shrubs, raspberry, grape vine and some Doc. The channel itself was flowing to the northwest and contained some succulent herbs, a pondweed, some grass and some cattail. This is classified as a permanent stream.

At observation 'CAB087' Cooper Drain occurs as a water body within the Project area and crosses cabling that run along Welch Line.

35. P005B

Water body 'P005B' was identified as unnamed roadside ditch and was observed along the northwest side of Brush Line. The natural corridor of unnamed roadside ditch at this point measured approximately 8 m in width and consisted of large trees, grass and shrub species. The channel measured 0.5 m in width and contained grass species. Bank vegetation was comprised of grass species. The channel was reported to be dry on April 21st, 2011 and was therefore classified as an intermittent stream.

'P005B' is a water body located within the Project area and crosses the access road and cabling leading to proposed turbine P005.

36. P013A

Water body 'P013A' was identified as Nicholson Drain and was observed parallel to Base Road. Water temperature for Nicholson Drain was 6°C on April 14, 2011. Land use surrounding this drain is primarily for agricultural pasture and crop purposes. The natural corridor of this portion of Nicholson Drain measured less than 10 m of grass species to the south and more than 30 m of tilled agricultural field to the north. No cover was provided over the channel on April 14, 2011, however summer growth of grass and reed species may provide more shade. The channel ranged in width from 0.75 – 1.5 m. The wetted width of the channel at this section was 1.5 m with depths ranging from 6 – 13 cm. Instream habitat and cover found within the channel was provided by pools,

riffles, backwater, undercut banks and vegetation. Substrates within the channel were comprised of clay, silt, detritus, pebble and muck. Bank height ranged from 0.05 – 3 m at the top of bank. Stability was poor-fair with slumping and erosion evident amongst the grass and herbaceous plant species. Clear, flowing water was reported within the channel on April 14th, 2011 and was therefore classified as a permanent stream.

Nicholson Drain is a water body and at observation 'P013A' is located within the Project area as it crosses the access road and cabling leading to proposed turbine P013.

37. P013B

Water body 'P013B' was identified as Unnamed J Drain and was observed approximately 150 m northeast of Base Road. Water temperature for Unnamed J Drain was 6°C on April 14, 2011. Land use surrounding this drain is primarily for agricultural purposes. The natural corridor of this portion of Nicholson Drain measured 6 m in width at this location and consisted of grass, shrub and herbaceous plant species, including teasel, Phragmites, raspberry and milkweed. Phragmites stalks and grass species provided approximately 50% shade over the channel. The channel ranged in width from 0.2 – 1 m. The wetted width of the channel at this section was 1.35 m with depths ranging from 3 – 16 cm. Instream habitat and cover found within the channel was provided by pools, backwater, undercut banks and vegetation. Substrates within the channel were comprised of clay, silt, detritus, muck, sand and pebble. Bank height ranged from 0.05 – 1.75 m at the top of bank, with a recent high water mark of 0.3 m. Stability was poor-fair with erosion evident amongst the grass species. Water was flowing very slowly within the channel on April 14th, 2011 and was therefore classified as a permanent stream.

'P013B' is an observation point located on water body Unnamed J Drain which is located within the Project area and crosses the access road and cabling leading to proposed turbine P013. Northwest of the observation point this drain comes within 15 m to the cabling that runs parallel to Base Road.

38. P018

Water body 'P018' was identified as unnamed roadside ditch and was observed along the northwest side of Knight's Line. The natural corridor of unnamed roadside ditch

measured 3 m in width and consisted predominantly of grass species. The channel measured 0.5 m in width and contained grass species. Bank vegetation was comprised of grass species. Standing water was reported within the channel on April 13th, 2011 and was therefore classified as an intermittent stream.

'P018' is a water body located within the Project area and crosses the access road and cabling leading to proposed turbine P018 as well as following adjacent (12 m) to cabling on Knights Line.

39. P019

Observation 'P019' was taken north of Welch Line between Base Road and Mull Road. As of April 13th, 2011 no water body was observed where historically Busted Drain used to occur. Although there were patches of darker soil the channel appears to have been tilled through.

40. P022

Water body 'P022' was identified as the confluence of Mull and McLachlan Drains and was observed approximately 700 m southeast of Welch Line. Water temperature for Locke Drain was 12°C on April 27, 2011. Land use surrounding this drain is used primarily for agricultural purposes. The natural corridor of this portion of Mull and McLachlan Drains measured approximately 8 m in width and consisted of deciduous trees and shrubs, herbaceous plants and some grass species. The trees were providing approximately 30% shade over the channel on April 27, 2011. The channel width was fairly uniform at 2 m with a stable top of bank at 2 m. Dense bank vegetation was comprised of shrubs, trees, some grass and herbaceous plant species. The wetted width of the channel at this section was 2.4 m with depths ranging from 19 – 42 cm. Instream habitat and cover found within the channel was provided by riffles, woody debris and sparse vegetation. Substrates within the channel consisted of silt, detritus and clay. Water was reported to be turbid and flowing northeast and was therefore classified as a permanent stream.

Observation 'P022' was made on a water body located within the Project area as it crosses the access road and cabling leading to proposed turbine P022 and P133. Further south this drain does not come within 120 m of proposed turbine P022.

41. P023

Water body 'P023' was identified as Baird Drain Open and was observed approximately 300 m southwest of Mull Road. Water temperature for Baird Drain Open was 12oC on April 27, 2011. Land use surrounding this drain is used primarily for agricultural purposes. The natural corridor of this portion of Baird Drain Open measured approximately 8 m in width and consisted of shrub, herbaceous plants and grass species along the northeast side, and dominated by shrubs and herbaceous plants on the southwest side. The shrubs and vegetation provided poor shading (15%) over the channel on April 27, 2011. The channel width was fairly uniform at 2 m with a fair – poor bank of 2.5 m. Some grass, shrub and small trees were evident as bank vegetation amidst sections of bare soil and erosion. The wetted width of the channel at this section was 2.0 m with depths ranging from 30 – 50 cm. Instream habitat and cover found within the channel was provided by a few riffles and woody debris. Substrates within the channel consisted of silt, clay and detritus. Turbid water was reported to be flowing northeast on April 27th, 2011 and was therefore classified as a permanent stream.

Baird Drain Open at this observation point is a water body located within the Project area as it comes within 26 m of the access road and 12 m to the cabling that is associated with proposed turbine P023.

42. P024

Water body 'P024' was identified as Whitebread Drain and was observed northwest of Knights Line south of mull and north of Harwich. The natural corridor measures 5m and contains a few deciduous trees but mostly composed of grass and herbs such as goldenrod. The width of the channel is 1m and the banks are vegetated with goldenrod and vetch while the channel contains some algae. Water was seen flowing to the north and was therefore classified as a permanent stream. All observations made for this site were taken on June 29th, 2011.

Whitebread Drain was observed at 'P024' and is a water body located within the site area. Furthermore it crosses the access road and cabling but does not come within 120 m of proposed turbine P024.

43. P030

Water body 'P030' was identified as Tedford Drain and was observed 450 m northwest of Campbell Line. Water temperature for Tedford Drain was 12oC on April 27, 2011. Land use surrounding this drain is used primarily for agricultural purposes. The natural corridor of this portion of Tedford Drain measured 6 m in width and consisted of grass, shrub, deciduous tree and herbaceous species, including raspberry. This vegetation provided 5% (poor) shade over the channel. The channel width was fairly uniform at 2 m with a stable top of bank of 2.5 m. The wetted width of the channel at this section was 2.5 m with depths ranging from 20 - 60 cm. Instream habitat and cover found within the channel was provided by woody debris. Substrates within the channel consisted of silt, clay and detritus. Bank stability was fair with mixed bank vegetation comprised of grass, shrub and deciduous tree species. The water was reported to be brown and flowing northwest on April 27th, 2011 and was therefore classified as a permanent stream.

At location 'P030' Tedford Drain is a water body located within the Project area as it crosses the access road and cabling and intersects with the proposed turbine P030.

44. P101

As of April 13th, 2011 Rushton Drain at location 'P101' did not exist. All associated water features within the Project area near this location appeared to have been tilled and planted with a crop.

45. P135

Water body 'P135' was identified as Tompkins Drain and was observed along approximately 700 m northwest of Welch Line. Water temperature in Tompkins Drain was 9oC on April 14, 2011. Land use surrounding this drain is used primarily for agricultural purposes. The natural corridor of this portion of Tompkins Drain measured 6 m in width and consisted of shrub and herbaceous plant species, including dandelion, vine and hawthorn. This vegetation provided 25% cover on April 14, 2011 and would likely provide over 80% canopy in full summer foliage. The channel ranged in width from 0.75 – 2 m and was bare of in-stream vegetation. The wetted width of the channel at this section was 1.5 m with depths ranging from 8 – 12 cm. Instream habitat and cover found within the channel was provided by pools, riffles, backwater and woody debris. Substrates within the channel consisted of clay, sand, detritus, silt and muck. The bank

was fairly uniform at 2.5 m with fair stability and areas of erosion amongst the roots of hawthorn and vines. Slightly turbid water was reported to be flowing northwest slowly on April 14th, 2011 and was therefore classified as a permanent stream.

Tompkins Drain is a water body located within the Project area and at location 'P135' crosses the access road and cabling and comes within 16 m to proposed turbine P135.

46. P138

Water body 'P138' was identified as Wiebenga Drain and was observed on the northeast side of Kent Bridge Road. Water temperature for Wiebenga Drain was 9°C on April 13, 2011. Land use surrounding this drain is predominantly for a municipal road and agricultural purposes. The natural corridor of Wiebenga Drain measured approximately 8 m in width and consisted of grass species and a dense cedar hedgerow. On April 13th, 2011 there was no canopy shading the channel, however typha and herbaceous plant species in the area may provide 60% cover at full summer growth. The channel ranged in widths from 0.75 – 1.5 m and contained unknown vegetation roots and algae. The wetted width of the channel at this section was 1.4 m with depths ranging from 5 – 17 cm. Instream habitat and cover found within the channel was provided by pools, riffles, backwater, undercut banks, dense vegetative roots and sparse woody debris. Substrates within the channel consisted of sand, roots, clay, silt, gravel, pebble and debris. Bank heights ranged from 0.05 – 1 m with isolated sections of slumping along the fairly stable bank with Typha, grass and herbaceous species. Clear, flowing water was reported within the channel on April 13th, 2011 and was therefore classified a permanent stream.

At observation point 'P138' Wiebenga Drain is a water body located within the Project area as it crosses the access road and cabling leading to proposed turbine P138.

47. P155

Water body 'P155' was identified as unnamed drain and was observed approximately 450 m northwest of Welch Line. Water temperature was 9°C on April 14, 2011. Land use surrounding this drain is woodlot next to agricultural fields. The natural corridor of this portion of unnamed drain measured 20 m to the southwest and over 400 m to the northeast and consisted of deciduous trees, including oak, hawthorns and NUT, and

herbaceous plants including rose, dandelion and raspberry. Deciduous trees provided 5% cover for the watercourse, however full summer foliage would like provide 90-100% shade over the channel. The channel ranged in width from 2 – 3 m and was bare of Instream vegetation. The wetted width of the channel at this section was 2.3 m with depths ranging from 7 – 19 cm. Instream habitat and cover found within the channel was provided by pools, riffles, backwater and woody debris. Substrates within the channel were comprised of sand, silt, muck, detritus, woody debris and pebbles. Bank height was fairly uniform at 1 m. Stability was poor-fair with consistent erosion evident along the bank. Water was reported to be flowing northwest on April 14th, 2011 and was therefore classified as a permanent stream.

'P155' is a water body located within the Project area and comes within 22 m of the access road and cabling to proposed turbine P155 and P135.

48. P156A

Water body 'P156A' was identified as unnamed roadside ditch and was observed along the northwest side of Knight's Line. The natural corridor of unnamed roadside ditch at this point measured approximately 5 m in width and consisted of grass and herbaceous plant species. The channel measured 0.5 – 1 m in width and contained grass species. Bank vegetation was comprised of grass and herbaceous plant species. Standing water was observed within the channel on April 14th, 2011 and was classified as an intermittent stream.

'P156A' is a water body located within the Project area as it crosses the access road and cabling leading to proposed turbine P156.

49. P156B

A water body was historically documented within the immediate vicinity of the proposed access road on the northwest side of Knight's Line and was reported to no longer exist on April 14, 2011.

50. P166

There are two historical records of water bodies present within the Project area for proposed turbine P166; however on April 27th, 2011 no water bodies were seen northeast of observation point P166 facing northeast from Kent Bridge Road.

51. P173

Water body 'P173A' was identified as unnamed roadside ditch and was observed along the northwest side of Burk Line. The natural corridor of unnamed roadside ditch at this point measured approximately 5 m in width and consisted of predominantly grass. The channel measured 0.5 m in width and contained approximately 50% grass species. Bank vegetation consisted of grass species and the channel was reported to be dry on April 14th, 2011 and was therefore classified as an intermittent stream.

'P173' is a water body located within the Project area and crosses the access road and cabling leading to proposed turbine P173.

52. AHY053

Water body 'AHY053' was identified as Unnamed Drain 'W' and was observed running parallel to the south west side of Welch Line and where it crosses under the road through a 1 m culvert to continue perpendicular to the road. The surrounding land use within the area is primarily agricultural and tile drains were noted along the drain. The natural corridor measured 12 m in width and contained goldenrod, aster sp., red osier dogwood, and a variety of grass species. The channel was found to be 0.75 m in width with bank vegetation being highly dense of grass species and providing shade for 60% of the channel. Channel substrates were observed to be composed of clay, muck, and gravel, with deposits of pebble. Instream vegetation was made up of cattail, algae, and bulrush species. On October 5th, 2011 Unnamed 'W' Drain was observed to be flowing and had a 16°C water temperature.

This Unnamed Drain at 'AHY053' is within the Project area and crosses the cabling, as well as coming 10 m adjacent to it as it runs alongside Welch Line.

53. AHY054

Water body 'AHY054' was identified as English Drain and was observed where it runs along the south side of Campbell Line. English Drain was observed to be a channelized roadside drain with a channel width of 0.75 m. It had a natural corridor 6 m in width which was comprised of goldenrod, Phragmites, cattail, and grass species. On October 5th, 2011 English drain was observed to be flowing with an average depth of 0.15 m and a water temperature of 12°C. During fall 2011 both watercress sp., and frogs were seen at this observation point.

At this observation point, English Drain is located within the Project area and comes within 12 m to the cabling that run parallel to Campbell Line. It is also considered to be a seepage area due to the presence of watercress.

54. AHY055

Water body 'AHY055' was identified as McPhail Drain and was observed where it intersects Campbell Line and connects to English Drain. McPhail Drain at this location runs under Campbell Line through a 1.5 m round culvert. The land use within the surrounding area is primarily agricultural. The natural corridor of McPhail Drain measures approximately 10 m in width consisting of red osier dogwood, goldenrod, poplar, elm, and a variety of grasses. The channel was found to be 0.5-1 m in width with channel substrate made up of muck, detritus, clay, and sand. Banks were observed to have high stability and be vegetated with grass species which provided shade for 70% of the main channel. On October 5th, 2011 McPhail Drain was observed to have very low turbidity, no visible flow, and a water temperature of 13°C.

McPhail Drain was observed to intersect with the proposed cabling along Campbell line at 'AHY055'.

55. AHY056

Water body 'AHY056' was identified as Gobert Drain and was observed parallel to the south side of Campbell Line. Gobert Drain empties into Tedford Drain through a 2 m wide round culvert under Campbell Line. This location is also the connecting point for English Drain to Tedford Drain. Gobert Drain at this located has a natural corridor measuring approximately 12 m in width and consisting of herbaceous plants and grass

species. The channel was found to be 3 m in width, with a wetted width of 0.75 m, and had instream habitat provided through cattails, algae, and watercress. Substrates were made up primarily of muck and sand, with deposits of silt, gravel, pebble, and boulder. On October 5th, 2011 Gobert Drain was observed to have a slow flow and had a water temperature of 12°C.

At this observation point Gobert Drain is located within 12 m of the cabling alongside Campbell Line. Tedford Drain also crosses the cabling at this observation point. Gobert Drain at this location is also considered a seepage area due to the presence of watercress.

56. AHY071

Water body 'AHY071' was identified as Brown Drain and was observed where it crosses under Ridge Line through a 3 m wide round culvert. The natural corridor measures 10 m in width and was made up of sumac sp., poplar, red osier dogwood, and grass species. The natural corridor provided 60-70% shade to the channel. The adjacent land use is primarily agricultural. The channel was found to be 3 m in width, with the banks showing moderate stability, and vegetated with different grass species and herbaceous plants. The channel substrate composition consisted of muck, with deposits with silt and sand. Instream habitat was provided through pools and algae. When observed on October 6th, 2011 Brown Drain was observed to be flowing, with low turbidity, and had a water temperature of 13°C. Cyprinid species were observed within the pool downstream of the culvert.

At this observation point, Brown Drain is located within the Project area and crosses the proposed cabling that runs along Ridge Line.

57. AHY072

Water body 'AHY072' was identified as an Unnamed Drain and was observed where it runs perpendicular and crosses under Base Road through a 0.5 m round culvert. Nicholson Drain is also located at this observation point and runs parallel to Base Road. More information on Nicholson Road can be found under 'WB-RR03'. The natural corridor for the unnamed drain measured approximately 2 m in width and consisted of

grass species. When observed on October 6th, 2011 the 0.5 m channel was dry and Phragmites and cattails lined the channel.

At observation point 'AHY072' this unnamed drain crosses the proposed cabling along Base Road. Nicholson Drain at this location comes within 10 m of the cabling as well.

58. AHY073

Water body 'AHY073' was identified as Anderson Drain and was located in an agricultural field north of Base Road and south of Cofell Line. When observed on October 6th, 2011 Anderson Drain at this location has been plowed through and no longer exists.

59. AHY074

Water body 'AHY074' was identified historically as Shipp Drain but when observed on October 6th, 2011 it had been plowed through and is no longer existent.

Water Body Observations Found on Figure 2-9
41 Observations (13 from 2010, 28 from 2011)

1. WB-AR40

Water body 'AR40' was identified as Neve Drain and was observed where it crosses Mull Road. This drain runs south to north. Land use surrounding this drain is agricultural and recreational. The natural corridor of Neve Drain measured 15 m in width and consisted of grasses, herbaceous species (including goldenrods) and trees that provided 85% (excellent) shade over the channel. The channel ranged in widths from 1 - 3 m, and had a high water mark of 3 m. The wetted width of the channel at this section was 1.09 m with depths ranging from 5 - 8 cm. The water in this drain was very turbid and flowing to southwest at the time of site investigation on November 18, 2010. As a result, this water body has been identified as a permanent stream. Instream habitat and cover found within the channel consisted of pools, riffles, backwater, undercut banks, and woody debris. Substrates within the channel consisted of clay, silt, sand, muck, and detritus. The 5 m bank was noted as having good stability with a high level of vegetation comprised of herbaceous plants (largely golden rod and teasel), grasses, and mixed trees and shrubs.

Neve Drain at 'WB-AR40' is a water body located within the Project area crossing and directly adjacent to the proposed cabling that runs parallel to Mull Road.

2. WB-AR41

Water body 'WB-AR41' was identified as a tributary flowing into Rowe Drain and was observed where it crosses Eds Line. This drain runs towards the south into Rowe Drain. Land use surrounding this drain is strictly agricultural. The natural corridor of this tributary measured 12 m in width and consisted of grasses, herbaceous species (including goldenrods) and trees that provided 50% (good) shade over the channel. The channel ranged in widths from 0.5 - 4 m, and had a high water mark of 1.5 m. The wetted width of the channel at this section was 0.47 m with depths ranging from 2 - 8 cm. The water in this drain was very turbid and slowly flowing to the south at the time of site investigation on November 18, 2010. As a result, this water body has been identified as a permanent stream. Instream habitat and cover found within the channel consisted of pools, riffles, backwater, undercut banks, and woody debris and vegetation

(sparse typha). Substrates within the channel consist of clay, silt, sand, cobble, muck, and detritus. The 4 m bank was noted as having good stability with vegetation comprised of herbaceous plants, grasses, and mixed shrubs.

'WB-AR41' is a water body located within the Project area and crosses cabling running to proposed turbine P139 at Ed's Line.

3. WB-AR42

Water body 'WB-AR42' was identified as Clendening Drain and was observed where it crosses Sinclair Line. This drain flows south towards Rondeau Bay. Land use surrounding this drain is strictly agricultural. The natural corridor of this tributary measured 12 m in width and consisted of grasses, herbaceous species (including goldenrods) and trees that provided 85% (excellent) shade over the channel. The channel ranged in widths from 0.25 - 1 m, and had a high water mark of 2.5 m. The wetted width of the channel at this section was 0.22 m with depths ranging from 1 - 7 cm. Water in the drain was noted as being low and difficult to see due to tall phragmites. As a result, this water body has been identified as an intermittent stream. Instream habitat and cover found within the channel consisted of pools, riffles, backwater, undercut banks, and woody debris and vegetation (phragmites). Substrates within the channel consisted of clay, silt, sand, muck, and detritus. The 4 m bank was noted as having good stability with vegetation comprised of herbaceous plants, grasses, and mixed shrubs when viewed on November 18, 2010.

Clendening Drain at observation point 'WB-AR42' is a water body located within the Project area and intersects the proposed cabling that runs parallel to Sinclair Line. It is also located 22 m from the access road and 85 m from the cabling associated with proposed turbine P139.

4. WB-AR43

Water body 'AR43' was identified as Chris Debrouwer Drain and was observed where it crosses Sinclair Line W of 'WB-AR42'. This drain flows south towards Rondeau Bay. Land use surrounding this drain is both agricultural and residential. The natural corridor of this tributary measured 20 m in width and consisted of mixed shrubs and trees that provided 85% (excellent) shade over the channel. The channel ranged in width from 0.5

– 2.5 m, and had a high water mark of 3 m. The wetted width of the channel at this section was 1.86 m with depths ranging from 4 – 17 cm. This water body has been designated as an intermittent stream. Instream habitat and cover found within the channel was provided by pools, riffles, backwater, undercut banks, woody debris and some cobble. Substrates within the channel consisted of clay, silt, sand, gravel, pebble, cobble, and detritus. The 5 m high bank was noted as having good stability with vegetation comprised of herbaceous plants and mixed shrubs with some trees when viewed on November 18, 2010.

Chris Debrouwer Drain at observation 'WB-AR43' is a water body located within the Project area crossing cabling running parallel to Sinclair Line. South of the observation line is also comes within 26 m of the cabling alongside Mull Road.

5. WB-AR48

Water body 'AR48' was identified as Bates Bloomfield Drain and was observed where it crosses Kent Bridge Road. This drain flows south towards Rondeau Bay. Land use surrounding this drain is agricultural and residential land. The natural corridor of this portion of Bates Bloomfield Drain measured 15 m in width and consisted of grasses, herbaceous plants (goldenrod), and mixed shrubs and trees that provided 65% (good) shade over the channel. The channel ranged in widths from 0.25 – 1.5 m, and had a high water mark of 2 m. The wetted width of the channel at this section was 1.14 m with depths ranging from 1 - 10 cm. Instream habitat and cover found within the channel was provided by pools, riffles, backwater, undercut banks, and woody debris. Substrates within the channel consisted of clay, silt, sand, gravel, pebble, muck and detritus. The 4 m high bank was noted as having good stability with vegetation comprised of herbaceous plants, grasses, and some shrubs. Within the channel, water was noted on November 18, 2010 as turbid and flowing slowly south with sparse filamentous algae. The drain also flows directly through a mill located adjacent to Kent Bridge Road. As a result, this water body has been designated as a permanent stream.

North of the observation 'WB-AR48' Bates Bloomfield Drain is a water body located within the Project area as it crosses the access road and cabling for proposed turbine P118. It also crosses the cabling along Kent Bridge Road.

6. WB-AR62

Water body 'WB-AR62' was identified as Woodlife Drain and was observed along Mull Road. The natural corridor along this section of Woodlife Drain measured approximately 5 m in width and consisted of grass and herbaceous plant species. The channel measured 3 m in width and had a high water mark of 1.5 m. Bank vegetation consisted of mixed grasses and herbaceous plants. The channel was found to be dry with cattail and phragmites when it was observed on November 19, 2010. As a result, this water body has been designated as an intermittent stream.

Observation 'WB-AR62' on Woodlife Drain is a water body located within the Project area 13 m adjacent to proposed cabling that runs parallel to Mull Road.

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7. WB-K3

Water body 'WB-K3' was identified as Woodlife Drain and was observed along Mull Road, to the south of Stefina Line. The natural corridor measured 5 m, channel width 1.5 m, and had a high water mark of 0.5 m. The natural corridor and bank vegetation consisted of grass and herbaceous plants. The channel bed was noted to be dry and had cattail species and phragmites growing within it on September 14, 2010. As a result this water body has been designated as an intermittent stream.

WB-K3 is immediately adjacent (7 m) to the cabling that runs parallel to Mull Road. North of the observation point, Woodlife Drain crosses the cabling and access road for proposed turbine P009.

8. WB-L3

Water body 'WB-L3' was identified as Rowe Drain and was observed where it crosses under Eds Line and the cabling. The natural corridor for this area measured 8 m, channel width was 2 m, and the high water mark was 2 m. The natural corridor was made up of grasses and herbaceous vegetation. Bank vegetation included sumac shrubs and goldenrod species. The channel had standing water present and was covered in duckweed sp. on September 14, 2010. As a result this water body has been designated as an intermittent stream.

Rowe Drain is a water body located within the Project area. At observation 'WB-L3' this drain crosses cabling along Ed's Line.

9. WB-M3

Water body 'WB-M3' was identified as Arnold Davis Drain and was observed where it crossed under Eds Line, to the west of Kent Bridge Road. The natural corridor measured 3.5 m, channel 0.5 m, and the high water mark 0.5 m. Herbaceous plants and grass species composed the vegetation within the area. The channel was bare and dry when visited on September 14, 2010. As a result this water body has been designated as an intermittent stream.

Arnold Davis Drain is a water body in the Project area and crosses under the cabling at this location.

10. WB-N3A

Water body 'WB-N3A' was identified as East Lake Drain and was observed where it crosses under Eds Line. The natural corridor measured 15 m, channel width 1.5 m, and had a high water mark of 2 m. Pine and Ash trees, grass, and herbaceous plants composed the vegetation within the corridor. The banks were vegetated with herbaceous plants and grass species. The channel was bare with standing water present on September 14, 2010. As a result, this water body has been characterized as an intermittent stream.

East Lake Drain is a water body within the Project area and crosses under the cabling at this location.

11. WB-O3

Water body 'WB-O3' was identified as McKay Drain and was observed where it crosses under Eds Line. The natural corridor measured 12 m, channel 1.5 m, and high water 3 m. When visited on September 14, 2010, there was a very slow flow present and the water temperature was 16°C. As a result, this water body has been characterized as a permanent stream. The vegetation within the area consisted of mixed deciduous trees, shrub, grass and herbaceous plants, including goldenrod species. A wetted width was taken, measuring 1.75 m with depths ranging from 4 to 17 cm. Channel substrates

included clay, silt, sand, cobble, and muck. Instream habitat was provided through pools, woody debris, and cobble. A fish was also observed at this location.

McKay Drain at 'WB-O3' is a water body located in the Project area and crosses the cabling at Eds Line.

12. WB-W7

Water body 'WB-W7' was identified as Rowe Drain where it meets with Clunis drain. The observation point is located to the north of Eds Line and to the east of Mull Road. The natural corridors measured 10 m with vegetation composed of grass, shrub, and herbaceous plants species. The channel width ranged from 0.5 to 1 m, with a bank height of 4 m, and a high water mark of 1.5 m. Grass and herbaceous plant species lined the channel bed. Standing water was present when viewed on October 7, 2010. As a result this has been designated as an intermittent water body.

Rowe Drain and Clunis Drain (WB-W7) intersect within the Project area and cross access roads and cabling for proposed turbines: P167, P006, P007 and P008.

13. WB-X5

Water body 'WB-X5' was identified as McLean Drain and was observed where it crosses under New Scotland Line. The natural corridor measured 10 m, channel width was 1 m, and the high water mark was 1 m. A variety of trees, grass, and herbaceous plant species, including goldenrod and jewelweed posed the vegetation along the corridor and banks. The channel was bare and standing water was present in some locations on September 21, 2010. As a result this has been designated as an intermittent stream.

McLean Drain is a water body located within the Project area and crosses cabling at observation 'WB-X5'.

14. CAB024

Water body 'CAB024' was identified as McArthur East Drain and was observed perpendicular to, and on the southeast side of, Stefina Line. Water temperature was reported to be 7°C on April 20th, 2011. Land use surrounding this drain is used primarily

for agricultural purposes. The natural corridor of this portion of McArthur East Drain measured 10m in width and consisted of grass, herbaceous plant and deciduous tree species. No vegetative canopy was observed on April 20th, 2011, however full summer foliage of deciduous shrubs, grass and cattails may provide over 80% shading over the channel. The channel ranged in width from 0.75 – 1.5 m and contained abundant cattails and patches of grass species. Bank height was 1 m and the top of bank measured 2.5 m with fair stability and consistent erosion up to 1 m on the bank. Sparse bank vegetation was comprised of grass species. The wetted width of the channel at this section was measured at 1.4 m with depths ranging from 7 – 23 cm. Instream habitat and cover found within the channel was provided by pools, riffles, backwater, undercut banks, woody debris and dense vegetation. Substrates within the channel consisted of muck, detritus, clay, silt, sand and pebble. Water within the channel was reported to be turbid and flowing on April 20, 2011. As a result this water body has been designated as a permanent stream.

'CAB024' is a water body located within the Project area and crosses cabling along Stefina Line.

15. CAB026

Water body 'CAB026' was identified as unnamed drain and was observed perpendicular to, and on the southeast side of, Stefina Line. Land use surrounding the drain is primarily for agricultural purposes. The natural corridor of this portion of unnamed drain measured 12 m in width and consisted of grass and herbaceous plant species. A section of drain from the culvert at Stefina Line to approximately 50 m southeast was plowed through and contained damp areas of soil and pockets of standing water potentially along the historic channel. As a result this water body has been designated as an intermittent stream. The drain appeared to continue beyond the 50 m to the boundary of a neighboring golf course.

CAB026 is a water body located within the Project and crosses cabling along Stefina Line.

16. CAB028

Water body 'CAB028' was identified as unnamed roadside drain and was observed parallel to, and on the southeast side of Stefina Line. Water temperature for unnamed roadside drain was 7oC on April 20th, 2011. Land use surrounding this drain is primarily for municipal road and residential lawn purposes. The natural corridor of unnamed roadside drain at this point measured approximately 8 m in width and consisted of grass, herbaceous plant and deciduous tree species. No vegetative cover was observed on April 20, 2011, however full summer foliage may provide 50% shade over the channel. The channel width ranged from 0.3 – 1 m and was bare of vegetation. Bank height ranged from 0.05 – 0.5 m with top of bank at 4m. Good bank stability was noted and bank vegetation was comprised of grass and shrub species. The wetted width of the channel at this section was 0.9 m with depths ranging from 19 to 24 cm. Instream habitat and cover found within the channel was provided by pools, riffles, backwater, undercut banks and boulder. Substrates within the channel consisted of clay, muck, detriuts, silt and boulder. Clear water, tinged with white, was observed with the channel on April 20th, 2011. As a result this water body has been designated as a permanent stream.

'CAB028' is a water body located within the Project area immediately adjacent, and intersects with the proposed cabling to run parallel to Stefina Line.

17. CAB054A

Water body 'CAB054A' was identified as unnamed roadside ditch and was observed along the Chatham St. South/Communication Road. The natural corridor of unnamed roadside ditch at this point measured over 15 m in width and consisted of lawn (grass) and coniferous tree species. No distinct channel was noted, however pockets of standing water ranged in width from 0.5 – 1 m and contained grass and detritus on April 27, 2011. Bank vegetation was comprised of grass species. This channel was not observed on any available mapping and has been considered an intermittent stream.

'CAB054A' is a water body located within the Project area 12 m adjacent to the proposed cabling parallel to Stefina Line.

18. CAB054B

Water body 'CAB054B' was identified as unnamed roadside ditch and was observed along the southwest side of Chatham St. South / Communication Road. The natural

corridor of unnamed roadside ditch at this point measured approximately 2 m in width and consisted of lawn (grass). The channel width was approximately 1 m and contained grass and detritus. Bank vegetation was comprised of grass species. Water within the channel was reported to be flowing southeast on April 27, 2011. This channel was not observed on any available mapping, however due to flowing conditions it has been designated as a permanent stream.

'CAB054B' is a water body located within the Project area 25 m adjacent to the proposed cabling parallel to Chatham St. South / Communication Road.

19. CAB055

Water body 'CAB055' was identified as unnamed roadside ditch and was observed along the northeast side of Communication Road. The natural corridor of unnamed roadside ditch at this point measured approximately 2 m in width and consisted predominantly of grass. The channel width was approximately 1 m in width and contained grass and Typha species. Bank vegetation was comprised of grass species. Water within the channel was reported to be flowing southeast on April 27, 2011. This channel was not observed on any available mapping, however due to flowing conditions it has been designated as a permanent stream.

'CAB055' is a water body located within the Project area 7 m adjacent to the proposed cabling parallel to Chatham St. South / Communication Road.

20. CAB056

Water body 'CAB056' was identified as unnamed roadside drain and was observed along the southwest side of Communication Road. The natural corridor of unnamed roadside drain at this point measured 3 m in width and consisted predominantly of grass, shrub and tree species. The channel width was approximately 1.5 m and contained Typha and grass species. Bank vegetation was comprised of grass species. Standing water was reported within the channel on April 27th, 2011. This channel was not observed on any available mapping and has been considered an intermittent stream.

'CAB056' is a water body located within the Project area 22 m adjacent to the proposed cabling parallel to Chatham Street South / Communication Road.

21. CAB057

Water body 'CAB057' was identified as unnamed drain and was observed perpendicular, and on the northeast side of, Communication Road. The natural corridor of unnamed drain at this point measured approximately 6 m in width and consisted of mixed vegetation: grass, some trees and reed species. The channel measured 1.5 m in width and was bare with patches of grass species. Bank vegetation was comprised of grass and tree species. Water within the channel was reported to be flowing on April 27th, 2011. This channel was not observed on any available mapping, however due to flowing conditions it has been designated as a permanent stream.

'CAB057' is a water body located within the Project area as it crosses the cabling and access road leading to proposed turbine P140 and is 23 m from the cabling parallel to Communication Road.

22. CAB090

Water body 'CAB090' was identified as an unnamed drain that is a tributary to Clendening Drain. The natural corridor was approximately 6 m wide and vegetated with mostly grass, some *Rhus typhina*, some herbs and 2 large deciduous trees. The channel measured 2 m and the banks were vegetated with grasses, *Rhus typhina*, herbs, vines and some tiger lily. Erosion control rocks were seen alongside a section of the bank and the channel was vegetated with some herbs. The flow was to the south and slow and tadpoles and green frogs were observed in the channel. All observations for this site were made on June 15th, 2011. This water body has been designated as a permanent stream.

The drain at location 'CAB090' is a water body located within the Project area as it crosses the cabling along Ed's Line.

23. P003

Water body 'P003' was identified as unnamed roadside ditch and was observed along the northwest side of Ed's Line. The natural corridor of unnamed roadside ditch at this point measured approximately 6 m in width and consisted of mixed vegetation: grass and deciduous tree species, and cedar. The channel measured 0.25 m in width and contained grass species. Bank vegetation was comprised of grass species. The

channel was reported to be dry on April 19, 2011. As a result this water body has been designated as an intermittent stream.

'P003' is a water body located within the Project area and crosses the access road and cabling to proposed turbine P003 and P004.

24. P004

Water body 'P004' was identified as McKay Drain and was observed midfield near the confluence with Clunis Drain, approximately 1.3 km northwest of Ed's Line. Water temperature for McKay Drain was 5oC on April 19, 2011. Land use surrounding this drain is used primarily for agricultural purposes. The natural corridor of this portion of McKay Drain measured 10 m in width and consisted of mixed vegetation: tall, deciduous trees, grass and herbaceous species. A vegetative canopy was provided by the tall deciduous trees and provided poor shading (10%). The channel ranged in width from 1.5 – 2.5 m and contained sparse grass species. The wetted width of the channel at this section was 1.8 m with depths ranging from 7 – 17 cm. Bank height was consistent at 3 m with erosion prominent in the poor – fair bank stability. Bank vegetation was comprised of grass and sumac. Instream habitat and cover found within the channel was provided by pools, rifles, backwater, vegetation and cobble. Substrates within the channel consisted of sand, clay, gravel and pebble. Water within the channel was reported to be clear and flowing southeast on April 19, 2011. As a result this water body has been designated as a permanent stream.

McKay Drain just south of observation 'P004' is a water body located within the Project area and comes within 4 m of proposed turbine P004 and 53 m from associated access roads and cabling.

25. P009

Observation 'P009' was identified as Rowe Drain northeast of Mull Road in line with Stefina Line. The channel began at this observation point and flowed to the south. Water feeding into this drain came from piping from agricultural fields to the north. Surrounding land use is agricultural and the natural vegetation corridor is less than 20m consisting of deciduous trees(Ash, cherry), shrubs (willow, Rhus typhina), vines, grasses and some herbs including Galium sp.. The riparian zone is approximately 5m wide and

consists of similar vegetation as the corridor including a violet species. Canopy was dominated by willow and ash and was estimated to be 70% shaded. The channel width was 2m and the bank height was 2 m while the wetted width measured 1.5 m with depths of 17, 19, 20, 20 and 14 cm in cross section. Bank vegetation consisted of shrubs, herbs, grass (including a species of rice grass) and horsetail. The banks were stable and the channel was straight. Channel substrate included: clay, silt, sand, gravel, pebble, cobble and boulder. Instream habitat and cover consisted of riffles, boulders, cobble, algae and moss. Water temperatures measured 14°C and ran clear. All observations and measurements taken for this site were done so on June 15th, 2011. Due to its characteristics this water body has been designated as a permanent stream.

Rowe Drain at observation 'P009' is identified as a water body within the Project area as it crosses the access road and cabling between proposed turbine P009, P007 and P008. This drain also comes within 20 m of proposed turbine P009.

26. P104B

Observation 'P104B' occurred approximately 300 m northwest of New Scotland Line west of McKinlay Road where a section of Ross Drain was expected to be located. No water body channel was observed on June 15th, 2011. It appears as though the channel has been ploughed through.

27. P106

Observation 'P106' was made between Sinclair Line and New Scotland Line southwest of Kent Bridge Road at the junction of where Unnamed Drain C and Holdaway Drain should meet. On June 15th, 2011 no water body channels were visible in the middle of the agricultural field. It appears as though the channel has been ploughed through.

28. P140

Water body 'P140' was identified as Nelles Extension Drain and was observed midfield approximately 625 m northeast of Communication Road. Land use surrounding this drain is mainly for agricultural purposes. The natural corridor of this portion of Nelles Extension Drain measured 3 m in width and consisted of very sparse patches of herbaceous vegetation. No shade or canopy covered the channel on April 27th, 2011. The channel width was approximately 1m and contained the roots of sparse grass and

herbaceous plant species. The wetted width of the channel at this section was 1.0 m with depths ranging from 1 – 5 cm. No defined bank height existed along the meander and no vegetation was present along the bank. It appears the channel had been ploughed through and either precipitation or higher water table provided surface water within the channel. Instream habitat and cover was limited to pools. Substrates within the channel consisted of clay, silt, muck and detritus. Several small pools of water connected by saturated soil were observed within the channel on April 27th, 2011. As a result this water body has been designated as an intermittent stream.

Nelles Drain at observation 'P140' is a water body located within the Project area as it crosses the access road and cabling leading to proposed turbine P140. Nelles Drain also comes within 65 m of the turbine itself.

29. P167

Water body 'P167' was identified as Clunis Drain and was observed midfield approximately 1.2 km northeast of Mull Road. Water temperature was 5°C on April 19, 2011. Land use surrounding this drain is used primarily for agricultural purposes. The natural corridor of this portion of Clunis Drain measured 12 m in width and consisted of grass, shrub, herbaceous plants and tree species. Shading was poor over the channel with deciduous trees and shrubs providing 25% canopy. This may increase with full summer foliage. The channel ranged in widths from 0.10 – 2.5 m and contained abundant grass species. Cross-sections were taken at two locations within 50 m of each other and resulted in wetted widths of 1.1 m and 2.5 m, and depths ranging from 4 – 6 m and 10 – 17 cm, respectively. Bank height ranged from 0.01 – 0.05 m with stable banks vegetated by grass. Instream habitat and cover found within the channel was provided by pools, undercut banks and vegetation. Substrates within the channel consisted of muck, detritus, sand and silt. On April 19, 2011, the water within the channel was reported to be flowing southwest to an infiltration area, after which was a dry channel until further along the drain. Due to flowing conditions this water body has been designated as a permanent stream.

Clunis Drain at location 'P167' is a water body located within the Project area and crosses the access road and cabling to proposed turbine P167, continuing to within 95 m of proposed turbine P006.

30. P171C

Water body 'P171C' was identified as Unnamed X Drain and was observed approximately 475 m northwest of New Scotland Line. Land use surrounding Unnamed X Drain is woodlot and agricultural purposes. The natural corridor of this portion of Unnamed X Drain measured approximately 400 m to the northeast and 400 m to the southwest and consisted of grass, woodlot and planted crop. The drain in this area appears to be the outlet of a tile drain under the field. Grass and deciduous tree species provided a poor (5%) canopy over the channel. The meandering channel ranged in width from 0.25 – 0.5 m and contained grass species. Bank height ranged from 0.02 – 0.15 m and bank vegetation was comprised of grass species. Bank stability was good with little evidence of erosion. The wetted width of the channel at this section was 0.7 m with depths consistent at 9 cm. Instream habitat and cover found within the channel was provided by pools and vegetation. Substrates within the channel consisted of muck, detritus, clay, silt and pebble. Water within the channel was reported to be clear and flowing on April 19th, 2011. Due to flowing conditions this water body has been designated as a permanent stream.

Unnamed X Drain at location 'P171C' is a water body located in the Project area and is intersecting proposed turbine P171 and associated cabling and access roads.

31. AHY057

Water body 'AHY057' was identified as White Drain and was observed where it runs parallel to Harwich Road, south of Campbell Line. The natural corridor was observed to be 10 m in width and be made up of goldenrod and cattail. On October 5th, 2011 this road side drain was found to be dry with the entire channel lined with cattail and phragmites.

White Drain at this location is within the Project area and is 50 m adjacent to the cabling that runs alongside Harwich Road.

32. AHY059

Water body 'AHY059' was identified as unnamed drain that crosses under Harwich Road through a 2 m wide box culvert. Upstream of the road, the drain is straight, is undefined, and has a 2 m wide swatch of vegetation consisting of grass species and herbaceous

plants. Downstream of the road the drain is overgrown with shrubs, sumac, poplar, and disappears within the agricultural field. When observed on October 6th, 2011 this drain showed no signs of water.

This unnamed drain is located within the Project area and crosses the proposed cabling that runs along Harwich Road.

33. AHY060A/B

Water body 'AHY060' was identified as McArthur East Drain and was observed in two locations, one where it runs perpendicular to Harwich and the other closer to Stefina Line where it runs parallel. The surrounding land use is primarily agricultural within this area. The natural corridor measured approximately 10 m in width and consisted of goldenrod, willow species, poplar, maple, and a variety of grass species. The channel was found to be 3 m in width and instream habitat was provided through pools and vegetation. The vegetation within the channel was made up of willow species, terrestrial grasses and an abundance of watercress was noted at 'AHY060B'. Substrates within the channel were composed primarily of muck with deposits of sand, silt, clay, and gravel. The bank showed moderate stability and was vegetated with terrestrial grasses. On October 6th, 2011 McArthur E Drain was observed to be flowing with very low turbidity, and a water temperature of 12°C.

McArthur E. Drain is located within the project area and at 'AHY060A' is 10 m from the cabling along Harwich Road. At 'AHY060B; McArthur E Drain is located 10 m from the same cabling. This drain is also considered to be a seepage area due to the presence of watercress.

34. AHY068

Water body 'AHY068' was identified as Clendening Drain and was observed where it crosses under New Scotland Line through an 8 m wide box culvert. The natural corridor extends 10 m in width and is made up of Phragmites, cedar, red osier dogwood, aster sp., spotted jewelweed, and grass species. The adjacent land use is primarily agricultural. The channel was found to be 5 m in width with a depth of 0.9 m. The bank showed high stability and was densely vegetated with grass species and herbaceous plants. The substrate composition was made up primarily of muck, with deposits of

sand, silt, gravel, detritus, pebble, and boulder. There was dense instream vegetation present which was made up of duckweed sp., cattail, milfold sp., broadleaved arrowhead, celery grass, and bulrush sp. On October 6th, 2011 Clendening Drain had a water temperature of 15°C. Unknown cyprinid species and green frogs were also observed at this time.

Clendening Drain is located within the Project area and intersects the proposed cabling running along New Scotland Line.

35. AHY070

Water body 'AHY070' was observed to be Nesbitt Drain and was observed where it crosses under New Scotland Line through a 10 m wide box culvert. The surrounding land use was primarily agricultural. The natural corridor measured approximately 10 m in width and consisted of herbaceous plants, shrubs, and grass species. The channel width ranged between 0.5- 2 m, and the pools average depth was 0.25 m. Substrates were made up primarily of muck, with deposits of silt, detritus, gravel, and sand. Terrestrial grass species were found growing within the channel. The bank showed moderate stability and was highly vegetated with grass species. The vegetation also the banks provided shade to 10% of the channel. On October 6th, 2011 Nesbitt Drain was observed to be flowing with high turbidity and a water temperature of 14°C. Unknown cyprinid species and green frogs were also observed at this time.

Nesbitt Drain at observation point 'AHY070' is located within the Project area and crosses the cabling that runs along New Scotland Line.

36. AHY086

Water body 'AHY086' was identified as Neve Drain and was observed where it crosses under Talbot Trail through a box culvert. The natural corridor extends 15 m in width and was made up of mixed coniferous and deciduous trees with a variety of grass species. The channel had a width of 4 m, with a wetted width of 3.3 m, and an average depth of 0.3 m. The bank was observed to be 1 m in height with moderate stability and was vegetated with grass, and mixed coniferous and deciduous trees. The vegetation at this location provides shade for 75% of the channel. The channel substrate was observed to be gravel, cobble, and boulder, with deposits of clay, sand, silt, and detritus. In channel

habitat was provided by pools, riffles, undercut banks, woody debris, bank vegetation, boulder and cobble. On November 10th, 2011 Neve Drain was observed to be flowing with a water temperature of 8.5°C, and showed signs of fish activity.

Neve Drain at this observation point is located within the Project area and crosses the proposed cabling along Talbot Trail.

37. AHY087

The water body 'AHY087' was identified as Archie Campbell Drain and was observed where it crosses under Talbot Trail through a box culvert. The natural corridor extends 10 m in width and is made up of mixed coniferous and deciduous trees and different grass species. The channel was found to have a width of 2.5 m with a wetted width of 2.3 m and a max depth of 0.27 m. The bank was observed to be 0.5 m in height with moderate stability and vegetated with terrestrial grasses. Substrate composition was made up of clay and cobble with deposits of gravel, sand and detritus. In channel habitat was provided by pools, riffles, woody debris, cobble and instream vegetation. Instream vegetation consisted of watercress sp., Phragmites, and terrestrial grasses. On November 10th, 2011 the Archie Campbell Drain was observed to be flowing with a water temperature of 9°C. No fish were observed during field investigation.

The Archie Campbell Drain at this observation point is located within the Project area and crosses the proposed cabling along the Talbot Trail. Archie Campbell Drain is also considered a seepage area due to the presence of watercress.

38. AHY088

The water body at 'AHY088' was identified as an undefined water body that crosses under Talbot Trail. On November 10th, 2011 this unnamed water body was found to have damp soil but no standing water.

This water body is located within the Project area and intersects the proposed cabling along Talbot Trail.

39. AHY089

Water body 'AHY089' was identified as Cumming Drain and was observed where it crosses under Talbot Trail through a box culvert. The natural corridor was found to be 10 m in width and made up of deciduous trees, coniferous trees, terrestrial grasses and shrubs. The 0.7 m high bank was found to have moderate stability with bank vegetation being made up of terrestrial grasses. The vegetation provided shade for 80% of the channel. The adjacent land is primarily agricultural within this area. The channel measured 2.5 m, with a wetted width of 2.1 m, and an average depth of 0.25 m. Instream habitat is provided through riffles, woody debris, cobble, and vegetation. The instream vegetation was found to be watercress. Channel substrate composition was cobble and clay, with deposits of gravel, sand, and detritus. On November 11th, 2011 Cumming Drain was observed to be flowing with low turbidity and a water temperature of 9°C.

At observation point 'AHY089' Cumming Drain is located within the Project area and was found to cross the proposed cabling along Talbot Trail. Cumming Drain is also considered a seepage area due to the presence of watercress.

40. AHY090

Water body 'AHY090' was identified as McArthur East Drain and was observed where it crosses under Talbot Trail through a box culvert. The natural corridor was found to be 10 m and made up of deciduous trees, coniferous trees, terrestrial grasses and shrubs. Bank vegetation provided shade for 80% of the channel and the adjacent land was primarily agricultural. The channel measured 1.4 m, with a wetted width of 1.2 m, and an average depth of 0.4m. Instream habitat was provided through pools, riffles, woody debris, cobble, and vegetation. The instream vegetation was found to be watercress sp., and terrestrial grasses. Channel substrate composition was made up of gravel with deposits of clay, cobble, detritus, and sand. The 0.8 m bank was found to have moderate stability with bank vegetation being made up of grass species and herbaceous plants. On November 11th, 2011 McArthur East Drain was observed to be flowing with moderate turbidity and a water temperature of 9°C.

At observation point 'AHY090' McArthur East Drain is located within the Project area and crosses the proposed cabling along Talbot Trail. McArthur East Drain is also considered a seepage area due to the presence of watercress.

41. AHY091

Water body 'AHY091' was identified as Nelles Extension Drain and was observed where it crosses under Talbot Trail through a box culvert. The natural corridor was found to be 20 m and was made up of deciduous trees, grass species and a variety of shrubs which provided shade for 25% of the channel. The 0.5 m bank was found to have moderate stability with bank vegetation being made up of grasses and herbaceous plant species. The channel measured 2.5 m, with a wetted width of 2.3 m, and an average depth of 0.3m. Instream habitat was provided through pools, riffles, woody debris, cobble, vegetation. The instream vegetation was found to be watercress sp., and terrestrial grasses. Channel substrate composition was made up of gravel with deposits of clay, cobble, detritus, silt, and sand. On November 11th, 2011 Nelles Extension Drain was observed to be flowing with low turbidity and a water temperature of 9°C.

At observation point 'AHY 091' Nelles Extension Drain is located within the Project area and crosses the proposed cabling along Talbot Trail. Nelles Extension Drain is also considered a seepage area due to the presence of watercress.

Water Body Observations Found on Figure 2-10

3 water body observations (2 from 2010, 1 from 2011)

1-2. P145A & P145B

Water body 'P145A' was unnamed channelized natural stream and was observed at Beechwood Line road crossing between Shewburg Road and Scane Road. The surrounding area was dominated by agricultural fields (corn). The natural corridor was estimated to be 8 m wide and consisted of trees, shrubs, grass and some teasel. The canopy was composed of deciduous shrubs with 0% shade. The channel width ranged from 0.5-2.0 m wide with bank heights of 2 m. Banks were fairly stable and vegetated with grass, trees and shrubs. Instream habitat cover consisted of backwater, sparse woody debris and vegetation. The wetted width of 1.8 m had depth measurements of 10, 12, 16, 14 and 4 cm in cross section and was taken in a run. Water was flowing clear and measured 9°C and cyprinids were observed on April 13th, 2011. Due to flowing conditions observed within this water body it has been designated as a permanent stream.

Water body observation 'P145B' was unnamed and occurred less than 500 m downstream from observation 'P145A'. The stream characteristics were relatively similar to those made for observation 'P145A' except for the natural corridor which was approximately 15 m.

Observation 'P145A' is a water body located within the Project area and will cross cabling leading to proposed turbine P145. This water body was also observed at 'P145B' as it followed adjacent (20 m) to the access road and 15 m from cabling leading to proposed turbine P145 located 88m away.

3. CAB001

Observation 'CAB001' was taken on an unnamed drain crossing Beechwood Line NE of Shewburg Road. The natural corridor measured approximately 6 m and was vegetated with herbs, grass, teasel and some shrubs. The channel of the drain was approximately 1 m and the banks were vegetated with herbs and grass while the channel contained cattail and phragmites. The water was noted as flowing north on April 13th, 2011. As a result this water body has been designated as a permanent stream.

Observation 'CAB001' is a water body within the Project area as it crosses cabling on Beechwood Line leading to proposed turbine P145.

7.2 Site Investigation Results: Water Body Observation Tables

Tables 3 - 18 summarize the relationship between each Water Body Observation and its associated infrastructure (access roads, cabling and substations). Observations are organized by figure number and provide the following information: Water body observation label, water body name, type of infrastructure within 120 m of the water body and distance to infrastructure. Furthermore, there are eight tables (Table 3 - 18) summarizing the relationship between turbines within 120 m of a water body.

Observations are organized by figure number and provide the following information: Water body observation number, water body observation label, water body name, type of water body, turbine closest to the water body, shortest distance between the water body and turbine base and the shortest distance between the water body and the project location (turbine blade tip).

Table 3. Water Body Observation Summary for Distances to Access Roads and Cabling (Figure 2-3)

Observation Number	Water Body Observation Label	Water Body Name	Type of Water Body	Type of Infrastructure within 120m of Water Body	Distance to Infrastructure (m)
1	WB-B5	Eight Creek Drain	Intermittent Stream	Cabling	Crosses
2	WB-C5	Eight Creek Drain	Intermittent Stream	Access Road & Cabling	113
3	CAB048	Eight Creek Drain	Permanent Stream	Cabling	21
4	CAB049	Eight Creek Drain	Permanent Stream	Cabling	20
5	CAB050	Eight Creek Drain	Permanent Stream	Cabling	19
6	CAB051	Eight Creek Drain	Permanent Stream	Cabling	18
7	CAB052	Unnamed Drain	Intermittent Stream	Cabling	15
8	CAB053	Unnamed Drain	Intermittent Stream	Cabling	13
9	P174A	Unnamed Drain	Permanent Stream	Cabling & Access Road	Crosses
10	P174B	Unnamed Drain	Intermittent Stream	Cabling & Access Road	17
11	P175A	Eight Creek Drain	Intermittent Stream	cabling	17
12	P175B	Eight Creek Drain	Permanent Stream	Cabling & Access Road	Crosses
13	P176A	Eight Creek Drain	Permanent Stream	Cabling	20
				Access Road & Cabling	Crosses
14	P176B	Unnamed Drain	Intermittent Stream	Cabling	9
15	P176C	Unnamed Drain	Permanent Stream	Access Road & Cabling	Crosses
				Cabling	22

Table 4. Water Body Observation Summary for Distances to Turbines (Figure 2-3)

Water Body Observation Number	Water Body Observation Label	Water Body Name	Type of Water Body	Turbine Closest to Water Body	Shortest Distance between Water Body and Turbine Base (m)	Shortest Distance between Water Body and Project Location
1	WB-B5	Eight Creek Drain	Intermittent Stream	P070	120	71
2	WB-C5	Eight Creek Drain	Intermittent Stream	P087	110	61
9	P174A	Unnamed (north/south)	Intermittent Stream	P174	64	15

Table 5. Water Body Observation Summary for Distances to Access Roads and Cabling (Figure 2-4)

Observation Number	Water body Observation Label	Water body Name	Type of Water Body	Type of Infrastructure within 120m of Water Body	Distance to Infrastructure (m)
1	WB-A5	Unnamed	Intermittent Stream	Cabling	Crosses
2	WB-AR8	Branch Drain	Intermittent Stream	Cabling	12
3	WB-AR12	Unnamed Drain	Intermittent Stream	Cabling	Crosses
		King & Whittle Drain	Intermittent Stream	Cabling	10
4	WB-AR23	Unnamed Drain	Intermittent Stream	Access Road	22
		McDougall Drain	Intermittent Stream	Cabling	Crosses
5	WB-C7	King & Whittle Drain	Intermittent Stream	Access Road & Cabling	7
		Gagner Drain	Intermittent Stream	Access Road	Crosses
				Cabling	6
6	WB-D8	Unnamed	Intermittent Stream	Access Road	58
				Cabling	6
		Graham Extension Drain	Intermittent Stream	Access Road	Crosses
				Cabling	Crosses
7	WB-E4	Patrick Drain	Intermittent Stream	Access Road & Cabling	10
8	WB-F4	Branch 7 th Concession Drain	Intermittent Stream	Access Road & Cabling	Crosses
		Unnamed Drain	Intermittent Stream	Access Road & Cabling	7
9	WB-G4	South Middle Road Drain	Intermittent Stream	Access Road & Cabling	Crosses
10	WB-H4	Ivison Drain	Intermittent Stream	Access Road	15
				Cabling	30
				Access Road & Cabling	10
11	WB-I4	Grant Drain	Intermittent Stream	Access Road & Cabling	Crosses
		Ivison Drain	Intermittent Stream	Cabling	Crosses
				Cabling	20
				Access Road	25
12	WB-I6	Graham Extension Line	Intermittent Stream	Cabling	Crosses
				Cabling	5
13	WB-R6	7 th Concession Road Drain	Intermittent Stream	Access Road & Cabling	Crosses
				Access Road & Cabling	21
14	WB-V4	Unnamed Drain A	Intermittent Stream	Cabling	10
15	WB-W4	Jessop Drain	Intermittent Stream	Access Road, Cabling & Cabling	Crosses
				Access Road	23
				Cabling	6
16	CAB045A	Unnamed	Permanent Stream	Access Road & Cabling	Crosses
17	CAB045B	Unnamed Roadside	Intermittent Stream	Access Road & Cabling	Crosses

Observation Number	Water body Observation Label	Water body Name	Type of Water Body	Type of Infrastructure within 120m of Water Body	Distance to Infrastructure (m)
		Ditch			
18	CAB047	McLeod Drain	Permanent Stream	Cabling	Crosses
19	CAB080	Graham Drain	Permanent Stream	Cabling	Crosses
				Cabling	13
20	CAB081	Grant Drain	Intermittent Stream	Cabling	3
				Cabling	Crosses
21	CAB082	Unnamed Drain E	Intermittent Stream	Cabling	Crosses
22	P075A	McLeod Drain	Permanent Stream	Access Road & Cabling	Crosses
23	P075B	Unnamed	Permanent Stream	Access Road & Cabling	18
24	P075C	Unnamed	Permanent Stream	Access Road & Cabling	Crosses
25	P078A	Unnamed Water Body	Permanent Stream	Access Road	Crosses
				Access Road & Cabling	15
26	P078B	Gagner Drain	Intermittent Stream	Access Road	45
27	P078C	Unnamed Water Body	Intermittent Stream	Access Road	17
28	P082A	Burgess Drain	Permanent Stream	Access Road & Cabling	Crosses
29	P082B	Carless Drain	Permanent Stream	Access Road & Cabling	100
30	P082C	Unnamed Water Body	Intermittent Stream	Access Road	23
				Cabling	16
31	P150B	Ivison Drain	Intermittent Stream	Access Road	7
				Cabling	18
				Cabling	Crosses
32	AHY005	South Middle Road Drain	Intermittent Stream	Cabling	7
33	AHY006	South Middle Road Drain	Intermittent Stream	Cabling	7
		King & Whittle Drain	Intermittent Stream	Cabling	Crosses
34	AHY007	Norval Davis Drain	Intermittent Stream	Cabling	9
				Cabling	Crosses
35	AHY008	Unnamed Drain	Intermittent Stream	Cabling	Crosses
36	AHY009	McLeod Drain	Permanent Stream	Cabling	Crosses
		Graham Drain	Intermittent Stream	Cabling	7
		Powell Drain	Intermittent Stream	Cabling	7
37	AHY010	Unnamed Drain	Intermittent Stream	Cabling	5
		East Branch Graham Drain	Intermittent Stream	Cabling	20
38	AHY011	Valetta Road Drain	Intermittent Stream	Cabling	10
39	AHY012	Unnamed Drain	Intermittent Stream	Cabling	5
40	AHY013	Ross Norry Drain	Intermittent Stream	Cabling	Crosses
		Unnamed Drain	Intermittent Stream	Cabling	17
41	AHY014	Jessop Drain	Intermittent Stream	Cabling	Crosses
		Unnamed Drain	Intermittent Stream	Cabling	20

Table 6. Water Body Observation Summary for Distances to Turbines (Figure 2-4)

Observation Number	Water body Observation Label	Water body Name	Type of Water Body	Turbine Closest to Water Body	Shortest Distance between Water Body and Turbine Base (m)	Shortest Distance between Water Body and Project Location (m)
5	WB-C7	King & Whittle Drain	Intermittent Stream	P116	111	62
6	WB-D8	Unnamed	Intermittent Stream	P132	70	21
8	WB-F4	Unnamed	Intermittent Stream	P081	140	91
9	WB-G4	South Middle Road Drain	Intermittent Stream	P080	118	69
10	WB-H4	Ivison Drain	Intermittent Stream	P115	130	81
13	WB-R6	7 th Concession Road Drain Extension	Intermittent Stream	P122	75	26
14	WB-V4	Unnamed Drain A	Intermittent Stream	P071	115	66
15	WB-W4	Jessop Drain	Intermittent Stream	P072	80	31
22	P075A	McLeod Drain	Permanent Stream	P075	118	69
29	P082B	Carless Drain	Permanent Stream	P082	100	51

Table 7. Water Body Observation Summary for Distances to Access Roads and Cabling (Figure 2-5)

Observation Number	Water Body Observation Label	Water body Name	Type of Water Body	Type of Infrastructure within 120m of Water Body	Distance to Infrastructure (m)
1	WB-AR14	Government Drain #1	Permanent Stream	Access Road & Cabling	80
		Unnamed	Intermittent Stream	Access Road	35
				Cabling	15
2	WB-AR15A	Government Drain	Permanent Stream	Cabling	Crosses
3	WB-AR15B	Pollard Drain	Permanent Stream	Cabling	Crosses
				Cabling	5
4	WB-AR26	Finn and Cooper Drain	Permanent Stream	Cabling	Crosses
		Webb Drain	Intermittent Stream	Cabling	Crosses
5	WB-D5	Deary Drain	Intermittent Stream	Cabling	Crosses
6	WB-E5	Rice Drain	Intermittent Stream	Access Road & Cabling	Crosses
				Cabling	6
				Access Road & Cabling	20
7	WB-H5	Deary Drain	Intermittent Stream	Cabling	Crosses
				Access Road	45
8	WB-L7	Mazan Drain	Intermittent Stream	Cabling,	1
9	WB-M7	Mazan Drain	Intermittent Stream	Access Road & Cabling	Crosses
				Cabling	5
10	WB-S6	Gardner Drain	Intermittent Stream	Cabling	15
11	WB-U4	McDougall Drain	Intermittent Stream	Cabling	Crosses

Observation Number	Water Body Observation Label	Water body Name	Type of Water Body	Type of Infrastructure within 120m of Water Body	Distance to Infrastructure (m)
12	WB-U6	Cooper-Stevenson Drain	Intermittent Stream	Cabling	10
		Lewis Drain	Intermittent Stream	Cabling	Crosses
13	CAB034A	Shadd Drain	Permanent Stream	Cabling	5
				Cabling	Crosses
				Access Road & Cabling	14
14	CAB034B	Unnamed	Intermittent Stream	Cabling	13
				Cabling	Crosses
				Access Road & Cabling	Crosses
15	CAB034C	Unnamed	Permanent Stream	Cabling	15
16	CAB035A	Shadd Drain	Permanent Stream	Cabling	3
17	CAB035B	Unnamed	Intermittent Stream	Cabling	17
				Cabling	Crosses
18	CAB036A	Unnamed	Intermittent Stream	Cabling	Crosses
19	CAB036B	Unnamed	Permanent Stream	Cabling	Crosses
20	CAB038A	Cooper-Stevenson Drain	Permanent Stream	Cabling	17
21	CAB038B	Unnamed	Intermittent Stream	Cabling	12
				Cabling	Crosses
22	CAB038C	Mancell Drain	Permanent Stream	Cabling	Crosses
				Cabling	3
23	CAB039	Beattie Drain	Permanent Stream	Cabling	12
24	CAB040	Mancell Drain	Permanent Stream	Cabling	2
				Cabling	Crosses
25	CAB044A	McHardy Drain	Permanent Stream	Cabling	Crosses
				Cabling	2
26	CAB044B	Unnamed	Intermittent Stream	Cabling	Crosses
				Cabling	10
27	P064	Unnamed	Intermittent Stream	Access Road & Cabling	Crosses
28	P095A	Gardner Drain	Permanent Stream	Access Road & Cabling	Crosses
29	P095B	Unnamed	Permanent Stream	Access Road	37
				Cabling	27
30	P126	Mazan Drain	Permanent Stream	Access Road & Cabling	Crosses
				Cabling	10
31	P148	Linnen Drain	Intermittent Stream	Access Road, Cabling	Crosses
				Cabling	15
				Access Road	30
32	P161	Skipper Drain	Permanent Stream	Access Road & Cabling	Crosses
				Cabling	10
33	AHY015	Unnamed Drain A	Intermittent Stream	Cabling	Crosses
34	AHY016	Sinclair Drain	Intermittent Stream	Cabling	Crosses
35	AHY017	Skipper Drain	Permanent Stream	Cabling	14
36	AHY018	Government Drain #1	Permanent Stream	Cabling	Crosses
				Cabling	10
37	AHY019A	Government Drain #1	Permanent Stream	Cabling	21
38	AHY019B	Mancell Drain	Intermittent Stream	Cabling	21
39	AHY019C	Unnamed Drain	Intermittent Stream	Cabling	Crosses
40	AHY020	Gardiner Drain	Intermittent Stream	Cabling	10

Observation Number	Water Body Observation Label	Water body Name	Type of Water Body	Type of Infrastructure within 120m of Water Body	Distance to Infrastructure (m)
41	AHY021	Government Drain #1	Permanent Stream	Cabling	Crosses
42	AHY022	Lewis Drain	Intermittent Stream	Cabling	Crosses
43	AHY023	Mancell Drain	Intermittent Stream	Cabling	3
44	AHY024	Unnamed Drain	Intermittent Stream	Cabling	7
		Griffin Drain	Intermittent Stream	Cabling	7
45	AHY025	Finn & Cooper Drain	Permanent Stream	Cabling	Crosses
		Unnamed Drain	Intermittent Stream	Cabling	6

Table 8. Water Body Observation Summary for Distances to Turbines (Figure 2-5)

Water Body Observation Number	Water Body Observation Label	Water body Name	Type of Water Body	Turbine Closest to Water Body	Shortest Distance between Water Body and Turbine Base (m)	Shortest Distance between Water Body and Project Location (m)
7	WB-H5	Newham Drain	Intermittent Stream	P068	117	68
31	P148	Linnen Drain	Intermittent Stream	P148	85	36

Table 9. Water Body Observation Summary for Distances to Access Roads and Cabling (Figure 2-6)

Observation Number	Water Body Observation Label	Water body Name	Type of Water Body	Type of Infrastructure within 120m of Water Body	Distance to Infrastructure (m)
1	WB-A2	Vsetula Drain	Intermittent Stream	Cabling	15.5
2	WB-A7	Lewis Drain	Intermittent Stream	Cabling	Crosses
				Access Road & Cabling	100
3	WB-AR27	Lecoco Drain	Permanent Stream	Cabling	Crosses
4	WB-AR31	Vsetula Drain	Intermittent Stream	Cabling	Crosses
				Access Road & Cabling	10
5	WB-AR56	Chase Drain	Intermittent Stream	Access Road	13
				Cabling	15
				Cabling	Crosses
6	WB-B2	Flook and Hinton Drain	Intermittent Stream	Cabling	Crosses
				Access Road	20
				Cabling	6
8	WB-J	Mummery Drain	Intermittent Stream	Cabling	6
9	WB-K	Flook and Hinton Drain	Permanent Stream	Cabling	Crosses
10	WB-L	Chase Drain	Intermittent Stream	Access Road & Cabling	Crosses
		Sampson Drain	Intermittent Stream	Access Road & Cabling	30
11	WB-M	West Drain	Intermittent Stream	Cabling	Crosses
12	WB-N	Carter Drain	Intermittent Stream	Cabling	Crosses
				Cabling	Crosses
13	WB-N7	Flook & Hinton Drain	Permanent Stream	Access Road, Cabling	Crosses
14	WB-O	Carter Drain	Intermittent Stream	Cabling	Crosses

Observation Number	Water Body Observation Label	Water body Name	Type of Water Body	Type of Infrastructure within 120m of Water Body	Distance to Infrastructure (m)
15	WB-P	O'Rourke Drain	Intermittent Stream	Cabling	Crosses
16	WB-Q	Doyle Drain	Intermittent Stream	Cabling	Crosses
		Sheeler Waddick Drain	Intermittent Stream	Cabling	20
17	WB-RR24	Lewis Drain	Permanent Stream	Cabling	Crosses
18	WB-RR25	Flook & Hinton Drain	Permanent Stream	Cabling	Crosses
19	WB-RR26	Garnet Russel Drain	Intermittent Stream	Cabling	Crosses
20	WB-RR27	Miller Drain	Permanent Stream	Cabling	Crosses
21	WB-RR28	Horne Drain	Permanent Stream	Cabling	Crosses
22	WB-RR29	Vail Drain	Permanent Stream	able	Crosses
23	WB-RR30	Doyle Drain	Intermittent Stream	Cabling	Crosses
24	WB-S	Government Drain	Intermittent Stream	Cabling	Crosses
25	WB-T	Moody & Earley Drain	Intermittent Stream	Cabling	Crosses
26	WB-U	O'Neil Drain	Intermittent Stream	Cabling	Crosses
				Access Road & Cabling	60
27	WB-V	Miller Drain	Intermittent Stream	Cabling	Crosses
28	WB-W	Horne Drain	Intermittent Stream	Cabling	Crosses
29	WB-Y	Garnet & Russell Drain	Intermittent Stream	Cabling	Crosses
30	WB-Y6	O'Rourke Drain	Intermittent Stream	Cabling	Crosses
31	WB-Z6	O'Rourke Drain	Intermittent Stream	Access Road	20
				Cabling	5
32	CAB029	Unnamed Drain	Permanent Stream	Cabling	Crosses
33	CAB030	Unnamed roadside ditch	Intermittent Stream	Cabling	1
34	CAB033A	Government Drain	Permanent Stream	Cabling	8
				Cabling	Crosses
35	CAB033B	Unnamed roadside ditch	Intermittent Stream	Cabling	5
				Cabling	Crosses
36	CAB083	Lecoco Drain	Permanent Stream	Cabling	Crosses
37	CAB084	Symon Drain	Permanent Stream	Cabling	Crosses
38	CAB085	Towl Drain	Permanent Stream	Cabling	Crosses
39	CAB100	Price Drain	Intermittent Stream	Cabling	Crosses
40	P060	Mummery Drain	Permanent Stream	Access Road	20
				Cabling	15
41	P065	Carter Drain	Intermittent Stream	Access Road & Cabling	Crosses
42	P098	Reach Connecting Doyle and O'Rourke Drains	Permanent Stream	Access Road & Cabling	Crosses
				Access Road	30
				Cabling	14
43	P100A	Unnamed Roadside Ditch	Intermittent Stream	Cabling	8
45	P111	Tributary to Moody & Earley Drain	Permanent Stream	Access Road & Cabling	Crosses
46	P149	Vince Doyle Drain	Permanent Stream	Access Road & Cabling	Crosses
47	P163	Unnamed roadside ditch	Intermittent Stream	Access Road & Cabling	Crosses
49	AHY027	Waddick Drain	Permanent Stream	Cabling	Crosses
51	AHY034	Symon Drain	Permanent Stream	Cabling	Crosses
52	AHY035	Government Drain	Permanent Stream	Cabling	Crosses
53	AHY036	Doyle Drain	Intermittent Stream	Cabling	Crosses
54	AHY037	Vail Drain	Permanent Stream	Cabling	Crosses

Observation Number	Water Body Observation Label	Water body Name	Type of Water Body	Type of Infrastructure within 120m of Water Body	Distance to Infrastructure (m)
55	AHY038	Ferguson/Laurie Drain	Permanent Stream	Cabling	Crosses
56	AHY041	Stenton Drain	Intermittent Stream	Cabling	17

Table 10. Water Body Observation Summary for Distances to Turbines (Figure 2-6)

Water Body Observation Number	Water Body Observation Label	Water body Name	Type of Water Body	Turbine Closest to Water Body	Shortest Distance between Water Body and Turbine Base (m)	Shortest Distance between Water Body and Project Location (m)
6	WB-B2	Flook and Hinton Drain	Intermittent Stream	P164	90	41
7	WB-B8	Lewis Drain	Permanent Stream	P164	94	45
10	WB-L	Chase Drain	Intermittent Stream	P063	120	71
13	WB-N7	Flook & Hinton Drain	Permanent Stream	P097	100	51
40	P060	Mummery Drain	Permanent Stream	P060	49	0
44	P100B	Garen & Young Drain	Permanent Stream	P100	129	80
45	P111	Tributary to Moody & Earley Drain	Permanent Stream	P111	67	18
46	P149	Moody & Earley Drain	Permanent Stream	P149	49	0

Table 11. Water Body Observation Summary for Distances to Access Roads and Cabling (Figure 2-6a)

Water Body Observation Number	Water Body Observation Label	Water body Name	Water Body Type	Type of Infrastructure within 120m of Water Body	Distance to Infrastructure (m)
1	AHY029	Unnamed Drain	Intermittent Stream	Cabling	5
2	AHY030	Unnamed Drain	Permanent Stream	Cabling	6
		Unnamed Drain	Intermittent Stream	Cabling	6
3	AHY031	Unnamed Drain	Intermittent Stream	Cabling	5
5	AHY033	Carter Drain	Intermittent Stream	Cabling	Crosses

Table 12. Water Body Observation Summary for Distances to Access Roads and Cabling (Figure 2-7)

Water Body Observation Number	Water Body Observation Label	Water body Name	Water Body Type	Type of Infrastructure within 120m of Water Body	Distance to Infrastructure (m)
1	WB-A	McCorkell Drain	Intermittent Stream	Cabling	10
				Access Road & Cabling	Crosses
2	WB-AR33A	Hedgedus Drain	Intermittent Stream	Cabling	8
3	WB-AR33B	McGregor Creek tributary	Intermittent Stream	Cabling	Crosses
4	WB-AR51	Unnamed Drain B	Intermittent Stream	Cabling	Crosses
		Corlett Drain	Intermittent Stream	Cabling	40
5	WB-AR52	Fargo Branch Drain	Intermittent Stream	Cabling	Crosses

Water Body Observation Number	Water Body Observation Label	Water body Name	Water Body Type	Type of Infrastructure within 120m of Water Body	Distance to Infrastructure (m)
				Cabling	Crosses
6	WB-AR55	Lorne English Drain	Intermittent Stream	Access Road & Cabling	Crosses
				Cabling	Crosses
7	WB-B	Corlett Drain	Intermittent Stream	Cabling	38
				Cabling	Crosses
8	WB-C	Unnamed Drain K	Intermittent Stream	Cabling	10
9	WB-D	Locke Drain	Permanent Stream	Cabling	Crosses
10	WB-D6	Jackson & Nash Drain	Intermittent Stream	Access Road & Cabling	Crosses
				Cabling	17
11	WB-D7	Jackson & Nash Drain	Intermittent Stream	Cabling	2
				Cabling	Crosses
12	WB-E	Locke Drain	Intermittent Stream	Cabling & Access Road	Crosses
13	WB-E2	Fargo Drain	Intermittent Stream	Access Road & Cabling	Crosses
				Cabling	5
				Cabling	Crosses
15	WB-F2A	Mosey Drain	Intermittent Stream	Access Road	9
				Access Road & Cabling	Crosses
16	WB-F2B	Jackson & Nash Drain	Intermittent Stream	Access Road & Cabling	Crosses
17	WB-F7	Barfoot Drain	Permanent Stream	Cabling	Crosses
18	WB-H	Laurie Drain	Intermittent Stream	Cabling	Crosses
19	WB-J5	White Drain	Intermittent Stream	Cabling	81
20	WB-M2	R.L. Smyth Drain	Intermittent Stream	Cabling	Crosses
				Access Road	60
21	WB-N2	Proctor Drain	Intermittent Stream	Cabling	Crosses
22	WB-O2	Proctor Drain	Intermittent Stream	Access Road & Cabling	Crosses
23	WB-07	Locke Drain	Permanent Stream	Access Road	115
24	WB-P2A	Morrison Drain	Intermittent Stream	Cabling	Crosses
25	WB-P2B	Watts Drain	Intermittent Stream	Cabling	Crosses
26	WB-Q2	White Drain	Intermittent Stream	Cabling	Crosses
				Cabling	100
27	WB-Q7	Mosey Drain	Intermittent Stream	Access Road	75
				Cabling	60
28	WB-R7	Lucas Drain	Intermittent Stream	Access Road & Cabling	Crosses
29	WB-S2	Pilotte Drain	Intermittent Stream	Cabling	10
30	WB-T7	Cyrus Huffman Drain	Intermittent Stream	Access Road & Cabling	Crosses
31	WB-Y7	White Drain	Intermittent Stream	Cabling	10
32	WB-RR09	Tedford Drain	Intermittent Stream	Cabling	Crosses
33	WB-RR10	White Drain	Intermittent Stream	Cabling	Crosses
				Cabling	97
34	WB-RR11	Morrison Drain	Intermittent Stream	Cabling	Crosses

Water Body Observation Number	Water Body Observation Label	Water body Name	Water Body Type	Type of Infrastructure within 120m of Water Body	Distance to Infrastructure (m)
35	WB-RR12	Proctor Drain	Intermittent Stream	Cabling	Crosses
				Access Road	82
36	WB-RR13	Spisani Drain	Permanent Stream	Cabling	Crosses
37	WB-RR14	Lucas Drain	Permanent Stream	Cabling	Crosses
38	WB-RR15	Conrail Drain	Intermittent Stream	Cabling	Crosses
39	WB-RR16	Unnamed	Intermittent Stream	Cabling	Crosses
40	WB-RR17	Locke Drain	Intermittent Stream	Cabling	Crosses
41	WB-RR18	Locke Drain	Intermittent Stream	Cabling	Crosses
42	WB-RR19	Drewery Branch Drain	Intermittent Stream	Cabling	Crosses
43	WB-RR20	Barfoot Drain	Intermittent Stream	Cabling	Crosses
44	WB-RR21	Laurie Drain	Intermittent Stream	Cabling	Crosses
45	WB-RR22	Gales Drain	Intermittent Stream	Cabling	Crosses
46	WB-RR23	Knott Creek Drain	Permanent Stream	Cabling	Crosses
47	CAB031A	Charring Cross Drain	Permanent Stream	Cabling	8
				Cabling	Crosses
48	CAB031B	Unnamed Drain	Permanent Stream	Cabling	10
49	CAB059A	Unnamed Drain	Intermittent Stream	Cabling	Crosses
50	CAB059B	Unnamed Drain	Intermittent Stream	Cabling	Crosses
51	CAB073A	Unnamed Drain	Intermittent Stream	Cabling	20
52	CAB073B	Unnamed Drain	Intermittent Stream	Cabling	10
53	CAB074	Unnamed Drain	Intermittent Stream	Cabling	10
54	CAB086	McGregor Creek	Permanent Stream	Cabling	Crosses
55	P031A	Unnamed Drain	Intermittent Stream	Access Road	60
				Cabling	Crosses
56	P031B	Unnamed Drain	Intermittent Stream	Cabling	100
				Access Road & Cabling	Crosses
57	P035	Watt Drain	Intermittent Stream	Access Road & Cabling	Crosses
				Cabling	15
58	P036A	Grist Drain	Intermittent Stream	Access Road & Cabling	Crosses
59	P036B	Morrison Drain	Intermittent Stream	Cabling	Crosses
60	P037	RL Smyth Drain no longer exists at this location			
62	P057	Unnamed Drain	Intermittent Stream	Access Road & Cabling	Crosses
63	P058	This historical Unnamed water body no longer exists			
64	P108A	Watt Drain is a historical water body that no longer exists at this location			
65	P108B	Morrison Drain	Permanent Stream	Access Road & Cabling	Crosses
66	P109A	Lucas /Sample Drain	Permanent Stream	Access Road & Cabling	Crosses
67	P109B	Lucas /Sample Drain	Permanent Stream	Access Road & Cabling	Crosses
70	AHY039A/B	Gregory Drain	Permanent Stream	Cabling	Crosses
				Cabling	20
				Access Road & Cabling	20
71	AHY042	Unnamed Roadside Ditch	Intermittent Stream	Cabling	10
72	AHY043	Vanraay Drain	Intermittent Stream	Cabling	10

Water Body Observation Number	Water Body Observation Label	Water body Name	Water Body Type	Type of Infrastructure within 120m of Water Body	Distance to Infrastructure (m)
73	AHY045	Lucas Drain	Permanent Stream	Cabling	Crosses
		Unnamed Drain	Intermittent Stream	Cabling	10
74	AHY046	Morrison Drain	Permanent Stream	Cabling	Crosses
75	AHY047	Kneeborne Drain	Intermittent Stream	Cabling	Crosses
76	AHY048	Cyrus Huffman Drain	Intermittent Stream	Cabling	Crosses
77	AHY049	Tedford Drain	Permanent Stream	Cabling	Crosses
		Unnamed Drain	Intermittent Stream	Cabling	10
78	AHY050	Centre Line Drain	Intermittent Stream	Cabling	20
79	AHY051	White Drain	Intermittent Stream	Cabling	Crosses
80	AHY052	Tedford Drain	Permanent Stream	Cabling	Crosses
81	AHY058	White Drain Branch	Intermittent Stream	Cabling	Crosses
				Cabling	18

Table 13. Water Body Observation Summary for Distances to Turbines (Figure 2-7)

Water Body Observation Number	Water Body Observation Label	Water body Name	Water Body Type	Turbine Closest to Water Body	Shortest Distance between Water Body and Turbine Base (m)	Shortest Distance between Water Body and Project Location (m)
8	WB-C	Unnamed Drain K	Intermittent Stream	P052	139	90
14	WB-E7	Barfoot Drain	Intermittent Stream	P058	129	80
15	WB-F2A	Mosey Drain	Intermittent Stream	P044	80	31
18	WB-H	Laurie Drain	Intermittent Stream	P056	123	74
21	WB-N2	Proctor Drain	Intermittent Stream	P040	133	84
22	WB-O2	Proctor Drain	Intermittent Stream	P041	78	29
23	WB-07	Locke Drain	Permanent Stream	P055	135	86
30	WB-T7	Cyrus Huffman Drain	Intermittent Stream	P033	111	62
35	WB-RR12	Proctor Drain	Intermittent Stream	P040	139	90
55	P031A	Unnamed Drain	Intermittent Stream	P031	65	16
57	P035	Watt Drain	Intermittent Stream	P108	136	87
59	P036B	Morrison Drain	Permanent Stream	P036	127	78
61	P046B	Lucas Drain	Intermittent Stream	P046	61	12
62	P057	Unnamed Drain	Intermittent Stream	P057	76	27
67	P109B	Sample Drain	Permanent Stream	P109	73	24
68	P109C	Nichol Drain	Permanent Stream	P109	128	79
69	P120	Proctor and Grist Drain	Intermittent Stream	P120	130	81

Table 14. Water Body Observation Summary for Distances to Access Roads and Cabling (Figure 2-8)

Water Body Observation Number	Water Body Observation Label	Water body Name	Type of Water Body	Type of Infrastructure within 120m of Water Body	Distance to Infrastructure (m)
1	WB-AR37A	Ingram Drain	Intermittent Stream	Cabling	Crosses
		Mervin Drain	Intermittent Stream	Cabling	Crosses
2	WB-AR38	Brown Drain	Intermittent Stream	Cabling	Crosses
				Access Road & Cabling	Crosses
3	WB-AR39	Bisner Drain	Intermittent Stream	Cabling	Crosses
				Access Road & Cabling	Crosses
		Unnamed Drain U	Intermittent Stream	Cabling	Crosses
4	WB-AR49	Cooper Drain	Intermittent Stream	Cabling	Crosses
5	WB-AR50	McEachren Drain	Intermittent Stream	Cabling	Crosses
6	WB-AR60	Baird Drain	Intermittent Stream	Cabling	Crosses
				Cabling	20
7	WB-B3	McEachren Drain	Intermittent Stream	Access Road & Cabling	8
8	WB-C3	Mull Branch Drain	Intermittent Stream	Cabling	Crosses
				Access Road	22
				Cabling	30
				Access Road	108
				Cabling	115
9	WB-D3	Unnamed Drain	Intermittent Stream	Cabling	25
10	WB-E3	Unnamed Drain	Intermittent Stream	Cabling	Crosses
		Taff Creek Drain	Intermittent Stream	Cabling	Crosses
11	WB-F3	Unnamed Drain	Intermittent Stream	Cabling	Crosses
12	WB-G3	McEachren Drain	Intermittent Stream	Access Road & Cabling	86
				Cabling	Crosses
13	WB-H3	Union Drain	Intermittent Stream	Cabling	Crosses
				Access Road	20
				Cabling	17
14	WB-I3	Union Drain (Old Course)	Intermittent Stream	Cabling	Crosses
		Union Drain (New Course)	Intermittent Stream	Cabling	6
		Cleveland Drain	Intermittent Stream	Cabling	45
15	WB-J7	Pfaff Creek Drain	Intermittent Stream	Access Road & Cabling	70
16	WB-L4	Mull Drain	Intermittent Stream	Cabling	Crosses
17	WB-M4	McPhail Drain	Intermittent Stream	Cabling	Crosses
18	WB-M5	Pfaff Creek Drain	Intermittent Stream	Cabling	Crosses
				Access Road & Cabling	90
19	WB-N5	Wiebenga Drain	Intermittent Stream	Cabling	20
				Access Road & Cabling	Crosses
20	WB-P3	Pfaff Creek Drain	Intermittent Stream	Access Road & Cabling	Crosses
				Cabling	30
				Access Road & Cabling	20
21	WB-P4	Unnamed Drain	Intermittent Stream	Cabling	15

Water Body Observation Number	Water Body Observation Label	Water body Name	Type of Water Body	Type of Infrastructure within 120m of Water Body	Distance to Infrastructure (m)
22	WB-Q4	Baird Drain Open	Intermittent Stream	Cabling	Crosses
23	WB-RR03	Nicholson Drain	Intermittent Stream	Cabling	Crosses
24	WB-RR06	Mull Drain	Intermittent Stream	Cabling	Crosses
				Cabling	Crosses
25	WB-RR07	Baird Drain Open	Intermittent Stream	Cabling	Crosses
26	WB-RR35	Rushton Drain	Permanent Stream	Cabling	Crosses
27	WB-T2	McPhail Drain	Intermittent Stream	Cabling	Crosses
28	WB-U2	Baird Drain Open	Intermittent Stream	Cabling	Crosses
				Access Road & Cabling	20
29	WB-U7	Unnamed Drain W	Intermittent Stream	Access Road & Cabling	Crosses
30	WB-X7	McEachren Drain	Intermittent Stream	Access Road	10
				Cabling	15
31	CAB006A	Unnamed Drain	Intermittent Stream	Cabling	15
32	CAB006B	Unnamed Drain	Intermittent Stream	Cabling	10
33	CAB058	Unnamed Drain	Intermittent Stream	Access Road & Cabling	Crosses
				Cabling	15
34	CAB087	Cooper Drain	Permanent Stream	Cabling	Crosses
35	P005B	Unnamed Drain	Intermittent Stream	Access Road & Cabling	Crosses
36	P013A	Nicholson Drain	Permanent Stream	Access Road & Cabling	Crosses
37	P013B	Unnamed J Drain	Permanent Stream	Access Road & Cabling	Crosses
				Cabling	15
38	P018	Unnamed Drain	Intermittent Stream	Access Road & Cabling	Crosses
				Cabling	9
39	P019	Busted Drain no longer exists at this location			
40	P022	Mull & McLachlan Drain	Permanent Stream	Access Road & Cabling	Crosses
41	P023	Baird Drain Open	Intermittent Stream	Access Road	26
				Cabling	12
42	P024	Whitbread Drain	Permanent Stream	Access Road & Cabling	Crosses
43	P030	Tedford Drain	Permanent Stream	Access Road & Cabling	Crosses
44	P101	Rushton Drain no longer exists at this location			
45	P135	Tompkins Drain	Permanent Stream	Access Road & Cabling	Crosses
46	P138	Wiebenga Drain	Permanent Stream	Access Road & Cabling	Crosses
47	P155	Unnamed Drain	Permanent Stream	Access Road & Cabling	22
48	P156A	Unnamed Drain	Intermittent Stream	Access Road & Cabling	Crosses
49	P156B	Water Body no longer exists at this location			
50	P166	Bolohan Craig Drain Extension no longer exists at this location			
51	P173	Unnamed Drain	Intermittent Stream	Access Road & Cabling	Crosses
52	AHY053	Unnamed Drain W	Intermittent Stream	Cabling	Crosses
				Cabling	10
53	AHY054	English Drain	Permanent Stream	Cabling	12
54	AHY055	McPhail Drain	Intermittent Stream	Cabling	Crosses
55	AHY056	Gobert Drain	Permanent Stream	Cabling	12
		Tedford Drain	Permanent Stream	Cabling	Crosses

Water Body Observation Number	Water Body Observation Label	Water body Name	Type of Water Body	Type of Infrastructure within 120m of Water Body	Distance to Infrastructure (m)
56	AHY071	Brown Drain	Permanent Stream	Cabling	Crosses
57	AHY072	Unnamed Drain	Intermittent Stream	Cabling	Crosses
		Nicholson Drain	Permanent Stream	Cabling	10
58	AHY073	Anderson Drain no longer exists at this location			
59	AHY074	Shipp Drain no longer exists at this location			

Table 15. Water Body Observation Summary for Distances to Turbines (Figure 2-8)

Water Body Observation Number	Water Body Observation Label	Water body Name	Type of Water Body	Turbine Closest to Water Body	Shortest Distance between Water Body and Turbine Base (m)	Shortest Distance between Water Body and Project Location (m)
2	WB-AR38	Brown Drain	Intermittent Stream	P152	90	41
3	WB-AR39	Bisner Drain	Intermittent Stream	P093	37	Overlaps
7	WB-B3	McEachren Drain	Intermittent Stream	P017	160	111
15	WB-J7	Pfaff Creek Drain	Intermittent Stream	P012	80	31
29	WB-U7	Unnamed Drain W	Intermittent Stream	P028	107	58
43	P030	Tedford Drain	Permanent Stream	P030	33	Overlaps
45	P135	Tompkins Drain	Permanent Stream	P135	65	16
47	P155	Unnamed Drain	Permanent Stream	P155	170	121

Table 16. Water Body Observation Summary for Distances to Access Roads and Cabling (Figure 2-9)

Water Body Observation Number	Water Body Observation Label	Water body Name	Stream Designation	Type of Infrastructure within 120m of Water Body	Distance to Infrastructure (m)
1	WB-AR40	Neve Drain	Permanent Stream	Cabling	Crosses
2	WB-AR41	Unnamed Water Body	Permanent Stream	Cabling	Crosses
3	WB-AR42	Clendening Drain	Intermittent Stream	Cabling	Crosses
				Access Road	22
				Cabling	85
4	WB-AR43	Chris Debrouwer Drain	Intermittent Stream	Cabling	Crosses
				Cabling	26
5	WB-AR48	Bates Bloomfield Drain	Permanent Stream	Access Road & Cabling	Crosses
				Cabling	Crosses
6	WB-AR62	Woodlife Drain	Intermittent Stream	Cabling	13
7	WB-K3	Woodlife Drain	Intermittent Stream	Cabling	7
				Access Road & Cabling	Crosses
8	WB-L3	Rowe Drain	Intermittent Stream	Cabling	Crosses
9	WB-M3	Arnold Davis Drain	Intermittent Stream	Cabling	Crosses
10	WB-N3A	East Lake Drain	Intermittent Stream	Cabling	Crosses
11	WB-O3	McKay Drain	Permanent Stream	Cabling	Crosses
12	WB-W7	Rowe Drain & Clunis Drain Intersection	Intermittent Stream	Access Road & Cabling	Crosses

Water Body Observation Number	Water Body Observation Label	Water body Name	Stream Designation	Type of Infrastructure within 120m of Water Body	Distance to Infrastructure (m)
13	WB-X5	McLean Drain	Intermittent Stream	Cabling	Crosses
14	CAB024	McArthur East Drain	Permanent Stream	Cabling	Crosses
15	CAB026	Unnamed Drain	Intermittent Stream	Cabling	Crosses
16	CAB028	Unnamed Drain	Permanent Stream	Cabling	9
				Cabling	Crosses
17	CAB054A	Unnamed Drain	Intermittent Stream	Cabling	12
18	CAB054B	Unnamed Drain	Permanent Stream	Cabling	25
19	CAB055	Unnamed Drain	Permanent Stream	Cabling	7
20	CAB056	Unnamed Drain	Intermittent Stream	Cabling	22
21	CAB057	Unnamed Drain	Permanent Stream	Access Road & Cabling	Crosses
				Cabling	23
22	CAB090	Unnamed Drain	Permanent Stream	Cabling	Crosses
23	P003	Unnamed D	Intermittent Stream	Access Road & Cabling	Crosses
24	P004	McKay Drain	Permanent Stream	Access Road & Cabling	53
25	P009	Rowe Drain	Permanent Stream	Access Road & Cabling	Crosses
26	P104B	Historical unnamed Water Body no longer exists			
27	P106	Historical Water Body Frasier Drain no longer exists at this location			
28	P140	Nelles Extension Drain	Permanent Stream	Access Road & Cabling	Crosses
29	P167	Clunis Drain	Permanent Stream	Access Road & Cabling	Crosses
30	P171C	Unnamed X Drain	Permanent Stream	Access Road & Cabling	Crosses
31	AHY057	White Drain	Intermittent Stream	Cabling	50
32	AHY059	Unnamed Drain	Intermittent Stream	Cabling	Crosses
33	AHY060A/B	McArthur East Drain	Permanent Stream	Cabling	10
				Cabling	10
34	AHY068	Clendening Drain	Permanent Stream	Cabling	Crosses
35	AHY070	Nesbitt Drain	Permanent Stream	Cabling	Crosses
36	AHY086	Neve Drain	Permanent Stream	Cabling	Crosses
37	AHY087	Archie Campbell Drain	Permanent Stream	Cabling	Crosses
38	AHY088	Unnamed Drain	Intermittent Stream	Cabling	Crosses
39	AHY089	Cumming Drain	Permanent Stream	Cabling	Crosses
40	AHY090	McArthur East Drain	Permanent Stream	Cabling	Crosses
41	AHY091	Nelles Extension Drain	Permanent Stream	Cabling	Crosses

Table 17. Water Body Observation Summary for Distances to Turbines (Figure 2-9)

Water Body Observation Number	Water Body Observation Label	Water body Name	Type of Water Body	Turbine Closest to Water Body	Shortest Distance between Water Body and Turbine Base (m)	Shortest Distance between Water Body and Project Location (m)
25	P004	McKay Drain	Permanent Stream	P004	53	4
26	P009	Rowe Drain	Permanent Stream	P009	69	20
30	P140	Nelles Extension Drain	Permanent Stream	P140	114	65
31	P167	Clunis Drain	Permanent Stream	P006	144	95
32	P171C	Unnamed X Drain	Permanent Stream	P171	75	26

Table 18. Water Body Observation Summary for Distances to Access Roads and Cabling (Figure 2-10)

Water Body Observation Number	Water Body Observation Label	Water body Name	Stream Designation	Type of Infrastructure within 120m of Water Body	Distance to Infrastructure (m)
1	P145A	McGregor Creek	Permanent Stream	Cabling	Crosses
2	P145B	McGregor Creek	Permanent Stream	Access Road	20
				Cabling	15
3	CAB001	Unnamed Drain	Permanent Stream	Cabling	Crosses

Table 19. Water Body Observation Summary for Distances to Turbines (Figure 2-10)

Water Body Observation Number	Water Body Observation Label	Water body Name	Type of Water Body	Turbine Closest to Water Body	Shortest Distance between Water Body and Turbine Base (m)	Shortest Distance between Water Body and Project Location (m)
2	P145B	McGregor Creek	Permanent Stream	P145	137	88

7.3 Site Investigation Results: Water Body Observations Containing Seepage Areas
 Twelve (12) water body observations located within the Project area were identified as seepages. The twelve (12) were declared seepage zones due to the presence of watercress (*Azorella sp.*). Details of these water bodies can be found in Table 20 below with site-specific information provided in subsection 7.2.

Table 20: Water Body Observations Containing Seepage Areas

#	Water body Observation Label	Water body Name	Type of Water Body	Type of Infrastructure	Distance to Infrastructure (m)	Turbine Closest to Water Body	Shortest Distance between Water Body and Closest Turbine
Figure 2-5							
17	CAB035B	Unnamed roadside ditch	Intermittent	Cabling	Crosses	P067	>120
Figure 2-6							
30	WB-Y6	O'Rourke Drain	Intermittent	Cabling	Crosses	P098	>120
32	CAB029	Unnamed Drain	Permanent	Cabling	Crosses	P060	>120
Figure 2-7							
5	WB-AR52	Fargo Branch Drain	Intermittent Stream	Cabling	Crosses	P046	>120
18	WB-F7	Barfoot Drain	Permanent Stream	Cabling	Crosses	P165	>120
Figure 2-8							
53	AHY054	English Drain	Permanent Stream	Cabling	12	P028	>120
55	AHY056	Brown Drain	Permanent Stream	Cabling	Crosses	P030	>120
Figure 2-9							
35	AHY060B	McArthur East Drain	Permanent Stream	Cabling	10	P140	>120
39	AHY087	Archie Campbell Drain	Permanent Stream	Cabling	Crosses	P139	>120
41	AHY089	Cumming Drain	Permanent Stream	Cabling	Crosses	P140	>120
42	AHY090	McArthur East Drain	Permanent Stream	Cabling	Crosses	P140	>120
43	AHY091	Nelles Extension Drain	Permanent Stream	Cabling	Crosses	P140	>120

8.0 Summary of Site Investigation

Comprehensive site investigations for the Project were undertaken in the fall 2010 and spring, summer, and fall of 2011 by NRSI Biologists. These site investigations included site-specific habitat assessments of aquatic water bodies throughout the Project area.

Similar to the Records Review no lakes or lake trout lakes were observed within the Project area. Overall 344 Water Body Observations were made of which 243 permanent and intermittent streams were identified. Although 243 streams were identified there were numerous cases of streams crossing the site boundaries at a number of different locations. These totals were summarized using Tables 3 to 10 from Subsection 7.2. Table 21 below provides a comprehensive summary of the number of Water Bodies located within the Project area that are adjacent to or crossing Project components while Table 22 summarizes water body sections within 120m of turbines.

Table 21: Water Body Sections within the South Kent Wind Project Area

Table Number	Number of Water Body Sections Within the Project Area			Number of Water Body Sections CROSSING a Project Component		
	Access Road	Cabling	Access Road and Cabling	Access Road	Cabling	Access Road and Cabling
3	0	10	2	0	1	4
5	9	24	8	3	19	11
7	4	31	3	0	26	8
9	5	13	4	0	39	7
11	0	4	0	0	1	0
12	6	28	1	0	46	17
14	5	21	7	0	32	17
16	1	13	1	0	23	9
18	1	1	0	0	2	0
Total	31	145	26	3	189	73

Table 22: Water Body Sections within 120m of a Turbine

Table Number	Turbine Labels	Number of Water Body Sections within 120m of a Turbine	Number of Water Body Sections within 30 m of a Turbine Base	Number of Water Bodies within 30 m of Project Location
4	P070, P087, P174	3	0	1
6	P116, P132, P081, P080, P115, P122, P071, P072, P075, P082	10	0	1
8	P068, P148	2	0	0
10	P164 (x2), P063, P097, P060, P100, P111, P149	8	0	2
13	P052, P058, P044, P056, P040 (x2), P041, P055, P033, P031, P108, P036, P046, P057, P109 (x2), P120	17	0	5
15	P152, P093, P017, P012, P028, P030, P135, P155	8	0	3
17	P004, P006, P009, P140, P171	5	0	2
19	P145	1	0	0
Total	51	54	0	14

As shown in Table 22, a total of 54 water body sections (permanent and intermittent streams) were found within 120m of a turbine. Of those none are within 30 m of a turbine base and 14 are within 30 m of turbine blade tips. There are 51 different turbines located within 120 m of a water body (measured from the blade tips). Details of these water bodies can be found in Tables 3 - 19 in subsection 7.2.

Lastly, twelve (12) seepage areas were observed and are identified in Subsection 7.3.

The results of these site investigations will be used, in conjunction with the records review, to identify potential impacts associated with the proposed development activities for the Project. These potential impacts, along with recommended mitigations measures, will be addressed in a subsequent report, *South Kent Wind Project: Water Body Environmental Impact Study (NRSI, 2012b)*.

9.0 References

- Environmental Protection Act. 2009. Ontario Regulation 359/09 Renewable Energy Approvals under part V.0.1 of the Act.
- Holm, E., N. Mandrak, and M. Burrige. 2009. The ROM field guide to freshwater fishes of Ontario. Royal Ontario Museum Science Publication. Toronto, Ontario. 462 pp.
- Natural Resource Solutions Inc. (NRSI). 2012a. South Kent Wind Project: Water Body Records Review Report. Prepared for Hatch Ltd. March 2012.
- Natural Resource Solutions Inc. (NRSI). 2012b. South Kent Wind Project: Water Body Environmental Impact Study. Prepared for Hatch Ltd. March 2012.
- Newmaster, S.G., A.G. Harris, and L.J. Kershaw. 1997. Wetland plants of Ontario. Lone Pine Publishing. Edmonton, Alberta.

Appendix I
Site Investigation Field Notes



NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

BASIC AQUATIC HABITAT CHARACTERIZATION

Project: 1184 SOUTH KEAT

Location: SOUTH OF CHATHAM

Date: SEPT. 8/10

Staff: D. CALHOUN, S. MURRAY

Weather: OVERCAST WIND 4, CLOUDS 90% Av Temp 20°C @ 13:20

Page: 1 of 1

HABITAT FORM

8 = SIC
10 = SIC
11 = FISH

USE
"LF"

See 'N'
HAB.F.

Loc'n No.	Watercourse Name	Photos		Natural Corridor		Channel Morphology		Vegetation		Flow Conditions
		US	DS	Veg. Type	Width (m)	Type	Width (m)	Bank	Channel	
X A	UNKNOWN	—	1	DECIDUOUS TREES SW - RESIDENCE GR	NW 50' SW 50'	DRAIN	2	TR - CEDAR HE - VINES	BARE	DRY
X B	unknown	NW 2	SE 3	GR		DRAIN	1.5	GR	GR TYPHA	Dry
X C	Unknown	—	SW 4	TR HE - Golden Rod		DRAIN	1	HE - Golden Rod	GR HE	Dry
✓ D	Unknown	NW 5	SE 6	GR HE		us - channelized ds - drain	2.5	HE - Golden Rod GR	BARE	very turbid slow 16°C
✓ E	unknown	NW 7	SW 8 NE 9	GR		DRAIN	1.5	HE GR	F. meadow High	Standing / difficult to tell
✓ F	Unknown	EP 12	—	GR		DRAIN	1.5	GR HE	GR	Moist / Standing water @ culvert
X G	unknown	S 13	—	GR		DRAIN	1	HE GR	TYPHA	Dry
X H	unknown	NW 14	SE 15	GR		DRAIN	1.5	HE GR	GR HE	Dry
X I	unknown	N 16	S 17	GR HE		DRAIN	1.5	HE	TYPHA	Moist
✓ J	unknown	N 18	S 19	TR - Blue Oak HE GR		DRAIN	1.5	HE	GR TYPHA	Dry
✓ K	Unknown (Sewer's Creek?)	N 20	S 21	GR HE - Golden Rod		DRAIN (Meanders @ US)	1.5	HE - Golden Rod GR	TR - Willow GR	Dry
✓ L	unknown	S 22	N 23	TR HE SH		DRAIN	1.5	HE GR SH	GR Detritus	Dry
✓ M	Unknown	S 24	N 25	HE GR		DRAIN	1	HE - Golden Rod	HE	Dry
X Li	unknown	—	26	TR - Cedar GR HE		DRAIN	2	HE - Golden Rod	Bare + woody debris	Dry
✓ N	unknown	N 27	S 28	TR - HE Golden Rod SH		DRAIN (Bridge)	2.5	HE - Golden Rod TR - Willow	Detritus + little woody debris	Dry in spots water in pools
— O	Unknown	—	29	TR HE vines		DRAIN (B. dge)	4	TR HE	Bare	Dry under pockets & under bridge
X P	unknown	S 30	N 31	GR TR concrete		DRAIN (concrete culvert)	1.5 (HW)	HE SH	Bare channel & patches of grass	Dry
X Qi	unknown	S 32	N 33	TR HE		DRAIN (concrete culvert)	2 (HW)	SH HE	Bare channel & patches of grass	Dry

TR TREE
SH GRASS
HE WETLAND
GR GRASS

DITCH
DRAIN
NATURAL
NATURALIZED
CHANNELLED

cluckweed



NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

BASIC AQUATIC HABITAT CHARACTERIZATION

Project: 1184 South Kent

Location:

Date: Sep. 9 '10

Staff:

Weather:

Page: ___ of ___

HAB Form

Loc'n No.	Watercourse Name	Photos		Natural Corridor		Channel Morphology		Vegetation		Flow Conditions
		US	DS	Veg. Type	Width (m)	Type	Width (m)	Bank	Channel	
X Q:i	unknown	E 34	—	GR	8	Drain	1 1.5(HW)	HE-Golden Rod PHRAGMITES	Bare & TYPHA	Dry
X R	unknown	S 35	N 36	E-Woodlot W-HE, GR	7	Drain (concrete culvert)	1.5 2.5(HW)	HE GR	BARE	Dry
✓ S	unknown	S 38	N 37	GR	15	Drain	2	HE GR SH	BARE	Dry
X T	unknown	N 42	S 41	GR	5	Drain (Bridge)	1	HE-Golden Rod SH-Willow	Overgrown Tyrph	Meist water under bridge
X U	unknown	N 43	S 44	GR	5	Ditch	.5 1(HW)	GR	BARE	Dry
✓ V:	unknown	N 44	S 45	GR-North HE/Crops-South	15	Drain	.5 1.5(HW)	HE-Golden Rod	BARE	Still
X Vii	unknown	W 46	E 47	HE-North GR-South	4.5	Ditch	2(HW) 1	GR	Overgrown grasses	Dry
✓ W	unknown	E 48	W 49	TR- HE	15	Drain	4(HW) 3	HE-Golden Rod SH-Willow	BARE? (Tyrph)	Standing water (Tyrph)
X X	unknown	E 51	W 52	HE-Queen annes -Clover	3	Ditch	75cm 50cm(HW)	HE-Queen annes -Clover	BARE GR	Dry
✓ Y	unknown	S 53	N 54	GR HE-Golden Rod	13	Drain	5(HW) 3	HE-Golden Rod -Golden Rod	BARE -duckweept.	Standing water
X Zi	unknown	S 55	N 56	GR TR	7	Drain	2.5(HW) 2	HE-Golden Rod SH	BARE	Dry
X Zii	unknown	E 56	W 57	GR HE-Golden Rod	7	Drain	2(HW) 1.5	SH-Willow HE	overgrown grasses TYPHA	Dry
X Ziii	unknown	S 58	—	GR TR	10	Drain	1.5 2(HW)	HE +PHRAGMITES SH	overgrown PHRAGMITES	Dry
X AA	unknown	E 59	W 60	GR HE-Golden Rod	8	Drain	1	HE-Golden Rod -Dill	TYPHA GR Bare	Dry
X BB	unknown	E 63	W 64	GR HE	4	Ditch	.75(HW) .5	GR	BARE	Dry
X CC	unknown	E 65	W 66	GR	5	Ditch	.75(HW) .5	GR HE-Clover -Inistle	BARE	Dry
X DD	unknown	E 67	W 68	GR, HE	15	Drain	4(HW) 2	GR HE-Golden Rod	BARE	Dry
X EE	unknown	E 68	W 69	GR	8	Drain	2 1(HW)	HE-Golden Rod GR	BARE TYPHA	Dry

406187
416970

406187
416970



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BASIC AQUATIC HABITAT CHARACTERIZATION

Project: 1184 South Kent Location: Chatham Kent Date: Sep. 10/10
 Staff: D. Calhoun S. Murray Weather: Sunny, 20°C @ 10:53 AM wind 3 Page: 3 of 3
 70% Cloud

HAB Form

same form

same

sep. 15/10

#11 Jog U.S.

Loc'n No.	Watercourse Name	Photos		Natural Corridor		Channel Morphology		Vegetation		Flow Conditions
		US	DS	Veg. Type	Width (m)	Type	Width (m)	Bank	Channel	
FFi	unknown	5 70	-	HE GR	7	Drain	3 (4-w) 1	GR HE	BARE w GR	Dry
FFii	unknown	E 71	W 72	GR	7	Drain (Roadside)	3 (4-w) 1.5	HE PHRAGMITES GR	BARE w OR	Dry
GGi	unknown	S 73	N 74	TR - Deciduous GR	15	Drain	1.5 (HW) 2.5	HE GR	BARE	Standing water Turbid
GGii	unknown	W 75	-	TR - Mixed GR	5	Drain	.5 (HW) 1m	HE GR	BARE w grasses	Dry
X HH	unknown	N 76	S 77	GRASS	7	ROADSIDE DITCH	0.5 ^{HW} DS	GRASS	BARE	Dry
X II	unknown I to road	SW 78	SE 79	HE - Golden Rod GRASS	20	Drain	1 (HW) 2	HE - Golden Rod SH - Sumack	Water cress - small Reed Sumack	Very slow flow SW
✓ Ji	unknown	N 80	S 81	GRASS SH - Willow, wild grape	25	Drain naturalized channel	2.5 (HW) 2.5	HE - Golden Rod GR	Water cress	Very slow flow SW
✓ Jii	unknown	E 82	W 83	GRASS	12	Drain	3 (HW) 2	Phragmites SH - Willow	Phragmites	Dry
X KK	unknown	E 84	-	Tree - Oak Chimaphila, Rab GR	7	Drain	1.5 (HW) 1	HE - Golden Rod	Bare w Detritus	Dry
✓ LLi	unknown	N 2	S 3	TR - Cedar, elm HE - Golden Rod	10	Drain	1.5 (HW) 2.5	HE - Golden Rod GR	Bare	Very slow flow N
✓ LLii	unknown	E 4	W 5	TR - Cedar, Elm HE - Golden Rod	5	Drain	1 (HW) 1.5	GR HE	Bare w grass	Dry
X MM	unknown	N 6	S 7	GR HE - Golden Rod	8	Drain	1 (HW) .5	TYPHA HE - Golden Rod	Bare	Dry (North) Moist @ Culvert (S)
X NN	unknown	E 8	W 9	TR GR, HE - Golden Rod	15	Drain	3 (HW) 2	SH GR HE - Golden Rod	Bare w wood, debris	Dry
X OO	unknown	S 10	N 11	TR - Cedar, Elm GR	10	Drain	2 (HW) 1	HE - Golden Rod GR SH	Bare Typha (US)	Dry
X PPi	unknown	E 12	W 13	GRASS	10	Drain	2 (HW) 1.5	HE - Golden Rod TYPHA SH	Bare (some water cress)	Dry with Moist areas
X Ppii	unknown	E 14	W 15	GR HE - Golden Rod	5	Drain	.5 (HW) 1	HE - Golden Rod SH	Bare w grasses	Dry
✓ QQ	unknown	S 16	N 17	GRASS	15	Drain	4 (HW) 2	HE - Golden Rod Grasses	Bare w grasses	Standing water
X RR	unknown	E 22	W 23	GR TR - Cedar & Oak	12	Drain	3 (HW) 1.5	HE - Golden Rod SH - Willow	Bare	Standing water under culvert



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BASIC AQUATIC HABITAT CHARACTERIZATION

Project: 1184 South Kent Location: Chatham / Kent Date: Sep. 13/10
 Staff: S. Murray Weather: Sunny, 28°C, 5% cloud, Wind 12 Page: ___ of ___

Loc'n No.	Watercourse Name	Photos		Natural Corridor		Channel Morphology		Vegetation		Flow Conditions
		US	DS	Veg. Type	Width (m)	Type	Width (m)	Bank	Channel	
X 99	unknown	E 24	W 25	Grass	2.5	Ditch	1 (HW)	Grass	Bare w Grass	Dry
X TTi	unknown	S 27	N 26	HE-Golden Rod SH-Sumack	17	Drain	1.5 (HW)	GR HE-Golden Rod	BARE	Muddy under cement culvert - other -> DRY
X TTi	unknown	E 28	W 29	GR HE-Golden Rod	4	Drain	1 (HW) 0.5	GR HE-Golden Rod	BARE w Grass	Dry
X Ull	unknown	S 20	N 31	Grass TR	8	Drain	1 (HW) 1.5	GR HE-Golden Rod	Bare w grass & TYPHA	Standing water @ North culvert
X VV	unknown	SW 32	-	GR HE-Golden Rod TR- Poplar	10	Drain	3 (HW) 2	HE-Golden Rod SH-GR	Pirragmites Typha	Dry
X WW	unknown	E 34	W 35	GR, SH TR-Cedar	5	Ditch (roadside)	1 (HW) 0.5	GR TR-Cedar	Bare w Grasses	Dry
X XXI	unknown	S 36	N 37	HE-Golden Rod GR	18	Drain	3 (HW) 2.5	HE-Golden Rod GR	Bare w grasses	Dry
X XXii	unknown	-	W 38	GR TR-Cedar	8	Drain	2 (HW)	HE-Golden Rod GR, TR-Cedar	Bare w grasses	Dry
✓ YYi	unknown	S 39	N 40	GR HE-Golden Rod	20	Drain	4 (HW) 3	GR TR HE-Golden Rod	Bare w grasses	Dry Standing water @ vert
✓ YYii	unknown	E 41	W 42	Grass	10	Drain	1 (HW) 1.5	Grass/Bare HE-Golden Rod	Bare	Dry
X ZZ	unknown	SE 43	N 44	TR-Cedar, Bur oak Grass	13	Drain	1.5 (HW) 2	TR-Cedar GR Jeweled Red HE-Golden Rod	Bare w TYPHA	Dry w Standing pool @ culvert
✓ AAA	unknown	S 45	N 46	TR-Willow HE-Golden Rod	12	Drain	4 (HW) 1.5	HE-Golden Rod SH	Bare w detritus	Dry
X BBB	unknown	S 47	N 48	HE-Golden Rod GR	10	Drain	1.5 (HW) 0.5	HE-Golden Rod GR, SH	Bare w grass	Dry
X CCC	unknown	-	N 49	HE-Golden Rod TR	10	Drain	1 (HW)	TR HE-Golden Rod	Bare w TYPHA	Dry
X DDD	unknown	E 50	W 51	HE-Golden Rod GR	6	Drain	1 (HW) 0.5	GR HE-Golden Rod	Bare w grass	Dry
✓ EEEi	unknown	-	W 52	GR TR HE-Golden Rod SH-Willow	18	Drain	3 (HW) 2	HE-Golden Rod GR, SH-Willow	Bare	Standing water
✓ EEEii	unknown	S 54	N 55	Grass	6	Ditch	0.5 (HW) 1	Grass SH-Willow	Bare w grass	Dry
X FFF	unknown	S 56	N 57	GR TR-Cedar oak Maple	8	Drain (Normal South North also under?)	0.5 (HW) 1.5	HE-Golden Rod TR-Cedar oak Maple	Bare w woody debris	Dry



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BASIC AQUATIC HABITAT CHARACTERIZATION

Project: 1184 Saut Kent

Location: Chatham / Kent

Date: Sep 14 '10

Staff: S Murray

Weather: 17°C @ 11:11, Sunny, Wind: 11, Cloud: 0%

Page: ___ of ___

HAB Form

North to 75' E of 1184

Loc'n No.	Watercourse Name	Photos		Natural Corridor		Channel Morphology		Vegetation		Flow Conditions
		US	DS	Veg. Type	Width (m)	Type	Width (m)	Bank	Channel	
X GGG	unknown	S 58	N 59	TR-Cedar SH	11	Drain	.5 (HW) 1	HE-Golden Rod SH	Bare but overgrown TYPHA + HE	Dry
V HHH	unknown	S 60	N 61	TR-Maple, GR SH, Sunnack	15	Drain	4 (HW) 1m	HE-Golden Rod SH-Sunnack	Bare w grass	Dry w some small pools of standing water
III	unknown	S 63	N 64	TR-Oak Grass	6	Drain	2 (HW) 1	GR HE-Golden Rod	Bare w woody debris	Dry
	unknown	W 64	S 65	Grass	12	Drain	3 (HW) 2	HE-Golden Rod TR-Cedar	Arrowhead TYPHA	standing water
	unknown	N 66	E 67	Grass	4	Ditch	1 (HW) .5	GR HE-Golden Rod	Bare w Grass	Dry
X KKK	unknown	N 67	S 68	GR HE-Golden Rod	5	Drain	.5 (HW) 1.5	TYPHA + Phragmites HE-Golden Rod	Bare w TYPHA + Phragmites	Dry
V LLL	unknown	S 69	E/W 70/71	GR HE-Golden Rod	8	Drain	2 (HW) 2	HE-Golden Rod SH-Sunnack	Covered in duckweed	standing water
X MMM	unknown	W 73	E 74	Grass	3.5	Ditch	.5 (HW) .5	HE-Golden Rod Grass	Bare w grass	Dry
V NNN	unknown	S 75	N 76	TR-Willow, PSH GR HE-Golden Rod	15	Drain	2 (HW) 1.5	HE-Golden Rod GR	Bare	standing water
V OOO	unknown	S 77	N 78	GR TR-Maple	12	Drain	3 (HW) 1.5	SH-Willow La Sunnack HE-Golden Rod	Bare	very slow flow
X PPP	unknown	S 79	N 80	GR, TR HE-Golden Rod	16	Drain (goes under on North side)	3 (HW) 1.5	SH-Willow, Sunnack HE-Golden Rod Jewelweed	Bare w woody debris	Dry / standing water @ culvert on N side
V QQQ	unknown	S 81	NW 82	TR-Mixed GR, HE-Golden Rod	17	Drain	3 (HW) 2	HE-Golden Rod TR-Mixed	Bare	Dry (North-west) standing water (South-east)
X RRR	unknown	S 83	N 84	HE-Golden Rod SH-Willow, GR	15	Drain	2.5 (HW) 2	HE-Golden Rod GR, SH-Willow	Bare w woody debris	Dry
V SSS	unknown	S 85	N 86	HE-Golden Rod GR, TR, SH	12	Drain	1 (HW) 2	HE-Golden Rod Jewelweed	Bare w woody debris	Dry
X TTT	unknown	N 88	S 89	Grass	6	Drain	.5 (HW) 1.5	Grass	Bare w Grass	Dry
X UUU	unknown	N 90	S 91	Grass HE-Golden Rod	15	Drain	3 (HW) 1.5	HE-Golden Rod wild Grape	Bare but overgrown w grass + HE (GR)	Dry
X VVV	unknown	E 92	W 93	HE-Golden Rod Grass	7	Drain	1 (HW) 1.5	SH-Sunnack HE-Golden Rod	Bare w GR + HE	Dry
X WVV	unknown	N 94	S 95	Grass	4	Ditch	.5 (HW) .5	Grass	Grass	Dry



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BASIC AQUATIC HABITAT CHARACTERIZATION

Project: 1184 South Kent Location: Chatham / Kent Date: Sep 15 '10
 Staff: S. Murray Weather: Sunny, 17°C @ 10am, 0% Cloud wind: 2 Page: ___ of ___

Habitat Form

Loc'n No.	Watercourse Name	Photos		Natural Corridor		Channel Morphology		Vegetation		Flow Conditions
		US	DS	Veg. Type	Width (m)	Type	Width (m)	Bank	Channel	
X WWI	unknown	96	-	GR TR	6	Drain (dry under overgrown)	1 (HW) .5	HE-Golden Rod	Bare w grass	Dry
X WWII	unknown	97	946	GR HE-Golden Rod	9	Drain	1 (HW) .5	HE-Golden Rod SH, Grass	Bare	Dry
V XXXI	unknown	99	100	GR, SH (Sumack) HE-Golden Rod	12	Drain	3 (HW) 1	HE-Golden Rod GR SH (Sumack)	Bare w grass	Dry
V XXXII	unknown	102	-	Grass	8	Drain	2 (HW) 1	GR TR-cedar HE-Golden Rod	Bare w grass	Dry
XXXIII	unknown	101	-	Grass	5	Ditch	1.5 (HW) .5	Grass	Bare w grass	Dry
V YYYI	unknown	102	103	HE-Golden Rod Grass	8	Drain	2.5 (HW) .5	Grass HE-Golden Rod	Bare	Dry
YYYII	unknown	104	105	Grass HE-Golden Rod	5	Drain	1 (HW) .5	Grass HE-Golden Rod	Bare w Phragmites	Dry
V ZZZ	unknown	106	107	Grass HE-Golden Rod	8	Drain	1.5 (HW) 1	HE-Golden Rod SH	Typha	Standing turbid water
X AAAA	unknown	108	-	HE-Golden Rod	5	Drain	.5 (HW) .5	HE-Golden Rod	Bare	Dry
X BBBB	unknown	104	110	Grass w weed HE-Golden Rod	8	Drain	1.5 (HW) 1	HE-Golden Rod	Bare w Typha	Dry
X CCCC	unknown	111	112	Grass	3	Ditch	.5 (HW) .5	Grass	Grass	Dry
X DDDD	unknown	113	114	HE-Golden Rod SH, GR	7	Drain	1 (HW) 1	HE-Golden Rod Grass	Bare w woody debris + HE	Dry
X EEEE	unknown	115	116	HE-Golden Rod TR, GR	10	Drain	1 (HW) 1.5	HE-Golden Rod Grass	Bare w Typha	Dry
X FFFF	unknown	117	118	Grass (N → TR, HE, SH)	5	Drain	.5 (HW) .5	Grass (N → HE, TR, SH)	Bare w grass	Dry
X GGGG	unknown	119	120	Grass	7	Drain	.5 (HW) 1	Grass	Bare w Typha	Dry
V HHHI	unknown	121	-	HE GR	8	Drain	1 (HW) .5	SH HE-Golden Rod	Bare w Grass	Dry
V HHHII	unknown	122	123	Grass	15	Drain	3.5 (HW) 1.5	Grass HE-Golden Rod	Bare	Dry
IIII	unknown	124	-	Grass	11	Drain	.5 (HW) 1	Grass HE-Golden Rod	Bare w Phragmites	Dry



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Aquatic, Terrestrial and Wetland Biologists

BASIC AQUATIC HABITAT CHARACTERIZATION

Project: 1184 South Kent. Location: Chatham / Kent Date: Sep. 15 '10
 Staff: S. Murray Weather: Sunny, Wind: 2, 0% cloud Page: ___ of ___

Loc'n No.	Watercourse Name	Photos		Natural Corridor		Channel Morphology		Vegetation		Flow Conditions
		US	DS	Veg. Type	Width (m)	Type	Width (m)	Bank	Channel	
X JJJJii	unknown	N 125	S 126	grass	8	Drain	.5 (HW)	Grass HE-Golden Rod	Bare w Phragmites	Dry
X WWW	unknown	S 127	N 128	grass	4	Drain (goes under on north side) (weird)	.5 (HW)	grass HE	Bare w Grass	Dry
KKKKi	unknown	E 129	W 130	HE-Golden Rod GR	7	Drain	1 (HW)	GR HE-Golden Rod	BARE	Dry
KKKKii	unknown	N 131	S 132	Grass	7	Drain	1 (HW)	Grass	BARE	Dry
LLLLi	unknown	N 130	S 131	HE-Golden Rod #	10	Drain	2 (HW)	HE-Golden Rod Grass	Bare w Grass+HE	Dry
LLLLii	unknown	E 135	-	Grass HE-Golden Rod	8	Drain	.5 (HW)	Grass HE-Golden Rod	Bare w Typha	Dry
LLLLiii	unknown	W 136	-	Grass	4	Ditch	.5 (HW)	Grass	Bare w Grass	Dry
MMMM	unknown	N 137	S 138	Grass Shrub tree	15	Drain	2 (HW) 1.5	SH HE-Golden Rod	Bare w Grass	Mucky (raining)
NNNN	unknown	N 139	S 140	Shrub - E (weird) TR-oak cedar	13	Drain *SAR	3 (HW)	HE-Golden Rod	Bare w Typha & Grass	Mucky (raining) Standing pool @ culvert
OOOO	unknown	N 141	S 142	GR - not much HE-Golden Rod	7	Drain *SAR	1 (HW)	HE-Golden Rod	Bare	Mucky (rain)
PPPP	unknown	E 144	W 145	Grass	4	Ditch	.5 (HW) .5	Grass TR-Cedar	Bare w Grass	Dry
QQQQ	unknown	E 146	W 147	Grass	7	Drain	2 (HW)	Grass	Bare w Typha & Phragmites	Dry
RRRRi	unknown	N 148	-	Grass SH HE-Golden Rod	8	Drain	.5 (HW)	HE-Golden Rod SH - saw weed	Bare w Grass	Standing water @ culvert
RRRRii	unknown	E 149	-	Grass HE-Golden Rod	8	Drain	2 (HW)	HE-Golden Rod SH - Sumac like	Bare w Grass & Typha	Standing water @ culvert
SSSS	unknown	E 150	W 151	TR-Mixed Grass	10	Drain *SAR	1 (HW) 1.5	TR-Mixed, SH HE-Golden Rod	Bare w Grass & Typha	Dry
TTTTi	unknown	N 152	-	Grass HE-Golden Rod	11	Drain *SAR	2.5 (HW) 2	Grass HE-Golden Rod	Bare w Typha & grass	Dry
TTTTii	unknown	E 153	W 154	Grass TR-Mixed	7	Drain *SAR	2.5 (HW)	Grass SH, HE - Junk	Bare w Typha & grass	Dry
UUUU	unknown	N 155	S 156	Grass TR-Mixed	18	Drain	1 (HW) 2	Grass HE-Golden Rod	Bare w	Standing water

SEP 16 '10
136-138 deleted

143 Lb boundary



NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

BASIC AQUATIC HABITAT CHARACTERIZATION

53, 54 | 99, 104, 107, 108, 114, 110-118
 ✓ 42, 43, 44, 45, 46, 47, 51, 116-118, 104, 106, 107, 108, 99

Project: 1184 Soud Kent Location: Chatham / Kent Date: Sep. 16 '10
 Staff: S. Murray Weather: 100% Cloud, Wind: 3, Temp: 18°C @ 11:45 Page: ___ of ___

Loc'n No.	Watercourse Name	Photos		Natural Corridor		Channel Morphology		Vegetation		Flow Conditions
		US	DS	Veg. Type	Width (m)	Type	Width (m)	Bank	Channel	
X VVV	unknown	N 157	-	SH TR-Mixed	3	Drain	.5 (SHW) .5	Bare w little grass	BARE	Dry
X NNNW	unknown	N 158	S 159	GR TR HE-Golden Rod	7	Drain	1 (HW) 1	HE-Golden Rod GR Rod	Bare w grass	Dry
X XXXX i	unknown	N 160	S 161	Grass	5	Drain	.5 (HW) 1	SH Grass	Bare w Typha	Dry
X XXXX ii	unknown	E 162	-	Grass	6	Drain	.5 (HW) 1	SH Grass	Bare w Typha & Phragmites	Dry
X YYY	unknown	NE 163	-	Grass HE-Golden Rod	10	Drain	.5 (HW) 1.5	Grass HE-Golden Rod	Bare w Typha	Dry
X ZZZZ	unknown	NE 164	SW 165	Grass	8	Drain	.5 (HW) 1	Grass HE-Golden Rod	Bare w Grass	Moist (from Rain)
X A5	unknown	E 166	W 167	Grass	2.5	Ditch	.25 (HW) .5	Grass	Bare w Grass	Dry
X B5	unknown	NW 168	SE 169	Grass	10	Drain	2 (HW) 1	Grass HE-Golden Rod	Bare w Typha	Dry
X C5	unknown	N 170	S 171	Grass	10	Drain	1 (HW) 2 (HW)	Grass HE-Golden Rod	Bare w Typha	Dry standing water @ culvert
X D5	unknown	N 172	S 173	Grass, TR HE-Golden Rod	10	Drain	1 (HW) 1	Grass HE-Golden Rod	Bare w Typha & Grass	Dry
X E5 i	unknown	N 174	-	Tree-Mixed Grass	8	Drain	1 (HW) 2	Grass HE-Golden Rod	Bare w Grass & HE	Dry
X E5 ii	unknown	E 175	-	TR-Mixed	6	Drain	1 (HW) 1.5	HE-Golden Rod GR, TR/SH	Bare w GR & HE	Dry
X G5	unknown	E 176	W 177	Grass TR-Mixed	6	Drain	2 (HW) 1.5	HE-Golden Rod GR	Bare w Grass	Dry
X H5	unknown	N 178	S 179	Grass HE-Golden Rod	8	Drain	1 (HW) 1.5	GR HE-Golden Rod	Bare w Grass	Dry
X I5	unknown	E 180	W 181	GR TR-Mixed	25	Drain	4 (HW) 3	GR, SH (swamp) HE-Golden Rod	Bare	Moist (Rain)
✓ J5	unknown	N 182	S 183	GR TR-Mixed	15	Drain	2 (HW) 1.5	GR HE-Golden Rod	Bare	Dry standing water @ culvert
✓ K5	unknown	N 184	S 185	Grass SH	8	Drain	1 (HW) 1	GR HE-Golden Rod	Bare w Typha	Dry
✓ L5	unknown	E 187	W 186	TR SH, GR	14	Drain	.5 (HW) 1	SH, HE-Golden Wild Grape Rod	Bare	standing water

Sep. 17/10

23, 24
3, 27-28



NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

BASIC AQUATIC HABITAT CHARACTERIZATION

Project: 1184 South Kent Location: Chatham / Kent Date: Sep. 17
 Staff: S. Murray Weather: Sunny, Wind: 1, Cloud 50%, temp 12°C @ 8:22 Page: ___ of ___

Hab form	Loc'n No.	Watercourse Name	Photos		Natural Corridor		Channel Morphology		Vegetation		Flow Conditions
			US	DS	Veg. Type	Width (m)	Type	Width (m)	Bank	Channel	
X	M5	unknown	N 188	S 189	GR HE-Golden Rod	12	Drain	1.5(HW)	GR HE-Golden Rod HE-Jewelweed	Bare	Dry
✓	N5	unknown	N 190	S 191	Grass	6	Drain	1.5(HW)	GR HE-Golden Rod	Bare w Typha	Dry
✓	O5	unknown	N 192	S 193	HE-Golden Rod TR-Mixed	30	Drain	1.5(HW)	HE-Golden Rod HE-Jewelweed SH Grass	Bare	Standing water
✓	P5	unknown	N 195	S 194	HE-Golden Rod	18	Drain	2(HW) 3m	HE-Golden Rod SH-Sumack Grass	Bare	Standing water
X	Q5	unknown	N 196	S 197	TR-Mixed Grass SH-Sumack	6	Drain	1(HW)	HE-Golden Rod Grass	Bare w Typha	Dry
X	R5	unknown	N 1	SE 2	GR TR-Mixed	8	Drain (roadsides)	1.5 0.5(HW)	HE-Golden Rod GR	Bare w Phragmites	Dry
X	S5	unknown	E 3	W 4	Grass	5	Ditch	0.5	Grass	Bare w grass	Dry
✓	T5	unknown	N 5	S 6	SH-Sumack TR-Mixed	12	Drain	2(HW) 3	Grass HE-Golden Rod	Bare	Dry w standing pool
✓	U5	unknown	N 7	S 8	TR-Mixed SH-Sumack GR	12	Drain	1.5(HW)	HE-Golden Rod Grass	Bare w Grass	Very slow flow (south)
X	V5	unknown	N 9	S 10	Grass	6	Drain (filled?)	0.5(HW) 0.5	HE-Golden Rod Grass	Bare w Grass	Dry
✓	W5	unknown	N 11	S 12	TR-Mixed Grass	10	Drain	1.5(HW) 0.5	HE-Golden Rod Grass	Watercress	Standing water
X	X5	unknown	N 13	S 14	TR-Mixed GR HE-Golden Rod	10	Drain	1(HW) 1	HE-Golden Rod GR SH Jewelweed	Bare	Standing water
X	Y5	unknown	N 15	-	HE-Golden Rod SH, TR, GR	7	Drain	1(HW) 0.5	HE-Golden Rod Grass	Bare w Phragmites	Dry
X	Z5	unknown	N 16	-	TR-Mixed, GR SH, HE-Golden Rod	14	Drain	0.5(HW)	HE-Golden Rod Grass	Bare w Phragmites	Mucky (or otherwise) cuvvert (Dry)
X	A6	unknown	N 17	S 18	HE-Golden Rod SH, GR	14	Drain	1(HW) 2	HE-Golden Rod Grass	Bare w Typha	Dry
✓	B6	unknown	N 19	S 20	HE-Golden Rod Grass	16	Drain	2.5(HW) 1	HE-Golden Rod Grass SH(Willow)	Bare	Dry except standing pool @ cuvert
✓	C6	unknown	N 21	S 22	TR-Mixed Grass	15	Drain	2.5(HW) 1.5	HE-Golden Rod Grass Jewelweed	Bare w Typha	Dry except standing water @ cuvert
X	D6	unknown	N 25	-	Grass TR-Mixed	11	Drain	2(HW) 1.5	HE-Golden Rod Jewelweed SH, GR	Bare w Typha	Dry



NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

BASIC AQUATIC HABITAT CHARACTERIZATION

Project: 1184 South Kent Location: Chatham / Kent Date: Sep. 22 '10
 Staff: S. Murray Weather: Rain, 100% Cloud, Wind: 0, Temp 18°C Page: ___ of ___

Loc'n No.	Watercourse Name	Photos		Natural Corridor		Channel Morphology		Vegetation		Flow Conditions
		US	DS	Veg. Type	Width (m)	Type	Width (m)	Bank	Channel	
X E6	unknown	N 23	S 24	TR-Mixed, GR HE-Golden Rod	11	Drain	1.5 (HW)	HE-Golden Rod Grass	Bare to Tupelo	Dry
✓ F6	unknown	NW 26	SE 27	TR-Mixed GR, HE-Golden Rod	25	Drain	4.5	HE-Golden Rod GR, SH (Sumack)	Bare to detritus	Standing water
X G6	unknown	S 28	-	Grass	5	Drain	1 (HW)	HE- Grass	Bare to grass	Dry
✓ H6	unknown	N 29	S 30	TR-Mixed Grass	18	Drain	3 (HW)	HE-Golden Rod Grass	Bare	standing water
✓ I6	unknown	SE 31	NW 32	Grass HE-Golden Rod	10	Drain	2 (HW)	HE-Golden Rod Grass	Bare to grass	Dry
✓ J6	unknown	NW 33	SE 34	Grass HE-Golden Rod	8	Drain	1 (HW)	HE-Golden Rod Grass	Bare to grass	Dry
✓ K6	unknown	N 35	S 36	Grass, TR HE-Golden Rod	20	Drain	2.5	Grass HE-Golden Rod	Bare	Slight flow north
X L6	unknown	NW 37	NE/SE 38/39	Grass HE-Golden Rod	10	Drain	1.5 (HW)	Grass HE-Golden Rod	Bare	Dry except standing water
X M6	unknown	NW 40	-	Grass HE-Golden Rod	10	Drain	1 (HW)	Grass HE-Golden Rod	Bare to Spartan watercress	standing water Dry
✓ N6	unknown	NW 41	SE 42	TR-Cedar/Dune HE-Golden Rod Grass	10	Drain	1.5	Grass HE-Golden Rod	Bare to grass/Tupelo	standing water
X O6	unknown	W 43	E 44	Grass	2	Ditch	.5 (HW)	Grass	Grass	Dry
X P6	unknown	NE 45	SW 46	Grass	5	Drain	.5 (HW)	HE-Golden Rod Grass	Grass	Dry
X Q6	unknown	SE 47	NW 48	Grass	3	Ditch	.5	Grass	Grass	Dry
X R6	unknown	NE 49	SW 50	Grass HE-Golden Rod	4	Drain	.5 (HW)	Grass HE-Golden Rod	Bare to P. magnifera	Dry
X S6	unknown	NW 51	SE 52	Grass	3	Ditch	.5 (HW)	Grass	Bare to Grass	Dry
✓ T6	unknown	NW 53	SE 54	TR, SH, HE-Golden Rod Grass	10	Drain	2 (HW)	GR HE-Grass	Bare to grass	standing water
✓ U6	unknown	NW 55	SE 56	TR-Honey Locust Grass	10	Drain	2 (HW)	Grass Honey Locust TR-Maple	Bare	standing water
X V6	unknown	S 57	-	GR HE-Golden Rod	10	Drain	1.5 (HW)	GR HE-Golden Rod	Bare	Dry

HABITAT FORM

SEP 22



NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

BASIC AQUATIC HABITAT CHARACTERIZATION

Project: 1184 South Kent Location: Chatham / Kent Date: Sep 22
 Staff: S Murray Weather: Wind: 2, Cloud: 100%, Temp 22°C @ 14:45 Page: ___ of ___

Loc'n No.	Watercourse Name	Photos		Natural Corridor		Channel Morphology		Vegetation		Flow Conditions
		US	DS	Veg. Type	Width (m)	Type	Width (m)	Bank	Channel	
X W6	unknown	N 58	S 59	HE-Golden Rod Grass → mixed	8	Drain	1.5 (HW)	HE-Golden Rod Grass	Bare w grass	Dry
X X6	unknown	N 60	S 61	TR-Mixed GR, HE-Golden Rod	12	Drain	1.5 (HW)	HE-Golden Rod Jewelweed Grass, TR-Mixed	Bare w Grass	Dry
✓ Y6	Unknown	NW 62	SWISE 63/64	TR-Mixed Grass	14	Drain	3 (HW)	Grass	Scire (North) Watercress (South)	Standing water
X Z6	unknown	N 65	-	Grass TR-Cedar	8	Drain	1.5 (HW)	Grass HE-Golden Rod	Bare w Grass + tupa	Mostly dry except @ culvert standing water
✓ A7	unknown	N 66	S 67	Grass TR-Mixed	11	Drain	2.5 (HW)	HE-Golden Rod Jewelweed GR, TR-Mixed	Bare w Grass	Mostly dry except @ culvert (North) & South
✓ B7	unknown	N 68	S 69	Grass, TR-Mixed HE-Golden Rod	12	Drain	2 (HW)	HE-Golden Rod GR, TR-Mixed	Bare w Tupa	Slow flow North
✓ C7	unknown	N Cell 19	S Cell 19	Grass	12	Drain	2.5 (HW)	HE-Golden Rod Grass	Bare w algae	Standing water
✓ D7	unknown	N Cell 20	S Cell 21	Grass	20	Drain	2 (HW)	HE-Golden Rod Grass	Bare	Standing turbid water
X E7	unknown	N Cell 22	S Cell 23	Grass	12	Drain	1.5 (HW)	HE-Golden Rod Grass	Bare w Grass	standing water @ south side only
X F7	unknown	N Cell 24	S Cell 25	Grass	17	Drain	3 (HW)	HE-Golden Rod Grass	Watercress	Slight flow North
X G7	unknown	N Cell 26	S Cell 27	TR-Mixed Grass HE-Cedar Rod	7	Drain	0.5 (HW)	HE-Golden Rod Phragmites, GR	Bare w Phragmites	standing water on South side Dry

Add 2/2/20



NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

BASIC AQUATIC HABITAT CHARACTERIZATION

Project: 1184 South Kent Location: Chatham / Kent Date: Oct. 5 '10
 Staff: S. Murray Weather: Wind: 1, 100% Cloud, Air: 13°C, Light Rain Page: ___ of ___

Loc'n No.	Watercourse Name	Photos		Natural Corridor		Channel Morphology		Vegetation		Flow Conditions
		US cul phone	DS	Veg. Type	Width (m)	Type	Width (m)	Bank	Channel	
✓ H1	unknown	N 28	S 29	HE-Golden Rod TR-Mixed St-Sumack	10	Drain	2(LHW)	HE-Golden Rod TR-Mixed	Bare w Tyrpha	Slow Flow South
✓ I7	unknown	N 30	S 31	HE-Golden Rod GR TR-Mixed	10	Drain	2(LHW) 1.5	HE-Golden Rod Grass	Bare w & watercress	very Slow (445) flow north
✓ J7	unknown	E 32	W 33	TR-Mixed HE-Golden Rod	15	Drain	3(LHW) 2	HE-Jewelweed TR-Mixed	Bare w Grass	Dry
X K7	unknown	E 2	W 2	Grass	8	Drain	1(LHW)	HE-Golden Rod Grass	Bare w grass	Standing water (drain)
✓ L7i	unknown	N 3	S 4	Grass	14	Drain	2(LHW) 3.5	HE-Golden Rod TR-Mixed GR	Bare	Standing turbid water
✓ L7ii	unknown	W 5	-	Grass	5	Drain	1(LHW)	HE-Golden Rod Grass	Bare w Grass	Dry
X M7	unknown	E 6	W 7	Grass	5	Drain	1(SLHW)	Grass	Bare w Grass	Dry
✓ N7	unknown	NW 8	SE 9	Grass	25	Drain	3(LHW) 2.5	St-Willow HE-Golden Rod Grass	Bare w grass	Slow flow North west
✓ O7	unknown	SE 11	NW 12	Grass	12	Drain	2(SLHW)	Grass	Filamentous algae	Slow flow North west
✓ P1	unknown	S 13	N 14	Grass	10	Drain	3(LHW) 1.5	Grass HE-Golden Rod TR-Mixed	Filamentous algae	Slow flow northwest
✓ Q7	unknown	S 15	N 16	Grass	10	Drain	2(LHW)	TR-Mixed GR HE-Golden Rod	Bare w grass	Standing water (drain)
✓ R7	unknown	SE 17	NW 18	Grass	10	Drain	2(LHW)	TR-Mixed GR, HE-Golden Rod	Watercress	Slow flow north west
✓ S1	unknown	S 19	N 20	Grass TR-Mixed	15	Drain	2(LHW)	TR-Mixed St-Mixed HE-Golden Rod	Bare	Slow flow north
✓ T7	unknown	S 21	N 22	HE-Golden Rod Grass	8	Drain	1(SLHW)	GR HE-Golden Rod	(Dry) Tyrpha	Dry
Oct. 7 th ✓ U7	unknown	S 23	-	GR, HE-Golden Rod	8	Drain	1.5(SLHW)	St, TR-Mixed HE-Golden Rod GR	Bare w woody debris & detritus	Dry
✓ V7	unknown	N 24	S 25	GR St-Sumack HE-Golden Rod	8	Drain	1	HE-Golden Rod St-Sumack	Bare w Grass & HE	Dry
Oct. 21 st ✓ W7	unknown	N 26	S 26	GR St-Sumack HE-Golden Rod	10	Drain	1.5	HE-Golden Rod GR, St-Sumack	Grass & Golden Rod	Standing water (rain water)
✓ X7	unknown	89	90	GR St- HE-Golden Rod TR-Mixed	8	Drain	2.5 2	GR, St, HE (Golden Rod)	Grass & Tyrpha	Standing water (small amount rain water)

Hab form
Oct. 5
Camera
Picnic
Oct. 6
Oct. 7th
Oct. 21st

(445)
flow north

Standing water (rain water)
(small amount rain water)

S.M. 2NW. tree maple



NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

BASIC AQUATIC HABITAT CHARACTERIZATION

Project: 1184 Saut Kent Location: Chatham / Kent Date: Oct. 21/10
 Staff: S. Murray Weather: Wind 4, Cloud 90%; 10°C @ 13:30, 1/2 overcast, 1/2 clouds w/ sun Page: ___ of ___

HAB Form

Loc'n No.	Watercourse Name	Photos		Natural Corridor		Channel Morphology		Vegetation		Flow Conditions
		US	DS	Veg. Type	Width (m)	Type	Width (m)	Bank	Channel	
✓ 47	unknown	N 91	S 92	SH, HE-Golden Rod Grass, TR	12	Drain	2 (HW) 1.5	HE-Golden Rod Grass	(Some filamentous algae) Bare	Standing water
✓ 27	unknown	disc ← NE 93	SW 94	Shrub Grass, HE-Golden Rod	10	Drain	2 (HW) 1.5	HE-Golden Rod Shrub Grass	Bare	Slow flow North east +
✓ A8	unknown	N 95	S 96	TR-Oak Grass HE-Golden Rod	14	Drain	3 (HW) 2	HE-Golden Rod Grass	Bare	Flow is North (steady)
✓ B8	unknown	E 97	W 98	Grass	8	Drain	2 (HW) 1	Grass HE-Maple	Bare w/ Grass	Standing water (rain water)
✓ C8	unknown	N 99	S 100	TR-Poplar GR SH-Sumac HE-Golden Rod	12	Drain	2.5 (HW) 2	SH-Sumac and Grass Willow HE-Golden Rod	Bare w/ detritus	Moist Soil Some pockets of standing water
Oct 22 ✓ D8	unknown	E 101	W 102	Bare	0.50m	Drain	0.15 (HW) 0.25m	Bare	Bare	Slow flow
✓ E8	unknown	103	104	TR-Mixed SH-Sumac Grass HE-Golden Rod	25	Drain	2.5 (HW) 4.5	TR-Mixed HE-Golden Rod SH-Sumac	(detritus) Bare	Slow flow north



NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

BASIC AQUATIC HABITAT CHARACTERIZATION

Project: 1184 South Kent Location: Chatham / Kent Date: Oct. 27 '10
 Staff: S. Murray & P. Deacon Weather: 3 (wind), 11°C, 0% cloud, Sunny @ 8:00 Page: ___ of ___

HAB Form

Loc'n No.	Watercourse Name	Photos		Natural Corridor		Channel Morphology		Vegetation		Flow Conditions
		US	DS	Veg. Type	Width (m)	Type	Width (m)	Bank	Channel	
✓ RR1i	unknown	N 108	S 109	TR-Mixed HE-Golden Rod GR-	25	Drain	2.5(HW) 1.5	SH-Sumac TR-Mixed HE-Golden Rod	Bare	Slow flow north
✓ RR1ii	unknown	E 110	W 111	TR-Mixed SH-Sumac HE-Golden Rod	12	Ditch	.5(HW) .5	SH-Sumac HE-Golden Rod TR-Mixed	Bare	Dry
✓ RR2	unknown	N 112	-	HE-Golden Rod TR-Mixed SH-Willow	10	Drain	.5(HW) 1	TR-Poplar HE-Golden Rod SH-Willow	Phragmites	Dry
✓ RR3	unknown	N 113	S 114	GR, TR-Mixed HE-Golden Rod	12	Drain	2(HW) .5	HE-Golden Rod Grass	Bare w Watercress	Standing water
✓ RR4	unknown	N 115	S 116	TR-Mixed GR HE-Golden Rod	15	Drain	2(HW) 1	HE-Golden Rod SH-Willow Grass	Bare	Standing water Turbid
✓ RR5	unknown	N 117	S 118	TR-Mixed SH-Sumac HE-Golden Rod	15	Drain	2(HW) 1	HE-Golden Rod SH-Sumac Grass	Bare (north) Typha (south)	standing water turbid
✓ RR6	unknown	N 119	S 120	TR-Mixed SH-Sumac HE-Golden Rod	10	Drain	1.5(HW) 1	SH-Sumac HE-Golden Rod Grass	Bare	Standing water south side
✓ RR7	unknown	N 121	S 122	TR-Mixed SH-Mixed HE-Golden Rod	15	Drain	3.5(HW) 2	Grass SH-Willow HE-Golden	Bare	Slow flow north
✓ RR8	unknown	N 123	S 124	TR-Mixed HE-Golden Rod Grass	10	Drain	2(HW) 1.5	Grass HE-Golden Rod	Bare	Slow flow north
X RR9	unknown	N 125	S 126	TR-Mixed SH-Mixed Grass	10	Drain	2(HW) 1	HE-Golden Rod Grass	Bare	Standing water Celtic
X RR10	unknown	N 131	S 132	TR-Mixed SH-Mixed Grass	12	Drain	1.5(HW) 1	HE-Herbaceous GR	Bare	Standing water Barbed
✓ RR11	unknown	N 127	S 128	HE-Golden Rod TR-Mixed Grass	25	Drain	3(HW) 1.5	Grass HE-Golden Rod	Bare	slow flow north
X RR12	unknown	E 129	W 130	HE-Golden Rod TR-Mixed Grass	10	Drain	.5(HW) 1	HE-Golden Rod SH-Hawthorn Grass	Typha	Dry
✓ RR13	unknown	N 133	S 134	TR-Mixed SH-Hawthorn HE-Golden Rod	18	Drain	2(HW) 1	HE-Golden Rod Grass SH-Hawthorn	Bare	Flowing north
✓ RR14	unknown	N 135	S 136	Grass TR-Mixed HE-Golden Rod Grass	25	Drain	2.5(HW) 1	HE-Golden Rod Grass	Bare	Flowing north
X RR15	unknown	N 137	S 138	HE-Golden Rod	15	Drain	2(HW) 1	Grass HE-Golden Rod	Typha + Watercress	standing water
X RR16	unknown	N 139	S 140	TR-Mixed HE-Golden Rod Grass	15	Drain	1.5(HW) .5	Grass HE-Golden Rod	Typha	Dry
X RR17	unknown	N 171	S 172	TR-Cedar HE-Golden Rod Grass	12	Drain	3(HW) 1.5	Grass HE-Golden Rod	Typha	Dry

Observation point candle line after 1900.

Oct. 28

30%
0.70%



NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

BASIC AQUATIC HABITAT CHARACTERIZATION

Project: 1184 South Kent Location: Chatham / Kent Date: Oct. 28 '10
 Staff: S. Murray & P. Deacon Weather: 7°C, 100% cloud cover wind 4/5 Page: ___ of ___

HAB Form

Loc'n No.	Watercourse Name	Photos		Natural Corridor		Channel Morphology		Vegetation		Flow Conditions
		US	DS	Veg. Type	Width (m)	Type	Width (m)	Bank	Channel	
X RR18	unknown	173	174	Grass TR-Cedar	5	Ditch Drain	0.5 (SHW) 0.5	Grass	Grass	Standing water
X RR19	unknown	141	142	Grass	6	Drain	1 (HW)	HE-Golden Rod Grass	Typha	Standing water @ outlet
X RR20	unknown	143	144	Grass	6	Drain	0.5 (SHW) 0.5	Grass HE-Golden Rod	Overgrown grasses + HE	Standing water
✓ RR21	unknown	145	146	TR-Mixed HE-Golden Rod	18	Drain	2.5 (SHW) 1.5	HE-Golden Grass	Typha	Standing water
✓ RR22	unknown	147	148	TR-Mixed HE-Golden Rod	20	Drain	3.5 (HW) 2	HE-Golden Grass	Phragmites	Standing water
✓ RR23	unknown	149	150	TR-Mixed GR HE-Golden Rod	20	Drain	4 (HW) 2.5	HE-Golden Rod GR	Bare	Slow flow north (turbid)
✓ RR24	unknown	151	152	TR-Mix HE-Golden Rod	25	Drain	3 (HW) 3	HE-GR	Bare	slow + low north
✓ RR25	unknown	153	154	TR-Mixed HE-Golden SH-Sumac GR	15	Drain	2.5 (HW) 2	GR HE-Gold	Mostly Bare w/ some duckweed	standing turbid water
X RR26	unknown	155	156	HE-Golden Rod GR	8	Drain	2.5 (SHW)	HE-Gold	Bare	Dry
✓ RR27	unknown	157	158	SH-Mixed TR-Mixed GR-HE-Golden	18	Drain	2 (HW) 1	HE-Gold Grass	Alfalfa + Ninth	Flow to north
✓ RR28	unknown	159	160	TR-Mixed SH-Mixed	20	Drain	2.5 (HW) 2	HE-Golden Rod SH-Mixed	Bare	slow + low north turbid pools Black water
✓ RR29	unknown	161	162	GR-HE-Golden TR-Mixed	20	Drain	2 (HW) 2.5	GR TR-Mixed	Detritus	Standing water
X RR30	unknown	163	164	TR-Mixed HE-GR SH-Mix	25	Drain	3 (HW) 3	GR HE-Golden Rod SH-Mix	Detritus	standing turbid water
✓ RR31	unknown	165	166	SH-Mix HE-Gold GR	25	Drain	2.5 (SHW) 3	GR SH-Mix HE-Gold	Bare w/ filamentous algae	slow + low north very turbid
✓ RR33	unknown	167	168	TR-Mix HE-Gold GR SH-Mix	30	Drain	4 (HW) 3	GR SH-Sumac HE-	filamentous algae	slow flow north
✓ RR34	unknown	169	170	GR-HE-Gold SH-Sumac	25	Drain	3 (HW) 2	GR HE-Gold	Bare	Slow flow north
✓ RR35	unknown	175	176	TR-Mixed HE-Golden Rod GR, SH-Mixed	18	Drain	3 (HW) 1	GR HE-Gold SH-Mixed	w/ some Phragmites	Slow flow north

RR32 to refer to point on 8th & Martin



NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

BASIC AQUATIC HABITAT CHARACTERIZATION

Project: 1184 South Kent

Location: Chatham / Kent

Date: Nov. 16 '10

Staff: S. Murray

Weather: Wind, 2, Cloud 100%, Temp 10°C Overcast

Page: ___ of ___

Loc'n No.	Watercourse Name	Photos		Natural Corridor		Channel Morphology		Vegetation		Flow Conditions
		US	DS	Veg. Type	Width (m)	Type	Width (m)	Bank	Channel	
X HR1;	unknown	NW 5	SE 6	HE-Golden Rod Grass	10	drain	2 (NW) 1.5	HE-Golden Rod Grass	Typha	Dry
X AR1ii	unknown	NE 7	—	Grass	6	drain	1.5 (SW) .5	HE-Golden Rod Grass	Phragmites	Dry
X AR1ii	unknown	SW 8	—	Grass	4	ditch	.5 (SW) .25	Grass	Bare	Dry
X AR2	unknown	20 10	E 11	Grass	5	ditch	.5 (SW) .5	HE-Golden Rod Grass	Overgrown Grass	Dry
X AR3	unknown	S 12	SE 13	SH-Sunac Grass	15	drain	2 (NW) .5	HE-Golden Rod Grass	Bare w/ grass	standing water culvert
X AR4i	unknown	NW 14	—	Grass	8	Drain	1 (NW) 1	SH-Wislow Grass	Typha	Dry
X AR4ii	unknown	NE 15	SW 16	Grass	5	Ditch	.5 (SW) .25	Grass	Grass	Dry
X AR5	unknown	N 17	S 18	Grass	12	Drain	1 (NW) 1.5	HE-Golden Rod - Teasel Grass	Filamentous algae where small pools were	Pockets of standing water
X AR6	unknown	E 19	W 20	TR-Mixed HE-Golden Rod Grass	12	Drain	1 (NW) .75	SH-Mixed HE-Golden Rod Grass	Overgrown Grass	Dry
✓ AR7	unknown	NW 21	SE 22	Grass HE-Golden Rod	12	Drain	1.5 (NW) 1.5	HE-Teasel Golden Rod Grass	Phragmites	standing water @ culvert
X AR8	unknown	NW 23	SE 24	Grass HE-Golden Rod TR-Mixed	8	Drain	1 (NW) 1	HE-Golden Rod - Teasel Grass	Typha	Dry
X AR9	unknown	NE 25	SW 26	TR-Mixed GR, HE-Golden Rod - Teasel	4	Drain partially dry under	.5 (SW) .5	HE-Golden Rod - Wild Rice GR - Teasel	Overgrown w/ HE & GR	Dry
X AR10	unknown	E 27	W 28	TR-Mixed SH-Mixed Grass	7	Drain	.75 (NW) .5	HE-Golden Rod GR SH-Mixed	Bare (west) Overgrown (east)	Dry
X AR11	unknown	E 29	W 30	Grass	5	Drain dig under	1 (NW) 1	Grass	Grass	Dry
X AR12	unknown	E 31	—	Grass	10	Drain	1 (NW) .75	SH-Mixed HE-Golden Rod Grass	Bare	1 cm rain water
X AR13	unknown	N 32	S 33	TR-Mixed HE-Golden Rod SH-Mixed GR	5	Drain	.75 (NW) .5	SH-Mixed HE-Golden Rod GR	Overgrown HE, GR, SH	Dry
✓ AR14	unknown	NE 34	SW 35	TR-Mixed SH-Mixed HE-Mixed GR	25	Drain	2.5 (NW) 1.5	SH-Mixed HE-Golden Rod - Teasel	Filamentous algae	Slow flow north east
✓ AR15	unknown	NE 36	SW 37	TR-Mixed GR HE-Golden Rod	25	Drain	2 (NW) 1	GR HE-Golden Rod	Filamentous algae	flow north east

Nov. 17/10

unlabeled



NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

BASIC AQUATIC HABITAT CHARACTERIZATION

Project: 1184 South Kent Location: Chatham / Kent Date: Nov. 17 '10
 Staff: S Murray Weather: Wind 3, Cloud 5%, Temp 9°C @ 9:10am Page: ___ of ___

HAB Form

Loc'n No.	Watercourse Name	Photos		Natural Corridor		Channel Morphology		Vegetation		Flow Conditions
		US	DS	Veg. Type	Width (m)	Type	Width (m)	Bank	Channel	
X AR16	unknown	N 38	S 39	Grass	5	Drain	.75(HW) .5	HE-Golden Rod Grass	Typha	standing rain water
X AR17	unknown	N 40	W 41	Grass	4	Ditch (overgrown)	.25(HW) .5	Grass	Grass	standing rain water
X AR18	unknown	E 42	W 43	TR-Mixed SH-Mixed HE-Golden Rod	6	Drain	1 .5(HW)	HE-Golden Rod SH-Mixed GR	overgrown w GR HE, SH	Dry
X AR19	unknown	E 44	W 45	TR-Mixed SH-Sumac HE-Golden Rod	5	Drain	.5(HW) .5	HE-Golden Rod SH-Sumac GR	overgrown w GR, HE, SH	Dry
X AR20	unknown	E 46	W 47	TR-Mixed GR	3	Drain (small)	.5(HW) .5	HE-Golden Rod SH-Sumac	overgrown w HE, GR	Dry
X AR21	unknown	N 48	-	TR-Mixed SH-Mixed GR HE-Golden Rod	8	Drain	1(HW) 1	HE-Golden Rod SH-Mixed Grass	(dead) Phragmites	Dry
X AR22	unknown	E 49	W 50	HE-Golden Rod Grass	5	Drain	.25(HW) .5	HE-Golden Rod Grass	None	standing rain water
X AR23	unknown	W 51	E 52	TR-Mixed GR SH-Mixed HE-Golden Rod	7	Drain	1(HW) .5	HE-Golden Rod Grass	(west overgrown) Bare	Dry
X AR24	unknown	N 53	S 54	TR-Mixed HE-Golden Rod GR	10	Drain	1.5 1	HE-Golden Rod Grass	South side Phragmites	standing water @ culvert
✓ AR25	unknown	E 55	W 56	TR-Mixed SH-Mixed GR HE-Golden Rod	20	Drain	3(HW) 1.5	HE-Golden Rod Teasel GR	Phragmites	standing water
✓ AR26	unknown	N 57	S 58	SH-Mixed Grass	15	Drain	2.5(HW) 2	HE-Golden Rod SH-Mixed Grass	Bare	slow flow north
✓ AR27	unknown	W 59	S 60	SH-Mixed TR-Mixed HE-Golden Rod	25	Drain	3.5(HW) 2	HE-Golden Rod Teasel GR SH-Mixed	Detritus (lts) some filamentous algae	slow flow north
✓ AR28	unknown	N 61	S 62	TR-Mixed SH-Mixed HE-Golden Rod	15	Drain	2.8(HW) 1	HE-Golden Rod Grass SH-Mixed	Detritus some filamentous algae	Very still water
✓ AR29	unknown	W 63	S 64	TR-Mixed SH-Mixed	20	Drain	3(HW) 2.5	HE-Golden Rod Teasel SH-Mixed GR	Detritus filamentous	still turbid water
X AR30	unknown	N 65	S 66	Grass HE-Teasel Golden Rod	10	Drain	1.5(HW) 1	HE-Golden Rod Teasel	Phragmites	standing water @ culvert
X AR31	unknown	N 67	E/S 68/69	Grass	8	Drain	1(HW) 1	HE-Golden Rod SH-Mixed Grass	Typha	Dry
X AR32	unknown	N 70	S 71	HE-Teasel Golden Rod Grass	8	Drain	.5(HW) 1.5	SH-Mixed HE-Golden Rod Teasel	Typha	Dry
X AR33	unknown	W 72	W 73	Grass	8	Drain	1(HW) 1	HE-Teasel Golden Rod Grass	overgrown grass	standing rain water



NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

BASIC AQUATIC HABITAT CHARACTERIZATION

Project: 1184 South Kent Location: Chatham Kent Date: Nov 17/10
 Staff: S. Murray Weather: Wind 4 Cloud 80% Temp 11°C @ 14:30 Page: ___ of ___

HAB Form	Loc'n No.	Watercourse Name	Photos		Natural Corridor		Channel Morphology		Vegetation		Flow Conditions
			US	DS	Veg. Type	Width (m)	Type	Width (m)	Bank	Channel	
X	AR33ii	unknown	S 74	—	SH-Mixed TR-Mixed Grass	8	Drain	1 (HW) 1	HE-Teasel Golden Rod Grass	Typha	Dry
X	AR34	unknown	N 75	S 76	Grass	3	Ditch	.5 (HW) .25	Grass	Grass	Dry
✓	AR35	unknown	E 77	W 78	Grass HE-Golden Rod TR-Mixed Teasel	25	Drain	5 1.5 (HW)	SH-Mixed HE-Golden Rod grass Teasel	Bare w filamentous algae	flow west (turbid)
✓	AR36	unknown	E 79	W 80	TR-Mixed HE-Golden Rod GR-Teasel	12	Drain	.5 1 (HW)	SH-Mixed HE-Golden Rod GR-Teasel	Overgrown grass	flow west (turbid)
Nov 18 X	AR37i	unknown	W 81	—	TR-Mixed GR SH-Mixed HE-Golden Rod	7	Drain	.75 1 (HW)	SH-Mixed HE-Golden Rod Grass	Overgrown GR, HE	Dry
X	AR37ii	unknown	N 82	S 83	Grass	9	Drain	1 1.5 (HW)	HE-Golden Rod Grass	filamentous algae	standing water (rain?)
X	AR38	unknown	E 84	W 85	TR-Mixed (West) Grass	6	Drain	1 1 (HW)	HE-Golden Rod Teasel Grass	Typha & Phragmites	standing rain water
X	AR39	unknown	E 86	W 87	TR-Mixed Grass	10	Drain	1.5 3 (HW)	HE-Teasel HE-Golden Rod SH-Mixed grass	Phragmites	Dry
✓	AR40	unknown	N 88	SW 89	TR-Mixed SH-Mixed HE-Golden Rod GR	15	Drain	1.5 1.5 (HW)	SH-Mixed TR-Mixed GR HE-Golden Rod	Bare w lots of detritus	South west
✓	AR41	unknown	N 90	S 91	Grass TR-Mixed HE-Golden Rod	12	Drain	.5 2.5 (HW)	SH-Mixed HE-Golden Rod	Small amounts of Typha north	Flow South
✓	AR42	unknown	N 92	S 93	TR-Mixed SH-Mixed GR HE-Golden Rod	12	Drain	.25 3 (HW)	SH-Mixed HE-Golden Rod Grass	on river side Phragmites	Slow Flow South
✓	AR43	unknown	N 94	S 95	TR-Mixed SH-Mixed	20	Drain	1.5 2.5 (HW)	SH-Mixed HE-Golden Rod grass	(detritus) Bare	Slow flow South.
✓	AR44	unknown	N 96	S 97	TR-Mixed SH-Mixed HE-Golden Rod	25	Drain	2.5 (HW) 1.5	Grass SH-Mixed HE-Golden Rod	Bare	Slow flow South
X	AR45	unknown	E 98	W 99	TR-cedar SH-Sumac GR HE-Golden Rod	5	Ditch	.25 1 (HW)	HE-Golden Rod Grass	Grass	Dry
✓	AR46	unknown	N 100	S 101	TR-Mixed HE-Golden Rod Grass	12	Drain	.5 1 (HW)	HE-Golden Rod Grass	Bare	Slow flow South
X	AR47	unknown	W 102	—	TR-Mixed SH-Mixed HE-Golden Rod	10	Drain	1.5 2 (HW)	HE-Golden Rod Grass	Overgrown w HE GR	Dry
✓	AR48	unknown	N 103	SW 104	TR-Mixed SH-Mixed GR HE-Golden Rod	15	Drain	1 3 (HW)	SH-Mixed GR HE-Golden Rod	Bare Some filamentous algae	Slow flow South west
✓	AR49	unknown	E 105	W 106	TR-Mixed SH-Mixed HE-Golden Rod	30	Drain	4m 1m 1 (HW)	SH-Mixed TR-Mixed HE-Golden Rod	Bare grass	slow flow west

↓ east ↓ west



NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

BASIC AQUATIC HABITAT CHARACTERIZATION

Project: 1184 South Kent Location: Chatham / Kent Date: Nov. 18 '10
 Staff: S. Murray Weather: Wind: 1, Cloud: 95%, Temp: 7°C @ 14:00 Page: ___ of ___

Loc'n No.	Watercourse Name	Photos		Natural Corridor		Channel Morphology		Vegetation		Flow Conditions
		US	DS	Veg. Type	Width (m)	Type	Width (m)	Bank	Channel	
X AR50	unknown	N 107	E 108	SH-Mixed Grass	8	Drain	1 (HW)	SH-Buckhorn HE-Golden Rod Grass	Typha	Dry
X AR51	unknown	W 109	-	Grass	10	Drain	0.5 (HW)	HE-Golden Rod -Teasel Grass	Typha	Dry
X AR52	unknown	S 110	E 111	Grass	6	Drain	0.5 (HW)	HE-Golden Rod -Teasel Grass	Filamentous algae watercress	standing rain water
X AR53	unknown	N 112	S 113	Grass	5	Drain	1 (HW)	HE-Golden Rod	Typha	Dry
✓ AR54	unknown	E 114	W 115	TR-Sycamore Grass	20	Drain	0.75 (HW)	Grass HE	Bare	flow west
X AR55	unknown	N 116	S 117	Grass	5	Drain	0.5 (HW)	HE-Golden Rod Grass	Typha & Phragmites	Dry
X AR56	unknown	E 118	W 119	Grass	4	Drain	0.25 (HW)	HE-Golden Rod Grass	Grass & HE-Golden Rod	Dry
Not in X AR57	unknown	S 120	-	TR-Mixed SH-Mixed Grass HE-Golden Rod	6	Drain	1 (HW)	SH-Mixed HE-Golden Rod Grass	Grass & HE-Golden Rod	Dry
X AR58i	unknown	SW 121	-	TR-Mixed HE-Golden Rod SH-Mixed Grass	8	Drain	1 (HW)	HE-Golden Rod SH-Mixed Grass	overgrow	Dry
X AR58ii	unknown	N 122	E 123	Grass	8	Drain	2 (HW)	HE-Golden Rod Grass	Typha	standing rain water
X AR59	unknown	E 124	-	Grass	8	Drain	1 (HW)	Grass	Phragmites	Dry
X AR60	unknown	N 125	S 126	TR-Mixed HE-Golden Rod Grass	6	Drain	1 (HW)	HE-Golden Rod Grass	Phragmites	Dry
X AR61	unknown	N 127	S 128	Grass	3	Ditch	0.25 (HW)	Grass	Grass	Dry
X AR62	unknown	N 129	S 130	HE-Golden Rod Grass	5	Drain	1.5 (HW)	HE-Golden Rod -Teasel Grass	Typha & Phragmites	small amounts of water (rain)



PROJECT (Number & Name): 1184 SOUTH KENT

Field Staff: D. CACHOON, S. MURRAY

Station: "D" **Site Location:**

Waterbody: **GPS Datum:** NAD 83 **Easting:** 0409434

Drainage System: **Zone:** 17T **Northing:** 4690460

Location in System: HORTON BETWEEN FARGO + CHANNING CROSS **Municipality:** CHATHAM KENT

Appr. Reach Length (m): **Lot & Concession:**

Survey Date: 8 SEPT 0 **Weather Conditions:**

Time Started: 1345 **Wind:** 4 **Cloud Cover (%):** 80

Time Finished: **Precipitation:** NONE

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: GRASS - NW GRASS SE TREES
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: GOLDENROD, BROWN-EYED SUSANS SE TREES, SHRUB, GOLDENROD
	Vegetation Density (HML):
Canopy	Type: NW-NONE SE TREES Quality and % shade: NW-NONE SE-POOR
Land Use	DRAIN, SOYBEAN, AGRICULTURE
Other Notes	(groundwater, soils, pools, vegetation, etc.) NW - CHANNEL MEANDER SE - STRAIGHT DRAIN

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.5-2.5	Gradient (H/M/L):
Bank Height (range (m)): 0.75 DRAIN BANK HT 3.5-4m	Meander/Straight:
Bank Slope (degrees from surface of water): 135 TRAPEZOIDAL	Bank Stability: FAIR
Bank Vegetation Type: GOLDENROD, GRASSES, TREES (SE ONLY)	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: 1° ✓	Gravel: ✓	Boulder:	Muck: 2° ✓
Silt: ✓	Pebble: ✓	Bedrock:	Detritus: ✓
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✗	Boulder/Rock: ✗
Riffles: ✓	Woody Debris: ✓	Cobble: ✗
Backwater: ✓	Vegetation: ✗	Other: ✗

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
/		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

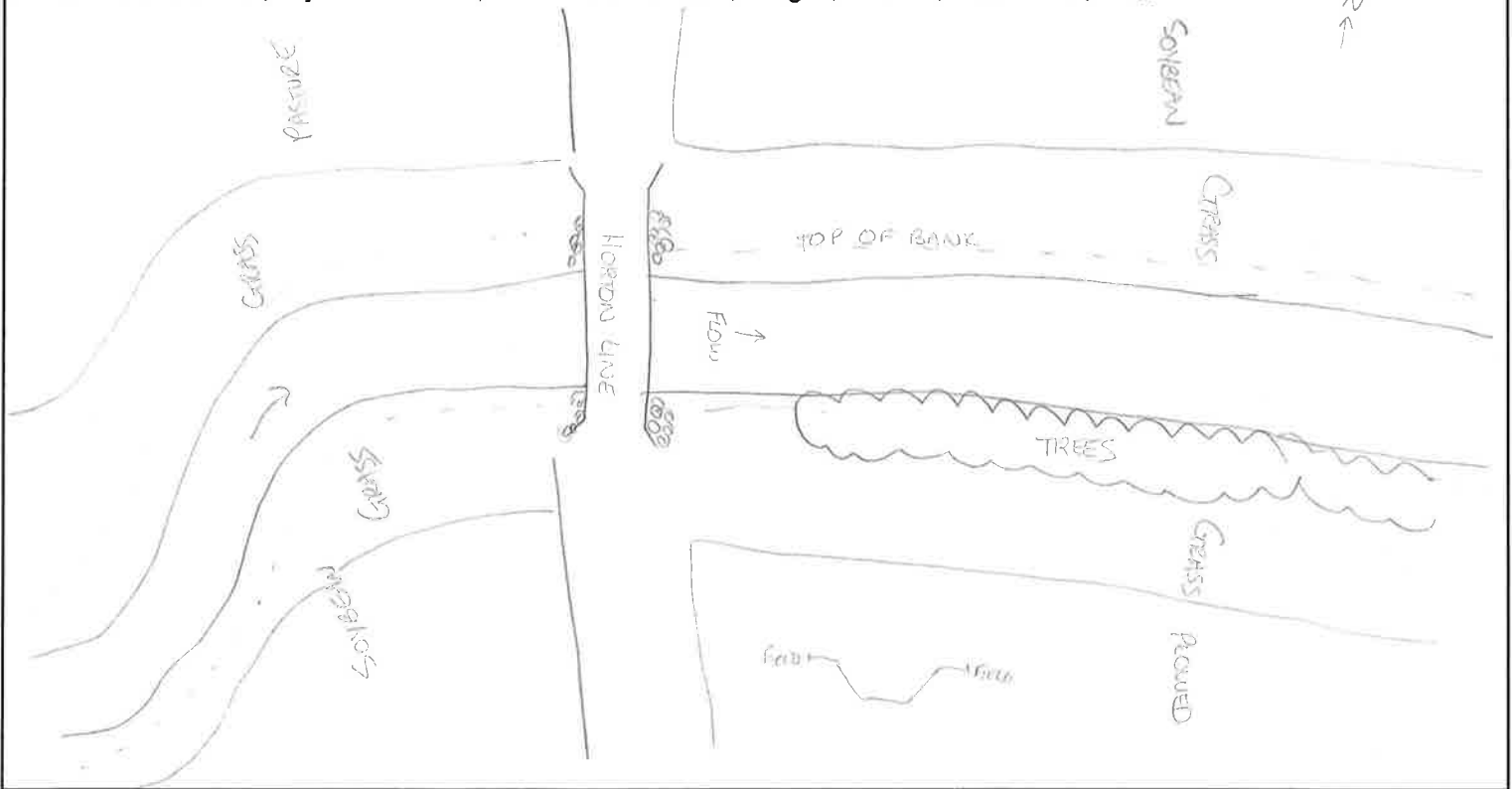
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.5	15, 20, 24, 26, 28	RUN
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	16	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: TURBID
Air Temp. (°C):	20	D.O. (%):	TDS (ppm):	
Time Taken:	14/6	Conductivity (µs/cm):		
Location Taken:	IMMEDIATELY DOWNSTREAM OF BOOGE			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
5	U/S		
6	D/S		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

CYPRINIDS



PROJECT (Number & Name): 1184 SOUTH KENT

Field Staff: DMC SPM

Station: 'E'

Waterbody: Locke

Drainage System: Gageout Drain

Location in System: LAGOON RD. - BETWEEN HORTON + GAGNER.

Apr. Reach Length (m): + AT CHARRING CROSS/GAGNER.

Survey Date: SEPT. 8/10

Time Started: 1502

Time Finished: 1530

Site Location: CONFLUENCE

GPS Datum: NAD83 **Easting:** 408615

Zone: 17T **Northing:** 4690284

Municipality: CHATHAM KENT

Lot & Concession:

Weather Conditions:

Wind: 4 **Cloud Cover (%):** 95

Precipitation: NONE

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)	
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	GRASS			
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	GRASS, GOLDENROD, HERES			
	Vegetation Density (HML):				
Canopy	Type:	NONE		Quality and % shade: NONE	
Land Use	AGRICULTURAL - SOYBEANS				
Other Notes	(groundwater, soils, pools, vegetation, etc.) ALGAE CLUMPS				

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.2 - 3 ^{WETTED}

Bank Height (range (m)): 0.10 ^{WETTED}, HIGH WATER 4m

Bank Slope (degrees from surface of water): 135° TRAPEZOIDAL

Bank Vegetation Type: HERBACEOUS

Gradient (H/M/L):

Meander/Straight:

Bank Stability: GOOD

Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

BANK HT 3m AT CHARRING CROSS

Clay:	✓	Gravel:		Boulder:		Muck:	2° ✓
Silt:	✓	Pebble:		Bedrock:		Detritus:	✓
Sand:		Cobble:		Marl:		Other:	

INSTREAM HABITAT AND COVER

Pools:	✓	Undercut Banks:	✓	Boulder/Rock:	+
Riffles:	+	Woody Debris:	+	Cobble:	+
Backwater:	+	Vegetation:	✓	Other:	

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
ALGAE - GLOB		PRESENT
CAITAIL	TYPHA	VERY SPARSE, AT CHARRING CROSS

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

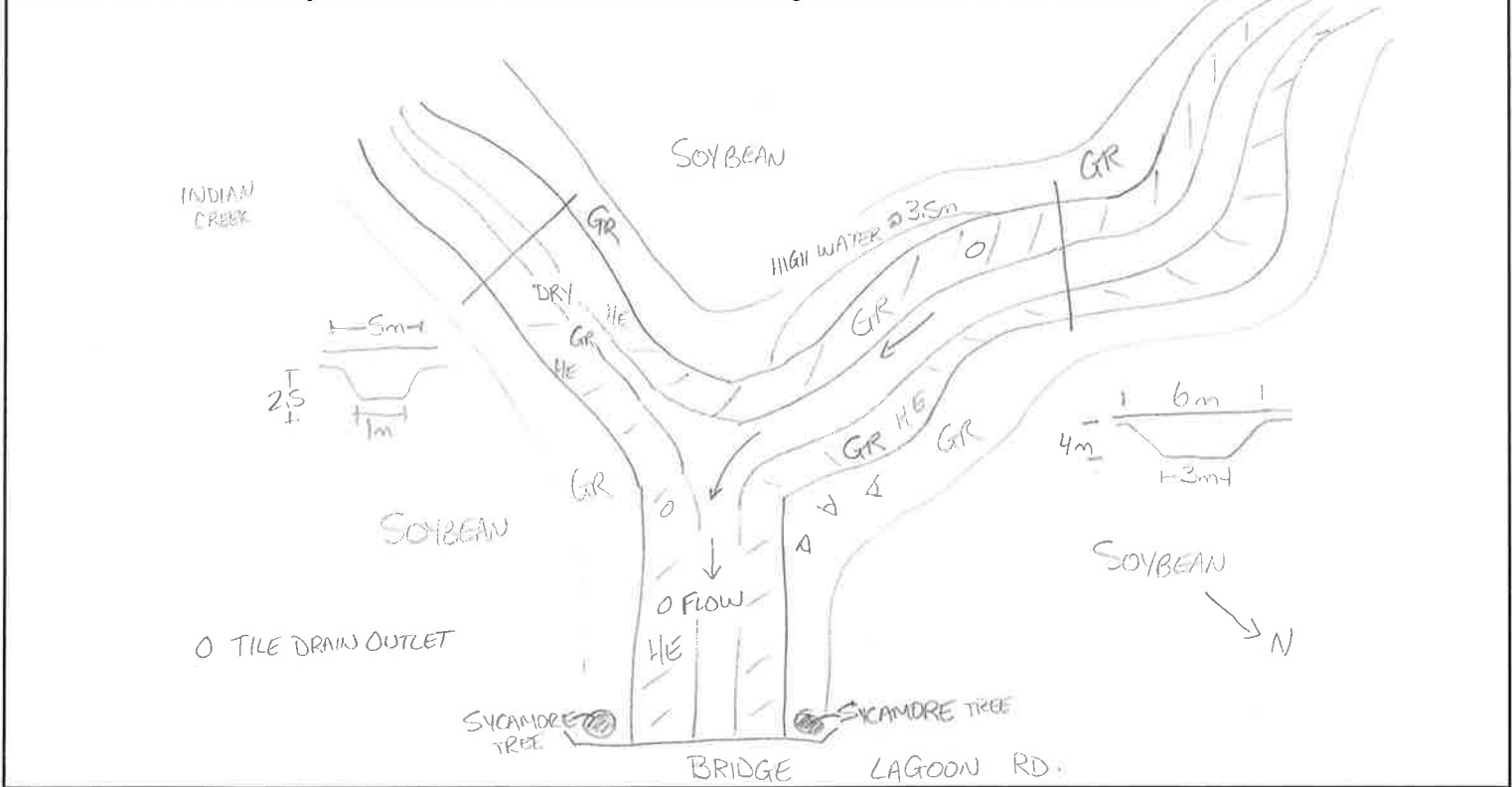
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.35	10	RUN
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 19	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: SLIGHT FLOW POOLS WITH SHALLOW WATER CONNECTIONS
Air Temp. (°C): 18	D.O. (%):	TDS (ppm):	
Time Taken: 1515	Conductivity (µs/cm):		
Location Taken: CONFLUENCE			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
7	NW UPSTREAM		
8	SE UPSTREAM		
9	NE DOWNSTREAM TO BRIDGE		
10	SW UPSTREAM FROM BRIDGE		
11	EAST CHARRING CROSS / GAGNER		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

FISH OBSERVED

*OBSERVED AT CHARRING CROSS + GAGNER

EPST → CONDITIONS AS ABOVE

CONFLUENCE 6408615
4690284



PROJECT (Number & Name): 1184 SOUTH KENT
Field Staff: D. CALHOUN, S. MURRAY
Station: 'F' **Site Location:**
 Waterbody: GPS Datum: NAD83 Easting: 407537
 Drainage System: Zone: 17T Northing: 4689609
 Location in System: CHARRING CROSS, NORTH OF 10TH Municipality: CHATHAM-KENT
 Appr. Reach Length (m): LINE Lot & Concession:
Survey Date: SEP 8/10 **Weather Conditions:**
 Time Started: 1600 Wind: 4 Cloud Cover (%): 90
 Time Finished: Precipitation: NONE

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: GRASS 7
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: HERBACEOUS 4
	Vegetation Density (HML):
Canopy	Type: GRASSES Quality and % shade: POOR-FAIR 25%
Land Use	AGRICULTURAL - CORN, PLOWED
Other Notes	(groundwater, soils, pools, vegetation, etc.) 1.5m CULVERT UNDER ROAD

CHANNEL MORPHOLOGY

Channel Width (range (m)):	0.3- 1.5	DAMP SOIL (0.3)	Gradient (H/M/L):
Bank Height (range (m)):	0.2	HIGH WATER AT 1.5m	Meander/Straight:
Bank Slope (degrees from surface of water):	135'	TRAPEZOIDAL	Bank Stability: GOOD
Bank Vegetation Type:	HERBACEOUS		Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: 1' ✓	Gravel:	Boulder:	Muck: 2' ✓
Silt: ✓	Pebble:	Bedrock:	Detritus: ✓
Sand:	Cobble: ✓ (CULVERT) 2m	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✗	Boulder/Rock: ✗
Riffles: ✗	Woody Debris: ✗	Cobble: ✓
Backwater: ✗	Vegetation: ✓ GRASS	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
GRASS		ABUNDANCE

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

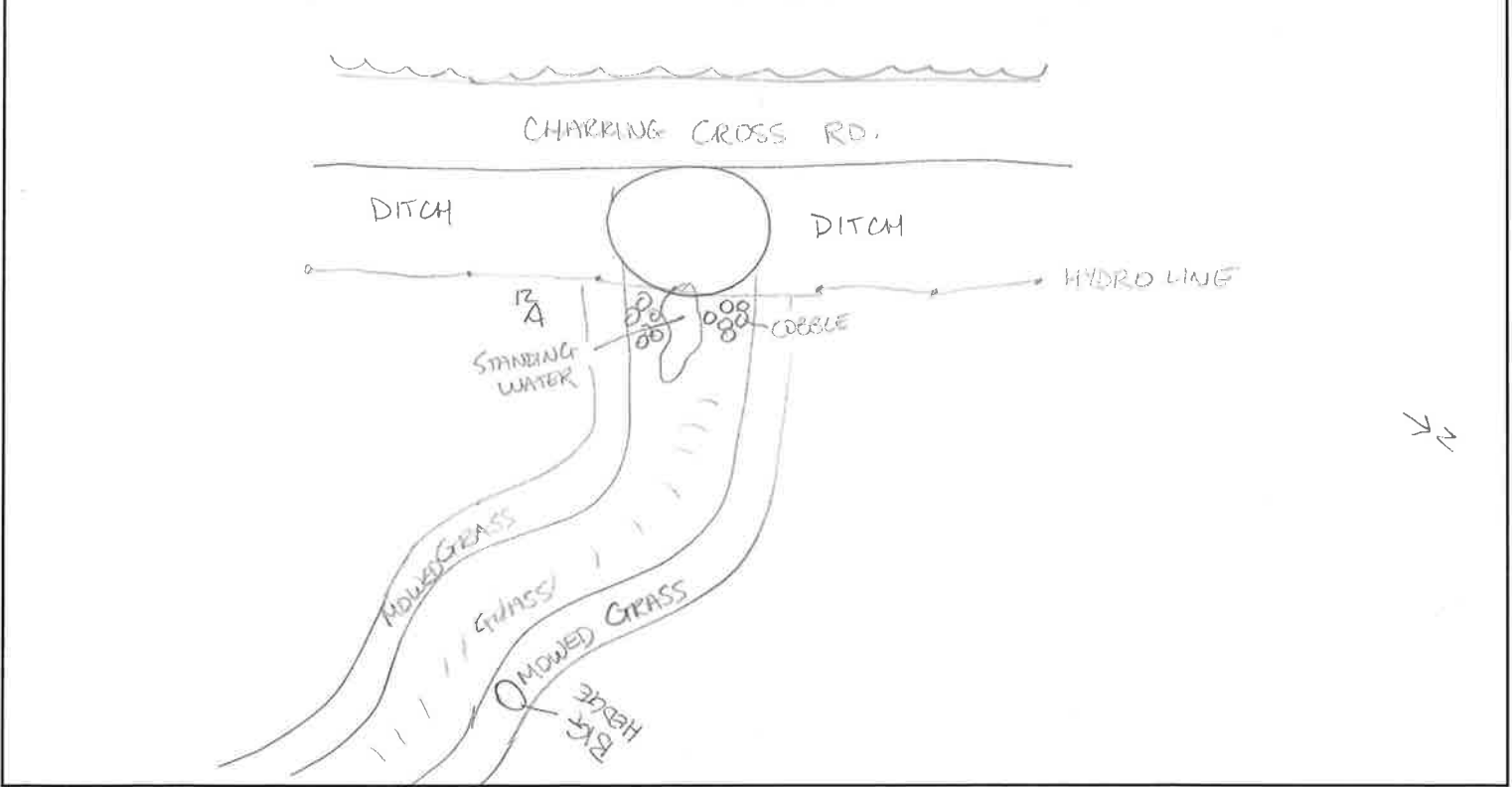
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: NO FLOW STANDING WATER AT CULVERT
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
12	EAST		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 1184 South Kent
Field Staff: D. Calhoun, S. Murray
Station: J
Waterbody: Unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Sep. 8'10
Time Started: 16:55
Time Finished: 17:22
Site Location:
GPS Datum: NAD83 **Easting:** 0407291
Zone: 17T **Northing:** 4687048
Municipality: Chatham Kent
Lot & Concession:
Weather Conditions:
Wind: 4 **Cloud Cover (%):** 80
Precipitation: None

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)	
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	TR - Bur Oak GR HE - Golden Rod			
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	GR HE - Golden Rod TYPHA			
	Vegetation Density (HML):				
Canopy	Type:	Deciduous, SH, TYPHA		Quality and % shade: 75%	
Land Use	Ag.				
Other Notes	(groundwater, soils, pools, vegetation, etc.)				

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1m
Bank Height (range (m)): 5m high water @ 2.5m
Bank Slope (degrees from surface of water): 135
Bank Vegetation Type: HE
Gradient (H/M/L):
Meander/Straight:
Bank Stability: GOOD
Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder:	Muck: <input checked="" type="checkbox"/>
Silt:	Pebble:	Bedrock:	Detritus:
Sand:	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks:	Boulder/Rock:
Riffles:	Woody Debris: <input checked="" type="checkbox"/>	Cobble:
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters:
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
2 photos taken	# 18 & 19 - 18 assumed as being u/s & 19 as being d/s		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* raccoon tracks observed.



PROJECT (Number & Name): 1184 South Kent
Field Staff: D. Calhoun, S. Murray
Station: K
Waterbody: Jeanette's Creek?
Drainage System:
Location in System: on ninth line in b/w Chart Cross & Bloom
Appr. Reach Length (m):
Survey Date: Sep. 8/10
Time Started: 17:35
Time Finished: 17:58
Site Location:
GPS Datum: NAD 83 **Easting:** 0405753
Zone: 17T **Northing:** 4689109
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 4 **Cloud Cover (%):** 75
Precipitation: None

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)		
	Extent of Natural Vegetation (m)		0-10	10 to 20	20 to 30	30+
	Vegetation Type:	HE - Golden Rod TR - Willow				
Riparian Zone	Flood Plain - extent of frequent flood (m):		0-10	10 to 20	20 to 30	30+
	Vegetation Type:	MR, HE				
	Vegetation Density (HML):					
Canopy	Type:	HE - Golden Rod		Quality and % shade:	50	
Land Use	Agriculture.					
Other Notes	(groundwater, soils, pools, vegetation, etc.)					

CHANNEL MORPHOLOGY

Channel Width (range (m)):	15	Gradient (H/M/L):	
Bank Height (range (m)):	5 high water @ 2.5m	Meander:	Straight
Bank Slope (degrees from surface of water):	135	Bank Stability:	Good
Bank Vegetation Type:	HE - Golden Rod	Bank Veg. Density (H/M/L):	

CHANNEL SUBSTRATE %

Clay: ✓	Gravel: ✓	Boulder:	Muck: ✓
Silt:	Pebble:	Bedrock:	Detritus:
Sand: ✓	Cobble: ✓	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: ✓	Boulder/Rock: ✓
Riffles:	Woody Debris:	Cobble: ✓
Backwater:	Vegetation: ✓	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

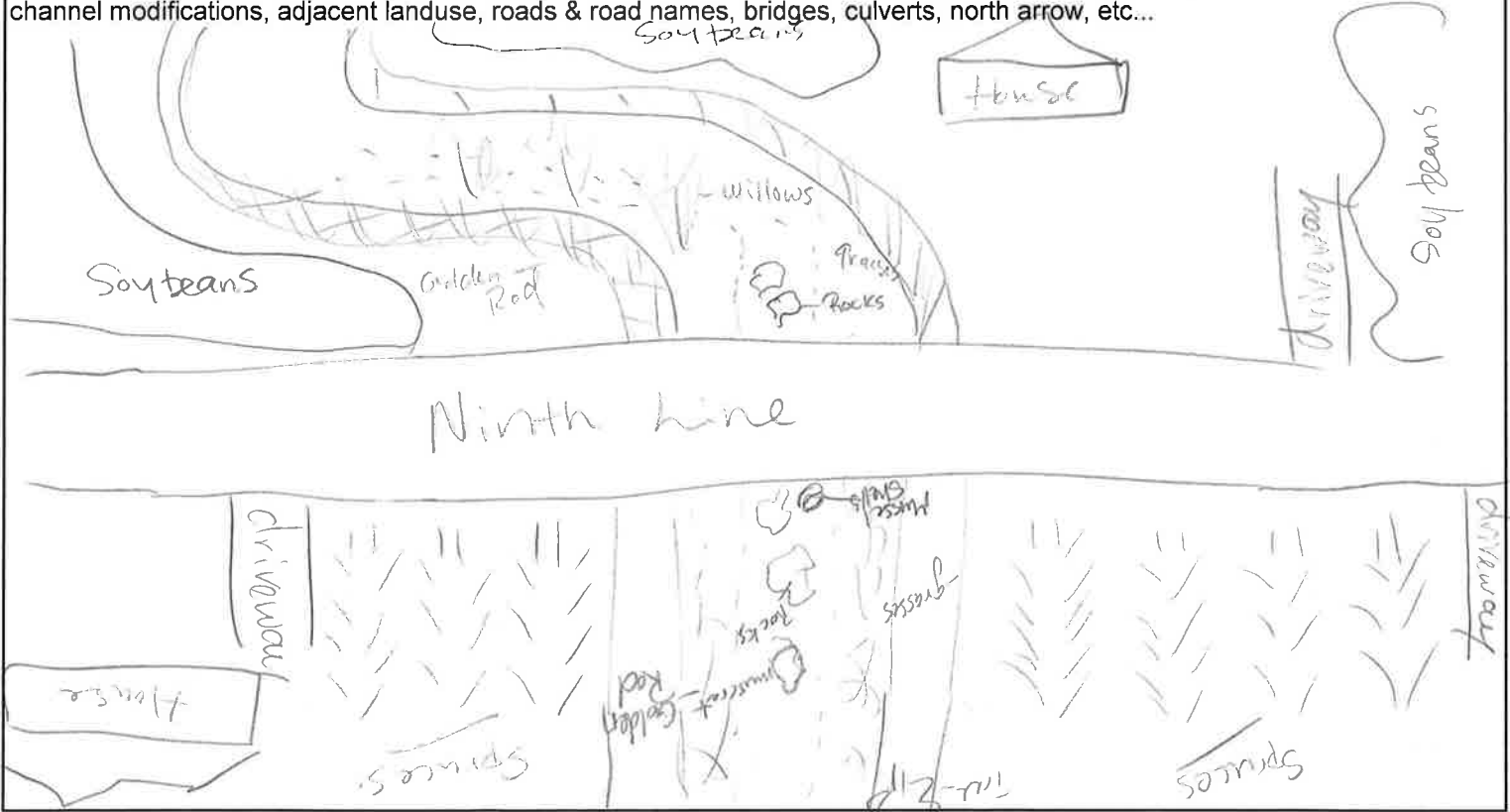
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Dry
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
	- #20, 21		
	20 assumed as u/s		
	19 assumed as d/s		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- 10-20 dead mussels found
- 2 muscrats observed
- 1 cat skeleton



PROJECT (Number & Name): 1184

Field Staff: D. CALHOUN, S. MURRAY

Station: 'L'

Waterbody:

Drainage System:

Location in System: SHADD + 7th LINE

Appr. Reach Length (m):

Survey Date: 9 SEPT 10

Time Started: 9:15

Time Finished:

Site Location:

GPS Datum: NAD83 **Easting:**

Zone: 171 **Northing:**

Municipality: CHATHAM-KENT

Lot & Concession:

Weather Conditions:

Wind: 3 **Cloud Cover (%):** 10

Precipitation: NONE

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: CEDAR HEIGHTEROW SHRUB, GRASS HERB. 15
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: GOLDEN ROD, HERB, GRASSES
	Vegetation Density (HML):
Canopy	Type: SHRUB, HERB Quality and % shade: GOOD 50%
Land Use	AGRICULTURE
Other Notes	(groundwater, soils, pools, vegetation, etc.) DRY Culvert is around 1m wide

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1-1.5	Gradient (H/M/L):
Bank Height (range (m)): 0.3 HIGH WATER ~0.5m -1.5	Meander/Straight:
Bank Slope (degrees from surface of water): 135	Bank Stability: GOOD
Bank Vegetation Type: SUMAC SHRUB, GRAPEVINE	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: 1 ✓	Gravel:	Boulder:	Muck: 2° ✓
Silt: ✓	Pebble:	Bedrock:	Detritus:
Sand:	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: /	Undercut Banks: x	Boulder/Rock: /
Riffles: /	Woody Debris: 5% ✓	Cobble: /
Backwater:	Vegetation: x	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
GRASS		SPARSE

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

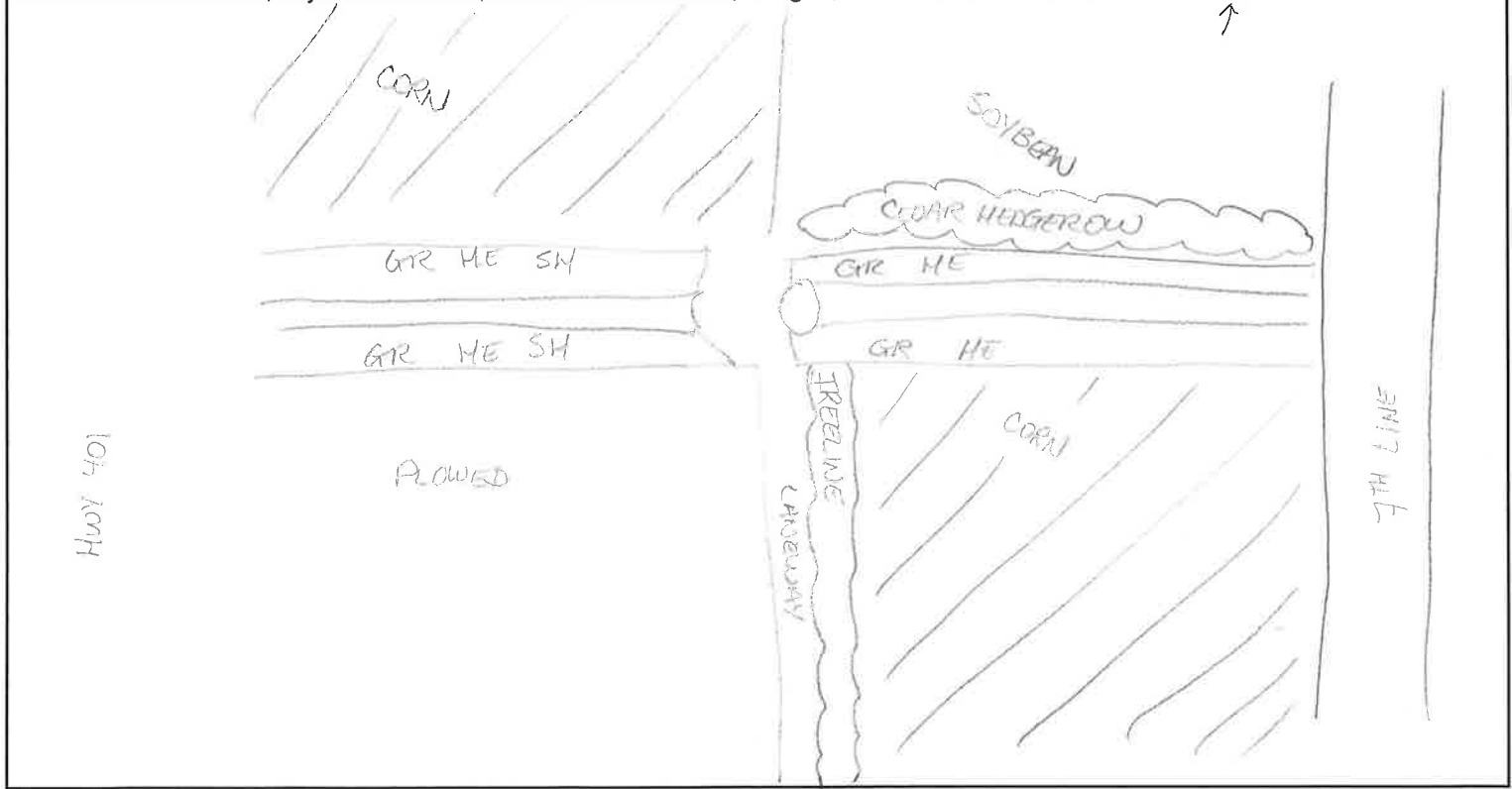
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	—	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: DRY
Air Temp. (°C):		D.O. (%):	TDS (ppm):	
Time Taken:		Conductivity (µs/cm):		
Location Taken:				

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
22	u/s toward 7 th LINE		
23	d/s toward 401		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * RED LINE ON DFO MAPPING
- * THIS DRAIN HAS SEASONAL USE



PROJECT (Number & Name): 1184 SOUTH KENT

Field Staff: D. CALHOUN, S. MURRAY

Station: 'M'

Waterbody:

Drainage System:

Location in System: SHADD ROAD, WEST SIDE

Appr. Reach Length (m):

Survey Date: 9 SEPT 10

Time Started: 0950

Time Finished: 1010

Site Location:

GPS Datum: NAD83 **Easting:** 398084

Zone: 17T **Northing:** 4686042

Municipality: CHATHAM-KENT

Lot & Concession:

Weather Conditions:

Wind: 3 **Cloud Cover (%):** 10

Precipitation: NONE

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: GRASS, QUEEN ANNE'S LACE, GOLDEN ROD HERBACEOUS PLANTS
Riparian Zone	Flood Plain - extent of frequent flood (m): 4 0-10 10 to 20 20 to 30 30+
	Vegetation Type: QUEEN ANNE'S LACE, STRAWBERRY, GOLDEN ROD SPARSE-CATTAILS, PHRAGMITES
	Vegetation Density (H/M/L):
Canopy	Type: HERBACEOUS Quality and % shade: FAIR 30%
Land Use	AGRICULTURE, ROAD
Other Notes	(groundwater, soils, pools, vegetation, etc.) DRY

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1m

Bank Height (range (m)): 0.5m HIGH WATER 1.5m

Bank Slope (degrees from surface of water): 135 TRAPEZOIDAL

Bank Vegetation Type: HERB

Gradient (H/M/L): Meander/Straight

Bank Stability: GOOD

Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: 1 ✓	Gravel: /	Boulder: /	Muck: 2 ✓
Silt: ✓	Pebble: /	Bedrock: /	Detritus: ✓
Sand: /	Cobble: /	Marl: /	Other: /

INSTREAM HABITAT AND COVER

Pools: /	Undercut Banks: /	Boulder/Rock: /
Riffles: /	Woody Debris: /	Cobble: /
Backwater: /	Vegetation: /	Other: /

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
CATTAILS		SPARSE
PHRAGMITES		SPARSE
HERBACEOUS PLANTS		PRESENT
GRASSES		PRESENT

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

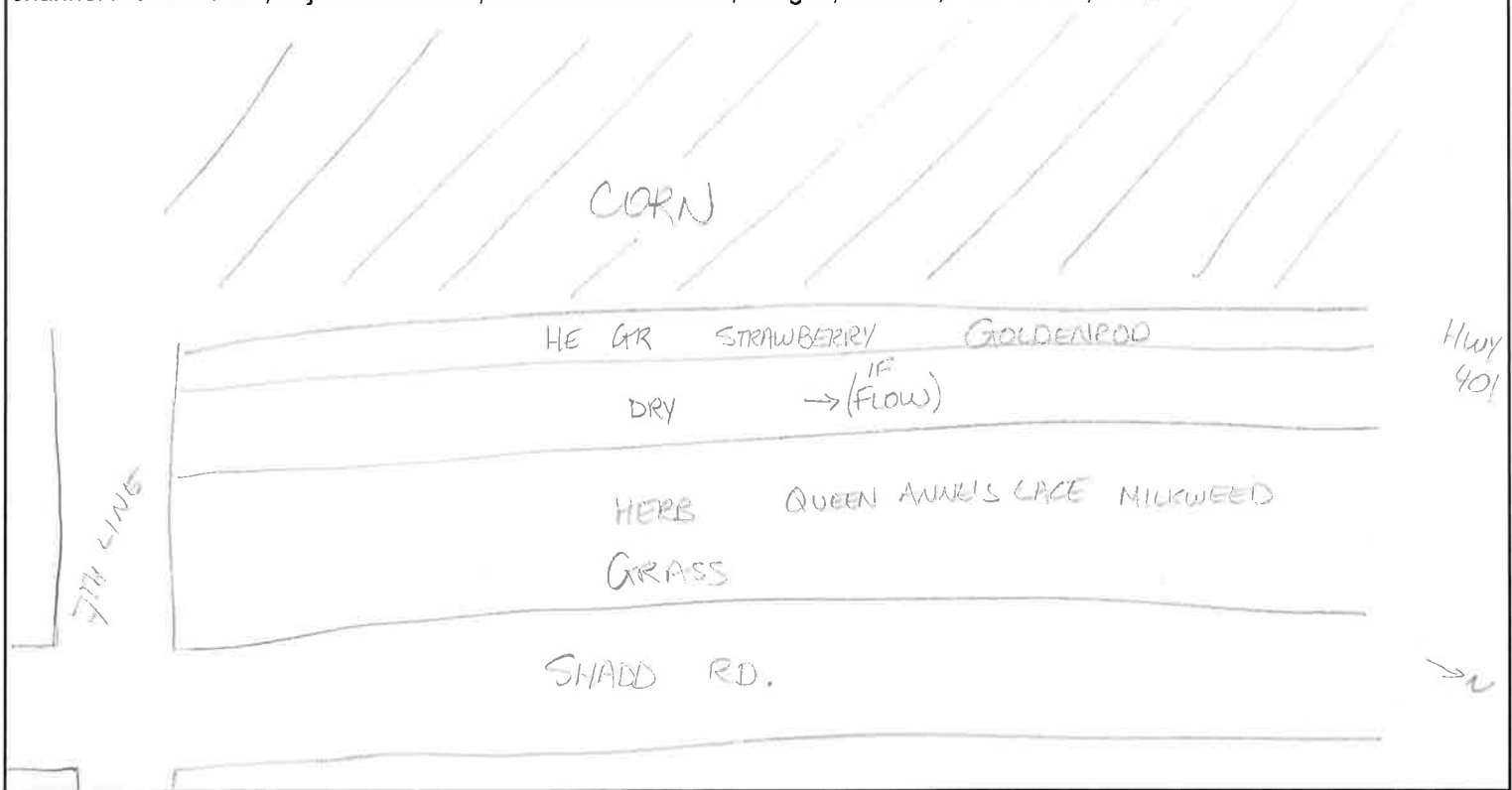
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	—	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: DRY
Air Temp. (°C):		D.O. (%):	TDS (ppm):	
Time Taken:		Conductivity (µs/cm):		
Location Taken:				

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
	U/S TOWARD 7 th LINE		
	D/S TOWARD 401		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

✶ RED LINE ON DFO SPECIES AT RISK MAPPING



PROJECT (Number & Name): 1184 South Kent
Field Staff: D. Calhoun, S. Murray
Station: N' **Site Location:**
Waterbody: **GPS Datum:** NAD83 **Easting:**
Drainage System: **Zone:** 17T **Northing:**
Location in System: 8TH LINE WEST OF DILLON **Municipality:** CHATHAM-KENT
Appr. Reach Length (m): **Lot & Concession:**
Survey Date: 9 SEPT 10 **Weather Conditions:**
Time Started: **Wind:** 3 **Cloud Cover (%):** 10
Time Finished: **Precipitation:** NONE

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 20 to 30 30+
	Vegetation Type: SHRUB - WILLOW, ASPEN, SUMAC TREE, ASPEN, PINE HERB - GOLDENROD, GRAPE VINE GRASS
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: WILLOW, GRASS,
	Vegetation Density (HML):
Canopy	Type: TREE, SHRUB Quality and % shade: 10% POOR
Land Use	AGRICULTURE
Other Notes	(groundwater, soils, pools, vegetation, etc.) STANDING WATER IN POCKETS ALONG WATERCOURSE 3x15, 4.5m high flow

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5-2-4	Gradient (H/M/L):
Bank Height (range (m)): 0.5 HIGH WATER 3m, 4.5m	Meander/Straight:
Bank Slope (degrees from surface of water): 110 TRAPEZOID	Bank Stability: GOOD
Bank Vegetation Type: GRASS, REED	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder: /	Muck: ✓
Silt: ✓	Pebble: ✓ BRIDGE	Bedrock: /	Detritus: ✓ LEAVES
Sand:	Cobble: 5 ✓ NORTH, MORE	Marl: /	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: X	Boulder/Rock: X
Riffles: X	Woody Debris: ✓	Cobble: ✓
Backwater: X	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

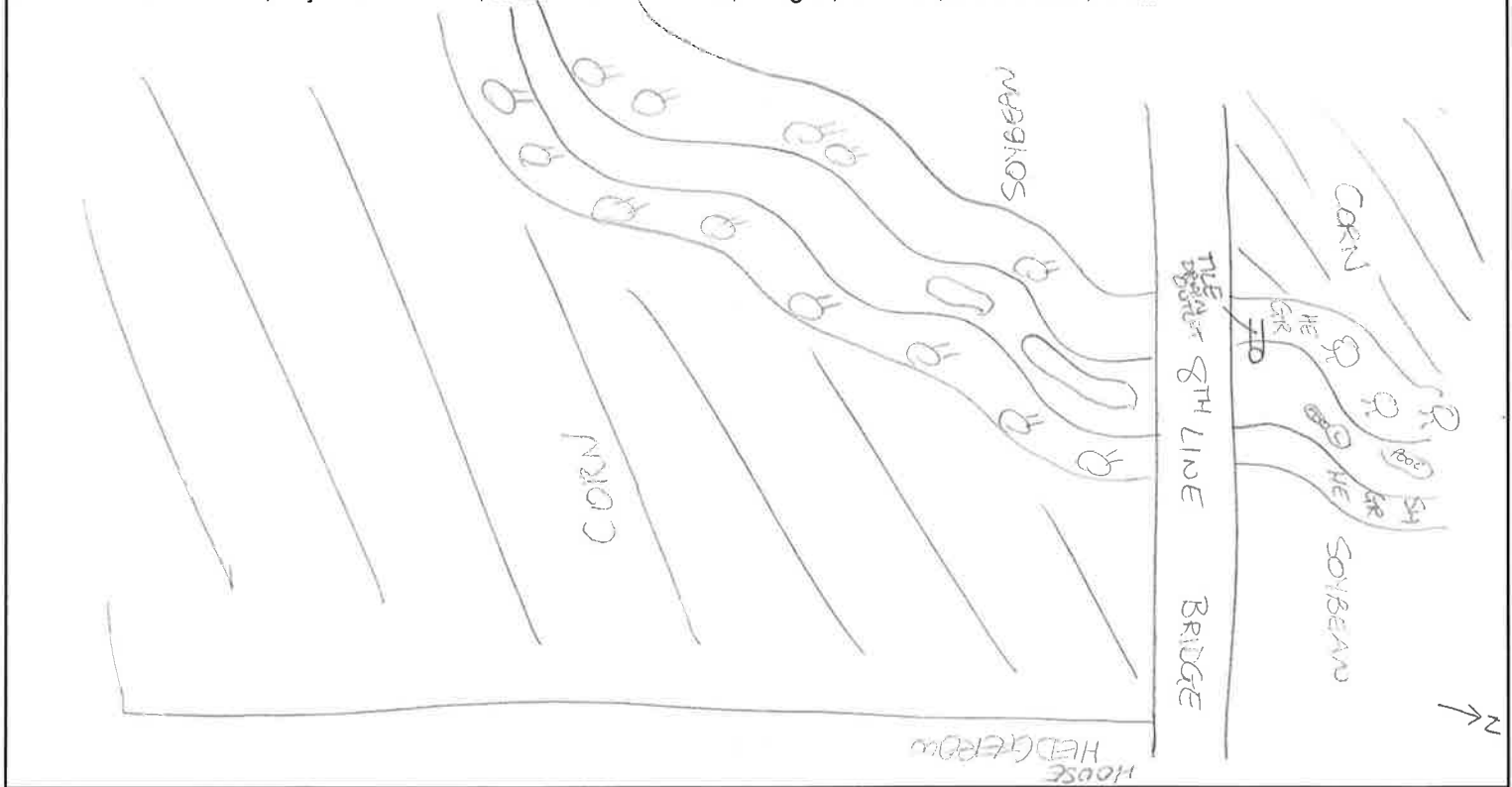
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: POOLS STANDING WATER 2m x 6m, 3 x 15m
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
27	NORTH FROM 8TH LINE BRIDGE		
28	SOUTH FROM 8TH LINE BRIDGE		
29	CATERPILLAR AT 8TH LINE BRIDGE		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * raccoons tracks @ 9th line
- * Standing water @ bridge @ 9th line
- * From 9th line observation are standing pools of water
- SOUTH SIDE OF 9TH LINE BRIDGE - POOL
- DRAGONFLY NYMPHS, WATER BEETLES, TADPOLES, FROG
- RACCOON + HERON PRINTS

BUTTERFLY: WHITE, YELLOW w/ WHITE, ALL BLACKS, MONARCH



PROJECT (Number & Name):

Field Staff: D. Calhoun, S. Murray

Station: S

Waterbody:

Drainage System:

Location in System: E. side of Dillion just N of 10th line

Appr. Reach Length (m):

Survey Date: Sep. 9/10

Time Started:

Time Finished:

Site Location:

GPS Datum: NAD83 **Easting:** 401990

Zone: 17 T **Northing:** 4684340

Municipality: Chatham Kent

Lot & Concession:

Weather Conditions:

Wind: 3 **Cloud Cover (%):** 75

Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grasses, Trees
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grasses, Herbs
	Vegetation Density (HML):
Canopy	Type: GR, HE Quality and % shade: Poor, 10%
Land Use	Agriculture on East, Road on West
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 2	Gradient (H/M/L):
Bank Height (range (m)): 3	Meander: Straight
Bank Slope (degrees from surface of water): 135	Bank Stability: Good
Bank Vegetation Type: Herbs, grasses.	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel: ✓	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus:
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock: ✓
Riffles:	Woody Debris:	Cobble: ✓
Backwater:	Vegetation: ✓ Grasses	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1m	3, 7, 8, 7.5, 4	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 23	D.O. (ppm): /	pH: /	Visible Characteristics/Other Parameters:
Air Temp. (°C): 20 @ 13:36	D.O. (%): /	TDS (ppm): /	
Time Taken: /	Conductivity (µs/cm): /		
Location Taken: /			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
	Photo 1 = North		
	Photo 2 = South		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* At least 100 fish in a 1x5m pool
 ↳ creek chubs & 40+ cyprinids
 Some up to 10cm long

* Northern Hog Sucker Caught w hands!



PROJECT (Number & Name): 1184 South Kent
Field Staff: D. Calhoun, S. Murray
Station: (V1)
Waterbody:
Drainage System:
Location in System: 1st drain west of Bloomfield on 10th Line
Appr. Reach Length (m):
Survey Date: Sep 9 '10
Time Started: 14:35
Time Finished: 14:55
Weather Conditions:
Wind: 3
Precipitation: None
Site Location:
GPS Datum: NAD 83 **Eastings:**
Zone: 17T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:

ADJACENT LANDS

Valley	Slope: Gentle (<5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: grasses
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herb - Golden Rod Shrub -
	Vegetation Density (H/M/L):
Canopy	Type: Herbaceous Quality and % shade: Poor @ 5% (South)
Land Use	Agriculture & Road 20: Good @ 50% (North)
Other Notes	(groundwater, soils, pools, vegetation, etc.) Pool 3m wide under culvert & disappears / goes under ground

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.5	Gradient (H/M/L):
Bank Height (range (m)): 3.5	Meander/Straight: → meanders @ Rd features
Bank Slope (degrees from surface of water): 135	Bank Stability: Good
Bank Vegetation Type: Herb. - Golden Rod	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus:
Sand:	Cobble: ✓	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock: ✓
Riffles:	Woody Debris:	Cobble: ✓
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
Algae		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

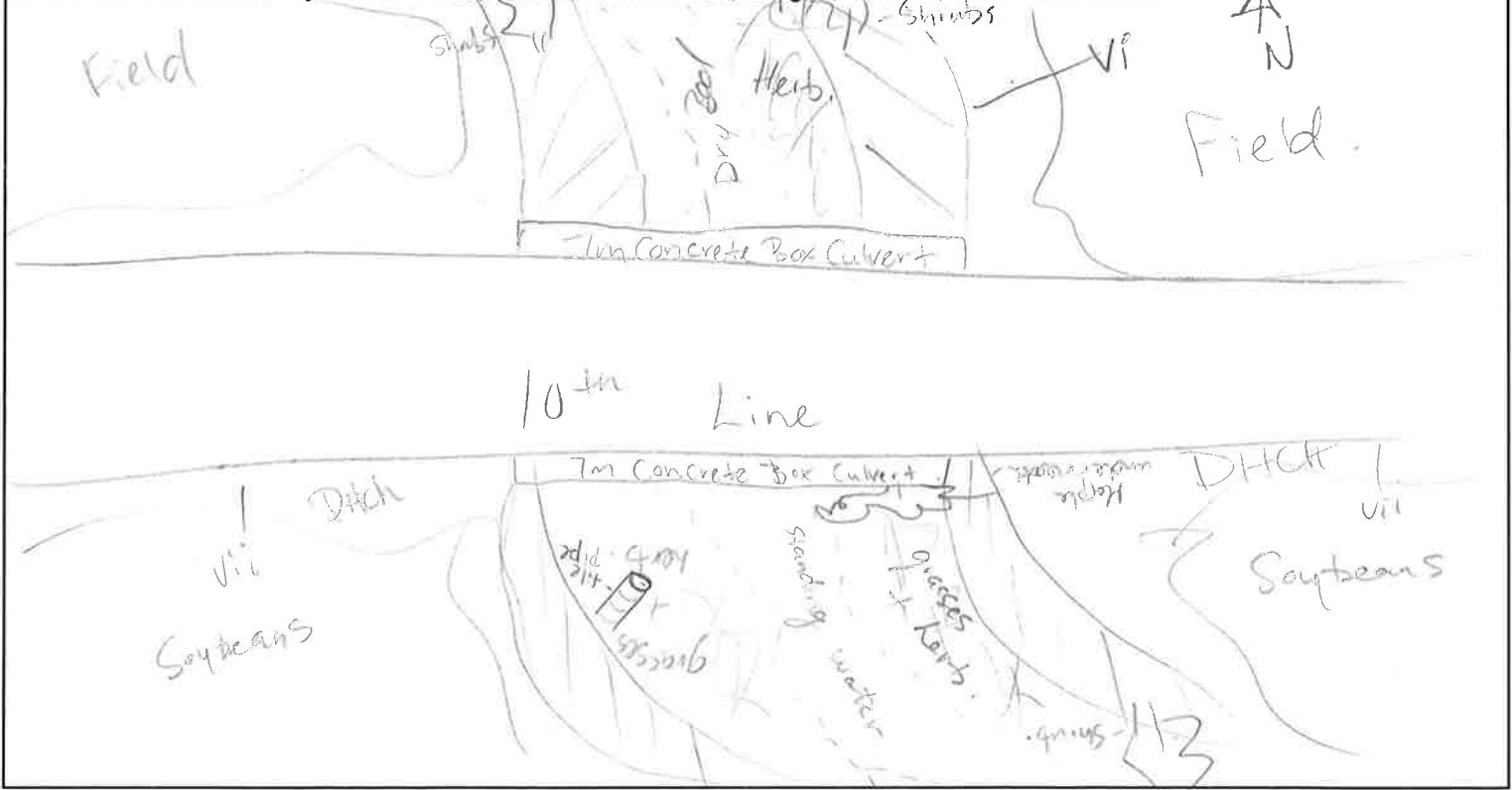
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters:
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
	1st Pic - North		
	2nd Pic - South		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

1 water striders observed



PROJECT (Number & Name): 1184 South Kent

Field Staff: D. Calhoun, S. Murray

Station: 'w'

Waterbody:

Drainage System:

Location in System: 10 km 2nd drain from Bloomfield.

Appr. Reach Length (m):

Survey Date: Sep. 9'10

Time Started: 15:08

Time Finished: 15:30

Site Location:

GPS Datum: NAD 83 **Easting:**

Zone: 17T **Northing:**

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind: 3 **Cloud Cover (%):** 70

Precipitation: None.

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herb - Golden Rod Tree - Willow
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herb - Golden Rod Grasses.
	Vegetation Density (HML):
Canopy	Type: Deciduous Trees. Quality and % shade: 40% South, 70% North
Land Use	Agriculture & Wind farms
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 3

Bank Height (range (m)): 25 cm

Bank Slope (degrees from surface of water): 135

Bank Vegetation Type: Herb - Golden Rod

Gradient (H/M/L):

Meander/Straight:

Bank Stability: Good

Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus:
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble: ✓
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None (Turbid)		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWI Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

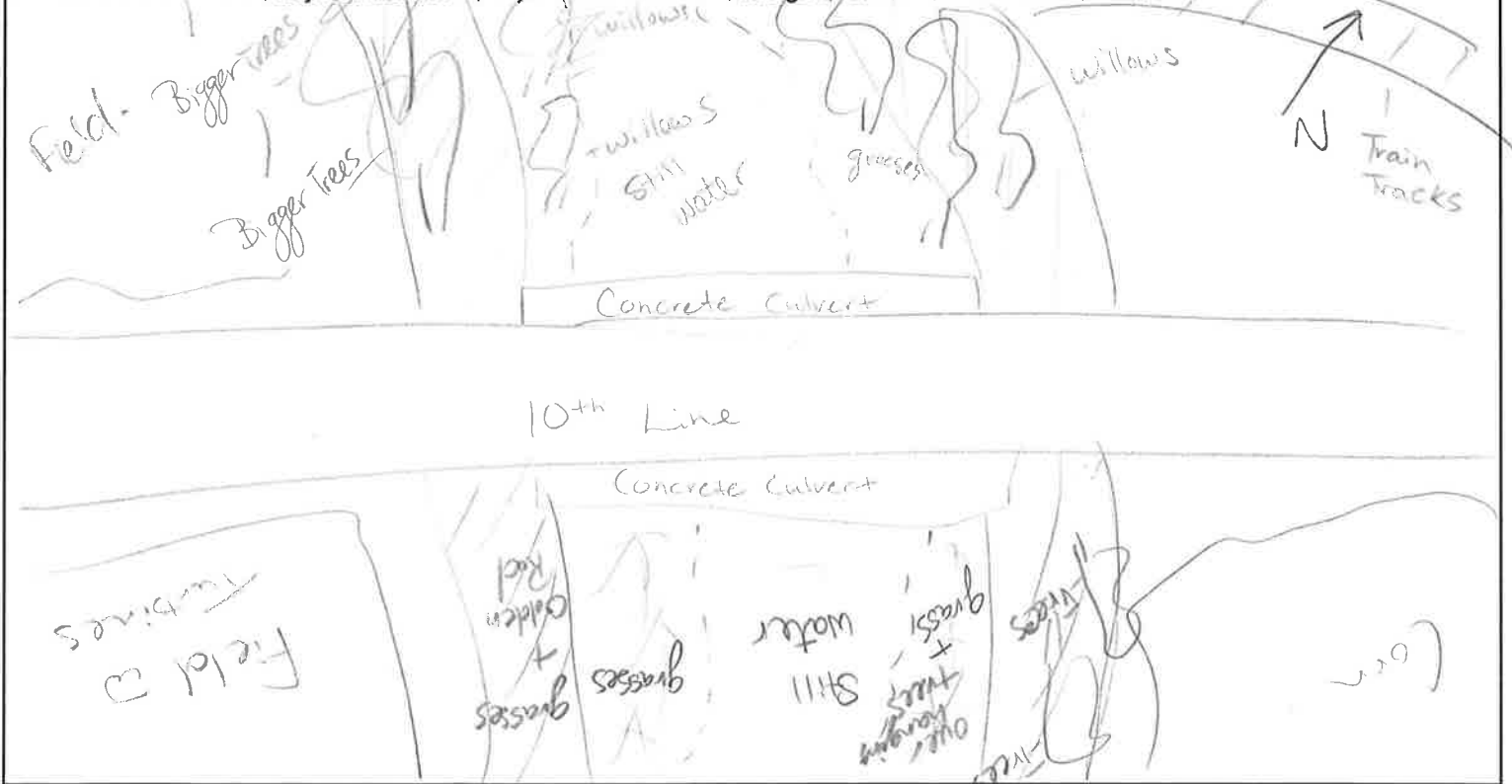
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	3.5	11, 19, 21, 24, 23	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 17	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters:
Air Temp. (°C): 16	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#86	1st Pic - East		
#87	2nd Pic - West		
#88	3rd Pic - Turbine blade overlap.		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

*Very Turbid



PROJECT (Number & Name): 1184 South Kent
Field Staff: D. Calhoun, S. Murray
Station: Y **Site Location:**
 Waterbody: GPS Datum: NAD 83 Easting:
 Drainage System: Zone: 17T Northing:
 Location in System: 10th line 1st drain West of Bloomfield Municipality: Chatham Kent
 Appr. Reach Length (m): Lot & Concession:
Survey Date: Sep. 9th 10 **Weather Conditions:**
 Time Started: 16:00 Wind: 2 Cloud Cover (%): 50%
 Time Finished: 16:21 Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grasses
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herb - Golden Rod, Jewelweed
	Vegetation Density (HML):
Canopy	Type: Quality and % shade: South - 10% North 90%
Land Use	Agriculture - South Woodlot - North
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 3 Gradient (H/M/L):
 Bank Height (range (m)): 5 Meander/Straight:
 Bank Slope (degrees from surface of water): 135 Bank Stability: Good
 Bank Vegetation Type: Herbaceous Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input type="checkbox"/>
Sand: <input type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
floating	greater duckweed	very abundant

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

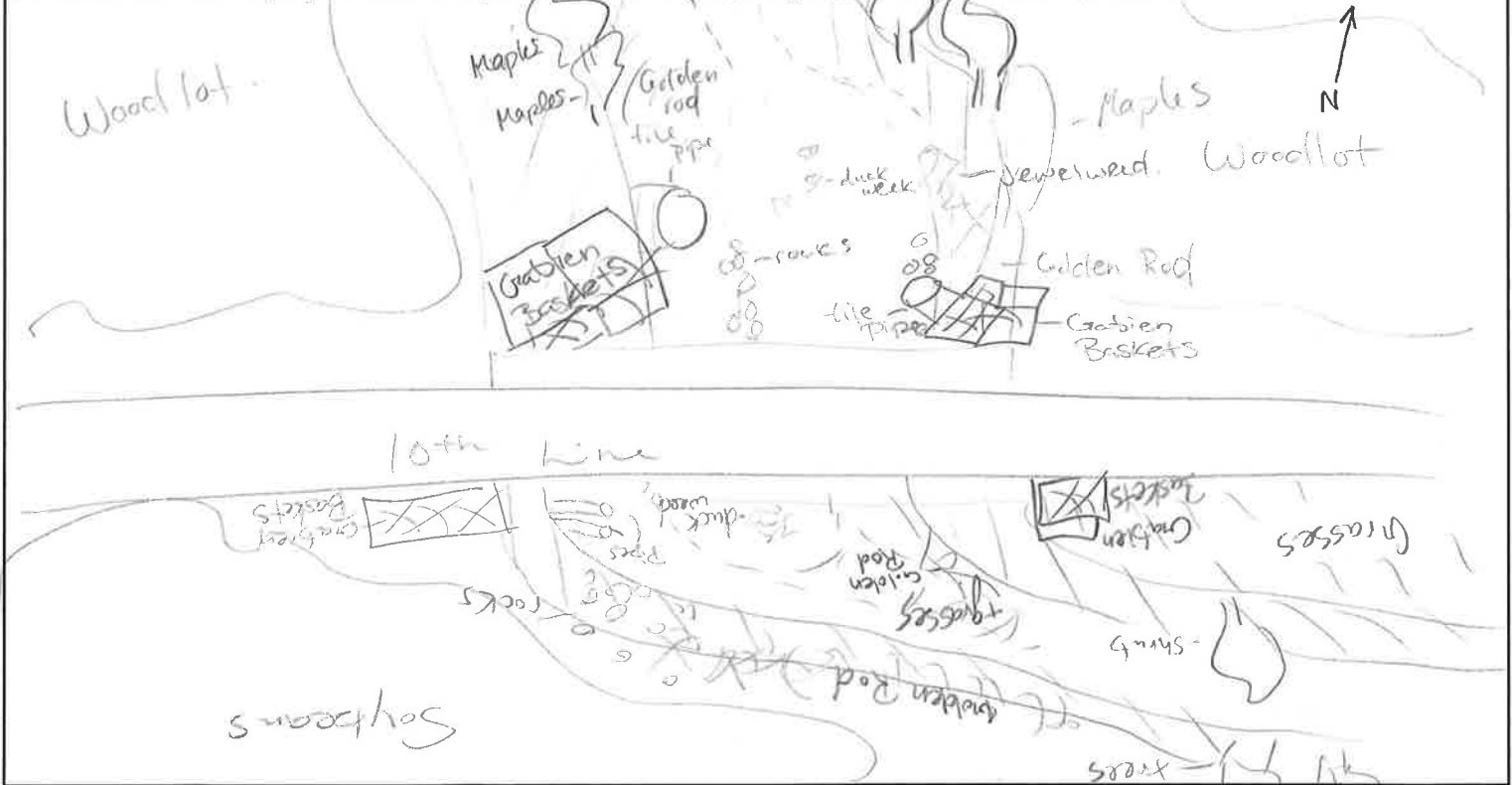
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	3	3, 3, 3, 3.5, 1	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 21	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing water
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken: 16:14	Conductivity (µs/cm):		
Location Taken: In stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
	#91 - U/S & South		
	#92 - D/S & North		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* green frogs observed



PROJECT (Number & Name): 1184 South Kent
Field Staff: D. Calhoun, S. Murray
Station: FF:1, FF:2
Waterbody:
Drainage System:
Location in System: Horton Road in between Fargo & Communication
Appr. Reach Length (m):
Survey Date: Sep. 10, 10
Time Started: 10:36 am
Time Finished: 10:55 am
Site Location:
GPS Datum: NAD 83 **Easting:** 410261
Zone: 17 T **Northing:** 4691711
Municipality: Chatham Kent
Lot & Concession:
Weather Conditions:
Wind: 2 **Cloud Cover (%):** 70
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grasses
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grasses and Herb
	Vegetation Density (H/M/L):
Canopy	Type: Grasses & Herb Quality and % shade: Poor 10%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1m -> 1.5m -> 2m **Gradient (H/M/L):**
Bank Height (range (m)): 4m **Meander/Straight:**
Bank Slope (degrees from surface of water): 35 **Bank Stability:** Good
Bank Vegetation Type: Grasses and Herb **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: ✓ **Gravel:** **Boulder:** **Muck:** ✓
Silt: **Pebble:** **Bedrock:** **Detritus:**
Sand: **Cobble:** **Marl:** **Other:**

INSTREAM HABITAT AND COVER

Pools: **Undercut Banks:** ✓ **Boulder/Rock:**
Riffles: **Woody Debris:** **Cobble:**
Backwater: **Vegetation:** ✓ grasses **Other:**

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Phragmites	→ not very abundant only small patches on western side of FF:1

CODES:

SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input
AHY Aquatic Habitat Area	DOX Dissolved Oxygen Stn
TMP Temp Monitor Stn	CKC Creek Crossing
FLW Flow Monitor Stn	WEL Well
	WQS Water Quality Stn
	CUL Culvert

FLOW CONDITIONS

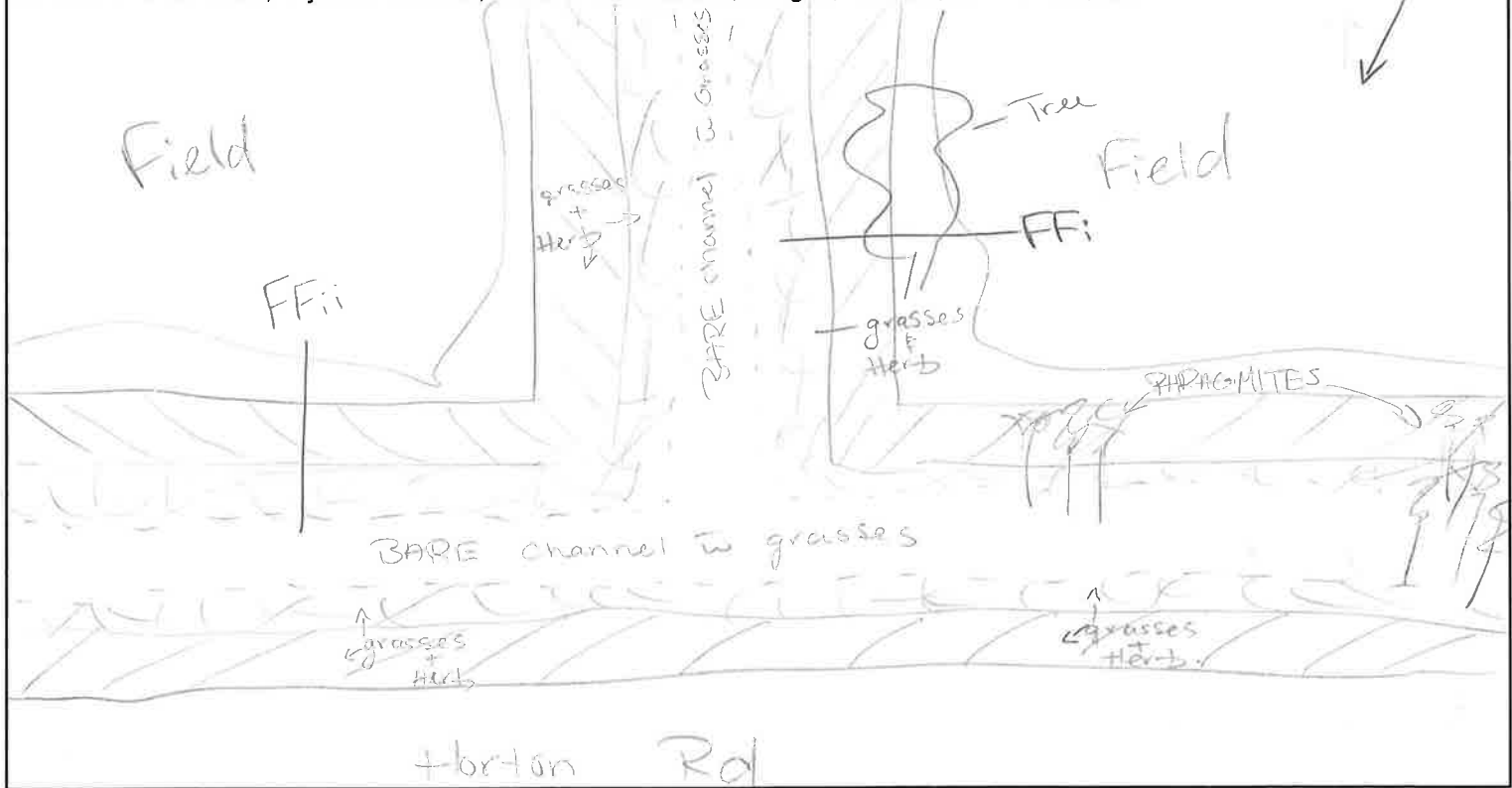
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			DRY
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): /	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters:
Air Temp. (°C): 20°C	D.O. (%):	TDS (ppm):	
Time Taken: 10.53	Conductivity (µs/cm):		
Location Taken: Roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
	#1 - FFi - South		
	#2 - FFi - East		
	#3 - FFi - West		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 1184 South Kent
Field Staff: D. Calhoun, S. Murray
Station: G6G1, G6G2
Waterbody:
Drainage System:
Location in System: Horton Rd. last trib off Communication
Appr. Reach Length (m):
Survey Date: Sep. 10/10
Time Started: 11:00 am
Time Finished: 11:36 am
Weather Conditions:
Wind: 1
Precipitation: None
Site Location:
GPS Datum: NAD83 **Easting:**
Zone: 17T **Northing:**
Municipality: Chatham Kent
Lot & Concession:

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)	
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Trees - Deciduous Grasses			
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Herbaceous, Grasses			
	Vegetation Density (H/M/L):				
Canopy	Type:	Tree & Herbs			Quality and % shade: Poor 15%
Land Use	Agriculture, Residential				
Other Notes	(groundwater, soils, pools, vegetation, etc.)				

CHANNEL MORPHOLOGY

Channel Width (range (m)): 2.5
Bank Height (range (m)): 5 high water => 1.5m
Bank Slope (degrees from surface of water): 135
Bank Vegetation Type: Herbaceous, Grasses
Gradient (H/M/L):
Meander/Straight:
Bank Stability: Good
Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input checked="" type="checkbox"/>
Riffles: <input type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None - Turbid		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

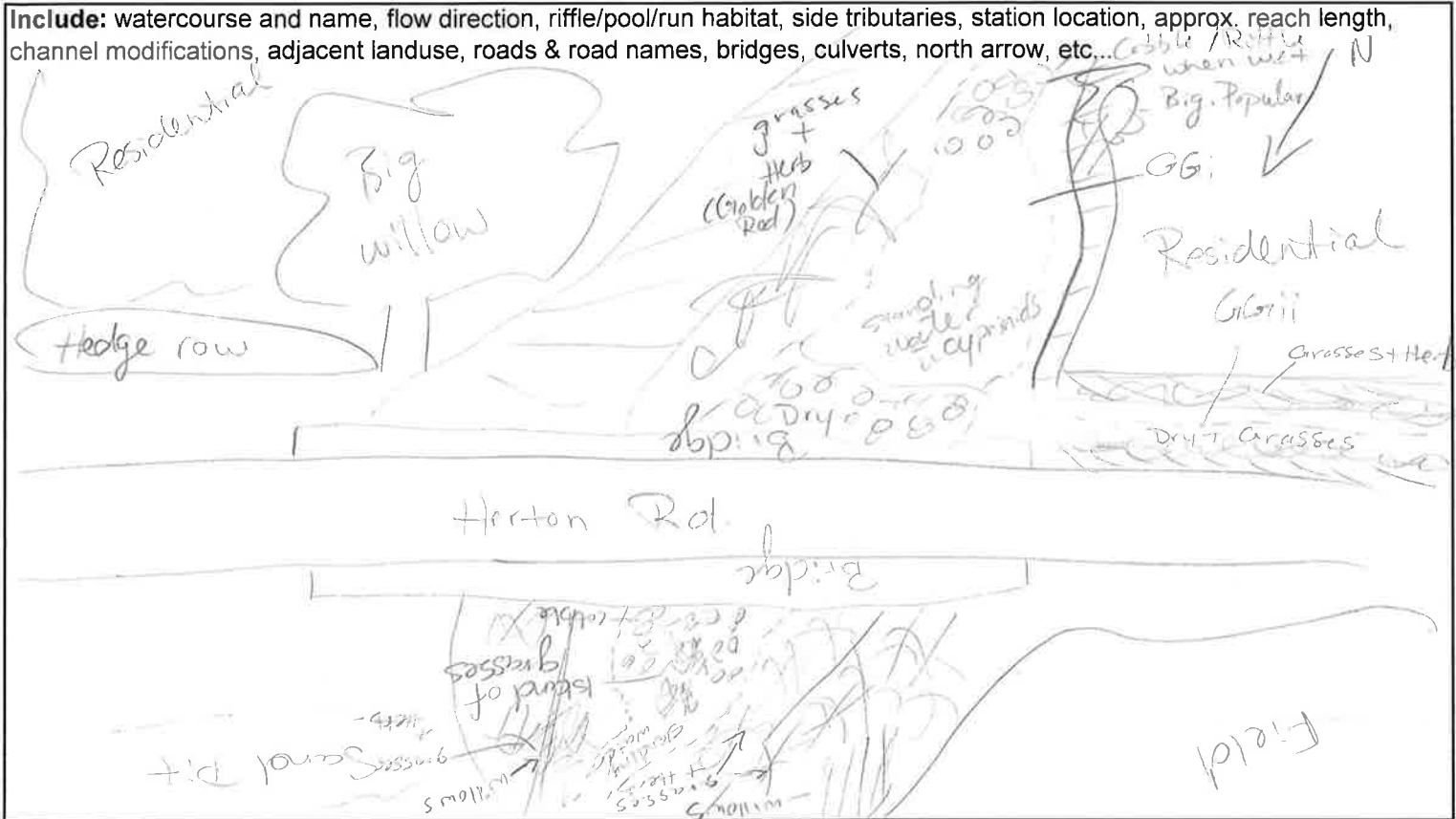
FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.23	27, 35, 33, 26, 11	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 17°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing Pools
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken: In stream			

SITE DRAWING



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1 Pic	→ South → u/s		
#2 Pic	→ north → d/s		
#3 Pic	→ west → in channel		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * Cyprinids observed
- * water striders
- * Cedar waxwing
- * Smell like manure



PROJECT (Number & Name): 1184 South Kent
Field Staff: D. Callaghan, S. Murray
Station: JJ (all) **Site Location:**
 Waterbody: GPS Datum: NAD 83 Easting:
 Drainage System: Lucas Drain Zone: ITT Northing:
 Location in System: Municipality: Clatham Kent
 Appr. Reach Length (m): Lot & Concession:
Survey Date: Sep. 10/10 **Weather Conditions:**
 Time Started: 12:30 Wind: 3 Cloud Cover (%): 70%
 Time Finished: 12:53 Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Trees - Mixed
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herb (Jewelweed, Golden Rod) Vines (Wild Olive) Shrub - Willow
	Vegetation Density (HML):
Canopy	Type: Tree (South) Herbaceous (North) Quality and % shade: North - Poor, 10% - South - Great 90%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): ~ 4 m Gradient (H/M/L):
 Bank Height (range (m)): 7 Meander/Straight:
 Bank Slope (degrees from surface of water): 135 Bank Stability: Good
 Bank Vegetation Type: Herb - Golden Rod, Shrub - Willow Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel: ✓	Boulder:	Muck:
Silt: ✓	Pebble:	Bedrock:	Detritus: ✓
Sand: ✓	Cobble: ✓	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles: ✓	Woody Debris: ✓	Cobble: ✓
Backwater:	Vegetation: ✓	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Phragmites (ii)	
	Walter cress (i)	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

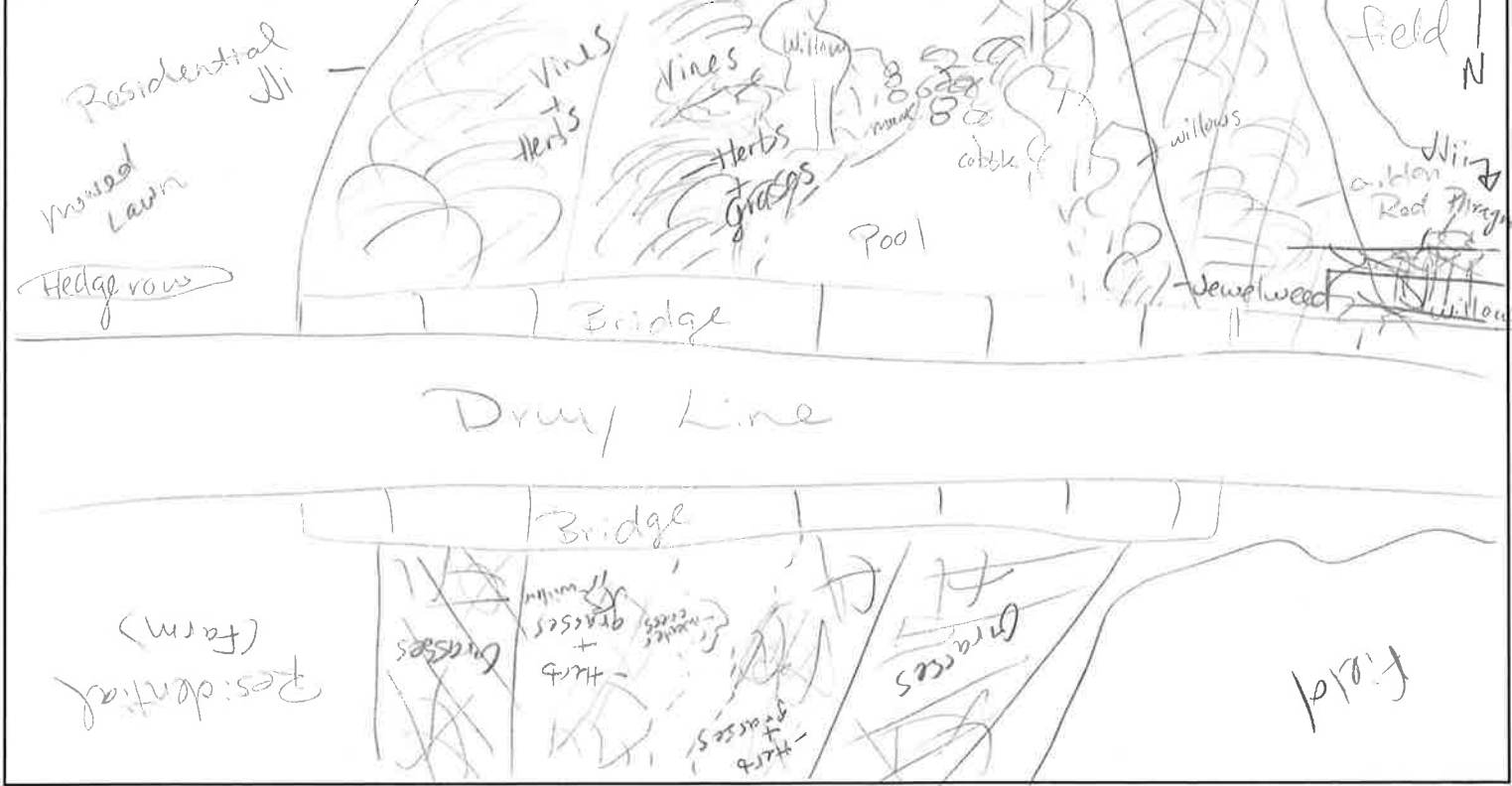
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.75	11, 19, 20, 20, 18	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 14°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Slow Flow
Air Temp. (°C): 20°C	D.O. (%):	TDS (ppm):	
Time Taken: 12:47	Conductivity (µs/cm):		
Location Taken: In stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
1#	North		
2#	South		
3#	West		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

x Cyprinids observed.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: LL, LLii
Waterbody: unknown
Drainage System:
Location in System: 1st trib off of Communication to Cudde
Appr. Reach Length (m):
Survey Date: Sep. 13 '10
Time Started: 12:59
Time Finished: 13:33
Site Location:
GPS Datum: NAD83 **Easting:**
Zone: 17T **Northing:**
Municipality: Chatham/Kent
Lot & Concession:
Weather Conditions:
Wind: 3 **Cloud Cover (%):** 0%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Trees - Cedar, Elm, Basswood Herb - Golden Rod
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herb - Golden Rod Grasses
	Vegetation Density (HML):
Canopy	Type: Tree & Herb Quality and % shade: Good → 50%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 2.5 **Gradient (H/M/L):**
Bank Height (range (m)): 3.5 → 2.5 high water **Meander/Straight:**
Bank Slope (degrees from surface of water): **Bank Stability:** Good
Bank Vegetation Type: Herb - Golden Rod Trees - Cedar, Elm **Bank Veg. Density (H/M/L):**
↳ Basswood

CHANNEL SUBSTRATE %

Clay: ✓	Gravel: ✓	Boulder: ✓	Muck: ✓
Silt: ✓	Pebble: ✓	Bedrock: ✓	Detritus: ✓
Sand: ✓	Cobble: ✓	Marl: ✓	Other: ✓

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock: ✓
Riffles: ✓	Woody Debris: ✓	Cobble: ✓
Backwater: ✓	Vegetation: ✓	Other: ✓

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None - turbid		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

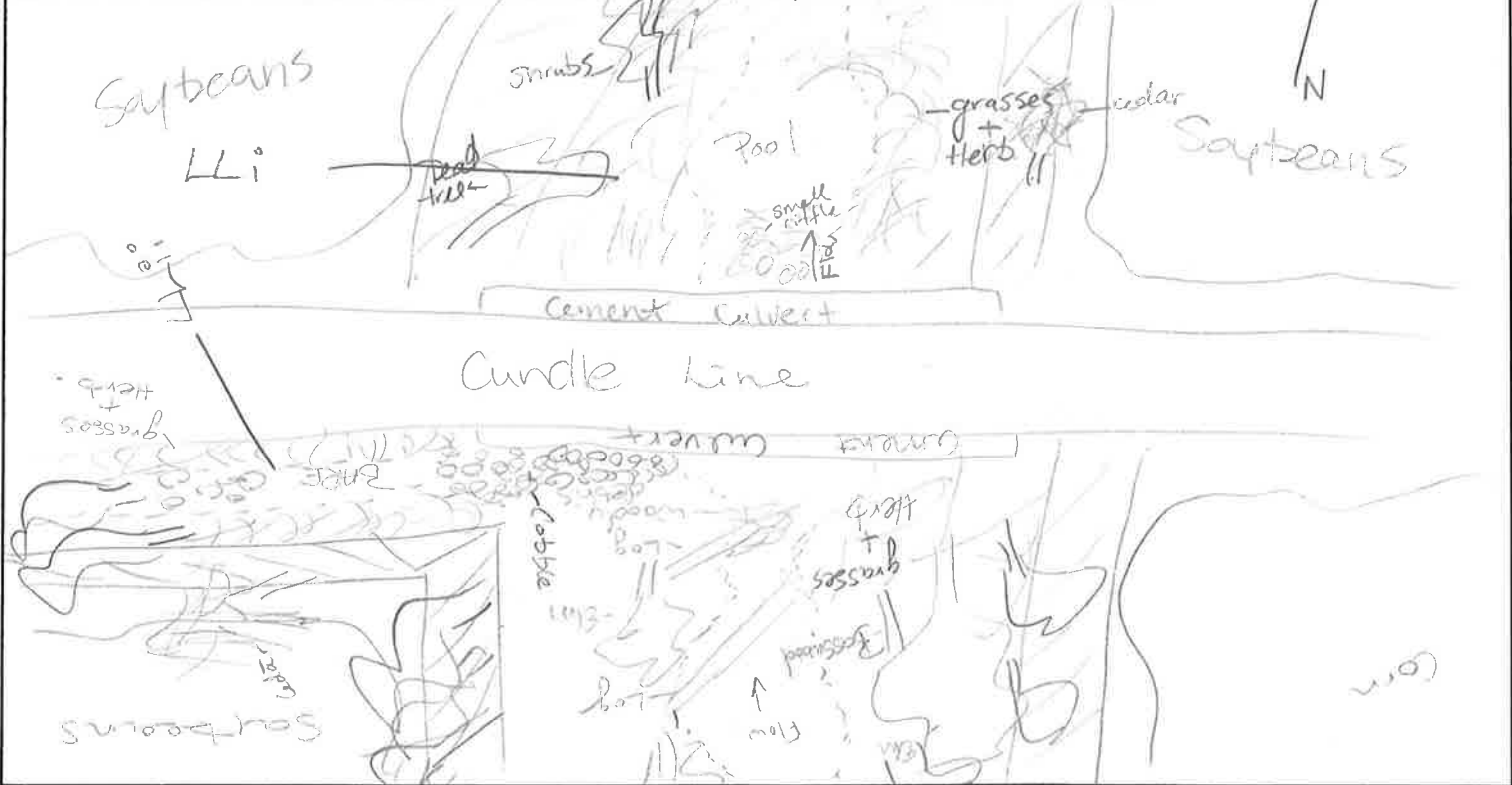
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.79	10, 18, 19, 27, 21	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 19	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters:
Air Temp. (°C): 25	D.O. (%):	TDS (ppm):	
Time Taken: 13:20	Conductivity (µs/cm):		
Location Taken: In Stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	W/S North (Lli)		
#2	d/s south (Lli)		
#3	east (Lli)		
#4	west (Lli)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- lots of litter
- water striders seen
- raccoon tracks
- cyprinids seen



PROJECT (Number & Name): 1184 South Kent
Field Staff: S Murray
Station: QQ
Waterbody:
Drainage System: Trib of White Drain (most eastern tributary)
Location in System: last trib on Dry before Harwich
Appr. Reach Length (m):
Survey Date: Sep 13 '10
Time Started: 14:40
Time Finished: 15:17
Site Location:
GPS Datum: NAD83 **Easting:**
Zone: RT **Northing:**
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions: Sunny
Wind: 2 **Cloud Cover (%):** 5%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass, Tree - Cedar Wild grape
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grasses, Herbaceous - Golden Rod - Jewelweed
	Vegetation Density (HML):
Canopy	Type: Grasses herbaceous, Tree Quality and % shade: Poor - 15%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 2m **Gradient (H/M/L):**
Bank Height (range (m)): 4.5 **Meander/Straight:**
Bank Slope (degrees from surface of water): 135 **Bank Stability:** Good
Bank Vegetation Type: Herbaceous, grasses shrubs. **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input checked="" type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: **Undercut Banks:** **Boulder/Rock:**
Riffles: **Woody Debris:** **Cobble:**
Backwater: **Vegetation:** grasses **Other:**

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.42	9, 15, 14, 13, 11	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 16°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters:
Air Temp. (°C): 27°C	D.O. (%):	TDS (ppm):	
Time Taken: 15:00	Conductivity (µs/cm):		
Location Taken: in stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	UIS (south)		
#2	UIS (north)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* dead mudminnow

* ran into land owner says there are lots of frogs



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: '44' (all)
Waterbody:
Drainage System: last trib on bank before Harwich (west bound)
Location in System:
Appr. Reach Length (m):
Survey Date: Sep 13/10
Time Started: 16:45
Time Finished: 17:05
Site Location:
GPS Datum: NAD 83 **Easting:**
Zone: 17 T **Northing:**
Municipality: Chatham, Kent
Lot & Concession:
Weather Conditions:
Wind: 4 **Cloud Cover (%):** 5%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type:
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type:
	Vegetation Density (HML):
Canopy	Type: Herbaceous, grasses, tree Quality and % shade: Poor - 15%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.5-3 **Gradient (H/M/L):**
Bank Height (range (m)): 3-5 **Meander:** Straight
Bank Slope (degrees from surface of water): high water @ 4 **Bank Stability:** Good
Bank Vegetation Type: Herbaceous, grasses, tree **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input checked="" type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: **Undercut Banks:** **Boulder/Rock:**
Riffles: **Woody Debris:** **Cobble:**
Backwater: **Vegetation:** **Other:**

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
grasses		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

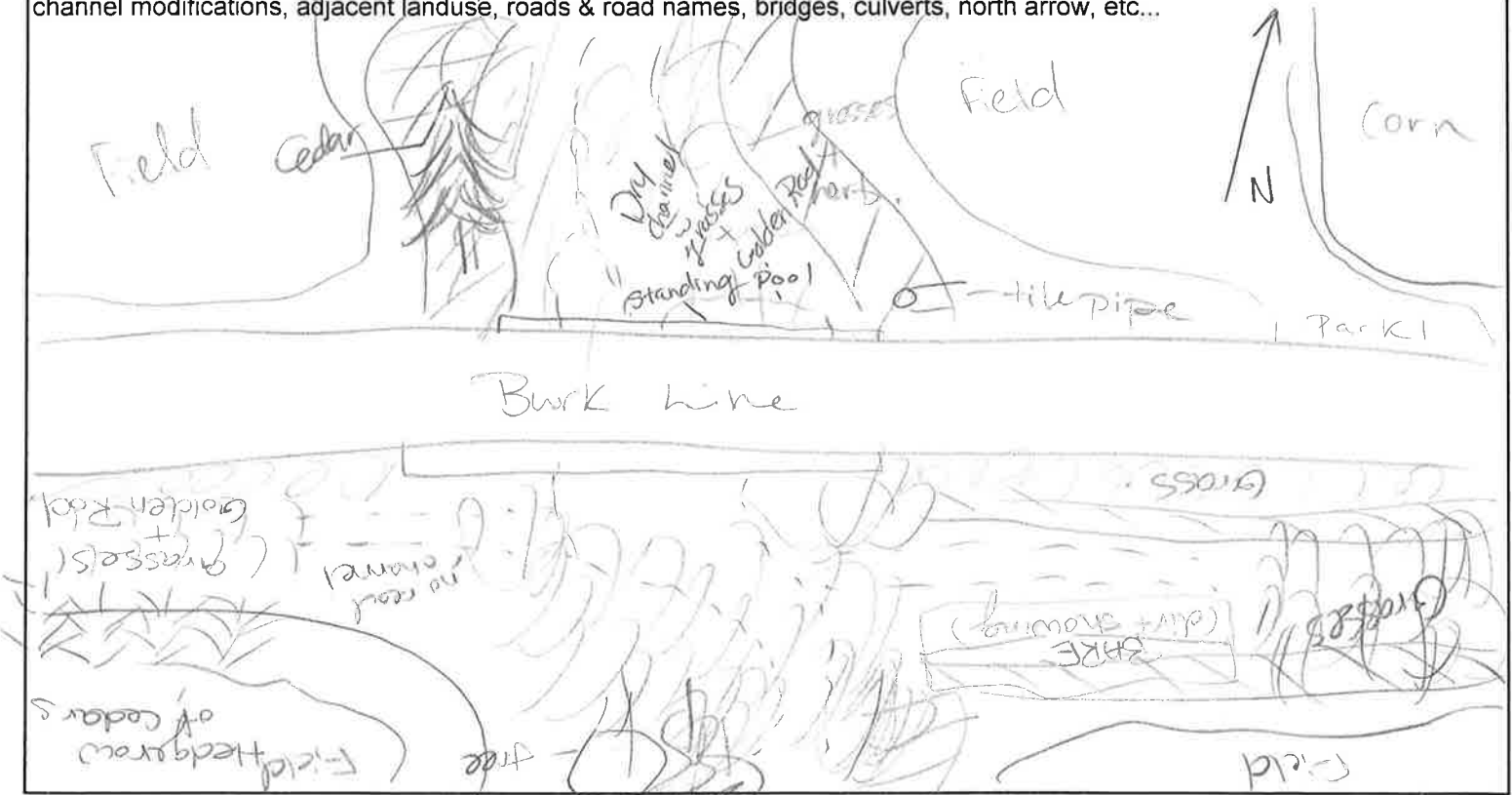
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters:
Air Temp. (°C): 26°C	D.O. (%):	TDS (ppm):	
Time Taken: 16:55	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	o/s (south)		
#2	u/s north		
#3	east		
#4	west		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: ZZ

Waterbody:

Drainage System:

Location in System: 1st trib on Welch going west

Appr. Reach Length (m):

Survey Date: Sep. 13, 10

Time Started: 17:20

Time Finished: 17:47

Site Location:

GPS Datum: NAD 83 **Easting:**

Zone: 17 T **Northing:**

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind: 2 **Cloud Cover (%):** 5%

Precipitation: None

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Tree - Bur oak, Cedar Grasses Herbaceous - Golden Rod		
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Grasses, Herbaceous (Golden Rod, Jewelweed) Shrub		
	Vegetation Density (HML):			
Canopy	Type:	Shrub, Herbaceous, Grasses		
	Quality and % shade:	Poor - 15%		
Land Use	Agriculture			
Other Notes	(groundwater, soils, pools, vegetation, etc.)			

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1 - 5

Bank Height (range (m)): 3 - 6 High water → 1.5

Bank Slope (degrees from surface of water):

Bank Vegetation Type: Grasses, Herb, Shrub

Gradient (H/M/L):

Meander/Straight:

Bank Stability: Good

Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
water cress		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

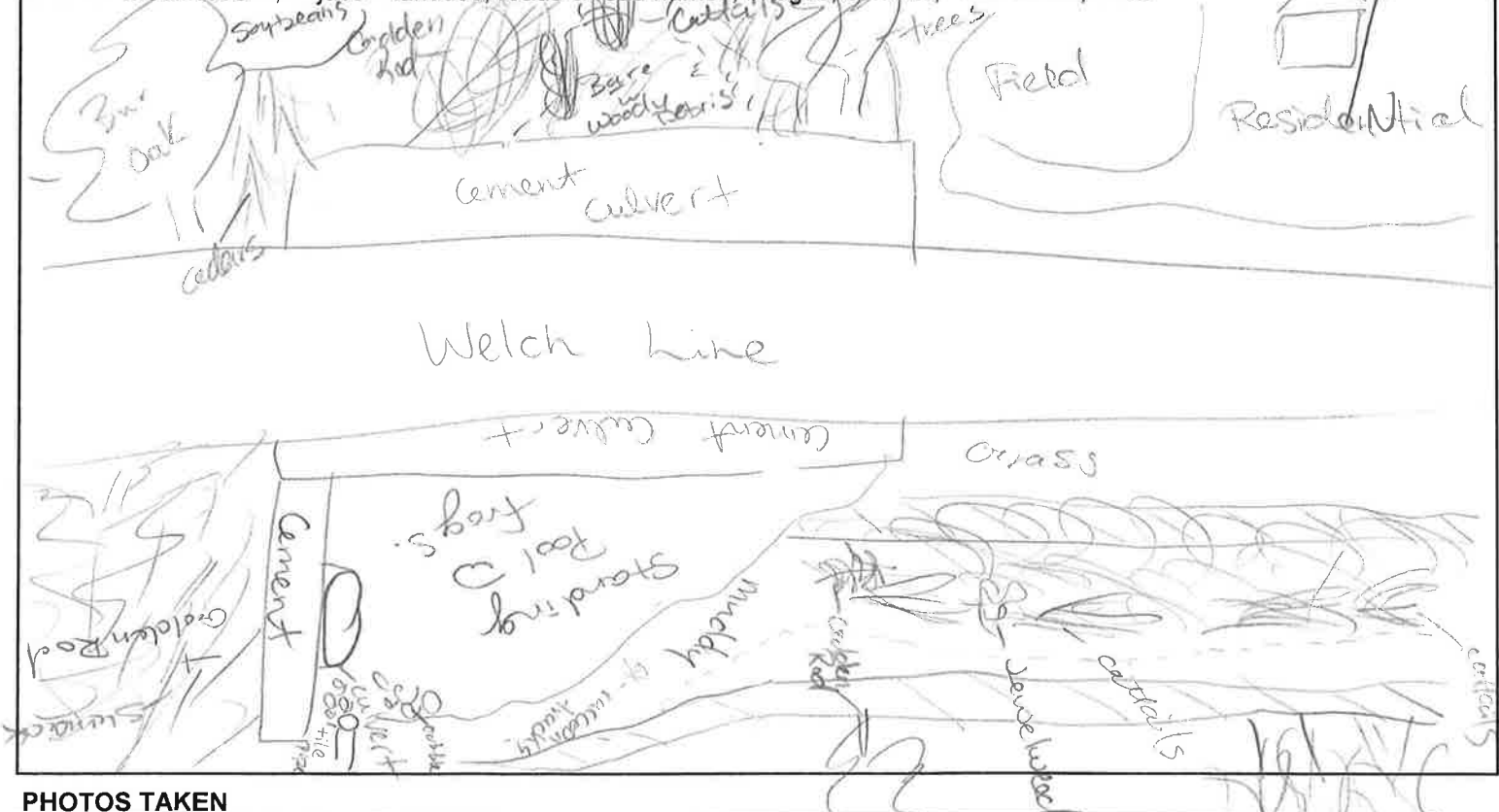
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing Pool under cement culvert
Air Temp. (°C): 26°C	D.O. (%):	TDS (ppm):	
Time Taken: 17:30	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	W/S - South		
#2	D/S - North		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- lots of green frogs observed
- raccoon & heron tracks seen.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: AAA **Site Location:**
Waterbody: Mull Drain **GPS Datum:** NAD83 **Easting:**
Drainage System: **Zone:** 17 T **Northing:**
Location in System: 1' + trib on burke past Mull east **Municipality:** Chatham Kent
Appr. Reach Length (m): **Lot & Concession:**
Survey Date: Sep. 14 '10 **Weather Conditions:**
Time Started: 9:15 **Wind:** | **Cloud Cover (%):** 0%
Time Finished: 9:35 **Precipitation:** None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree- Maple, Willow Herbaceous- Golden Rod Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous- Golden Rod Shrub
	Vegetation Density (HML):
Canopy	Type: Tree & Herbaceous Quality and % shade: Excellent → 75%
Land Use	Agriculture / Residential
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 1.5	Gradient (H/M/L):
Bank Height (range (m)): 1 - 5m	Meander/Straight: N-straight, S-Meander
Bank Slope (degrees from surface of water): 135	Bank Stability: Good
Bank Vegetation Type: Herbaceous, Shrub, tree	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder: ✓	Muck: ✓
Silt: ✓	Pebble: ✓	Bedrock:	Detritus: ✓
Sand: ✓	Cobble: ✓	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: ✓	Boulder/Rock: ✓
Riffles:	Woody Debris: ✓	Cobble: ✓
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			Dry
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Dry
Air Temp. (°C): 14°C	D.O. (%):	TDS (ppm):	
Time Taken: 9:30	Conductivity (µs/cm):		
Location Taken: roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	South (u/s)		
#2	North (d/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * very well shaded
- * lots of cobble in areas looking like riffles if there was water
- * looks like very good fish habitat if there was water.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: FEE (all)
Waterbody: unnamed
Drainage System:
Location in System: left tribut on Burke before Base
Appr. Reach Length (m):
Survey Date: Sep. 14 '10
Time Started: 10:30
Time Finished: 10:55
Weather Conditions:
Wind: 1
Precipitation: None
Site Location:
GPS Datum: NAD83 **Easting:**
Zone: 17 T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree - Poplar, Ash Shrub - willow Herb - Golden Rod
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous - Golden Rod Shrub - Willow
	Vegetation Density (HML):
Canopy	Type: Tree & Herbaceous Quality and % shade: Poor - 15%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 3m
Bank Height (range (m)): 3 - 6m High water @ 3m
Bank Slope (degrees from surface of water): 135
Bank Vegetation Type: Herbaceous, Grass, Shrub (willow)
Gradient (H/M/L): Meander/Straight
Bank Stability: Good
Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: **Gravel:** **Boulder:** **Muck:**
Silt: **Pebble:** **Bedrock:** **Detritus:**
Sand: **Cobble:** **Marl:** **Other:**

INSTREAM HABITAT AND COVER

Pools: **Undercut Banks:** **Boulder/Rock:**
Riffles: **Woody Debris:** **Cobble:**
Backwater: **Vegetation:** **Other:**

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.75	8, 20, 21, 18, 9	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 14°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Still, turbid, water
Air Temp. (°C): 16°C	D.O. (%):	TDS (ppm):	
Time Taken: 10:35	Conductivity (µs/cm):		
Location Taken: In Pool			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1 - South (LWS)			
#2 - North (R/S)			
#3 - East			
#4 - West			

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * cyprinids observed
- * water striders
- * raccoon tracks
- * turbid water
- * All observed in EEE!



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: HHH **Site Location:**
Waterbody: Union Drain **GPS Datum:** NAD 83 **Easting:**
Drainage System: **Zone:** 17 T **Northing:**
Location in System: 1st trib on Haddaway from Base Rd **Municipality:** Chatham / Kent
Appr. Reach Length (m): **Lot & Concession:**
Survey Date: Sep 14 '10 **Weather Conditions:**
Time Started: 11:51 **Wind:** 2 **Cloud Cover (%):** 0%
Time Finished: 12:11 **Precipitation:** None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 15 20 to 30 30+
	Vegetation Type: Tree-Maple Shrub-Sumack
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous-Golden Rod Shrub-Sumack
	Vegetation Density (HML):
Canopy	Type: Tree (Maple), Shrubs, Herbaceous, GR Quality and % shade: Good → 40%
Land Use	Agriculture + Residential
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): .5 - 2m **Gradient (H/M/L):**
Bank Height (range (m)): 6m High water @ 4m **Meander/Straight:**
Bank Slope (degrees from surface of water): 135° **Bank Stability:** Good
Bank Vegetation Type: Shrub, Herbaceous (Golden Rod) Grass **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
Floating	duckweed	

CODES:

AHP Aquatic Habitat Point	SWI Surface Water Input	SCS Stream Cross Section
AHY Aquatic Habitat Area	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
TMP Temp Monitor Stn	CKC Creek Crossing	VSS Visual Survey Stn
FLW Flow Monitor Stn	WEL Well	WQS Water Quality Stn
	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Small standing Pools.
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Dry. Some standing water in Pools
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	1/5 South		
#2	dis North		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* 404 cyprinids observed in small pool on north side



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: III (all)

Waterbody:

Drainage System:

Location in System: tribon Mill Rd north of front line

Appr. Reach Length (m):

Survey Date: Sep. 14.10

Time Started: 12:30

Time Finished: 13:10

Site Location:

GPS Datum: NAD 83 **Eastings:**

Zone: 17 T **Northings:**

Municipality: Chatham, K.E.S.

Lot & Concession:

Weather Conditions:

Wind: 2 **Cloud Cover (%):** 0%

Precipitation: None

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)			
	Extent of Natural Vegetation (m)		0-10	10 to 20	12	20 to 30	30+
	Vegetation Type:	Grass - ii, iii Trees (i) - Oak					
Riparian Zone	Flood Plain - extent of frequent flood (m):		0-10	10 to 20	20 to 30	30+	
	Vegetation Type:	Grass, Herbaceous Aquatic (ii) - Arrowhead, Typha					
	Vegetation Density (H/M/L):						
Canopy	Type:	Tree (i) + Grass, Herb (ii, iii)		Quality and % shade: Poor 5% (ii, iii) Good 50% (i)			
Land Use	Agriculture						
Other Notes	(groundwater, soils, pools, vegetation, etc.)						

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 2

Bank Height (range (m)): 5 m High water @ 2m(i), 3m(ii), 1m(iii)

Bank Slope (degrees from surface of water): 135

Bank Vegetation Type: Grass + Herbaceous

Gradient (H/M/L):

Meander/Straight:

Bank Stability: Good

Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools:

Riffles:

Backwater:

Undercut Banks:

Woody Debris:

Vegetation: (arrowhead, typha)

Boulder/Rock:

Cobble:

Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	arrowhead	
	typha	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.66	8, 12, 10, 9, 7	Pool - turbid
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 21°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: standing water (turbid)
Air Temp. (°C): 18°C	D.O. (%):	TDS (ppm):	
Time Taken: 12:45	Conductivity (µs/cm):		
Location Taken: In Pool (south)			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	east (i)		
#2	west (ii)		
#3	south (iii)		
#4	North (iii)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * cyprinids observed (found 1 dead fathead minnow & 1 alive brook stickleback)
- * green frogs observed
- * drain is possibly dug over & re-done



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: LLL
Waterbody: Mill Drain
Drainage System:
Location in System: 2nd tribut on Eols line from Mill Rd
Appr. Reach Length (m):
Survey Date: Sep. 14/10
Time Started: 13:56
Time Finished: 14:25
Site Location:
GPS Datum: NAD83 **Easting:** 424797
Zone: 17T **Northing:** 4689336
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 2 **Cloud Cover (%):** 0%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous - Golden Rod Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous - Golden Rod Shrub - Sumack
	Vegetation Density (H/M/L):
Canopy	Type: Herbaceous + Grass Quality and % shade: Poor 5%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 5 - 2 m **Gradient (H/M/L):**
Bank Height (range (m)): 4 High water @ 2m **Meander/Straight:**
Bank Slope (degrees from surface of water): 135 **Bank Stability:** Good
Bank Vegetation Type: Herbaceous - Golden Rod Shrub - Sumack **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: **Undercut Banks:** **Boulder/Rock:**
Riffles: **Woody Debris:** **Cobble:**
Backwater: **Vegetation:** Greater Duckweed **Other:**

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Greater Duckweed	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

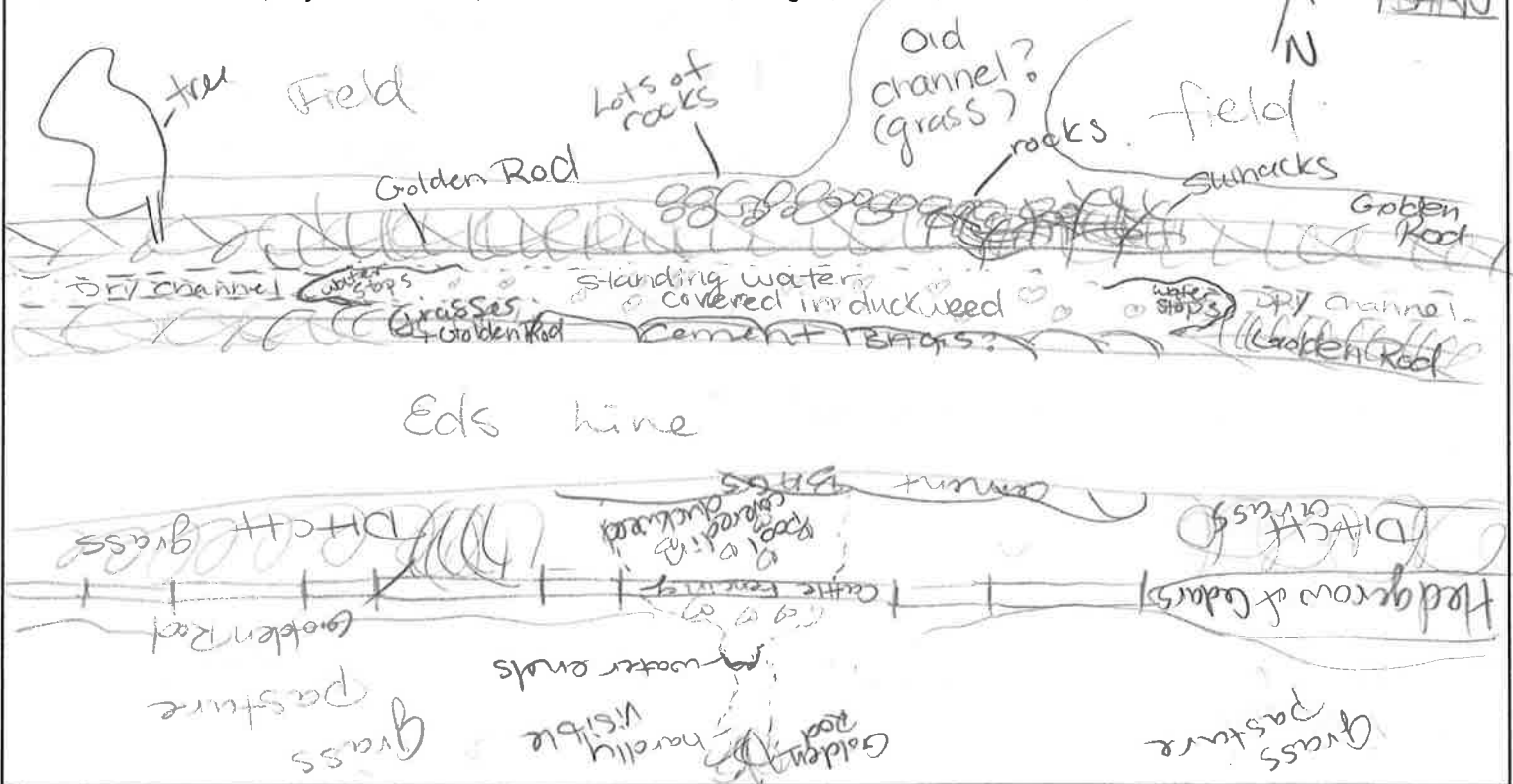
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.25	20, 26, 26, 21, 26	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 16°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing water w Greater duckweed.
Air Temp. (°C): 22°C	D.O. (%):	TDS (ppm):	
Time Taken: 14:10	Conductivity (µs/cm):		
Location Taken: In Stream/Roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	UIS (South)		
#2	east		
#3	west		
#4	old channel?		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- by looking @ the map seems like waterbody/drain has been altered, if so the possible 'old channel' has been marked.
- channel south is hardly visible in the middle of what appears to be a pasture. therefore channel could have been eroded due to cattle grazing * many green frogs observed



PROJECT (Number & Name): 184 South Kent
Field Staff: S. Murray
Station: NWN
Waterbody:
Drainage System:
Location in System: 1st trib on Eds line from Kent Bridge Rd
Appr. Reach Length (m):
Survey Date: Sep 14 '10
Time Started: 15:07
Time Finished:
Site Location:
GPS Datum: NAD 83 **Easting:** 425825
Zone: 17 T **Northing:** 4690301
Municipality: Chatham | Kent
Lot & Concession:
Weather Conditions:
Wind: 1 **Cloud Cover (%):** 0%
Precipitation: none

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m): 0-10 10 to 20 15 20 to 30 30+
	Vegetation Type: Tree - White Pine, Ash, Willow Herbaceous - Golden Rod Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous - Golden Rod, Jewelweed Grass
	Vegetation Density (H/M/L):
Canopy	Type: Tree herbaceous Grass Quality and % shade: Excellent 85%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): .5 - 1.5 Gradient (H/M/L):
 Bank Height (range (m)): 3m High water @ 2m Meander/Straight:
 Bank Slope (degrees from surface of water): 135 Bank Stability: Good
 Bank Vegetation Type: Herbaceous (Golden Rod/Jewelweed) Grass Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus: ✓ - Pine needles
Sand: ✓	Cobble: ✓	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble: ✓
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.71	5, 11, 16, 23, 13	Pool (turbid)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 16°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: turbid standing water
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken: in pool (southside)			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc.



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	South (U/S)		
#2	North (D/S)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * many green frogs observed.
- * Cattlebird seen
- * turbid water



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murracef
Station: 000
Waterbody: unknown
Drainage System:
Location in System: middle trib on Eds line b/w Mull & Kent bridge
Appr. Reach Length (m):
Survey Date: Sep. 14 '10
Time Started: 15:50
Time Finished: 16:10
Site Location:
GPS Datum: NAD 83 **Easting:** 425257
Zone: N T **Northing:** 4689765
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 3 **Cloud Cover (%):** 0
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 -12 20 to 30 30+
	Vegetation Type: Tree - Maple Herbaceous - Golden Rod
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous - Golden Rod, Jewelweed
	Vegetation Density (H/M/L):
Canopy	Type: North (Herbaceous, shrub) South (Tree, Herbaceous) Quality and % shade: North (Poor 5%) South (Good 50%)
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): .5 - 1.5	Gradient (H/M/L):
Bank Height (range (m)): 4m high water @ 3m	Meander/Straight:
Bank Slope (degrees from surface of water): 135	Bank Stability: Good
Bank Vegetation Type: Herbaceous (Jewelweed, Golden Rod) Grass	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

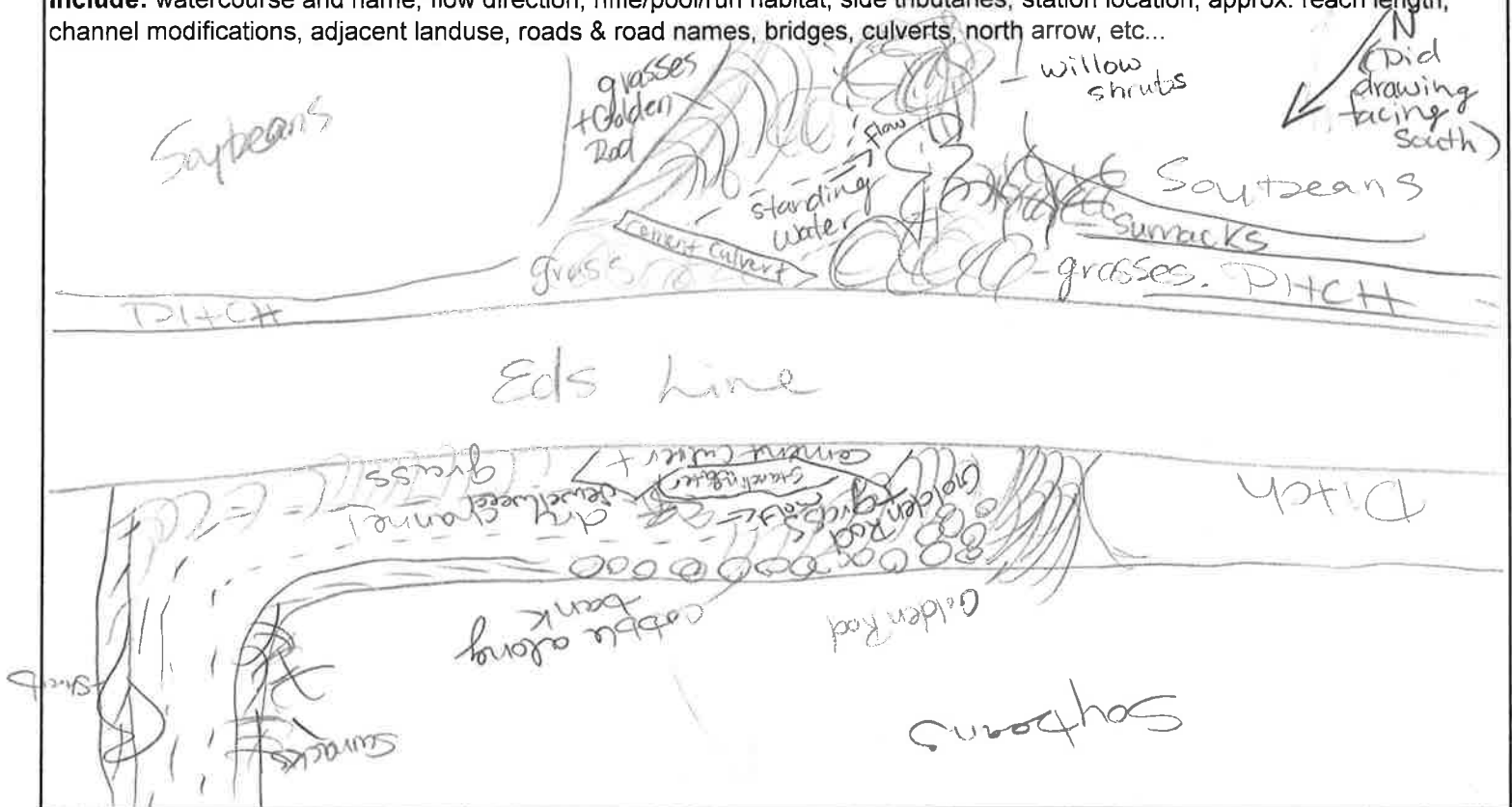
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.75	7, 16, 17, 8, 4	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 16°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: turbid water very slow flow
Air Temp. (°C): 24°C	D.O. (%):	TDS (ppm):	
Time Taken: 16:05	Conductivity (µs/cm):		
Location Taken: Pool (North side) roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
	#1 - South d/S		
	#2 - north u/S		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * adult cyprinid seen.
- * very slow flow south



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: QQQ
Waterbody:
Drainage System:
Location in System: 1st hit on Strawnburg north of Oneill
Appr. Reach Length (m):
Survey Date: Sep. 14 '10
Time Started: 16:55
Time Finished: 17:15
Site Location:
GPS Datum: NAD 83 **Easting:** 422046
Zone: 17T **Northing:** 4698332
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 2 **Cloud Cover (%):** 0
Precipitation: None

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)	
	Extent of Natural Vegetation (m)	0-10	10 to 20 - 17	20 to 30 30+	
	Vegetation Type:	Tree - mixed Herbaceous - Golden Rod Grass.			
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Herbaceous - Golden Rod Tree - mixed			
	Vegetation Density (HML):				
Canopy	Type: Tree, Herbaceous	Quality and % shade: Excellent 90%			
Land Use	Agriculture				
Other Notes	(groundwater, soils, pools, vegetation, etc.)				

CHANNEL MORPHOLOGY

Channel Width (range (m)): .5 - 2m **Gradient (H/M/L):**
Bank Height (range (m)): 5m High water @ 3m **Meander/Straight:**
Bank Slope (degrees from surface of water): **Bank Stability:** Good
Bank Vegetation Type: Herbaceous (Golden Rod) Tree (Mixed) **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: ✓	Gravel: ✓	Boulder: ✓	Muck: ✓
Silt: ✓	Pebble: ✓	Bedrock: ✓	Detritus: ✓
Sand: ✓	Cobble: ✓	Marl: ✓	Other: ✓

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock: ✓
Riffles:	Woody Debris: ✓	Cobble: ✓
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None (turbid)		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

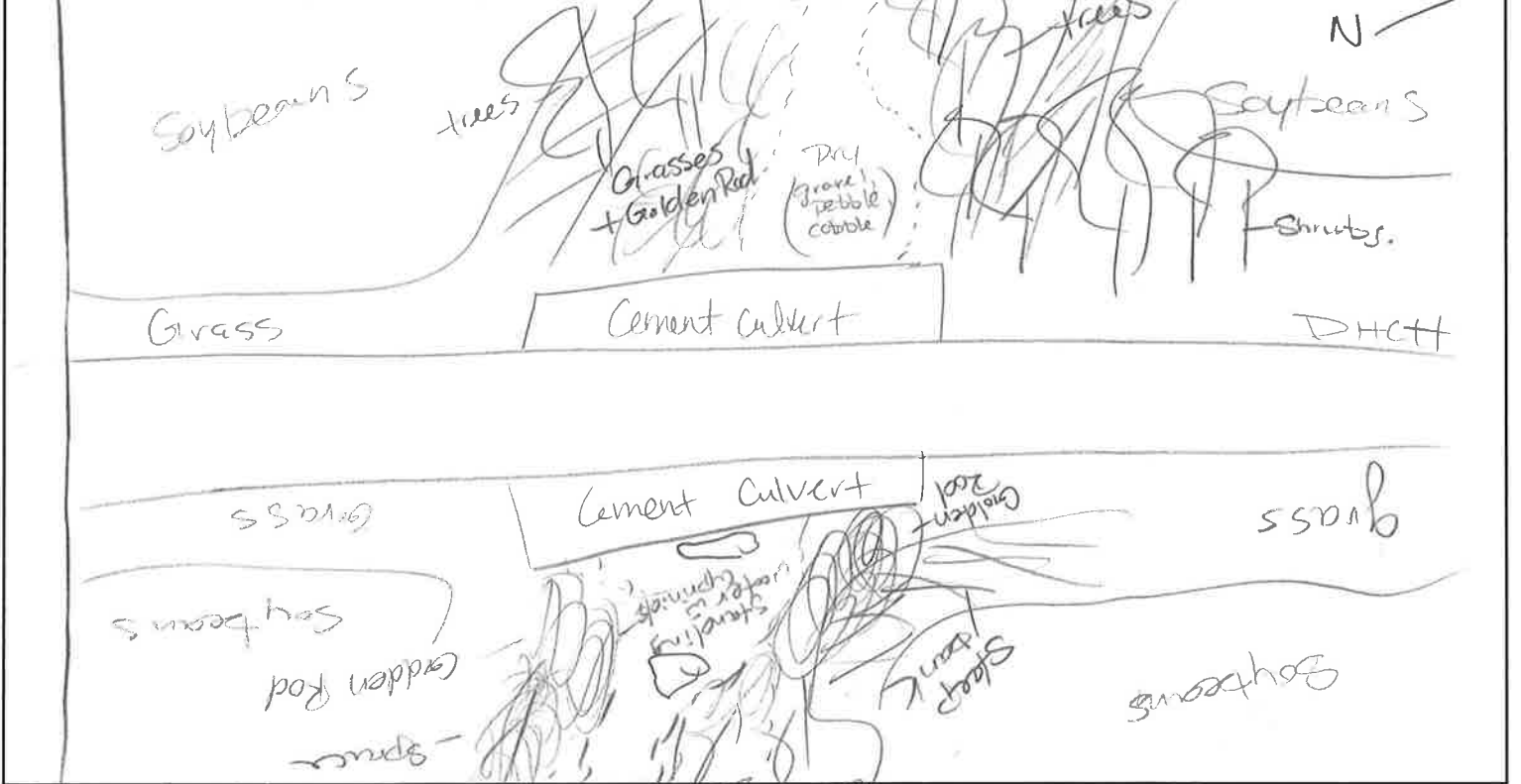
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.76	11, 16, 9, 10, 5	Pool on south east side
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 16°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: turbid, still water (south east side only)
Air Temp. (°C): 23°C	D.O. (%):	TDS (ppm):	
Time Taken: 17:05	Conductivity (µs/cm):		
Location Taken: in pool & roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	South east C		
#2	North west C		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * green frogs observed
- * cyprinids observed (one adult)
- * water striders observed



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: 555'
Waterbody:
Drainage System:
Location in System: 1st trib on Beechwood off Kent Bridge
Appr. Reach Length (m):
Survey Date: Sep. 14/10
Time Started: 17:34
Time Finished: 17:45
Site Location:
GPS Datum: NAD 83 **Easting:** 420506
Zone: 17T **Northing:** 4698833
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 3 **Cloud Cover (%):** 0
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree, Shrubs Grass Herbaceous (Golden Rod)
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous (Golden Rod, Jewelweed) Grass, Shrubs
	Vegetation Density (HML):
Canopy	Type: Herbaceous, Shrub, Grass Quality and % shade: Good 50%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 5-2 **Gradient (H/M/L):**
Bank Height (range (m)): 5m high water @ 2m **Meander/Straight:**
Bank Slope (degrees from surface of water): **Bank Stability:** Good
Bank Vegetation Type: Herbaceous (Golden Rod, Jewelweed) Grass **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus: ✓
Sand: ✓	Cobble: ✓	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble: ✓
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

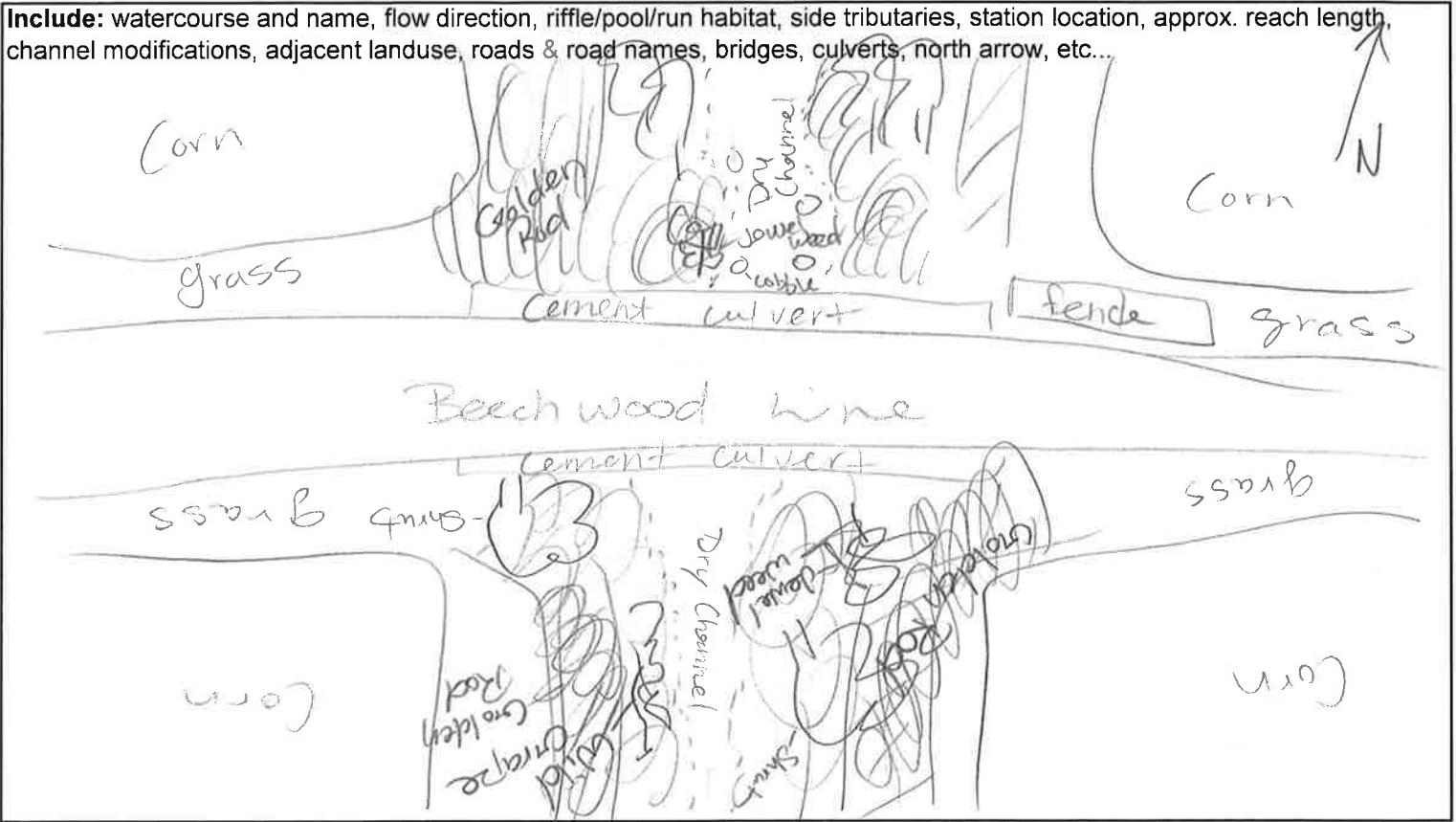
FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Dry
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Dry
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING



PHOTOS TAKEN

Photo #	Description	Photo #	Description
	#1 - South		
	#2 - north		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * dry channel (S&P watch - yellow)
- * raccoon tracks



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: xxx (all)

Waterbody:

Drainage System:

Location in System: 1st trib on 5th concession from Campbell Rd

Appr. Reach Length (m):

Survey Date: Sep. 15, 10

Time Started: 10:56

Time Finished: 11:12

Site Location:

GPS Datum: NAD 83 **Easting:** 383856

Zone: 17T **Northing:** 4630344

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind: 0 **Cloud Cover (%):** 0

Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Shrub - Sumack Herbaceous - Golden Rod Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous - Golden Rod Grass
	Vegetation Density (HML):
Canopy	Type: Herbaceous, Shrub, Grass Quality and % shade: Poor - 15%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 1m **Gradient (H/M/L):**

Bank Height (range (m)): 1 - 5m high water @ 3m (i, ii) .5 (iii) **Meander:** Straight

Bank Slope (degrees from surface of water): **Bank Stability:** Good

Bank Vegetation Type: Herbaceous (Golden Rod) Shrub (Sumack) Grass **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble: ✓	Bedrock:	Detritus:
Sand: ✓	Cobble: ✓	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble: ✓
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
MP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
W Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Dry
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): (Dry)	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Dry
Air Temp. (°C): 18°C	D.O. (%):	TDS (ppm):	
Time Taken: 11:05	Conductivity (µs/cm):		
Location Taken: roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North (i)		
#2	South (i)		
#3	East (ii)		
#4	West (ii)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

Drain was split in 3 sections b/c N/S was different from roadside drain but east side was a ditch, therefore was separated from west side which was a drain.



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: 444 (all)

Waterbody:

Drainage System:

Location in System: 3rd trib on 5th concession from Campbell Rd

Appr. Reach Length (m):

Survey Date: Sep. 15, 10

Time Started: 11:23

Time Finished: 11:40

Site Location:

GPS Datum: NAD83 **Easting:** 384753

Zone: 17T **Northing:** 4671139

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind: 0 **Cloud Cover (%):** 0

Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Herbaceous - Golden Rod
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass, Herbaceous (Golden Rod) Phragmites
	Vegetation Density (H/M/L):
Canopy	Type: Herbaceous, Grass (i) Phragmites (ii) Quality and % shade: Poor 5% (i) Good 40% (ii)
Land Use	Agriculture (south) & (north west) Wind turbine (north east)
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 5 - 1

Bank Height (range (m)): 3 - 5 m High water @ 2.5 m (i) 1 m (ii)

Bank Slope (degrees from surface of water): 135

Bank Vegetation Type: Herbaceous (Golden Rod) Phragmites

Gradient (H/M/L):

Meander/Straight:

Bank Stability: Good

Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble: ✓	Bedrock:	Detritus: ✓
Sand: ✓	Cobble: ✓	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble: ✓
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWI Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

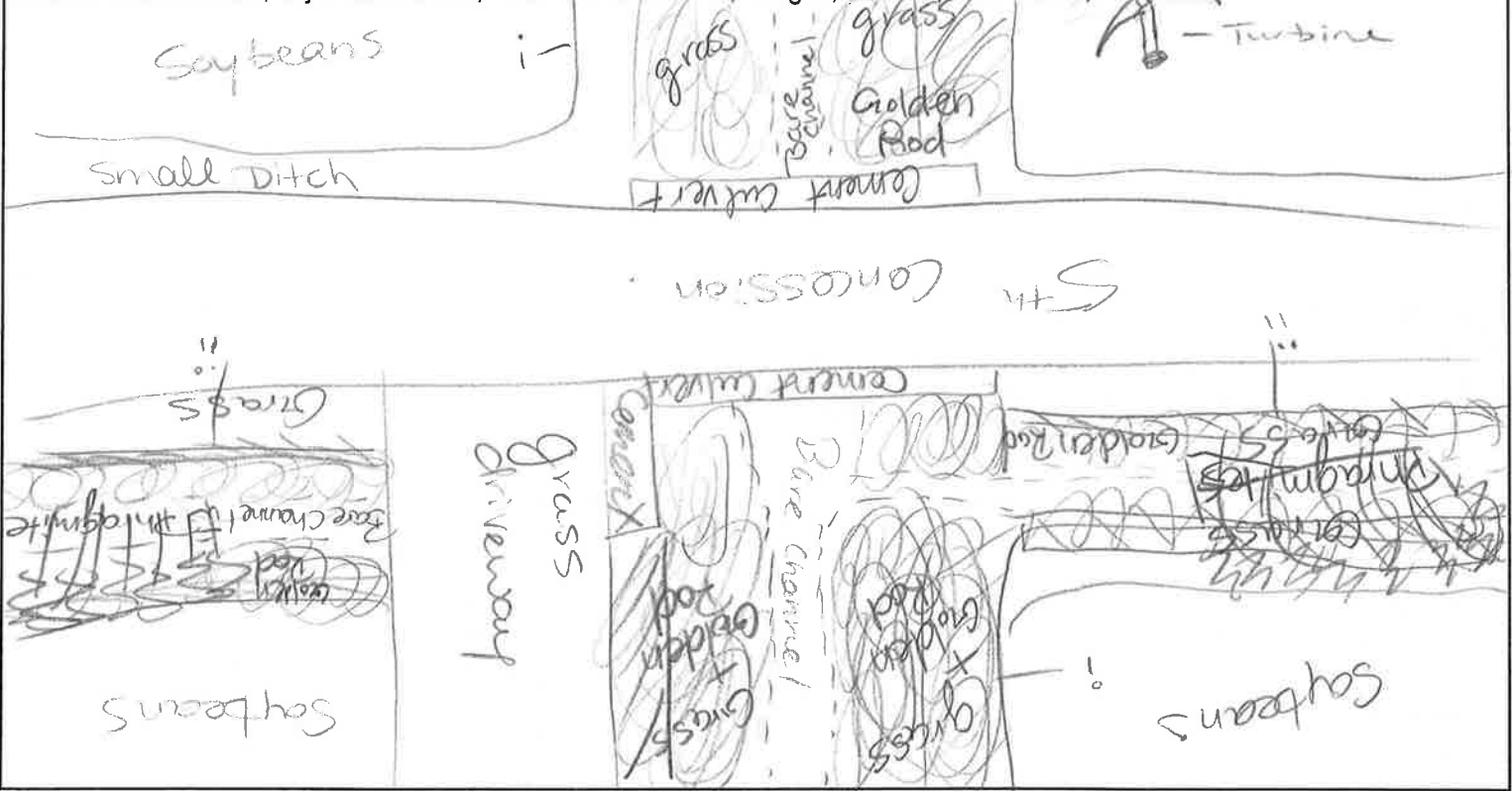
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Dry
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): <u>Dry</u>	D.O. (ppm):	pH:	Dry
Air Temp. (°C): <u>19°C</u>	D.O. (%):	TDS (ppm):	
Time Taken: <u>11:36</u>	Conductivity (µs/cm):		
Location Taken: <u>roadside</u>			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc.



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North (i)		
#2	South (i)		
#3	east (ii)		
#4	west (ii)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

*Wind turbine on north east side of 5th Concession.



* needs measurements

PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: ZZZ

Waterbody:

Drainage System:

Location in System: 2nd trib on 4th Concession off of Coats

Appr. Reach Length (m):

Survey Date: Sep 15 10

Time Started: 11:58

Time Finished: 12:14

Site Location:

GPS Datum: NAD 83

Easting: 385258

Zone: 17T

Northing: 4669692

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind:)

Cloud Cover (%): 0

Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m): 0-10 8 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous - Golden Rod Grass Shrub
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous - Golden Rod Shrub, Typha, Grass
	Vegetation Density (HML):
Canopy	Type: Typha, Herbaceous (Golden Rod), Grass Quality and % shade: Good - 50%
Land Use	Agriculture / Residential
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 1.5m

Bank Height (range (m)): 5m High water @ 3m (south) 1.5 (north)

Bank Slope (degrees from surface of water): 135

Bank Vegetation Type: Herbaceous (Golden Rod) Shrub Grass

Gradient (H/M/L):

Meander: Straight

Bank Stability: Good

Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble: ✓	Bedrock:	Detritus:
Sand: ✓	Cobble: ✓	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble: ✓
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg, emerg, floating)	Family/Genus/species	Description/Abundance
	Typha	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

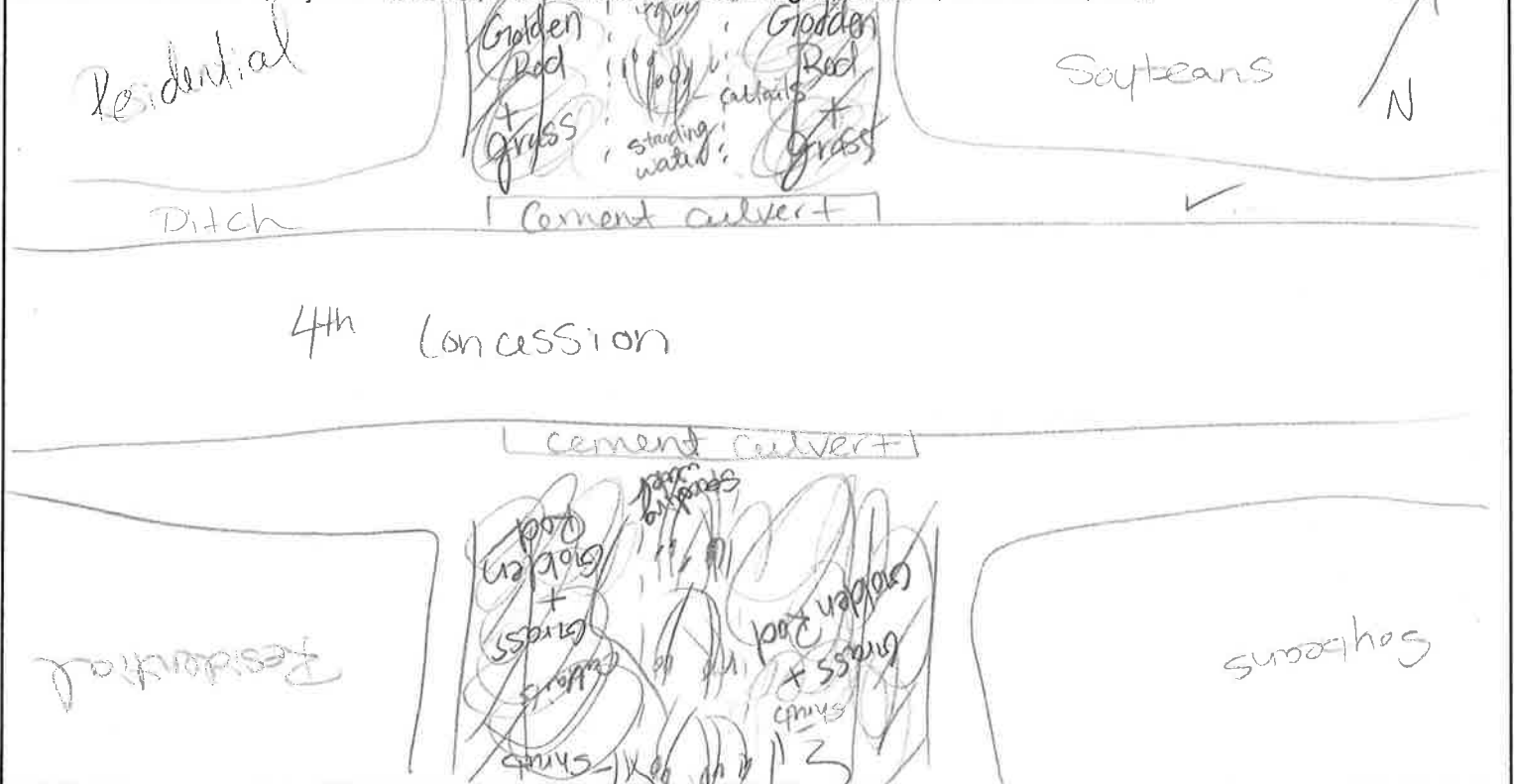
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.27		Pool north side
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 14°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Turbid Standing water
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken: 12:13	Conductivity (µs/cm):		
Location Taken: In pool N side			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1 = North			
#2 = South			

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * green frogs observed
- * Mosquitos
- * Swallow nest underside of culvert



PROJECT (Number & Name): 184 South Kent

Field Staff: S Murray

Station: H444 (all)

Waterbody:

Drainage System:

Location in System: 1st trib on Davidson Rd before Polk rd line

Appr. Reach Length (m):

Survey Date: Sep. 15 '10

Time Started: 14:07

Time Finished: 14:15

Site Location:

GPS Datum: NAD 83 **Easting:** 383891

Zone: 17 T **Northing:** 4679867

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind: 1 **Cloud Cover (%):** 0

Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 15 - 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Herbaceous - Golden Rod Shrub
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous - Golden Rod Grass
	Vegetation Density (HML):
Canopy	Type: Herbaceous, grass, shrub Quality and % shade: Poor 5%
Land Use	Agriculture
Other	(groundwater, soils, pools, vegetation, etc.)
Notes	

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 1.5 **Gradient (H/M/L):**

Bank Height (range (m)): 2 - 5m high water @ 16i) 3.5 (i) **Meander/Straight:**

Bank Slope (degrees from surface of water): **Bank Stability:** Good

Bank Vegetation Type: Herbaceous - Golden Rod, Grass **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus: ✓
Sand: ✓	Cobble: ✓	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ,	Cobble: ✓
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:

AHP Aquatic Habitat Point	SWI Surface Water Input	SCS Stream Cross Section
AHY Aquatic Habitat Area	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
TMP Temp Monitor Stn	CKC Creek Crossing	VSS Visual Survey Stn
FLW Flow Monitor Stn	WEL Well	WQS Water Quality Stn
	CUL Culvert	

FLOW CONDITIONS

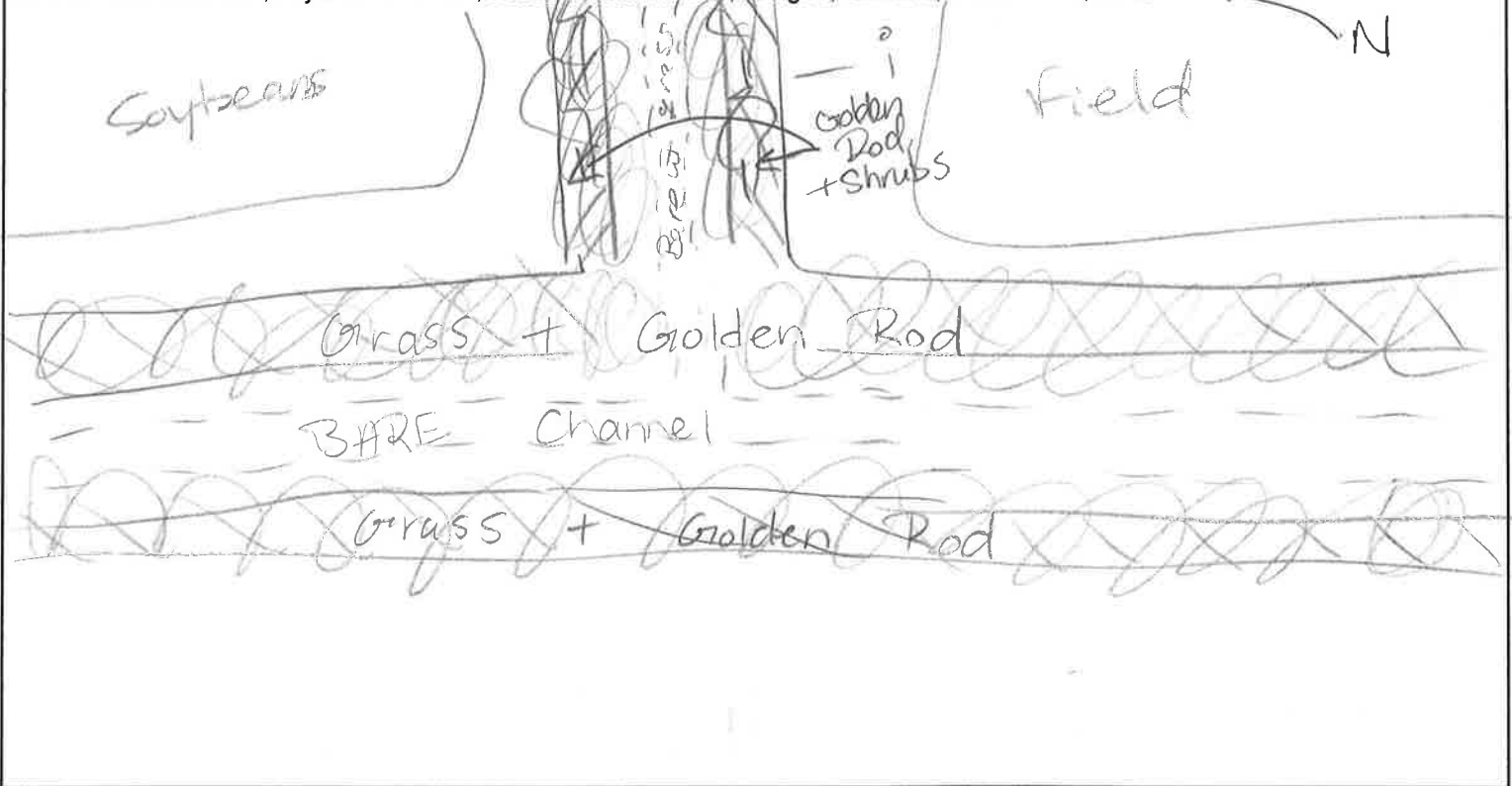
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Dry
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Dry
Air Temp. (°C): 21°C	D.O. (%):	TDS (ppm):	
Time Taken: 14:15	Conductivity (µs/cm):		
Location Taken: roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1 - (i)			
#2 - north (ii)			
#3 - south (ii)			

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: KKKK (all) | **Site Location:**
Waterbody: **GPS Datum:** NAD83 **Easting:** 388747
Drainage System: Burgess Drain **Zone:** 17 T **Northing:** 4679192
Location in System: 1st + trib on Sharp Rd from Middleline **Municipality:** Chatham / Kent
Appr. Reach Length (m): **Lot & Concession:**
Survey Date: Sep. 15 '10 **Weather Conditions:**
Time Started: 14:50 **Wind:** 3 **Cloud Cover (%):** 0
Time Finished: 14:58 **Precipitation:** None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Herbaceous - Golden Rod
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Herbaceous - Golden Rod
	Vegetation Density (HML):
Canopy	Type: Herbaceous, Grass Quality and % shade: Poor 2%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1m	Gradient (H/M/L):
Bank Height (range (m)): 2m high water @ 1m (dii)	Meander: Straight
Bank Slope (degrees from surface of water): 35	Bank Stability: Good
Bank Vegetation Type: Herbaceous (Golden Rod) Grass	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck:
Silt: ✓	Pebble:	Bedrock:	Detritus:
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: ✓ (small)	Boulder/Rock:
Riffles:	Woody Debris:	Cobble:
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

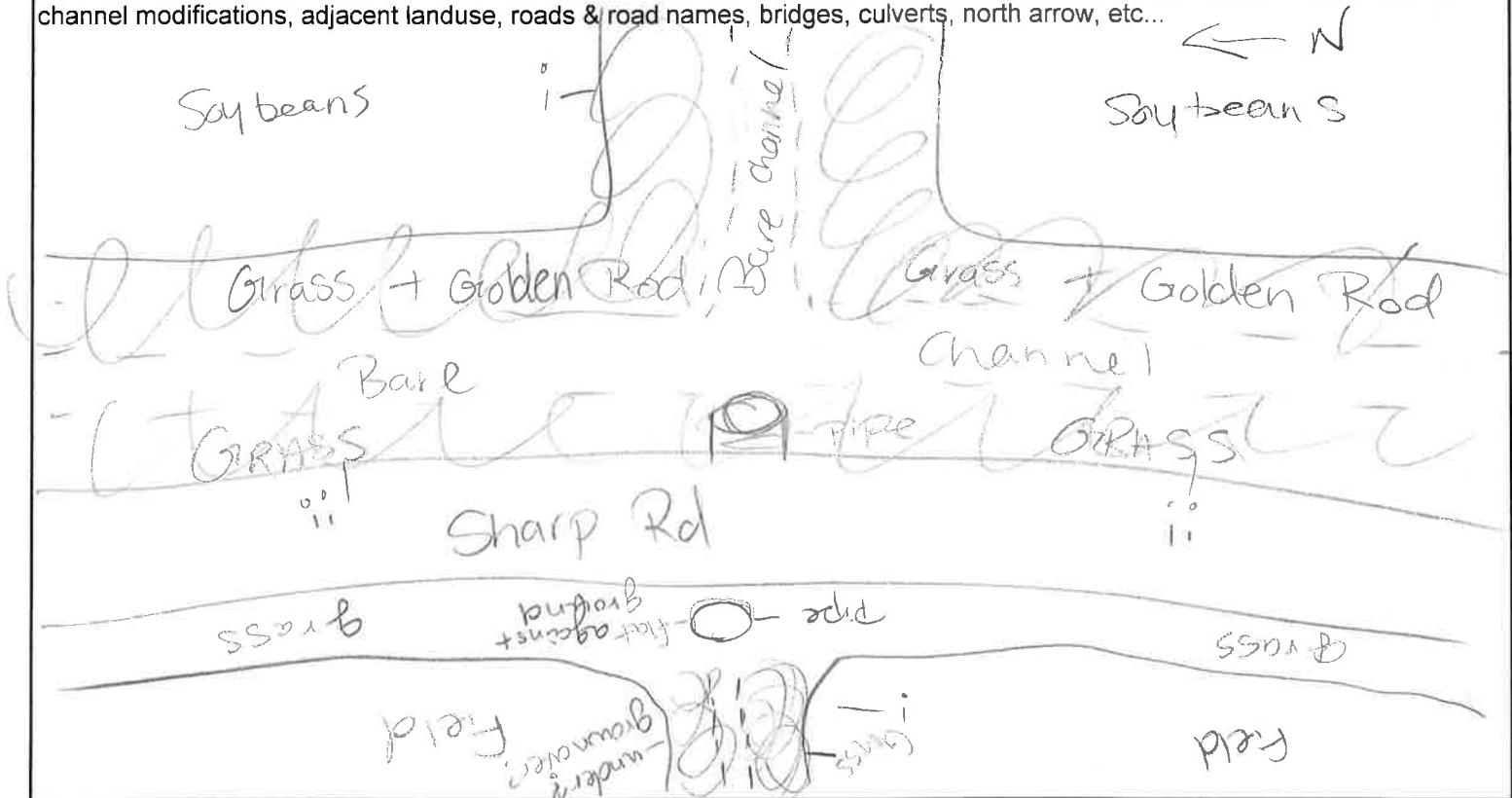
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Dry
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Dry
Air Temp. (°C): 21°C	D.O. (%):	TDS (ppm):	
Time Taken: 14:58	Conductivity (µs/cm):		
Location Taken: roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	east (i)		
#2	west (i)		
#3	North (ii)		
#4	South (ii)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: LLL (all)
Waterbody:
Drainage System:
Location in System: 1st tribut on Wech from Mull Rd.
Appr. Reach Length (m):
Survey Date: Sep. 15 '10
Time Started: 16:10
Time Finished: 16:20
Site Location:
GPS Datum: NAD83 **Easting:** 419824
Zone: 17T **Northing:** 41694208
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 2 **Cloud Cover (%):** 0
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Herbaceous (Golden Rod) Tree
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous (Golden Rod) Grass, Shrub
	Vegetation Density (HML):
Canopy	Type: Quality and % shade: Excellent 75%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 5-1 **Gradient (H/M/L):**
Bank Height (range (m)): 3m high water @ 2m (i) .5m (ii) **Meander/Straight:**
Bank Slope (degrees from surface of water): **Bank Stability:** Good
Bank Vegetation Type: Herbaceous (Golden Rod) grass, Shrub **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble: ✓	Bedrock:	Detritus: ✓
Sand: ✓	Cobble: ✓	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble: ✓
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Typha (ii only)	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

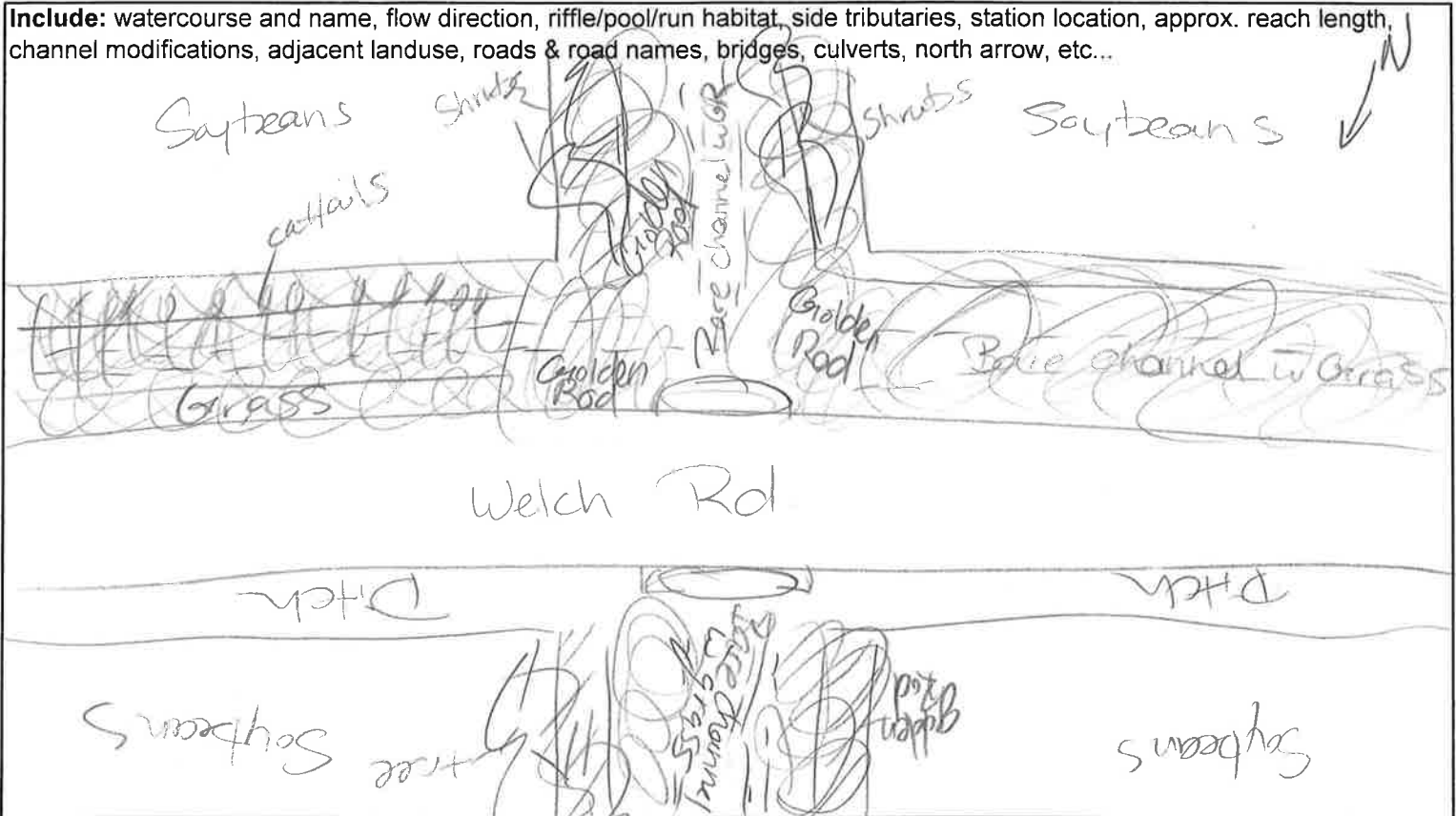
FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Dry
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): ✓ (Dry)	D.O. (ppm):	pH:	Dry
Air Temp. (°C): 21°C	D.O. (%):	TDS (ppm):	
Time Taken: 16:15	Conductivity (µs/cm):		
Location Taken: roadside			

SITE DRAWING



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North (i)		
#2	South (i)		
#3	East (ii)		
#4	West (iii)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: MMMM

Waterbody:

Drainage System:

Location in System: 2nd trib on Welch from Harwich

Appr. Reach Length (m):

Survey Date: Sep. 16 '10

Time Started: 8:38

Time Finished: 8:48

Site Location:

GPS Datum: NAD 83

Easting: 418393

Zone: 17 T

Northing: 4692906

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind: 1

Precipitation: Raining

Cloud Cover (%): 100

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)	
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Herbaceous - Golden Rod Shrub Tree			
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Herbaceous - Golden Rod Grass			
	Vegetation Density (HML):				
Canopy	Type:	Herbaceous, Shrub, Tree		Quality and % shade: Poor - 20%	
Land Use	Agriculture				
Other Notes	(groundwater, soils, pools, vegetation, etc.)				

CHANNEL MORPHOLOGY

Channel Width (range (m)):	1.5m	Gradient (H/M/L):	
Bank Height (range (m)):	3m High water @ 2m	Meander/Straight:	
Bank Slope (degrees from surface of water):	135	Bank Stability:	Good
Bank Vegetation Type:	Herbaceous (Golden Rod) Shrub, Grass	Bank Veg. Density (H/M/L):	

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus:
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble:
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

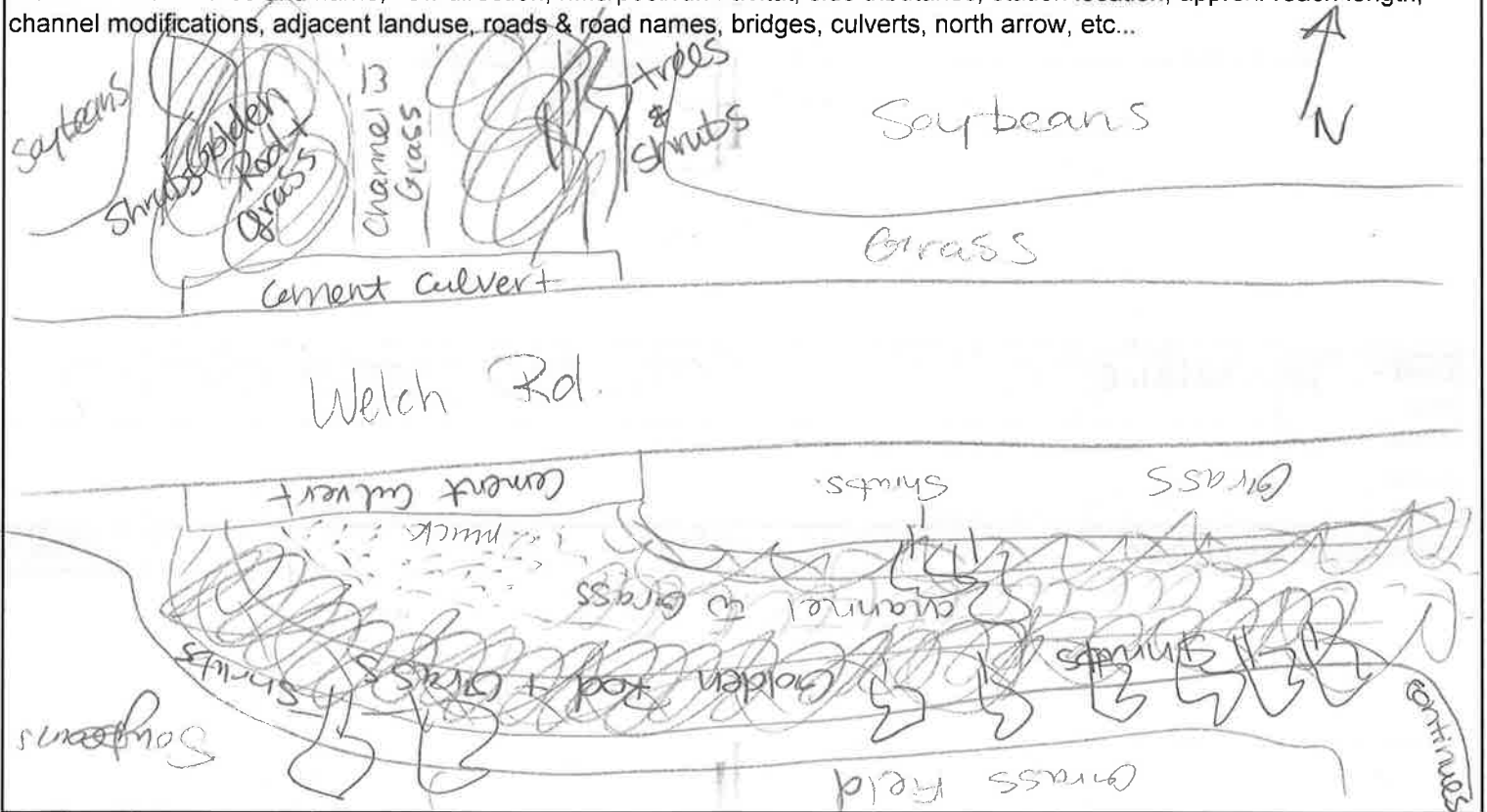
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Moist (Raining)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Moist (raining)
Air Temp. (°C): 15°C	D.O. (%):	TDS (ppm):	
Time Taken: 8:40	Conductivity (µs/cm):		
Location Taken: roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north		
#2	South		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* SAR Ch... ✓



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: NNNN (*SAR)

Waterbody:

Drainage System:

Location in System: 1st trib on wech from Harwich

Appr. Reach Length (m):

Survey Date: Sep. 16 '10

Time Started: 9:14

Time Finished: 9:26

Site Location:

GPS Datum: NAD 83 **Easting:** 47210

Zone: MT **Northing:** 4691832

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind: 1 **Cloud Cover (%):** 100%

Precipitation: Light Rain

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 13 20 to 30 30+
	Vegetation Type: Herbaceous - Golden Rod Shrub Tree - Oak & Cedar
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Shrub, Herbaceous (Golden Rod) Grass Typha
	Vegetation Density (HML):
Canopy	Type: Tree, Shrub, Herbaceous, Typha Quality and % shade: Good 50%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.5	Gradient (H/M/L):
Bank Height (range (m)): 4m High water @ 3m	Meander/Straight:
Bank Slope (degrees from surface of water): 135	Bank Stability: Good
Bank Vegetation Type: Shrub, Herbaceous (Golden Rod)	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus:
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble:
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Typha	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

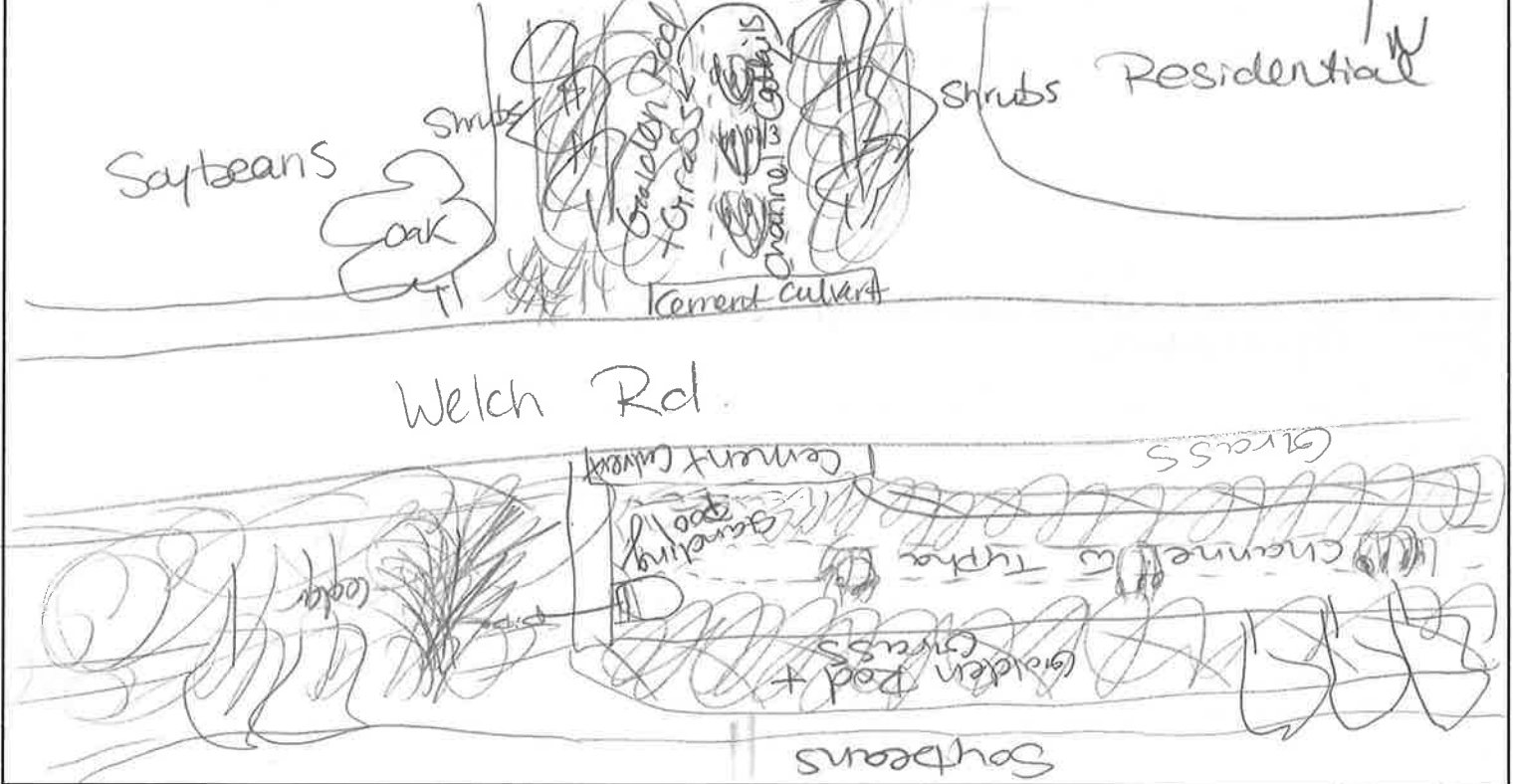
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Moist (only b/c raining) 1 standing Pool under culvert
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing Pool under cement culvert.
Air Temp. (°C): 15°C	D.O. (%):	TDS (ppm):	
Time Taken: 9:20	Conductivity (µs/cm):		
Location Taken: roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north		
#2	south		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* SAR Channel



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: 0000
Waterbody: Tedford Drain (Tributary B)
Drainage System:
Location in System: 2nd trib on Welch from Horwich
Appr. Reach Length (m):
Survey Date: Sep. 16th 10
Time Started: 9:40
Time Finished: 9:53
Site Location:
GPS Datum: NAD 83 **Easting:** 417931
Zone: N T **Northing:** 4692485
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: | **Cloud Cover (%):** 100%
Precipitation: Spitting

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
Vegetation Type: Herbaceous (Golden Rod) Grass (not much - banks are pretty bare due to the channel being dug.)	
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous (Golden Rod)
Vegetation Density (HML):	
Canopy	Type: Herbaceous (Golden Rod) Quality and % shade: Poor - 2% (if that)
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1	Gradient (H/M/L):
Bank Height (range (m)): 3-4m High water @ 1m	Meander/Straight:
Bank Slope (degrees from surface of water): 35	Bank Stability: Good
Bank Vegetation Type: Herbaceous (Golden Rod)	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus:
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks:	Boulder/Rock:
Riffles:	Woody Debris:	Cobble:
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
BARE!		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

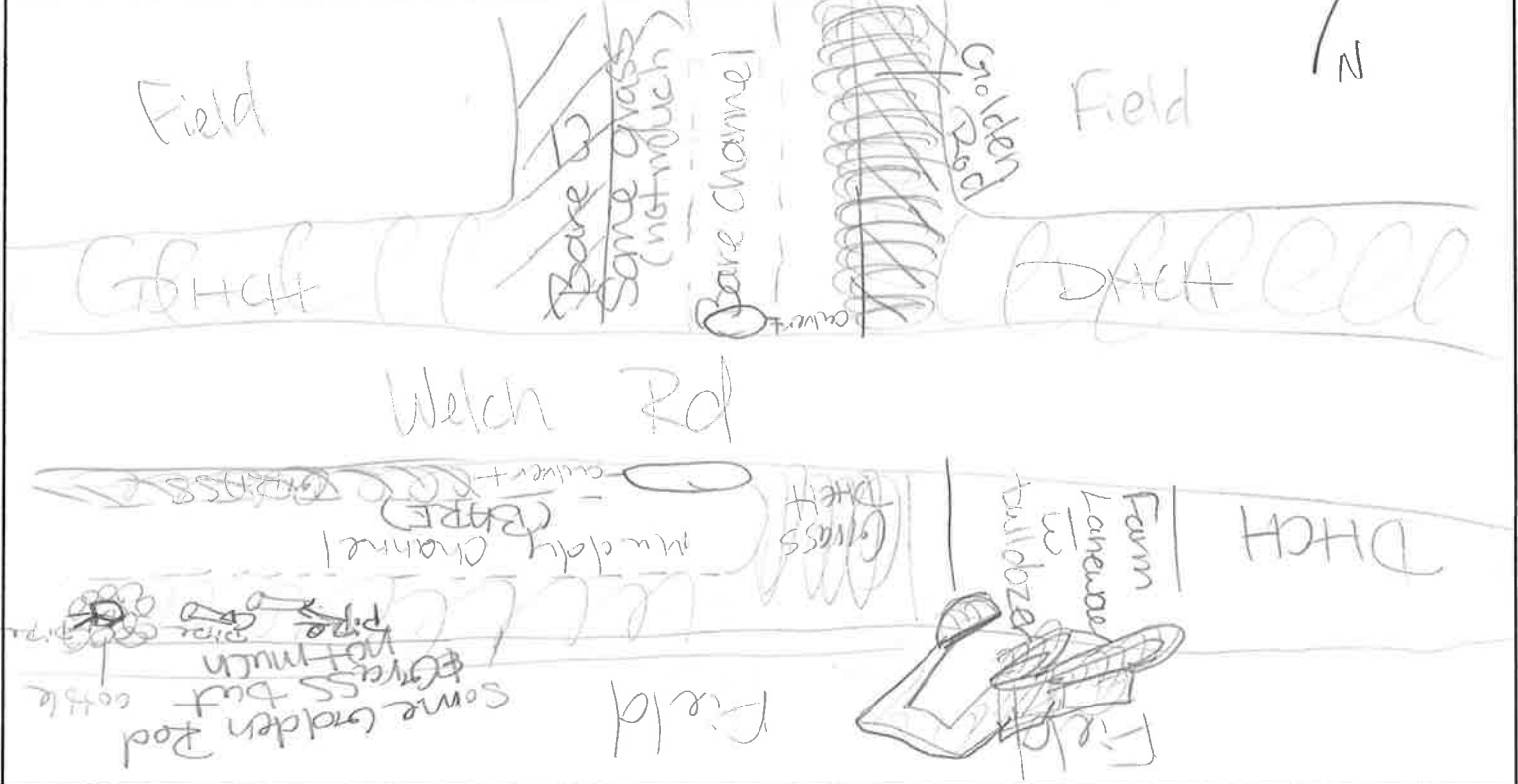
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			DRY (Moist b/c Rain)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Bare channel due to digging
Air Temp. (°C): 16°C	D.O. (%):	TDS (ppm):	
Time Taken: 9:45	Conductivity (µs/cm):		
Location Taken: Roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North		
#2	South		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * SAR channel that has been dug
- * lit vegetation due to digging



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: PRRR (coll)

Waterbody: McPhail Drain

Drainage System:

Location in System: 1st trib on Campbell's line from Kulla

Appr. Reach Length (m):

Survey Date: Sep. 16 '10

Weather Conditions:

Time Started: 10:22

Wind: 2

Cloud Cover (%): 100%

Time Finished: 10:48

Precipitation: None

Site Location:

GPS Datum: NAD83 **Easting:** 49286

Zone: 17T **Northing:** 4691837

Municipality: Chadham / Kent

Lot & Concession:

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 8-0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Herbaceous - Golden Rod Shrub - Sumack
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous - (Golden Rod, Jewelweed, Milkweed) Grass Common
	Vegetation Density (HML):
Canopy	Type: Scrub, Herbaceous, Grass Quality and % shade: Poor → 15%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1m **Gradient (H/M/L):**

Bank Height (range (m)): 3.5 High water @ 2m **Meander/Straight:**

Bank Slope (degrees from surface of water): **Bank Stability:** Good

Bank Vegetation Type: Herbaceous, Shrub, Grass **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock:
Riffles:	Woody Debris:	Cobble:
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Typha	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
Temp Monitor Stn	WEL Well	WQS Water Quality Stn
Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

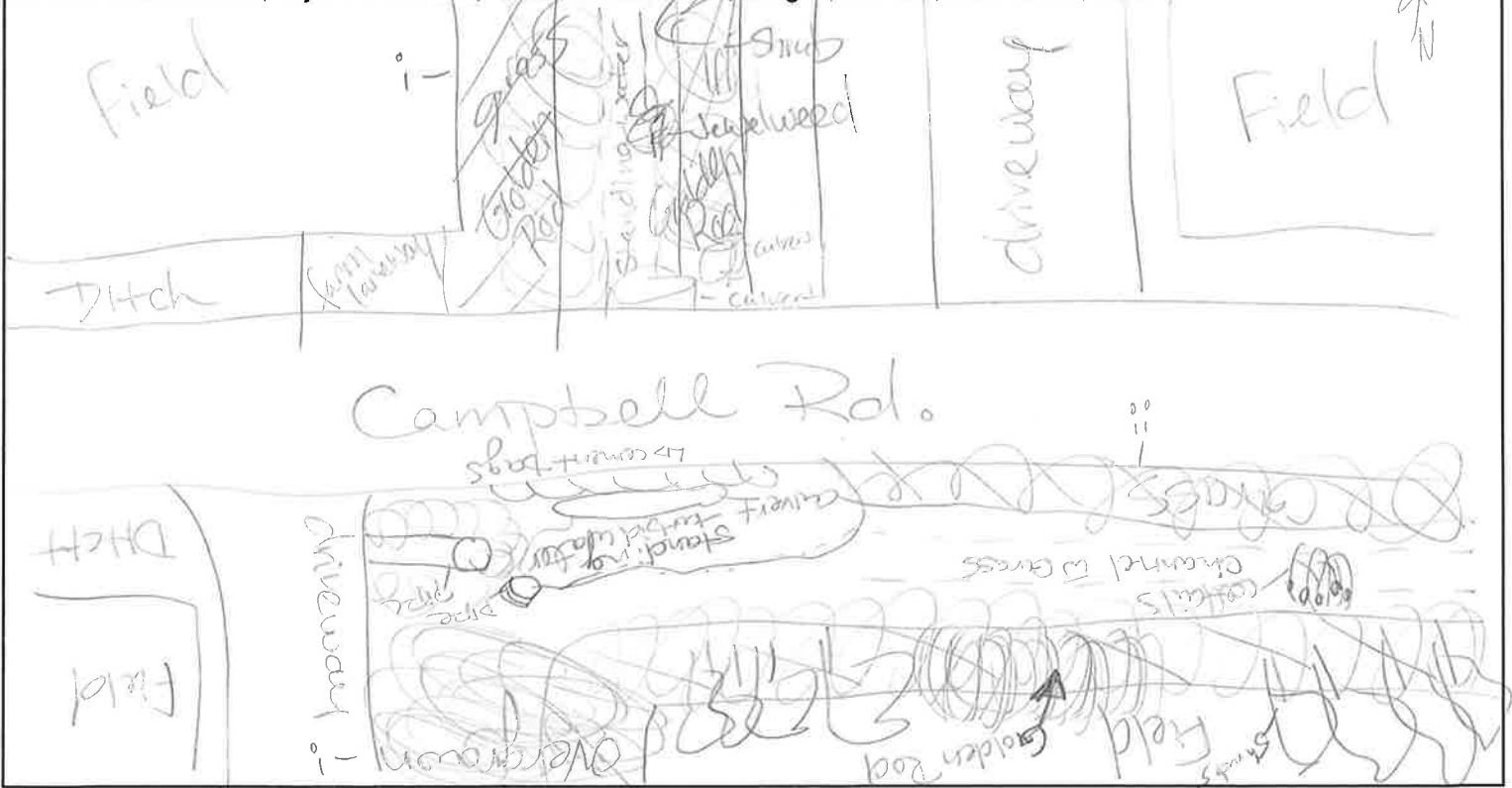
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.16	6, 10, 11, 14, 15	Pool (south side)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 18°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: standing water @ culvert on both sides
Air Temp. (°C): 17°C	D.O. (%):	TDS (ppm):	
Time Taken: 10:35	Conductivity (µs/cm):		
Location Taken: in stream/road d/c			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1 - north			
#2 - south			

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

Standing water @ culvert (1)



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: SSSS **Site Location:**
 Waterbody: GPS Datum: NAD 83 Easting: 48776
 Drainage System: Zone: ITT Northing: 469378
 Location in System: Roadside drain south side of Campbell Rd. Municipality: Chatham / Kent
 Appr. Reach Length (m): bin between 2nd & 1st trib Lot & Concession:

Survey Date: Sep 16/10 **Weather Conditions:**
 Time Started: 11:03 Wind: 1 Cloud Cover (%): 100%
 Time Finished: 11:12 Precipitation: Light Rain

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree - Mixed Grass Shrub
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous - Golden Rod Typha, Grass, Shrub
	Vegetation Density (HML):
Canopy	Type: Tree Quality and % shade:
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.5 Gradient (H/M/L):
 Bank Height (range (m)): 3m High water @ 1m Meander/Straight:
 Bank Slope (degrees from surface of water): 135 Bank Stability: Good
 Bank Vegetation Type: Tree (Mixed) Herbaceous (Golden Rod) Grass Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus:
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks:	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble:
Backwater:	Vegetation: ✓ Typha	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Typha	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

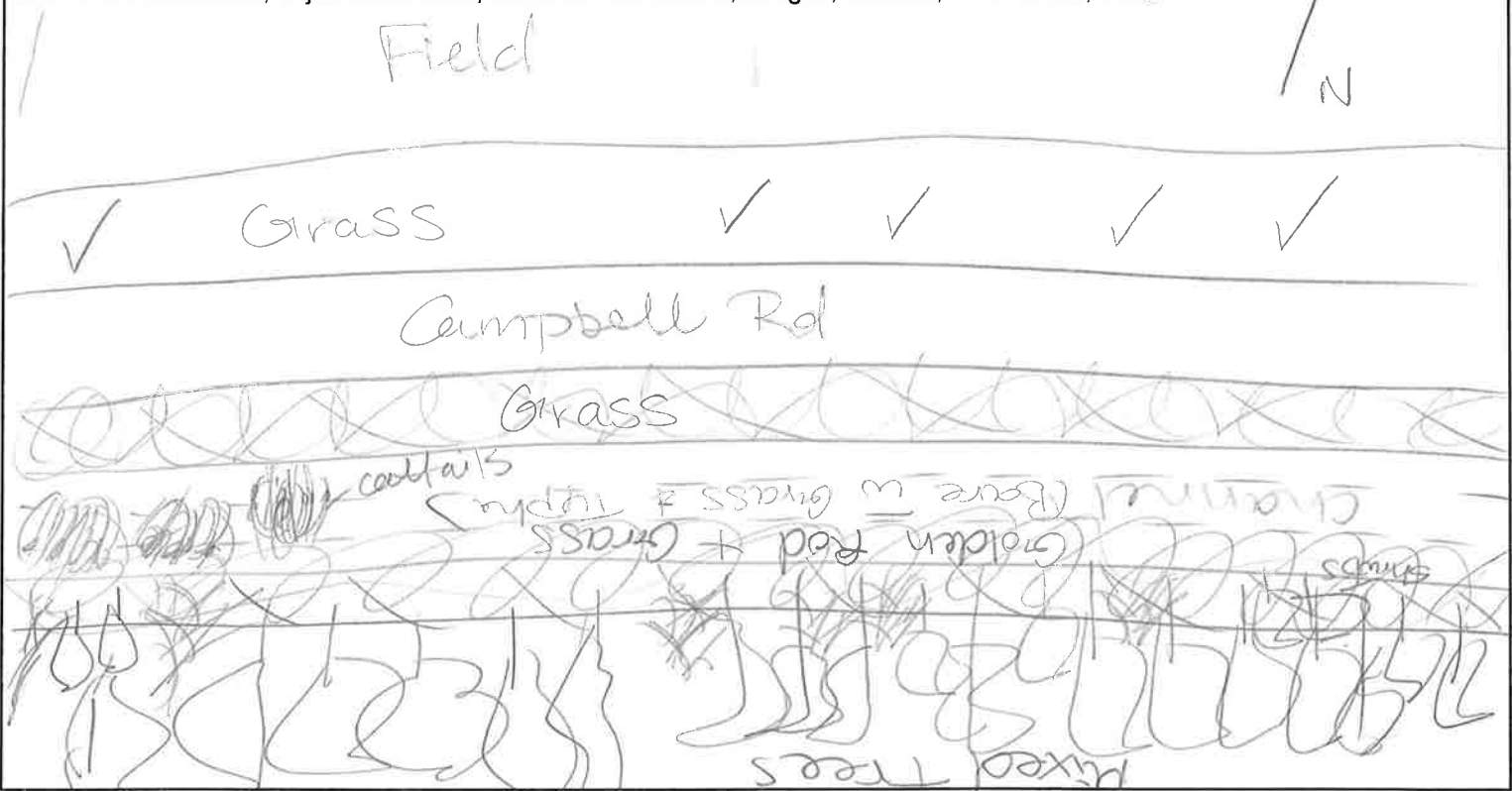
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Dry
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	Dry	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Dry
Air Temp. (°C):	18°C	D.O. (%):	TDS (ppm):	
Time Taken:	11:05	Conductivity (µs/cm):		
Location Taken:	Roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1 - east			
#2 - west			

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* SAR Channel



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: TTTT (all)
Waterbody:
Drainage System:
Location in System: 1st trib on Campbell Rd from Horwich
Appr. Reach Length (m):
Survey Date: Sep. 16 '10
Time Started: 11:31
Time Finished: 11:45
Site Location:
GPS Datum: NAD 83 **Easting:** 418429
Zone: 17 T **Northing:** 4691066
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 2 **Cloud Cover (%):** 100%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous - Golden Rod Tree - Mixed Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Shrub, Grass, Herbaceous (Golden Rod, Jewelweed) Typha
	Vegetation Density (HML): Typha
Canopy	Type: Tree, Herbaceous, Grass, Shrub Quality and % shade: Good 50%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1-2m **Gradient (H/M/L):**
Bank Height (range (m)): 2.5-4m High water @ 2.5m (at ii) **Meander/Straight:**
Bank Slope (degrees from surface of water): **Bank Stability:** Good
Bank Vegetation Type: Herbaceous (Golden Rod + Jewelweed) Grass, Shrub **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock:
Riffles:	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater:	Vegetation: <input checked="" type="checkbox"/> Typha	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Typha	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

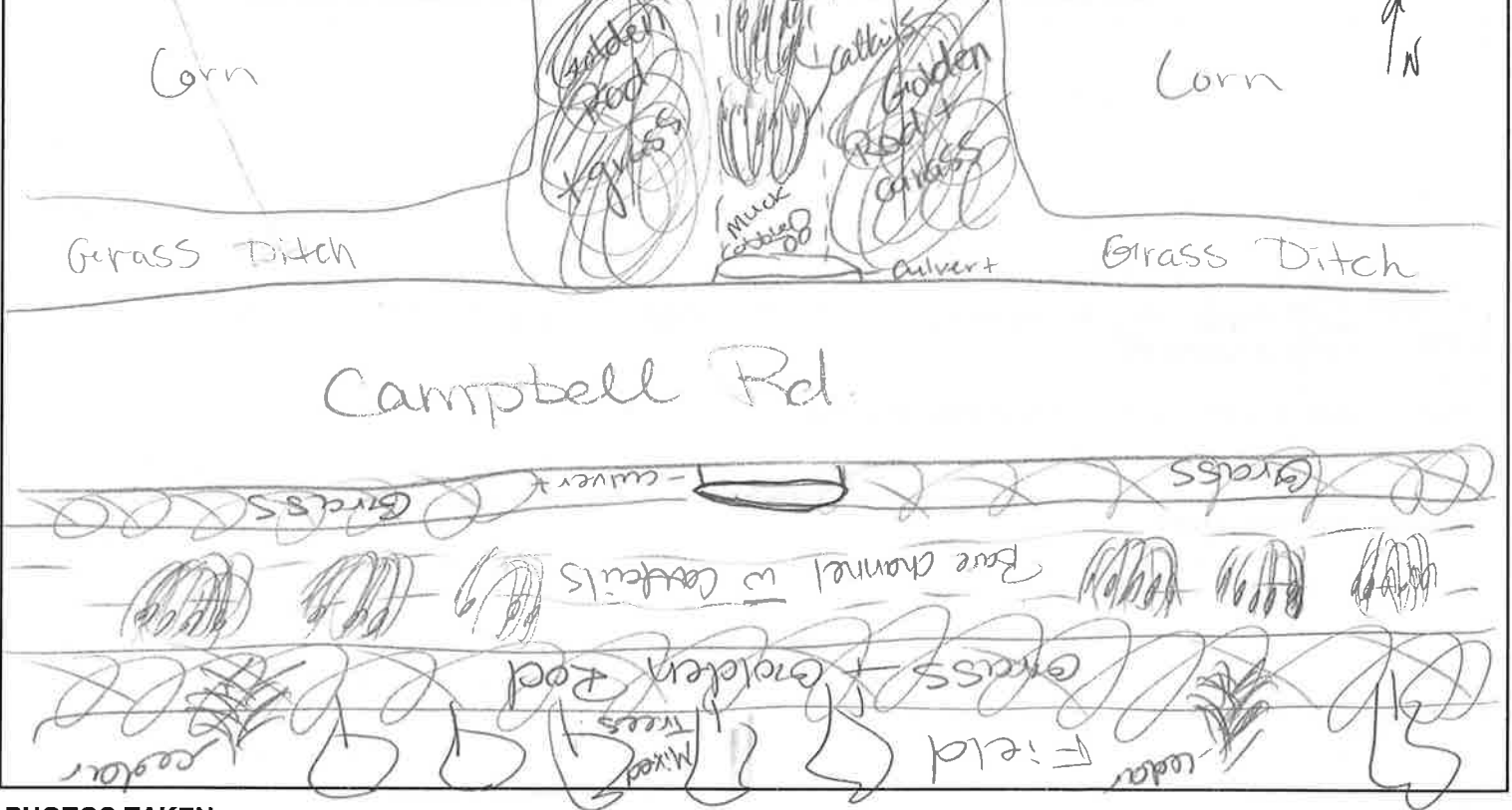
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Dry
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): <i>Dry</i>	D.O. (ppm):	pH:	Dry
Air Temp. (°C): <i>19°C</i>	D.O. (%):	TDS (ppm):	
Time Taken: <i>11:40</i>	Conductivity (µs/cm):		
Location Taken: <i>roadside</i>			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1 - north (i)			
#2 - east (ii)			
#3 - west (ii)			

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* SAR Channel



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: UUUU

Waterbody:

Drainage System: Skipper Drain

Location in System: 1st trib on Morris line in b/w Copper & Swan

Appr. Reach Length (m):

Survey Date: Sep. 16'10

Time Started: 13:20

Time Finished: 13:41

Site Location:

GPS Datum: NAD83 **Easting:** 390394

Zone: 17 T **Northing:** 4681390

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind: 4 **Cloud Cover (%):** 100

Precipitation: None

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)	
	Extent of Natural Vegetation (m)	0-10	10 to 20	18 20 to 30 30+	
	Vegetation Type:	Herbaceous (Golden Rod) Tree - Mixed Grass			
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Grass Herbaceous (Golden Rod)			
	Vegetation Density (HML):				
Canopy	Type:	Herbaceous, Grass		Quality and % shade: Poor 15%	
Land Use	Agriculture				
Other Notes	(groundwater, soils, pools, vegetation, etc.)				

CHANNEL MORPHOLOGY

Channel Width (range (m)):	5-2m	Gradient (H/M/L):	
Bank Height (range (m)):	4m high water @ 1m	Meander/Straight:	
Bank Slope (degrees from surface of water):		Bank Stability:	Good
Bank Vegetation Type:	Herbaceous (Golden Rod) Grass	Bank Veg. Density (H/M/L):	

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus: ✓
Sand: ✓	Cobble: ✓	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris:	Cobble: ✓
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

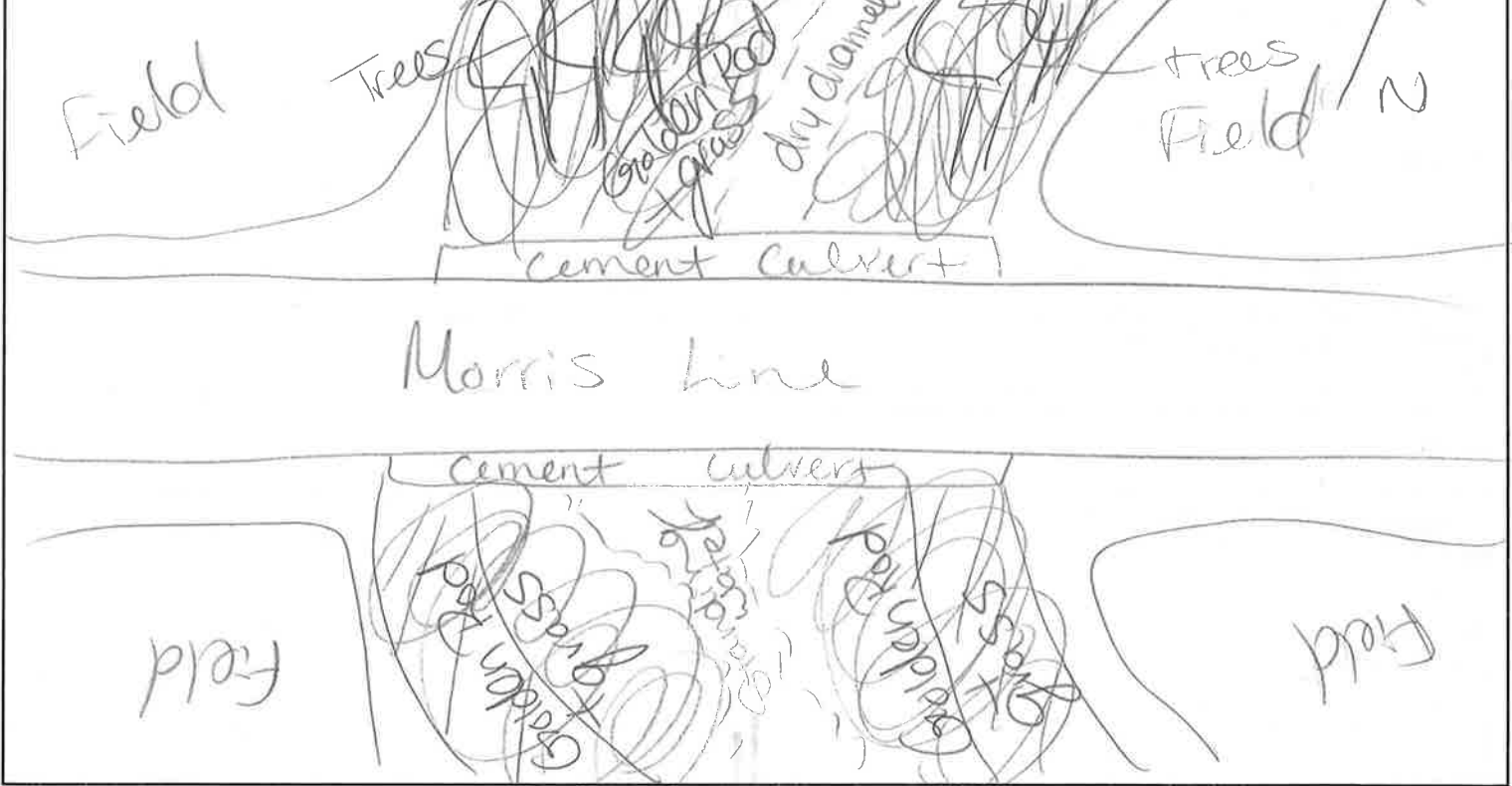
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.89	12, 11, 9, 7, 3	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 19°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Dry North Side Standing Pool under Culvert & on south side
Air Temp. (°C): 21°C	D.O. (%):	TDS (ppm):	
Time Taken: 13:35	Conductivity (µs/cm):		
Location Taken: Pool & Roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north		
#2	south		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: J5

Waterbody:

Drainage System:

Location in System: 1st trib on Burke from Harwich Rd.

Appr. Reach Length (m):

Survey Date: Sep. 16 '10

Time Started: 10:15

Time Finished: 16:32

Site Location:

GPS Datum: NAD 83 **Easting:** 414754

Zone: 17 T **Northing:** 4693345

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind: 1 **Cloud Cover (%):** 100%

Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 - 15 20 to 30 30+
	Vegetation Type: Tree - Poplar, Maple
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass, Herbaceous (Golden Rod) Shrub
	Vegetation Density (HML):
Canopy	Type: Tree, Shrub, Herbaceous Quality and % shade: Good - 50%
Land Use	Agriculture / Residential
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 1.5 **Gradient (H/M/L):**

Bank Height (range (m)): 0.5 m high water @ 2 m **Meander/Straight:**

Bank Slope (degrees from surface of water): 135 **Bank Stability:** good

Bank Vegetation Type: Herbaceous (Golden Rod) Grass, BR, SH **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble: ✓	Bedrock:	Detritus: ✓
Sand: ✓	Cobble: ✓	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock: ✓
Riffles:	Woody Debris: ✓	Cobble: ✓
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

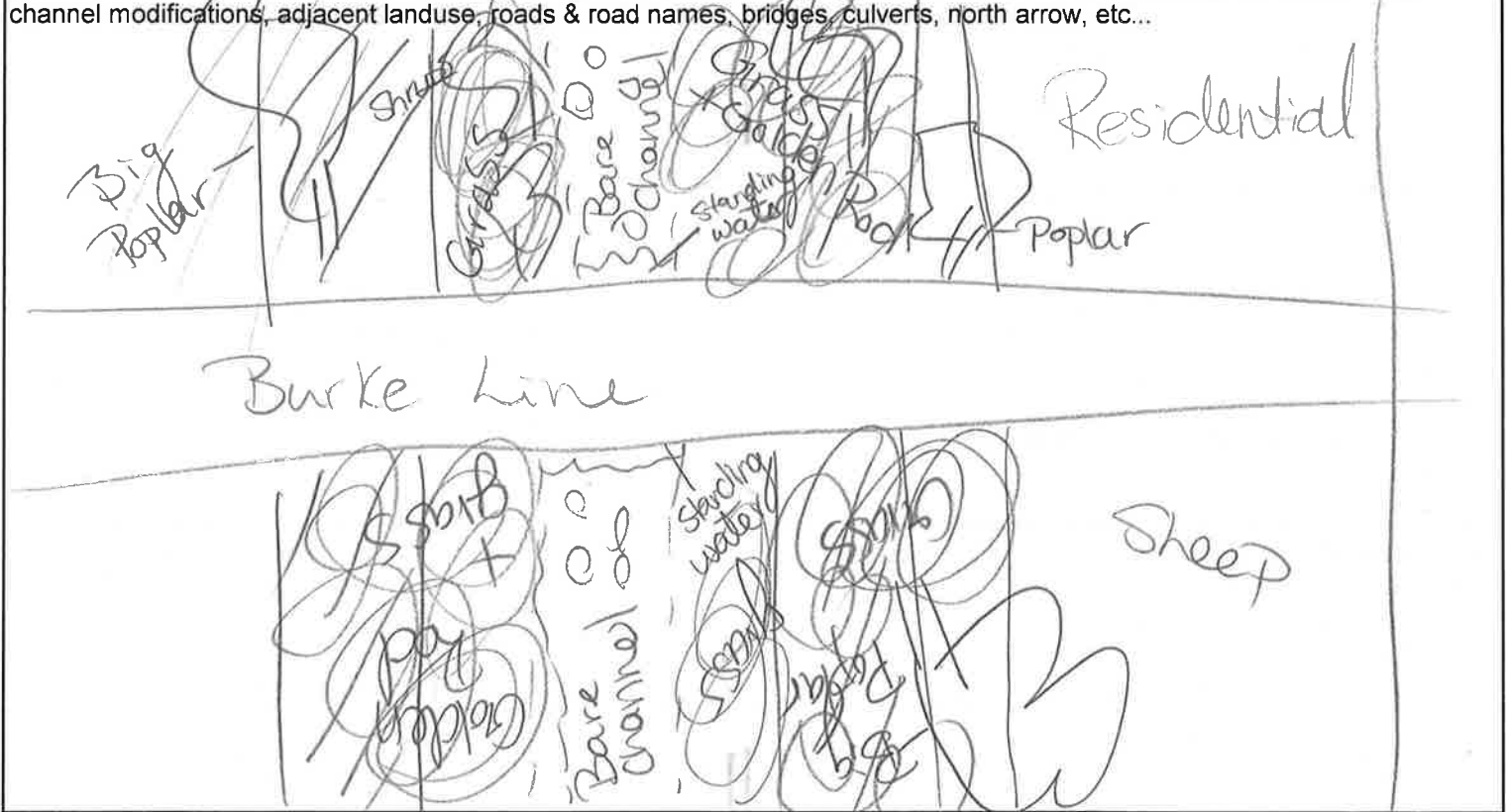
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Dry, except for standing water under culvert
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Dry (- Standing water under culvert)
Air Temp. (°C): 21°C	D.O. (%):	TDS (ppm):	
Time Taken: 16:27	Conductivity (µs/cm):		
Location Taken: Roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	- north		
#2	- south		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* SAR channel



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: K5
Waterbody:
Drainage System: White drain
Location in System: 2nd Trib on Durke from Harwich
Appr. Reach Length (m):
Survey Date: Sep 16 '10
Time Started: 16:42
Time Finished: 16:50
Site Location:
GPS Datum: NAD83 **Easting:** 414403
Zone: 17 T **Northing:** 4692976
Municipality: Chatham/Kent
Lot & Concession:
Weather Conditions:
Wind: 1 **Cloud Cover (%):** 100%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 8-0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Shrub
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous - Golden Rod Grass, Typha
	Vegetation Density (HML):
Canopy	Type: Herbaceous, Typha Grass Quality and % shade: Good 40%
Land Use	Agriculture / Residential
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5-1m	Gradient (H/M/L):
Bank Height (range (m)): 3m - High water @ 1m	Meander/Straight:
Bank Slope (degrees from surface of water): 135	Bank Stability: Good
Bank Vegetation Type: Herbaceous - Golden Rod	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel:	Boulder:	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble:	Bedrock:	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock:
Riffles:	Woody Debris: <input checked="" type="checkbox"/>	Cobble:
Backwater:	Vegetation: <input checked="" type="checkbox"/> Typha	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Typha	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

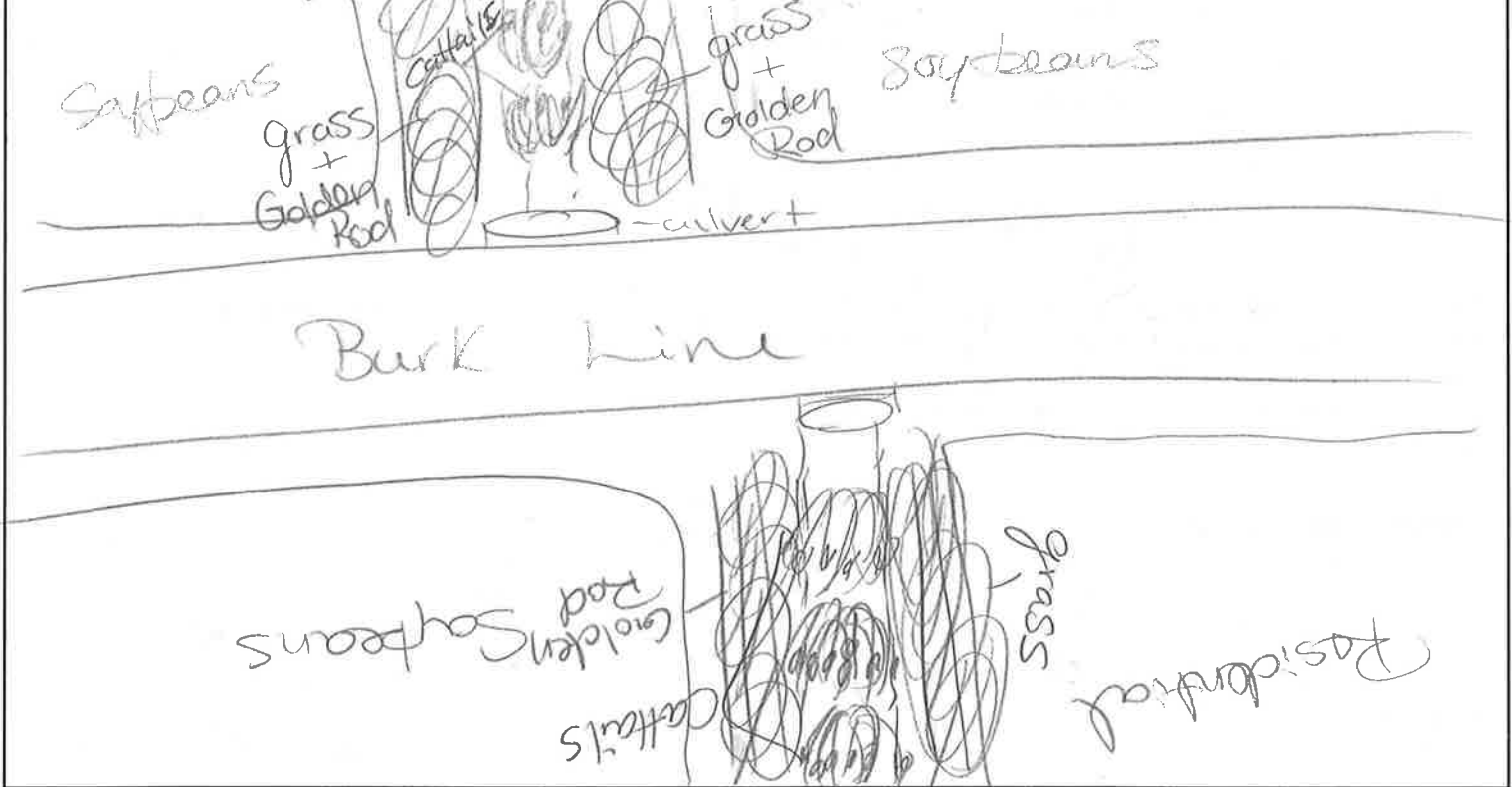
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Dry
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	Dry	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Dry
Air Temp. (°C):	22°C	D.O. (%):	TDS (ppm):	
Time Taken:	16:38	Conductivity (µs/cm):		
Location Taken:	Roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north		
#2	south		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* SAR Channel



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: (L5)
Waterbody:
Drainage System:
Location in System: 1st trib on Kent Bridge South of Burk
Appr. Reach Length (m):
Survey Date: Sep. 17 '10
Time Started: 7:47
Time Finished: 8:13
Site Location:
GPS Datum: NAD83 **Easting:** 421019
Zone: 17 T **Northing:** 4697419
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 1 **Cloud Cover (%):** 80%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Shrub, tree, grass, herbaceous (Golden Rod)
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Shrub, grass, herbaceous (Golden Rod, Jewelweed)
	Vegetation Density (HML):
Canopy	Type: Shrub, grass, herbaceous Quality and % shade: Excellent 90%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): .5 - 1m **Gradient (H/M/L):**
Bank Height (range (m)): 4m high water @ 3m **Meander/Straight:**
Bank Slope (degrees from surface of water): 135 **Bank Stability:** Good
Bank Vegetation Type: Shrub, herbaceous (Golden Rod) Grass **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

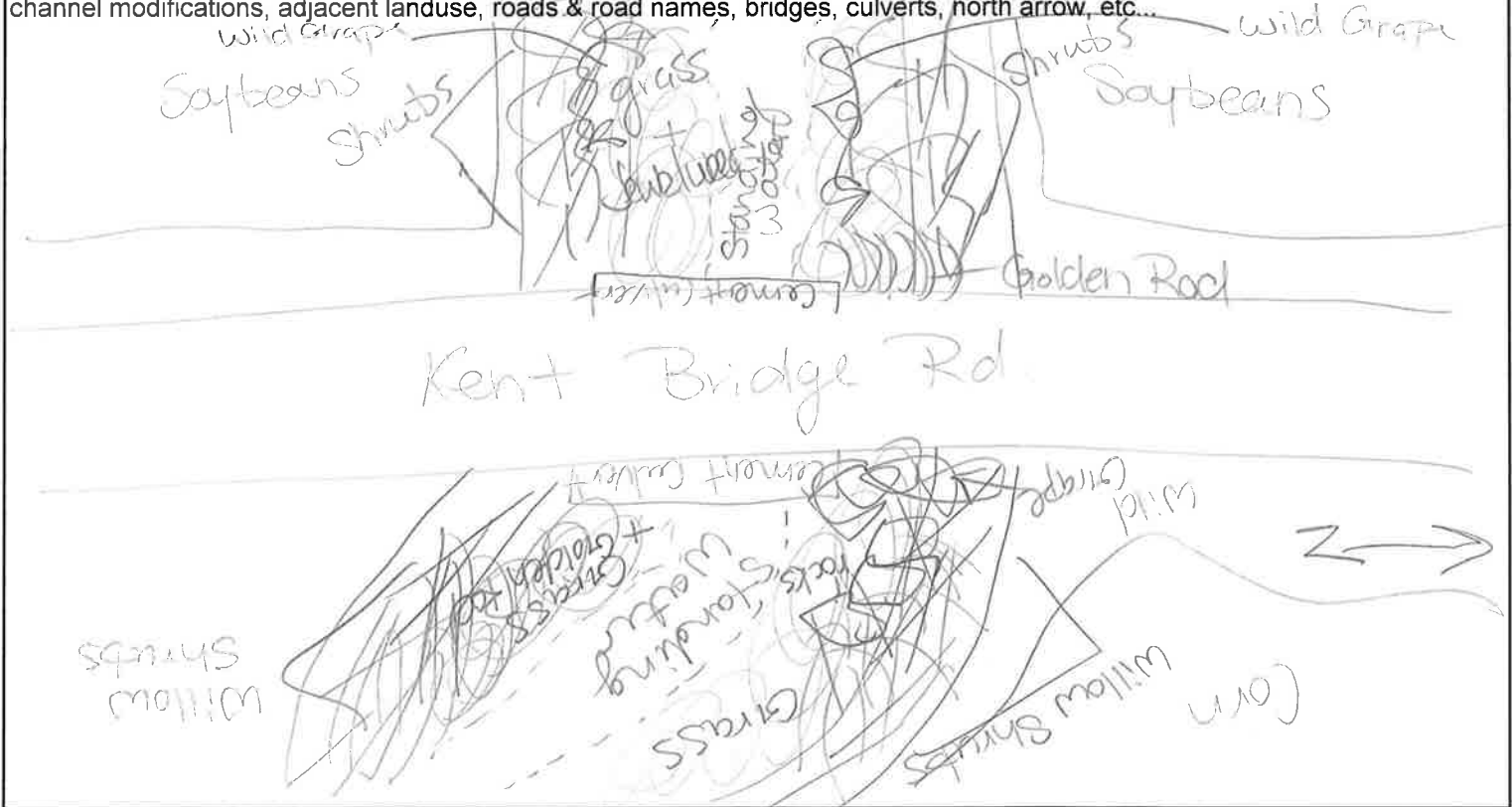
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.10	7, 8, 12, 8, 6	Standing water on west side
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 15°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing turbid water
Air Temp. (°C): 12°C	D.O. (%):	TDS (ppm):	
Time Taken: 8:07	Conductivity (µs/cm):		
Location Taken: Roadside / in stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1 - east			
#2 - west			

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * Green Frogs observed
- * saw a Muskrat swim by



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: N5
Waterbody:
Drainage System:
Location in System: Roadside drain on Kent bridge Rd (East Side)
Appr. Reach Length (m):
Survey Date: Sep. 17, 10
Time Started: 9:07
Time Finished: 9:16
Site Location:
GPS Datum: NAD83 **Easting:** 426598
Zone: 17 T **Northing:** 4691365
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 1 **Cloud Cover (%):** 0%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous - Golden Rod
	Vegetation Density (HML):
Canopy	Type: Herbaceous, Typha Quality and % shade: Good 40%
Land Use	Agriculture / Residential
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1m	Gradient (H/M/L):
Bank Height (range (m)): 2.5m high water @ 1.5	Meander: Straight
Bank Slope (degrees from surface of water): 135	Bank Stability: Good
Bank Vegetation Type: Herbaceous (Golden Rod) Typha	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck:
Silt: ✓	Pebble:	Bedrock:	Detritus:
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble:
Backwater:	Vegetation: ✓ Typha	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Typha	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

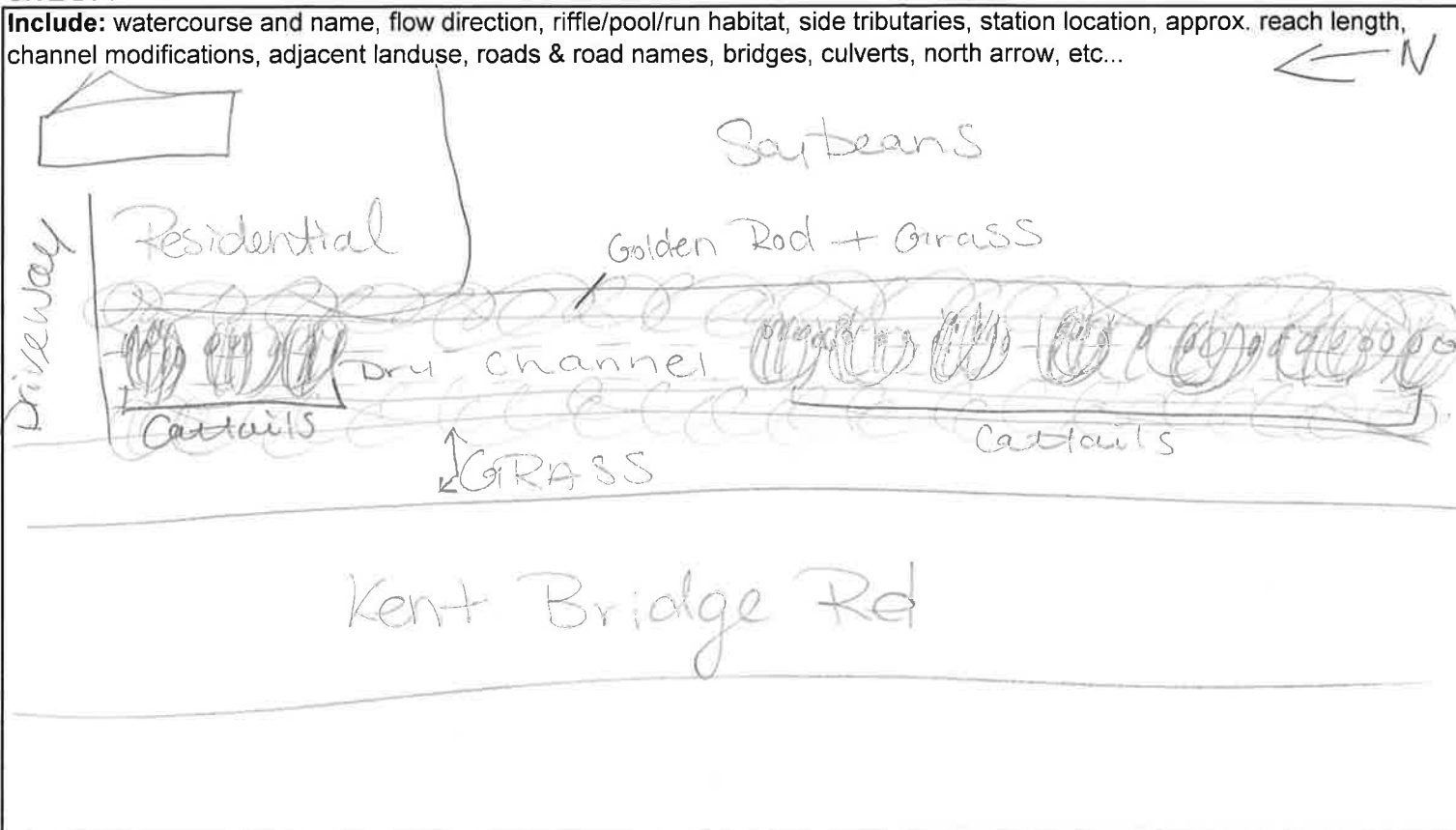
FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Dry
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Dry
Air Temp. (°C): 14°C	D.O. (%):	TDS (ppm):	
Time Taken: 9:10	Conductivity (µs/cm):		
Location Taken: Roadside			

SITE DRAWING



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1 - North			
#2 - South			

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: P5
Waterbody:
Drainage System:
Location in System: 1st trib on Ridge line from Kent Bridge
Appr. Reach Length (m):
Survey Date: Sep 17 '10
Time Started: 10:00
Time Finished: 10:29
Site Location:
GPS Datum: NAD83 **Easting:** 422960
Zone: 17 T **Northing:** 4694506
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: () **Cloud Cover (%):** 5%
Precipitation: None

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)	
	Extent of Natural Vegetation (m)	0-10	10 to 20	18 20 to 30 30+	
	Vegetation Type:	Shrub, tree, Herbaceous, Grass			
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Shrub (Sumack), Herbaceous (Golden Rod), Grass			
	Vegetation Density (HML):				
Canopy	Type:	Tree Shrub herbaceous grass			Quality and % shade: Excellent 90%
Land Use	Agriculture				
Other Notes	(groundwater, soils, pools, vegetation, etc.)				

CHANNEL MORPHOLOGY

Channel Width (range (m)): 5-3m **Gradient (H/M/L):**
Bank Height (range (m)): 4m High water @ 2m **Meander/Straight:**
Bank Slope (degrees from surface of water): 135 **Bank Stability:** Good
Bank Vegetation Type: Herbaceous (Golden Rod) Shrub/Sumack **Bank Veg. Density (H/M/L):**
 (Willow)

CHANNEL SUBSTRATE %

Clay: ✓	Gravel: ✓	Boulder: ✓	Muck: ✓
Silt: ✓	Pebble: ✓	Bedrock: ✓	Detritus: ✓
Sand: ✓	Cobble: ✓	Marl: ✓	Other: ✓

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock: ✓
Riffles: ✓	Woody Debris: ✓	Cobble: ✓
Backwater: ✓	Vegetation: ✓	Other: ✓

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.45	17, 22, 30, 25, 4	Pool (turbid) (north side)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 15°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing water North side, Dry South side.
Air Temp. (°C): 15°C	D.O. (%):	TDS (ppm):	
Time Taken: 10:16	Conductivity (µs/cm):		
Location Taken: In stream/Roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	South		
#2	North		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

*turbid water



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: T5
Waterbody:
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Sep. 21'10
Time Started: 12:31
Time Finished: 12:39
Site Location:
GPS Datum: NAD83 **Easting:**
Zone: 17 T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 3 **Cloud Cover (%):** 5%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 -12 20 to 30 30+
	Vegetation Type: Tree - Mixed Shrub - Sumack
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Herbaceous
	Vegetation Density (HML):
Canopy	Type: Tree, Shrub Quality and % shade: 100% - Excellent
Land Use	Residential
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): .5 - 3m **Gradient (H/M/L):**
Bank Height (range (m)): 4m High water @ 2m **Meander/Straight:**
Bank Slope (degrees from surface of water): 135 **Bank Stability:** Good
Bank Vegetation Type: Shrub, Grass, Herbaceous **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: ✓	Gravel: ✓	Boulder: ✓	Muck: ✓
Silt: ✓	Pebble: ✓	Bedrock: ✓	Detritus: ✓
Sand: ✓	Cobble: ✓	Marl: ✓	Other: ✓

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock: ✓
Riffles: ✓	Woody Debris: ✓	Cobble: ✓
Backwater: ✓	Vegetation: ✓	Other: ✓

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Dry
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Dry
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north		
#2	south		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* nice habitat if there was flow.



PROJECT (Number & Name): 1184 Saut Kent
Field Staff: S. Murray
Station: US
Waterbody:
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Sep. 21, 10
Time Started: 13:15
Time Finished: 13:26
Site Location:
GPS Datum: NAD 83 **Easting:**
Zone: 17 T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 2 **Cloud Cover (%):** 0%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 12 20 to 30 30+
	Vegetation Type: Tree - Mixed Shrub - Sumack Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous - Golden Rod Grass
	Vegetation Density (HML):
Canopy	Type: Herbaceous, Tree, Shrub Quality and % shade: Poor 15%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): .5 - 1m **Gradient (H/M/L):**
Bank Height (range (m)): 3m High water @ 1.5m **Meander/Straight:**
Bank Slope (degrees from surface of water): **Bank Stability:** Good
Bank Vegetation Type: **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input checked="" type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input checked="" type="checkbox"/>	Bedrock: <input checked="" type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input checked="" type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

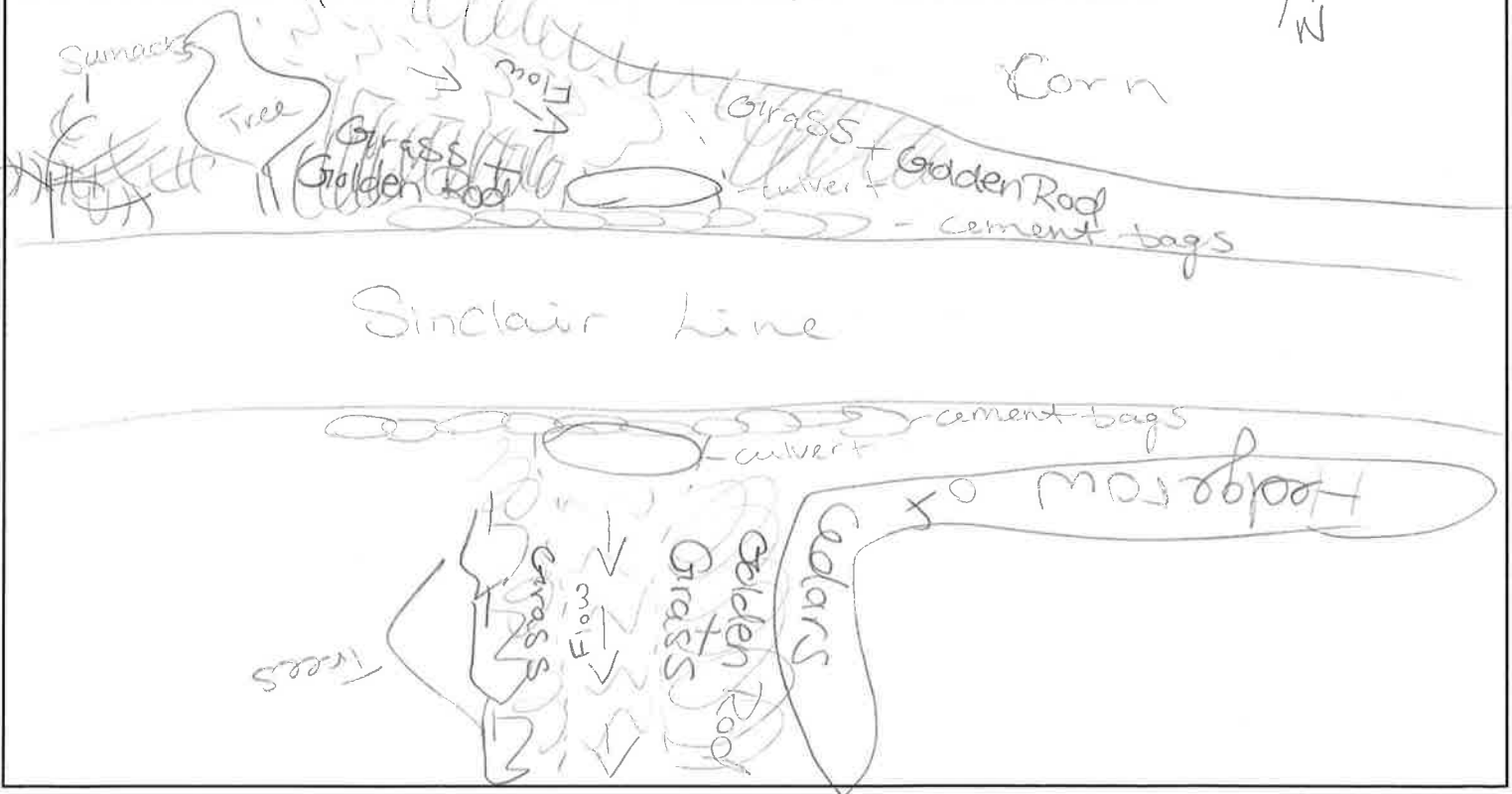
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.02	6, 7, 9, 9, 5	Pool (Sout, d/S)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 17°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Very Slow Flow South
Air Temp. (°C): 24°C	D.O. (%):	TDS (ppm):	
Time Taken: 13:20	Conductivity (µs/cm):		
Location Taken: Roadside/Pool			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
# 1	North (u/s)		
# 2	South (d/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* water striders & frogs seen



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: W5

Waterbody:

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: Sep 21 10

Time Started: 13:57

Time Finished: 14:15

Site Location:

GPS Datum: NAD83 **Easting:**

Zone: 17 T **Northing:**

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind: 2 **Cloud Cover (%):** 0%

Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)
	Extent of Natural Vegetation (m): 10 - 0-10	10 to 20	20 to 30 30+
	Vegetation Type: Grass	Trees - Mixed (North Side)	
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10	10 to 20	20 to 30 30+
	Vegetation Type: Grass	Herbaceous - Golden Rod	
	Vegetation Density (HML):		
Canopy	Type: Tree Herbaceous watercress	Quality and % shade: Poor 20%	
Land Use	Agriculture / Residential		
Other	(groundwater, soils, pools, vegetation, etc.)		
Notes			

CHANNEL MORPHOLOGY

Channel Width (range (m)): .5m

Bank Height (range (m)): 3m high water @ 1.5m

Bank Slope (degrees from surface of water): 135

Bank Vegetation Type: Herbaceous (Golden Rod) Grass

Gradient (H/M/L):

Meander/Straight:

Bank Stability: Good

Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

detritus

Clay: ✓	Gravel: ✓	Boulder: ✓	Muck: ✓
Silt: ✓	Pebble: ✓	Bedrock: ✓	Detritus: ✓
Sand: ✓	Cobble: ✓	Marl: ✓	Other: ✓

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock: ✓
Riffles: ✓	Woody Debris: ✓	Cobble: ✓
Backwater: ✓	Vegetation: ✓ (Watercress)	Other: ✓

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Watercress	abundant on Southside not seen on Northside

CODES:

AHP Aquatic Habitat Point	SWI Surface Water Input	SCS Stream Cross Section
AHY Aquatic Habitat Area	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
TMP Temp Monitor Stn	CKC Creek Crossing	VSS Visual Survey Stn
FLW Flow Monitor Stn	WEL Well	WQS Water Quality Stn
	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	0.56	2, 4, 5, 6, 3	North side Standing water (riffle area if flow) (turbid)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 17°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing water (turbid)
Air Temp. (°C): 25°C	D.O. (%):	TDS (ppm):	
Time Taken: 14:05	Conductivity (µs/cm):		
Location Taken: Roadside/In Stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	- north		
#2	- south		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* water grass only abundant on South side (turbine is to be to the north.)



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: B6
Waterbody:
Drainage System: Flook and Hinton drain
Location in System:
Appr. Reach Length (m):
Survey Date: Sep. 21 '10
Time Started: 16:14
Time Finished: 16:31
Site Location:
GPS Datum: NAD 83 **Easting:**
Zone: 17 T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 2 **Cloud Cover (%):** 0%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous (Golden Rod) Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Shrub (Willow) Herbaceous (Golden Rod)
	Vegetation Density (HML):
Canopy	Type: Shrub, Herbaceous, Grass Quality and % shade: Poor - 30%
Land Use	Agriculture / Residential
Other	(groundwater, soils, pools, vegetation, etc.)
Notes	

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 1m Gradient (H/M/L):
 Bank Height (range (m)): 5m high water @ 2.5m Meander/Straight:
 Bank Slope (degrees from surface of water): 135 Bank Stability: Good
 Bank Vegetation Type: Shrub (Willow) Herbaceous (Golden Rod) & Grass Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input checked="" type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Mart: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:

AHP Aquatic Habitat Point	SWI Surface Water Input	SCS Stream Cross Section
AHY Aquatic Habitat Area	GWl Groundwater Input	DOX Dissolved Oxygen Stn
TMP Temp Monitor Stn	CKC Creek Crossing	VSS Visual Survey Stn
FLW Flow Monitor Stn	WEL Well	WQS Water Quality Stn
	CUL Culvert	

FLOW CONDITIONS

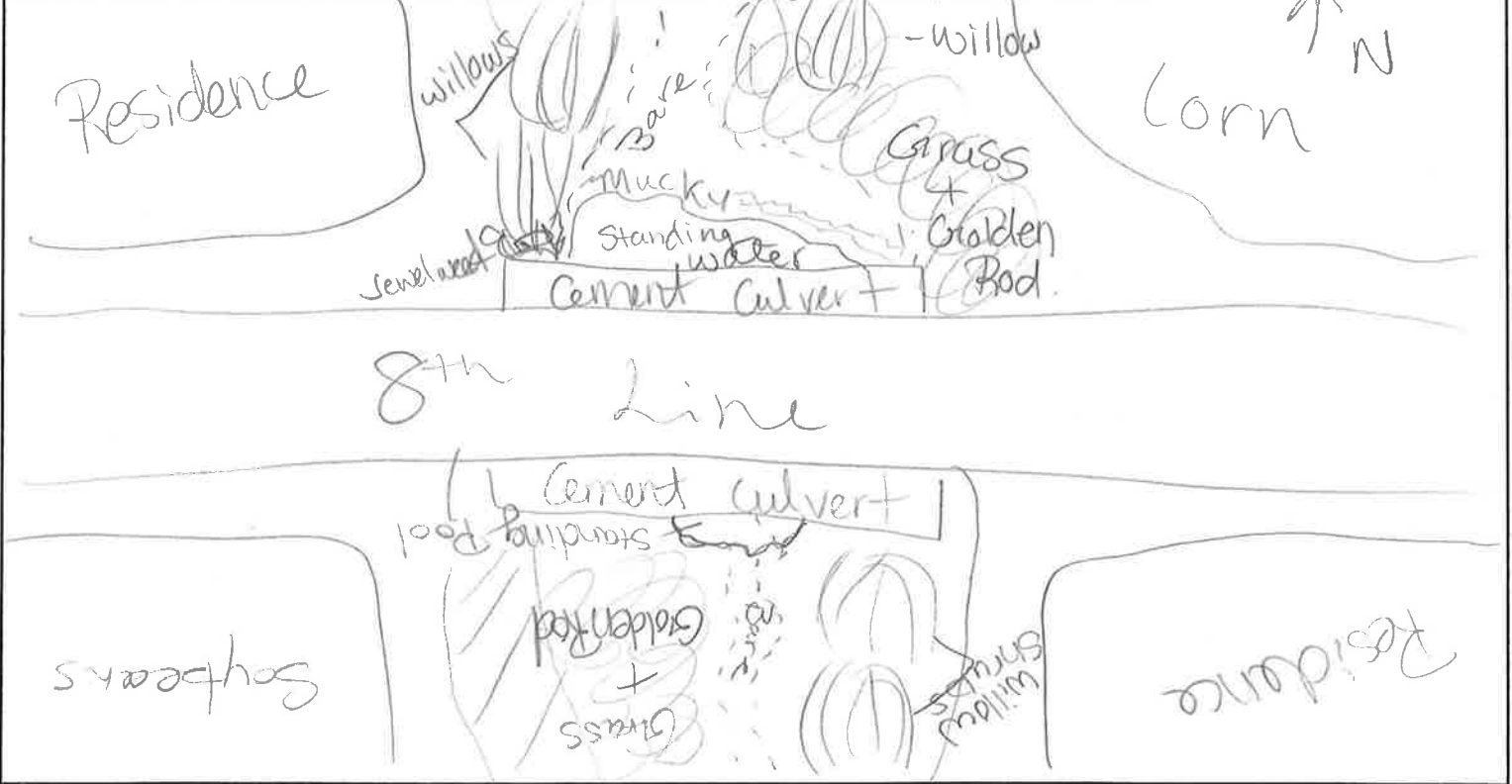
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Dry (Standing Pool @ Culvert)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing Pool @ Culvert
Air Temp. (°C): 30°C	D.O. (%):	TDS (ppm):	
Time Taken: 16:25	Conductivity (µS/cm):		
Location Taken: Roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1 north			
#2 south			

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * Mussel shells observed.
- * raccoon tracks seen
- * Green frogs seen.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: CC
Waterbody:
Drainage System: Towl Drain
Location in System:
Appr. Reach Length (m):
Survey Date: Sep. 21 '10
Time Started: 16:40
Time Finished: 16:52
Site Location:
GPS Datum: NAD 83 **Easting:**
Zone: 17 T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 2 **Cloud Cover (%):** 0%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 -16 20 to 30 30+
	Vegetation Type: Herbaceous (Golden Rod) Grass Tree - Mixed
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous (Golden Rod, Jewelweed) Typha, Grass, Shrub
	Vegetation Density (HML):
Canopy	Type: Shrub, Tree, Typha Herbaceous Quality and % shade: Excellent 75%
Land Use	Agriculture / Residential
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 1.5 m Gradient (H/M/L):
 Bank Height (range (m)): 4m high water @ 2.5 Meander/Straight:
 Bank Slope (degrees from surface of water): 135 Bank Stability: Good
 Bank Vegetation Type: Herbaceous (Golden Rod, Jewelweed) Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel: ✓	Boulder: ✓	Muck: ✓
Silt: ✓	Pebble: ✓	Bedrock: ✓	Detritus: ✓
Sand: ✓	Cobble: ✓	Marl: ✓	Other: ✓

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock: ✓
Riffles: ✓	Woody Debris: ✓	Cobble: ✓
Backwater: ✓	Vegetation: ✓ Typha	Other: ✓

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Typha	both present
	duckweed	not very abundant

CODES:

SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	VSS Visual Survey Stn
TMP Temp Monitor Stn	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert

FLOW CONDITIONS

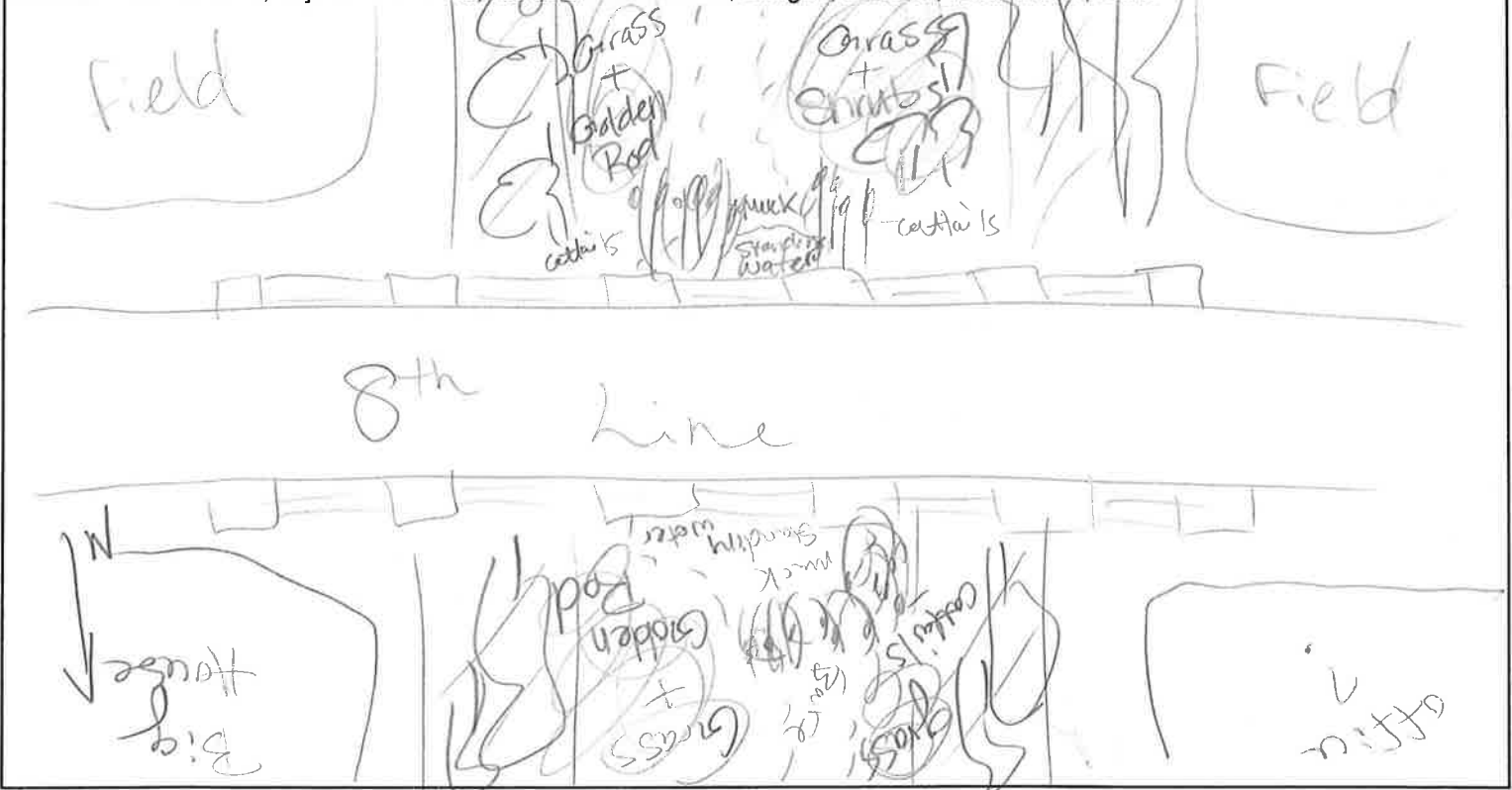
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Small shallow pool under culvert
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: small shallow pool under culvert
Air Temp. (°C): 30°C	D.O. (%):	TDS (ppm):	
Time Taken: 16:47	Conductivity (µs/cm):		
Location Taken: Roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North		
#2	South		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * raccoon tracks observed
- * frogs observed (green)



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: FG
Waterbody:
Drainage System: Orange SAR Drain (Most Western)
Location in System:
Appr. Reach Length (m):
Survey Date: Sep. 22 '10
Time Started: 7:55
Time Finished: 8:25
Weather Conditions:
Wind: 0
Precipitation: light rain
Site Location:
GPS Datum: NAD83 **Easting:**
Zone: 17 T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)	
	Extent of Natural Vegetation (m)	0-10	10 to 20	25 - 20 to 30	30+
	Vegetation Type:	Tree-Mixed Grass Herbaceous - Golden Rod			
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30	30+
	Vegetation Type:	Grass, Herbaceous (Golden Rod) Shrub (Sumack, willow)			
	Vegetation Density (HML):				
Canopy	Type:	Quality and % shade:			
Land Use	Agriculture / Residential				
Other Notes	(groundwater, soils, pools, vegetation, etc.)				

CHANNEL MORPHOLOGY

Channel Width (range (m)): 4.5m
Bank Height (range (m)): 5m high water @ 2m
Bank Slope (degrees from surface of water):
Bank Vegetation Type:
Gradient (H/M/L):
Meander/Straight:
Bank Stability: Good
Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel: ✓	Boulder:	Muck:
Silt: ✓	Pebble: ✓	Bedrock:	Detritus: ✓
Sand: ✓	Cobble: ✓	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble: ✓
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	4.14	2, 4, 5, 7, 2	Pool South side
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 15°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: standing water (might be from night's rain)
Air Temp. (°C): 16°C	D.O. (%):	TDS (ppm):	
Time Taken: 8:11	Conductivity (µs/cm):		
Location Taken: Roadside/In Stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1 - North			
#2 - South			

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * yellow SAR channel
- * water striders seen



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: H6
Waterbody:
Drainage System: Orange SAR Drain (Most Western)
Location in System:
Appr. Reach Length (m):
Survey Date: Sep 27 '10
Time Started: 9:05
Time Finished: 9:15
Site Location:
GPS Datum: NAD83 **Easting:**
Zone: 17 T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 0 **Cloud Cover (%):** 100%
Precipitation: Heavy Rain

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 -18 20 to 30 30+
	Vegetation Type: Tree-Mixed Grass Shrub
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Herbaceous (Golden Rod)
	Vegetation Density (H/M/L):
Canopy	Type: Tree, Shrub Quality and % shade: Excellent 80%
Land Use	Agriculture / Residential
Other	(groundwater, soils, pools, vegetation, etc.)
Notes	

CHANNEL MORPHOLOGY

Channel Width (range (m)): 3m	Gradient (H/M/L):
Bank Height (range (m)): 4m high water @ 3m	Meander/Straight:
Bank Slope (degrees from surface of water): 135	Bank Stability: Good
Bank Vegetation Type: Grass, Herbaceous (Golden Rod)	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus: ✓
Sand: ✓	Cobble: ✓	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble: ✓
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None.		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

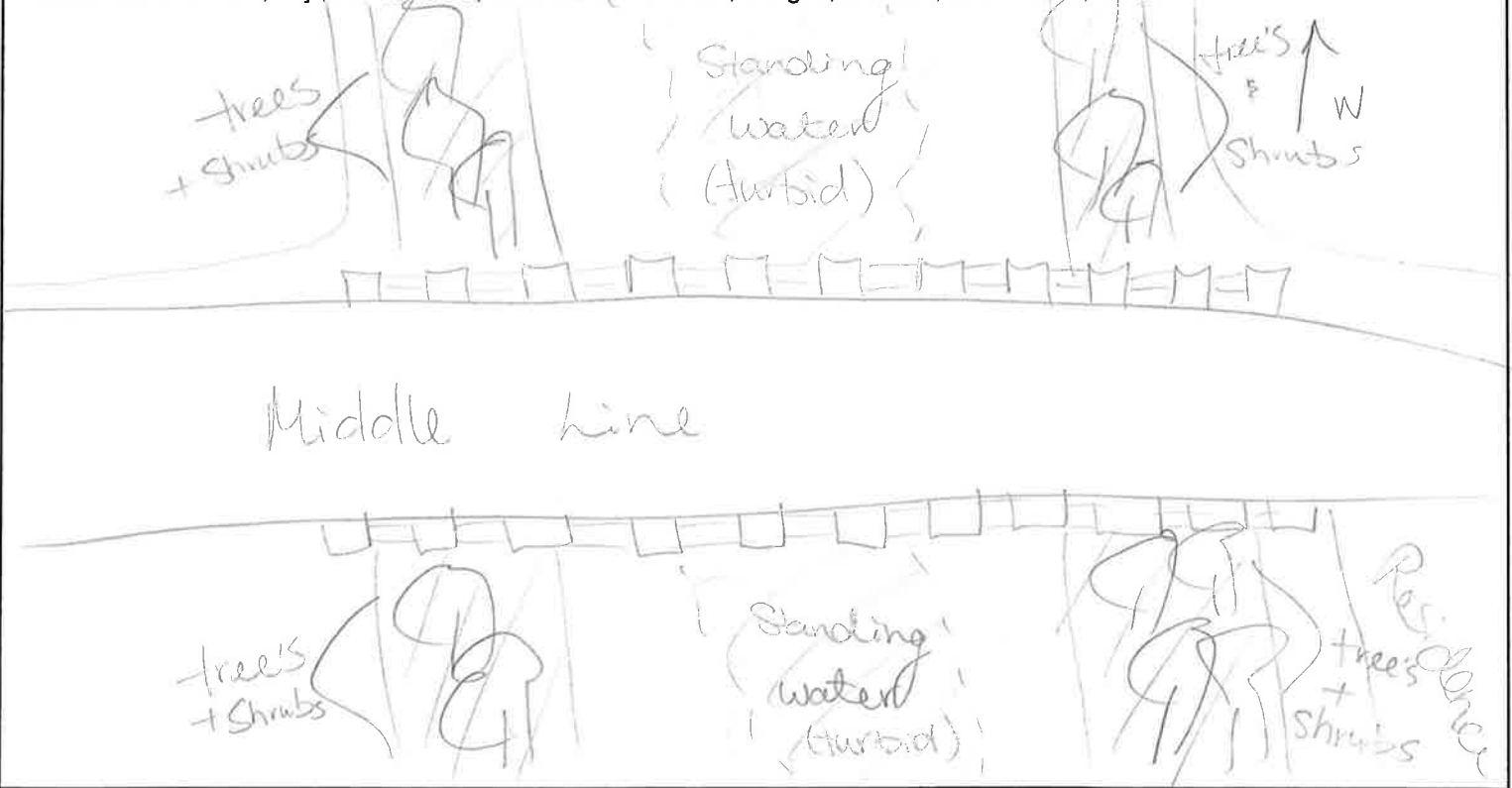
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	3.06	7, 10, 14, 19, 8	Pool (north side)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 15°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing turbid water
Air Temp. (°C): 19°C	D.O. (%):	TDS (ppm):	
Time Taken: 9:10	Conductivity (µs/cm):		
Location Taken: Roadside/In stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow; etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1 - north			
#2 - south			

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* SAR Yellow Channel.

* no fauna seen possibly due to rain.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: T6
Waterbody:
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Sep. 22 '10
Time Started: 9:27
Time Finished: 9:34

Site Location:
GPS Datum: NAD 83 **Easting:**
Zone: 17 T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:

Weather Conditions:
Wind: 0 **Cloud Cover (%):** 100%
Precipitation: light Rain

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Herbaceous - Golden Rod
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Herbaceous - Golden Rod
	Vegetation Density (H/M/L):
Canopy	Type: Herbaceous, Grass Quality and % shade: Poor - 10%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1	Gradient (H/M/L):
Bank Height (range (m)): 3m high water @ 2m	Meander: Straight
Bank Slope (degrees from surface of water): 135	Bank Stability: Good
Bank Vegetation Type: Herbaceous (Golden Rod) Grass	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus:
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble:
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

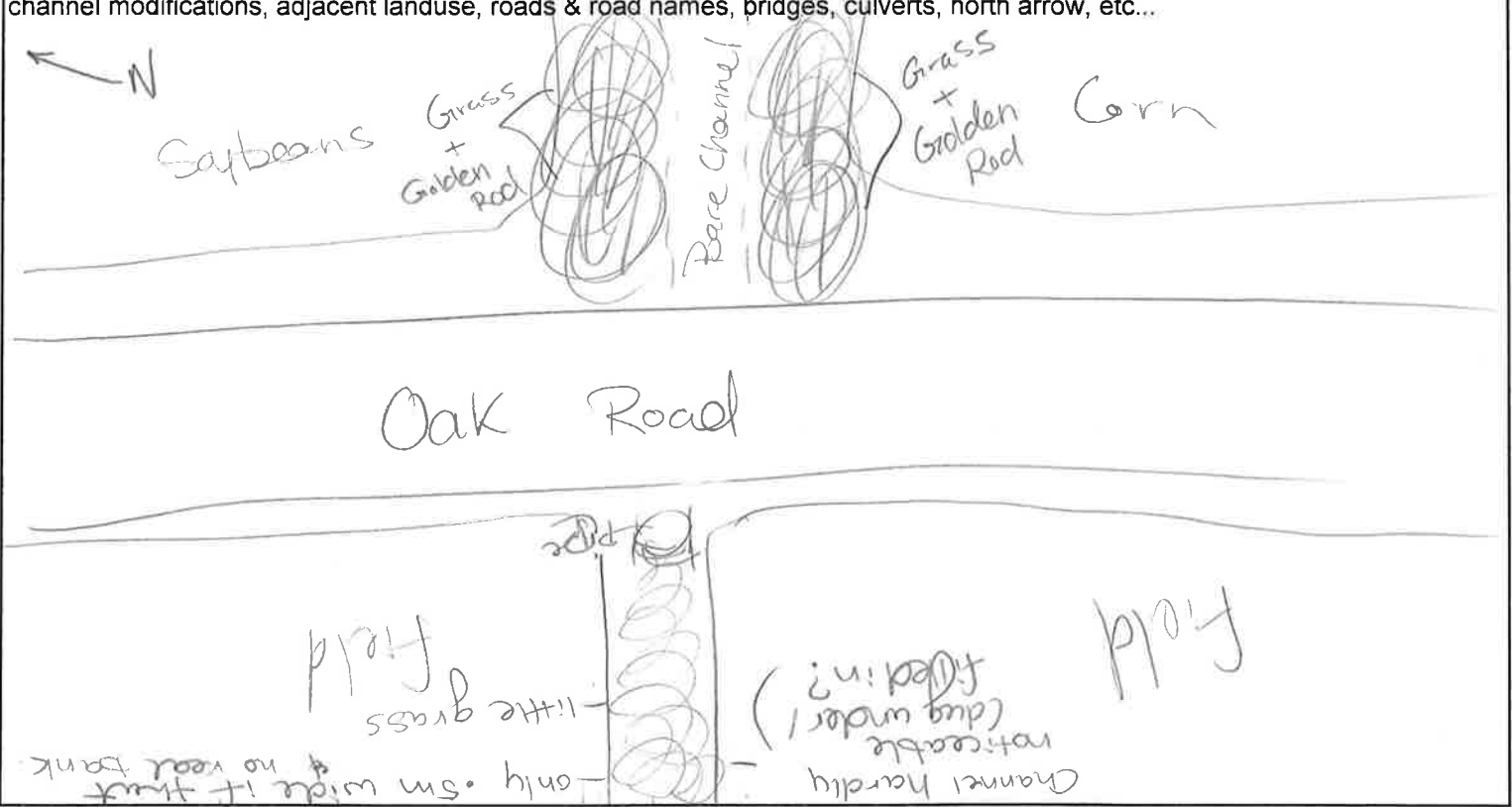
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			DRY
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	DRY
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	South east		
#2	north west		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* Yellow SAP channel



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: J6
Waterbody:
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Sep 22/10
Time Started: 9:39
Time Finished: 9:45

Site Location:
GPS Datum: NAD 83 **Easting:**
Zone: 17 T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:

Weather Conditions:
Wind: 0 **Cloud Cover (%):** 100%
Precipitation: light rain

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m): 8-0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Herbaceous - Golden Rod
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Herbaceous - Golden Rod
	Vegetation Density (HML):
Canopy	Type: Herbaceous, Grass Quality and % shade: Poor 5%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1m **Gradient (H/M/L):**
Bank Height (range (m)): 3m high water @ 1m **Meander/Straight:**
Bank Slope (degrees from surface of water): 135 **Bank Stability:** Good
Bank Vegetation Type: Herbaceous, Grass **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: **Undercut Banks:** **Boulder/Rock:**
Riffles: **Woody Debris:** **Cobble:**
Backwater: **Vegetation:** **Other:**

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

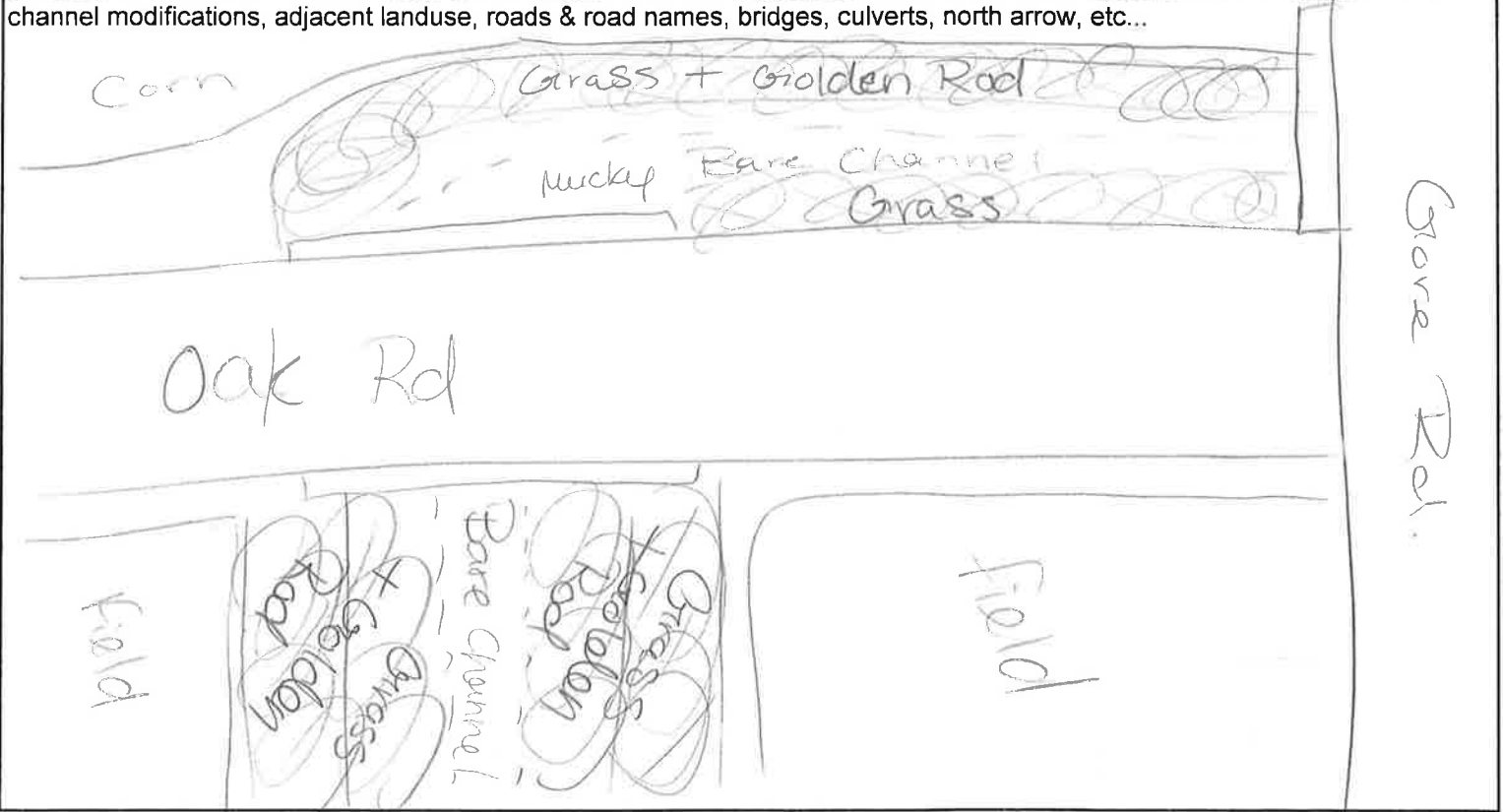
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			DRY
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	DRY	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Dry
Air Temp. (°C):	20°C	D.O. (%):	TDS (ppm):	
Time Taken:	9:41	Conductivity (µs/cm):		
Location Taken:	Roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north east		
#2	south west		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* SAR Yellow Channel



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: K6
Waterbody:
Drainage System: Orange SAR Drain (Most Western)
Location in System:
Appr. Reach Length (m):
Survey Date: Sep. 22
Time Started: 9:58
Time Finished: 10:15
Site Location:
GPS Datum: NAD 83 **Easting:**
Zone: 17 T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 0 **Cloud Cover (%):** 100%
Precipitation: light rain

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree - Mixed Grass Herbaceous - Golden Rod
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Herbaceous - Golden Rod
	Vegetation Density (HML):
Canopy	Type: Herbaceous, Tree Quality and % shade: Poor - 20%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 2.5 **Gradient (H/M/L):**
Bank Height (range (m)): 3.5m high water @ 2m **Meander/Straight:**
Bank Slope (degrees from surface of water): 75 **Bank Stability:** Good
Bank Vegetation Type: Herbaceous - Golden Rod, Grass **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input checked="" type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:

AHP Aquatic Habitat Point	SWI Surface Water Input	SCS Stream Cross Section
AHY Aquatic Habitat Area	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
TMP Temp Monitor Stn	CKC Creek Crossing	VSS Visual Survey Stn
FLW Flow Monitor Stn	WEL Well	WQS Water Quality Stn
	CUL Culvert	

FLOW CONDITIONS

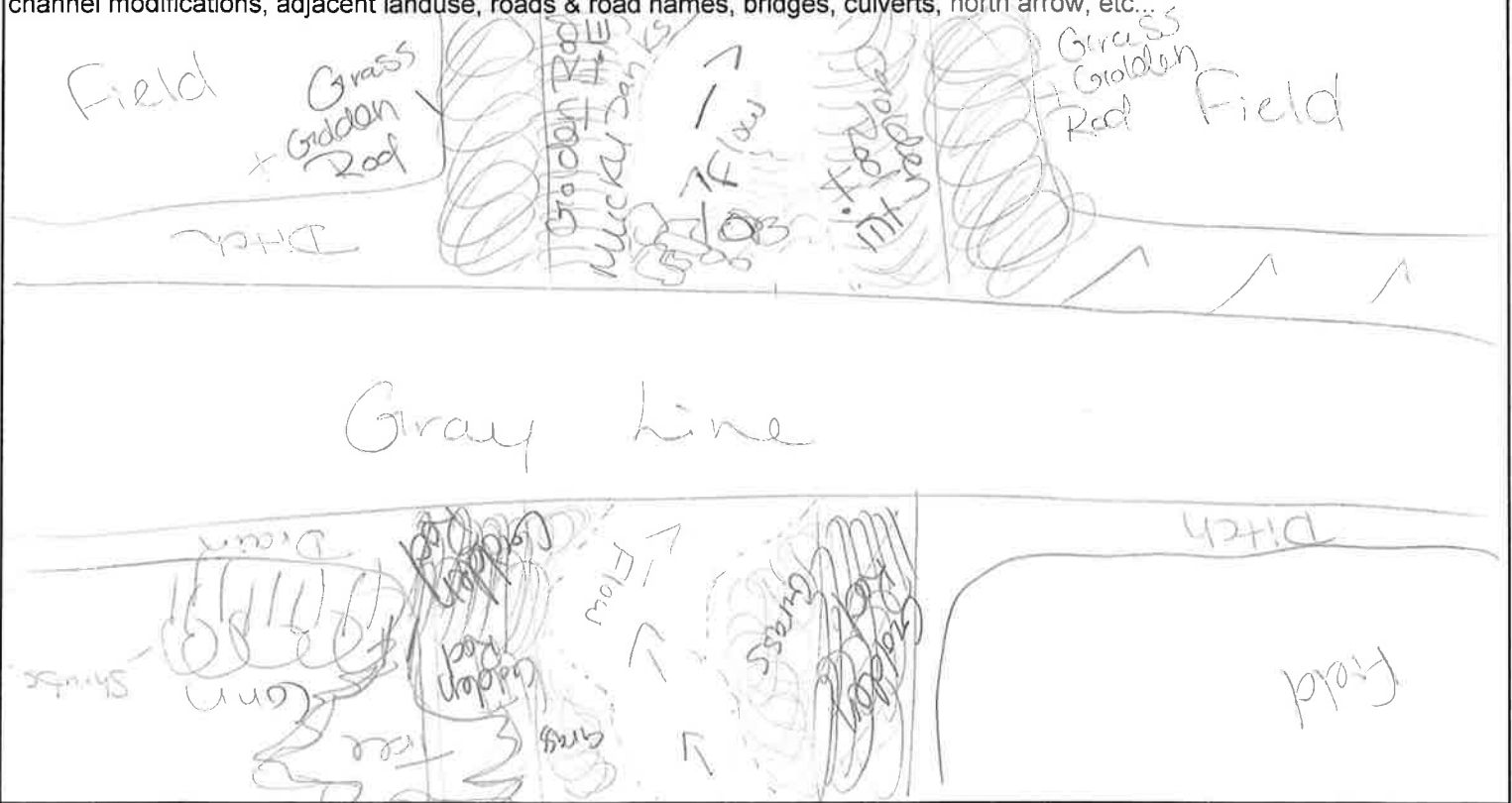
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.27	2, 5, 4, 6, 2	Pool (north side)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 16°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Slow flow north Slightly turbid water
Air Temp. (°C): 20°C	D.O. (%):	TDS (ppm):	
Time Taken: 10:05	Conductivity (µs/cm):		
Location Taken: Roadside / In Stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc.



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north (d/s)		
#2	south (u/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* north side of channel is yellow SFR.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: N6
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Sep. 22
Time Started: 10:47
Time Finished: 11:06
Site Location:
GPS Datum: NAD83 **Easting:**
Zone: 17 T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind:) **Cloud Cover (%):** 15%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (<5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
Vegetation Type: Herbaceous - Golden Rod Tree - Cedar & White Pine Grass	
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous - Golden Rod Grass, Typha
Vegetation Density (HML):	
Canopy	Type: Herbaceous, Tree Quality and % shade: Poor 20%
Land Use	Agriculture / Residential
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1m **Gradient (H/M/L):**
Bank Height (range (m)): 2m high water @ 1.5m **Meander/Straight:**
Bank Slope (degrees from surface of water): 135 **Bank Stability:** Good
Bank Vegetation Type: Herbaceous (Golden Rod) Grass **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: ✓	Gravel: ✓	Boulder: ✓	Muck: ✓
Silt: ✓	Pebble: ✓	Bedrock: ✓	Detritus: ✓
Sand: ✓	Cobble: ✓	Marl: ✓	Other: ✓

INSTREAM HABITAT AND COVER

Pools: ✓ **Undercut Banks:** ✓ **Boulder/Rock:** ✓
Riffles: **Woody Debris:** **Cobble:** ✓
Backwater: **Vegetation:** ✓ Typha **Other:**

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Typha	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

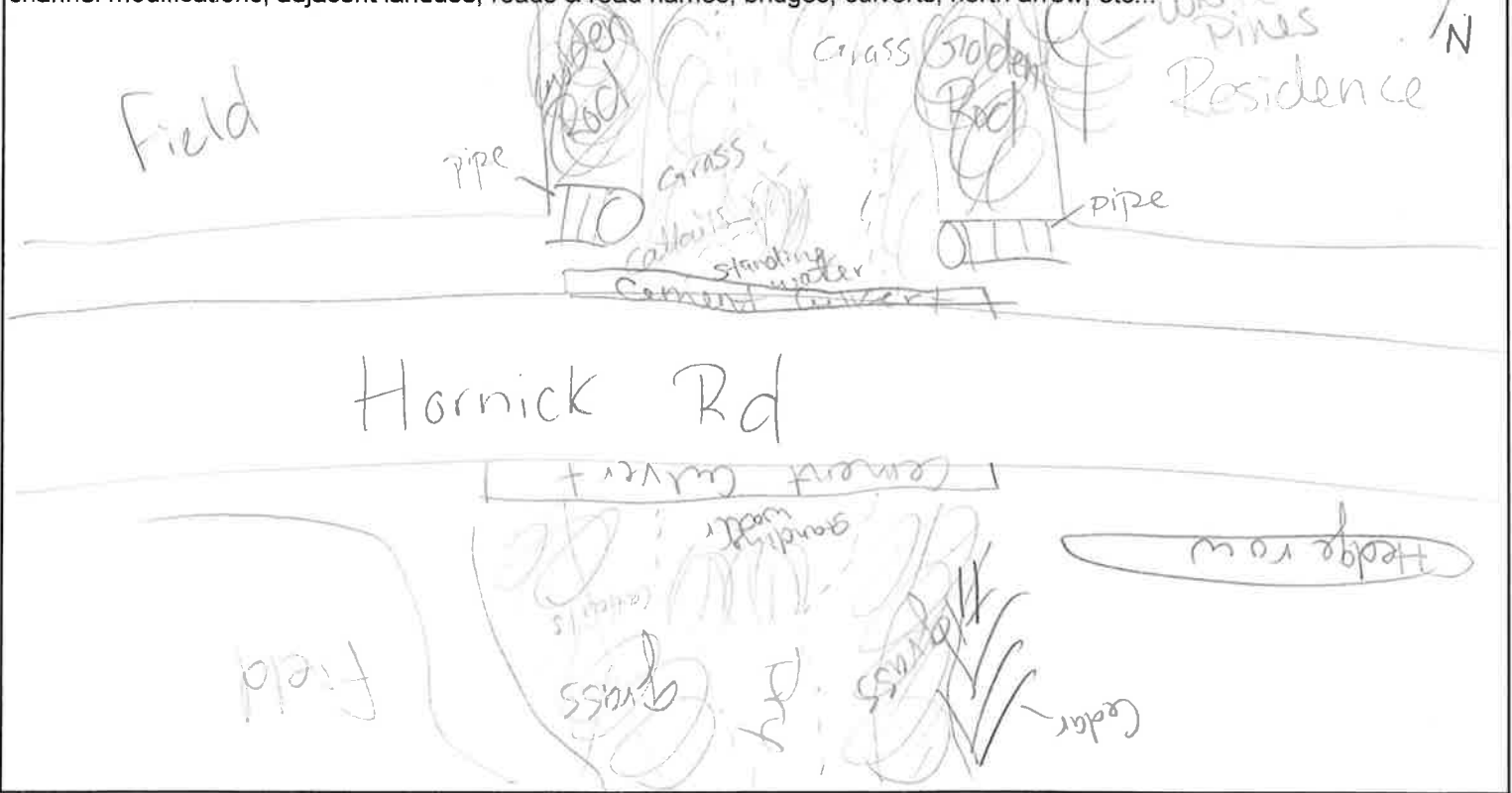
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.09	1, 3, 5, 6, 4	Pool (north side)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 18°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing water mostly @ Northwest side, only standing pool @ culvert SE side.
Air Temp. (°C): 22°C	D.O. (%):	TDS (ppm):	
Time Taken: 1:00	Conductivity (µs/cm):		
Location Taken: Roadside / In Stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	Northwest		
#2	South east		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* water striders observed.



PROJECT (Number & Name): 1184 South

Field Staff: S. Murray

Station: T6

Waterbody: Unknown

Drainage System: Lewis Drain

Location in System:

Appr. Reach Length (m):

Survey Date: Sep. 22 '10

Time Started: 12:39

Time Finished: 12:53

Site Location:

GPS Datum: NAD 83

Easting:

Zone: 17T

Northing:

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind: 2

Precipitation: None

Cloud Cover (%): 80%

ADJACENT LANDS

Valley	Slope: Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)		
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30	30+
Vegetation Type: Tree, Shrub, Grass Herbaceous - Golden Rod					
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30	30+
	Vegetation Type:	Herbaceous - Golden Rod Grass.			
Vegetation Density (HML):					
Canopy	Type:	Quality and % shade:			
Land Use	Agriculture				
Other	(groundwater, soils, pools, vegetation, etc.)				
Notes					

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.5

Bank Height (range (m)): 2.5 High water @ 2m

Bank Slope (degrees from surface of water): 135

Bank Vegetation Type: Herbaceous - Golden Rod

Gradient (H/M/L):

Meander/Straight:

Bank Stability: Good

Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input checked="" type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools:

Riffles:

Backwater:

Undercut Banks:

Woody Debris:

Vegetation:

Boulder/Rock:

Cobble:

Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

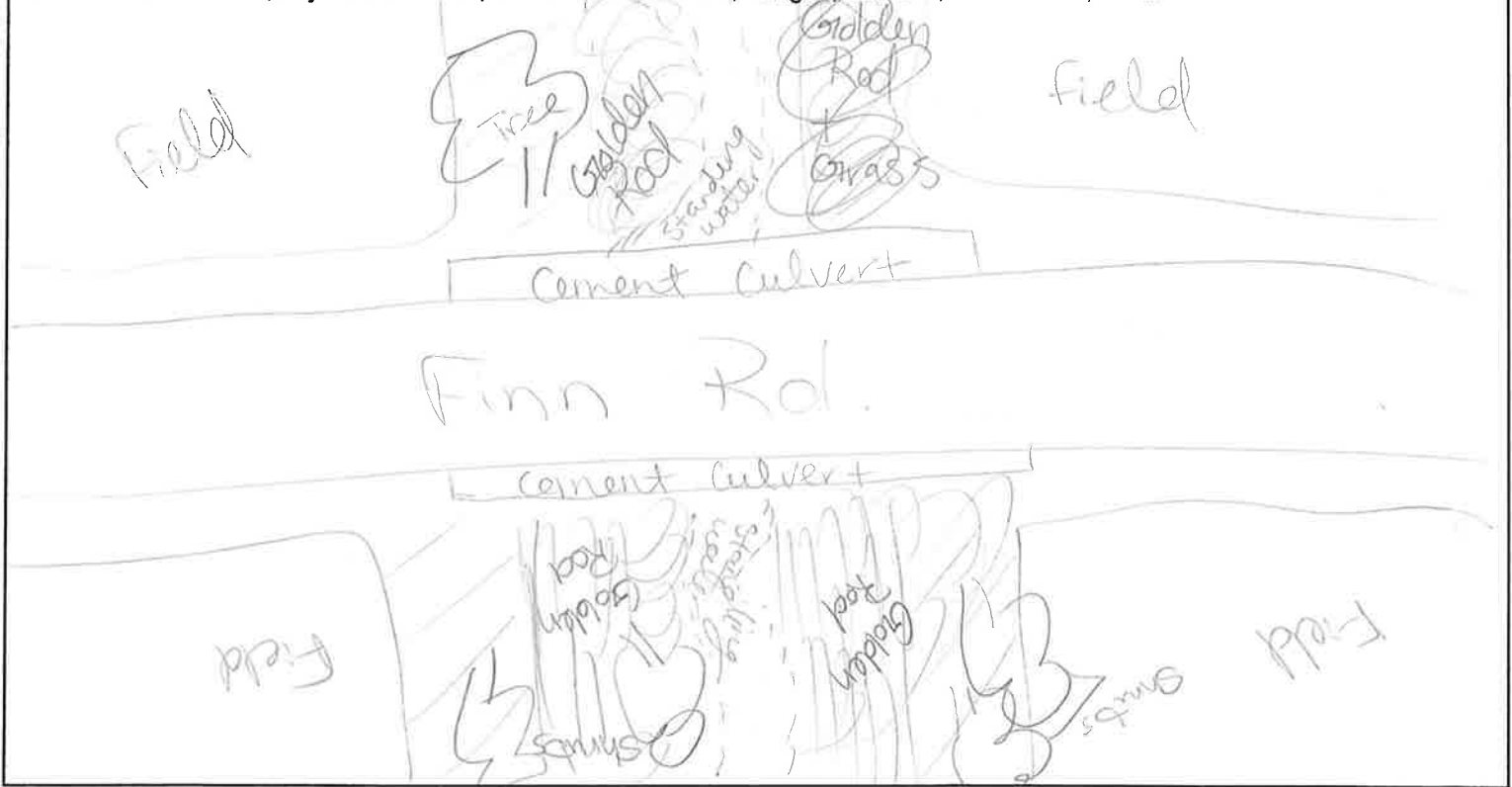
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.48	6, 9, 7, 9, 14	Pool (south side)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 19°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: standing water
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken: 12:45	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North west		
#2	South east		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * around 50 dead darters/minnows
- * raccoon tracks
- * fingernail clam shells observed
- * water striders present



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: 44
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Sep 22
Time Started: 13:00
Time Finished: 13:23
Site Location:
GPS Datum: NAD 83 **Easting:**
Zone: 17 T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: | **Cloud Cover (%):** 95%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree - Bur oak, Maples, Honey Locust, Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass, Tree (Honey Locust, Maple), Herbaceous (Golden Rod)
	Vegetation Density (HML):
Canopy	Type: Tree, Herbaceous Quality and % shade: Excellent 75%
Land Use	Agriculture / Residential
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): .5 **Gradient (H/M/L):**
Bank Height (range (m)): 3m high water @ 2m **Meander:** Straight
Bank Slope (degrees from surface of water): 135 **Bank Stability:** Good
Bank Vegetation Type: Herbaceous (Golden Rod) Tree (Maple, Honey Locust) **Bank Veg. Density (H/M/L):**
 + Grass

CHANNEL SUBSTRATE %

Clay: ✓	Gravel: ✓	Boulder: ✓	Muck: ✓
Silt: ✓	Pebble: ✓	Bedrock: ✓	Detritus: ✓ lots
Sand: ✓	Cobble: ✓	Marl: ✓	Other: ✓

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock: ✓
Riffles:	Woody Debris: ✓	Cobble: ✓
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.42	5, 7, 11, 11, 11	Standing turbid water (north west side)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 19°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing water (turbid) on north west side, only some standing water on SE side.
Air Temp. (°C): 25°C	D.O. (%):	TDS (ppm):	
Time Taken: 3:15	Conductivity (µs/cm):		
Location Taken: Roadside/In stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	northwest		
#2	south east		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

*frogs seen (green)



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: 46

Waterbody: Unknown

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: Sep 27

Time Started: 15:02

Time Finished: 15:27

Site Location:

GPS Datum: NAD 83

Easting:

Zone: 17 T

Northing:

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind: 2

Precipitation: None

Cloud Cover (%): 15%

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)	
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Tree-Mixed Grass			
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Grass Herbaceous - Golden Rod			
	Vegetation Density (HML):				
Canopy	Type:	Quality and % shade:			
Land Use	Residential / Agriculture				
Other Notes	(groundwater, soils, pools, vegetation, etc.)				

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5-	Gradient (H/M/L):
Bank Height (range (m)): 4.5m high water @ 3m	Meander/Straight:
Bank Slope (degrees from surface of water): 135	Bank Stability: Good
Bank Vegetation Type: Herbaceous (Golden Rod) Grass	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus: ✓
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris:	Cobble:
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Watercress (south side only)	
	Algae (south only)	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	0.78	1, 1, 2, 3, 1	Standing water @ North Side
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 19°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: standing water on north side only standing water @ culvert on south side
Air Temp. (°C): 23°C	D.O. (%):	TDS (ppm):	
Time Taken: 15:20	Conductivity (µs/cm):		
Location Taken: Roadside / In stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north west		
#2	south west		
#3	south east		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- channel breaks into 2 channels on south side
- watercress & filamentous algae only present on south side
- raccoon tracks & frogs observed.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: A7
Waterbody: unknown
Drainage System: Flook and Hinton Drain
Location in System:
Appr. Reach Length (m):
Survey Date: Sep. 22 '10
Time Started: 16:09
Time Finished: 16:19
Site Location:
GPS Datum: NAD 83 **Easting:**
Zone: 17 T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 1 **Cloud Cover (%):** 10 %
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree-Mixed Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass, Herbaceous - Golden Rod, Jewelweed Tree-Mixed
	Vegetation Density (HML):
Canopy	Type: Tree, Herbaceous, Grass Quality and % shade: Excellent 75%
Land Use	Agriculture / Residential
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 5 - 1m Gradient (H/M/L):
 Bank Height (range (m)): 4m high water @ 2.5m Meander/Straight:
 Bank Slope (degrees from surface of water): 135 Bank Stability: Good
 Bank Vegetation Type: Herbaceous (Golden Rod/Jewelweed) Grass Bank Veg. Density (H/M/L):
 ↳ TR. Mixed

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus: ✓
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble:
Backwater: ✓	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Standing water only @ culvert
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: standing water only @ culvert
Air Temp. (°C): 23°C	D.O. (%):	TDS (ppm):	
Time Taken: 16:11	Conductivity (µs/cm):		
Location Taken: Roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North West		
#2	South east.		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- *Frogs & water striders seen
- *heron & raccoon tracks observed.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: B7
Waterbody:
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Sep. 22 '10
Time Started: 16:25
Time Finished: 16:45
Site Location:
GPS Datum: NAD83 **Easting:**
Zone: 17T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 1 **Cloud Cover (%):** 5%
Precipitation: None

ADJACENT LANDS

Valley	Slope: <u>Gentle (< 5°)</u> Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m): 0-10 <u>10 to 20</u> 20 to 30 30+
	Vegetation Type: <u>Tree-Mixed</u> Grass Herbaceous (Golden Rod)
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: <u>Herbaceous (Golden Rod)</u> <u>Tree (Mixed)</u>
	Vegetation Density (HML):
Canopy	Type: <u>Tree, Herbaceous, Grass, Typha</u> Quality and % shade: <u>Good - 50%</u>
Land Use	<u>Agriculture</u>
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 1m Gradient (H/M/L):
 Bank Height (range (m)): 5m high water @ 2m Meander: Straight
 Bank Slope (degrees from surface of water): 135 Bank Stability: Good
 Bank Vegetation Type: Herbaceous (Golden Rod) Grass, Tree Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	<u>Typha</u>	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.73	8, 14, 12, 14, 10	Pool / ds (north)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 19.0	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Slow flow north
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc.



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north		
#2	south		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * raccoon tracks observed
- * water striders & tatanidae observed.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: C7
Waterbody: unknown
Drainage System:
Location in System:
Apr. Reach Length (m):
Survey Date: Sep. 23 '10
Time Started: 8:20
Time Finished: 8:40
Site Location:
GPS Datum: NAD 83 **Easting:**
Zone: 17T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 1 **Cloud Cover (%):** 0%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 -12 20 to 30 30+
	Vegetation Type: Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Herbaceous (Golden Rod)
	Vegetation Density (H/M/L):
Canopy	Type: Herbaceous (Golden Rod) Grass Quality and % shade: poor 5%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): .5 - 1.5m **Gradient (H/M/L):**
Bank Height (range (m)): 5m high water @ 2.5 **Meander/Straight:**
Bank Slope (degrees from surface of water): **Bank Stability:** Good
Bank Vegetation Type: Herbaceous (Golden Rod) Grass **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input type="checkbox"/>	Woody Debris: <input type="checkbox"/>	Cobble: <input type="checkbox"/>
Backwater: <input type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Alimentous algae	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

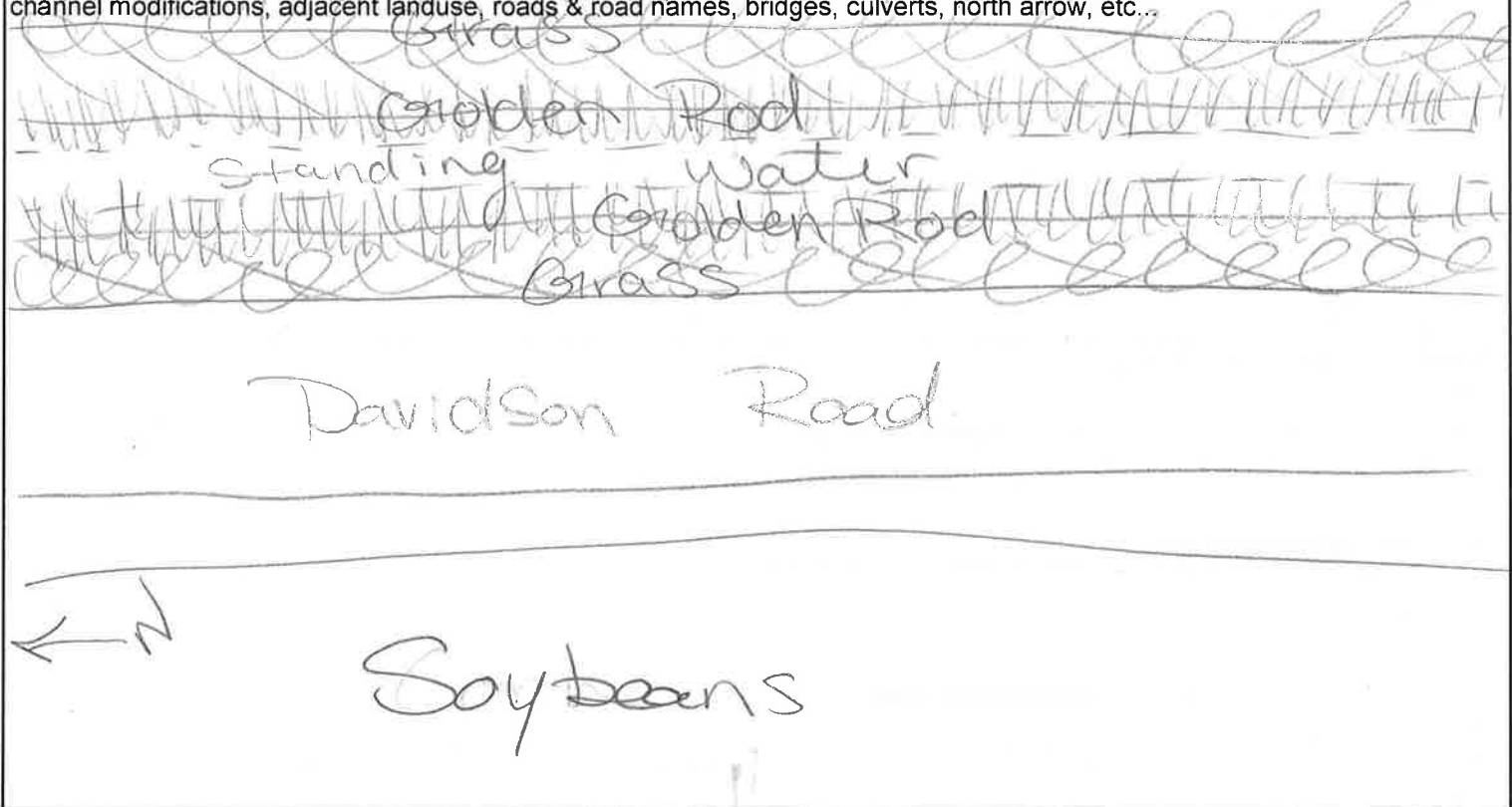
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.67	10, 16, 16, 14, 9	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 16°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing turbid water
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
# 18	on cell - north		
# 19	on cell - south		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

*bulldozer digging other nearby drain that connects.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: D7
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Sep 23, 10
Time Started: 9:20
Time Finished: 9:42
Site Location:
GPS Datum: NAD83 **Easting:**
Zone: 17 T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 2 **Cloud Cover (%):** 0%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass, Tree (Mixed, Herbaceous - (Golden Roel)
	Vegetation Density (H/M/L):
Canopy	Type: Tree, Herbaceous Quality and % shade: Good 50%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): .5 - 2m **Gradient (H/M/L):**
Bank Height (range (m)): 5m high water @ 2m **Meander/Straight:**
Bank Slope (degrees from surface of water): 135 **Bank Stability:** Good
Bank Vegetation Type: Herbaceous (Golden Roel) Tree (Mixed) **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input checked="" type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input checked="" type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

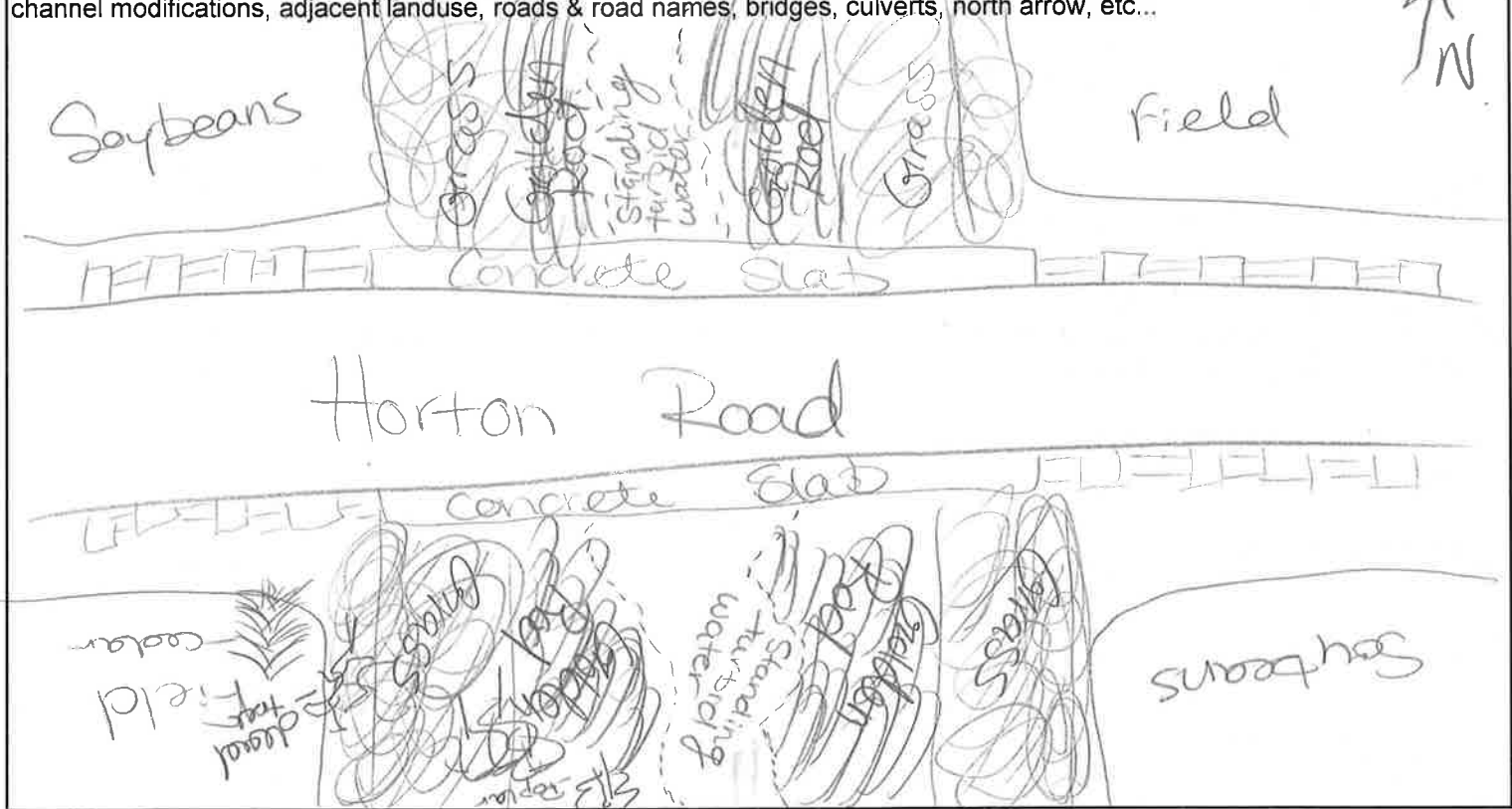
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.11	19, 22, 24, 29, 32	Pool (South side)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 16°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing very turbid water
Air Temp. (°C): 21°C	D.O. (%):	TDS (ppm):	
Time Taken: 9:37	Conductivity (µs/cm):		
Location Taken: Roadside / In Stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	Cell phone # 20 (north)		
#2	Cell phone # 21 (south)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * Great Blue Heron Seen
- * raccoon tracks observed



PROJECT (Number & Name): 1184 South Kent	
Field Staff: S. Murray	
Station: F7	Site Location:
Waterbody: unknown	GPS Datum: NAD83 Easting:
Drainage System:	Zone: MT Northing:
Location in System:	Municipality: Chatham / Kent
Appr. Reach Length (m):	Lot & Concession:
Survey Date: Sep 23 '10	Weather Conditions:
Time Started: 10:11	Wind: 1 Cloud Cover (%): 0%
Time Finished: 10:33	Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree-Mixed Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous (Golden Rod, Jewel weed)
	Vegetation Density (HML):
Canopy	Type: Tree Quality and % shade:
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 3m	Gradient (H/M/L):
Bank Height (range (m)): 5m high water @ 3m	Meander/Straight:
Bank Slope (degrees from surface of water):	Bank Stability: Good
Bank Vegetation Type:	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel: ✓	Boulder:	Muck: ✓
Silt: ✓	Pebble: ✓	Bedrock:	Detritus:
Sand: ✓	Cobble: ✓	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock: ✓
Riffles: ✓	Woody Debris: ✓	Cobble: ✓
Backwater: ✓	Vegetation: ✓ watercress	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	watercress	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

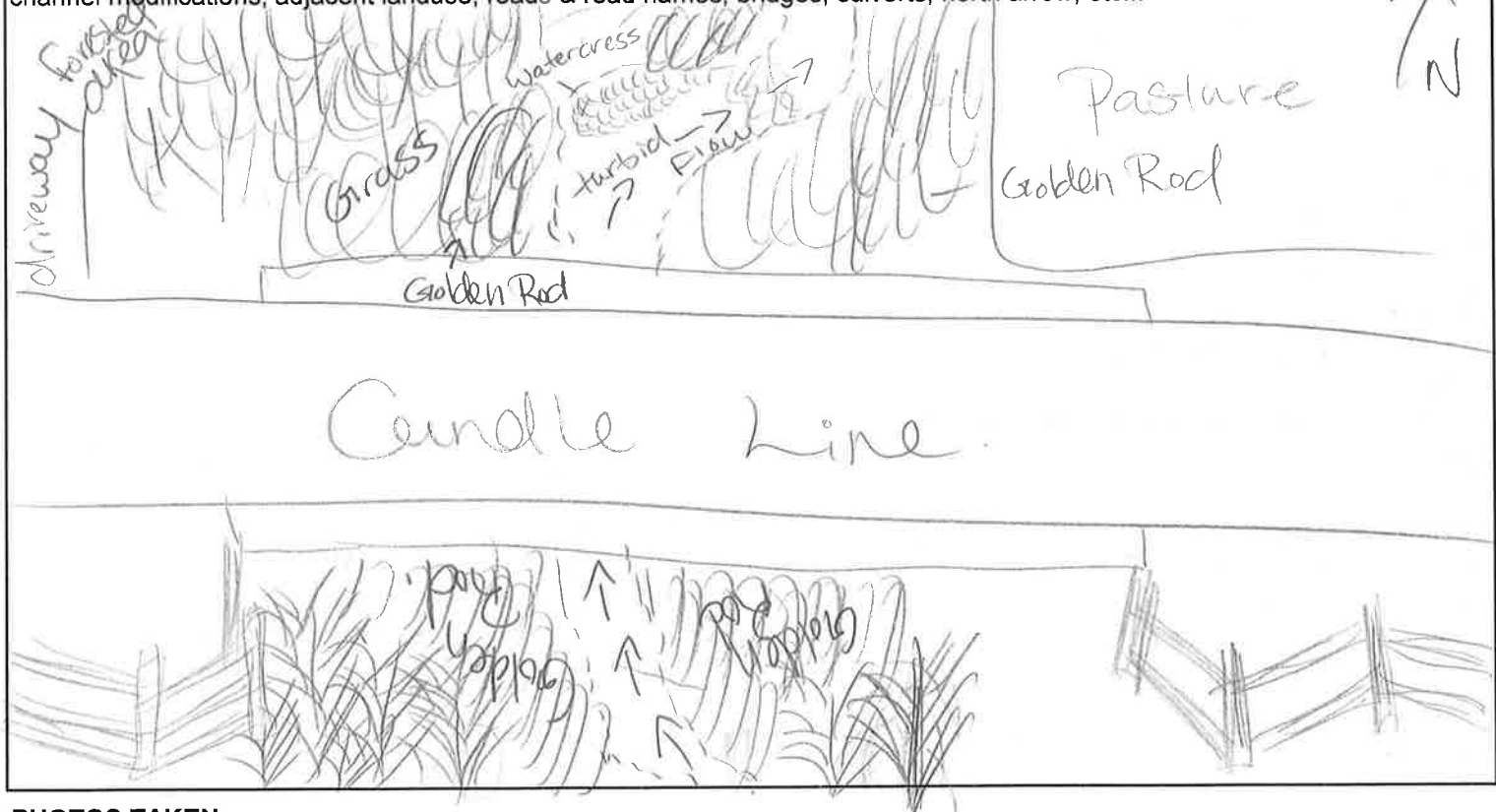
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.97	11, 22, 22, 16, 9	Pool on (north side)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	17°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: flowing north (turbid)
Air Temp. (°C):		D.O. (%):	TDS (ppm):	
Time Taken:		Conductivity (µs/cm):		
Location Taken:				

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	cell phone #24 (north)		
#2	cell phone #25 (south)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* green frogs observed.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: #7
Waterbody: Un Known
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct 5/10
Time Started: 13:30
Time Finished: 14:00
Site Location:
GPS Datum: NAD 83 **Easting:**
Zone: 17T **Northing:**
Municipality: Chatham/Kent
Lot & Concession:
Weather Conditions:
Wind: 1 **Cloud Cover (%):** 100%
Precipitation: light rain

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree - Mixed Shrub - Sumack Herbaceous - Golden Rod Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree - Mixed Herbaceous - Golden Rod Shrub - Sumack
	Vegetation Density (HML):
Canopy	Type: Tree Quality and % shade: Excellent 100%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1 **Gradient (H/M/L):**
Bank Height (range (m)): 2.5 High water @ 2 **Meander/Straight:**
Bank Slope (degrees from surface of water): **Bank Stability:** Good
Bank Vegetation Type: Herbaceous / Golden Rod Tree - Mixed Shrub (Sumack) **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus: ✓
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓ **Undercut Banks:** ✓ **Boulder/Rock:**
Riffles: ✓ **Woody Debris:** ✓ **Cobble:**
Backwater: ✓ **Vegetation:** **Other:**

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1m	3, 6, 7, 7, 3	Run
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 11°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Slow Flow South
Air Temp. (°C): 13°C	D.O. (%):	TDS (ppm):	
Time Taken: 13:45 (stream) 14:00 (air)	Conductivity (µs/cm):		
Location Taken: Roadside / In stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North (w/s #28 on cell)		
#2	South (w/s #29 on cell)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * agriculture surrounding area (soybeans)
- * no fish, frogs or inverts observed, but has lots of aquatic habitat (undercut banks, woody debris, lots of shade)
- * water slightly turbid (maybe from rain)



PROJECT (Number & Name): 1184 South Kent	
Field Staff: S. Murray	
Station: I7	Site Location:
Waterbody: unknown	GPS Datum: NAD83 Easting:
Drainage System:	Zone: MT Northing:
Location in System:	Municipality: Chatham / Kent
Appr. Reach Length (m):	Lot & Concession:
Survey Date: Oct. 5/10	Weather Conditions:
Time Started: 14:50	Wind: 1 Cloud Cover (%): 100%
Time Finished: 15:15	Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Tree-Mixed Herbaceous - (Golden Rod)
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous (Golden Rod)
	Vegetation Density (HML):
Canopy	Type: Typha, Tree, Herbaceous, Quality and % shade:
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.5	Gradient (H/M/L):
Bank Height (range (m)): 3m High water @ 2m	Meander: Straight
Bank Slope (degrees from surface of water): 135	Bank Stability: Good
Bank Vegetation Type: Herbaceous (Golden Rod) Grass	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus:
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles: ✓	Woody Debris:	Cobble:
Backwater:	Vegetation: ✓ (Typha & watercress)	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Typha	
	watercress	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

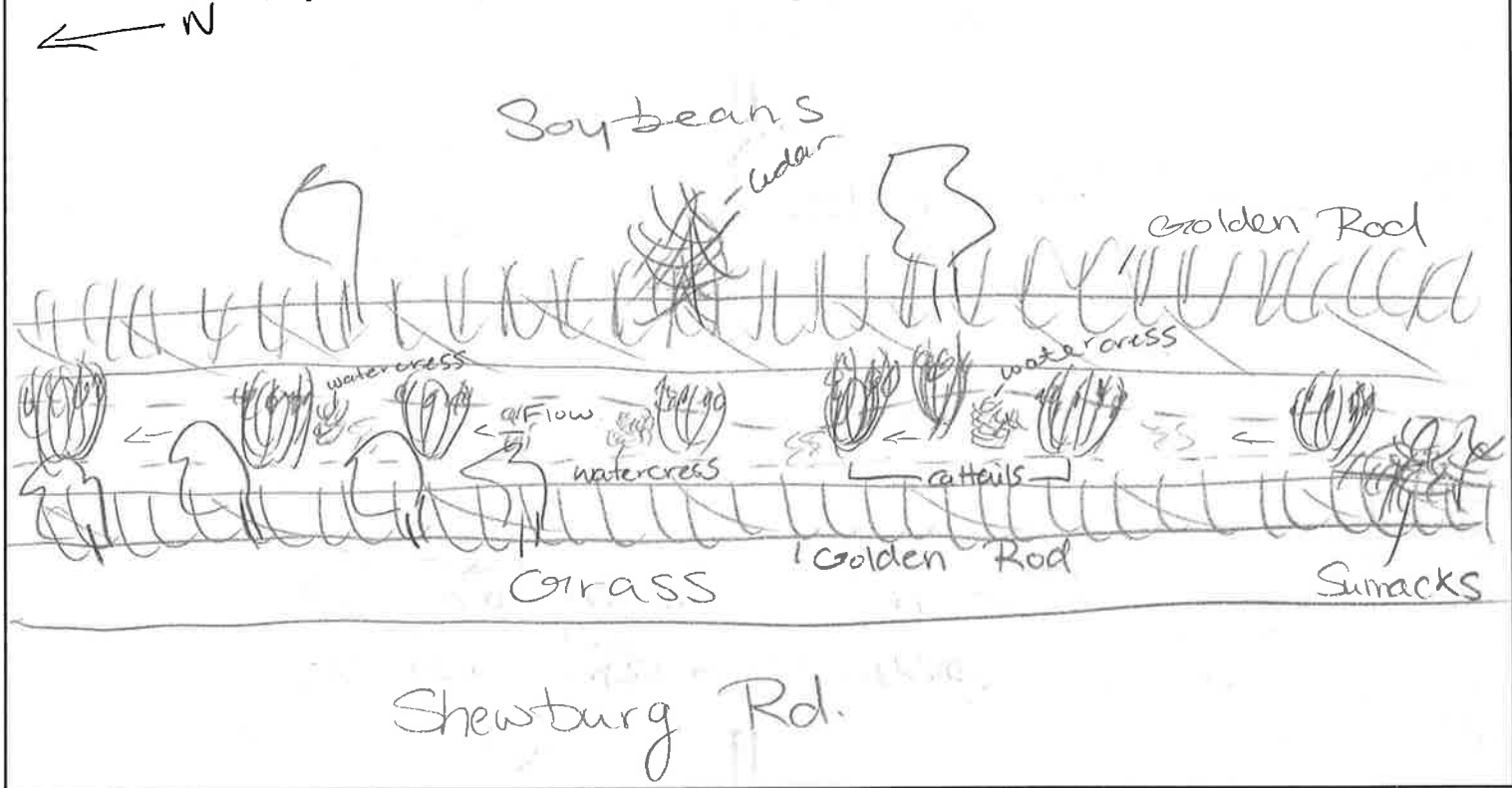
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.06	5, 7, 8, 8, 11	Pool (Turbid)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 12°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Slow flow north turbid water
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North (cell phone #30)		
#2	South (cell phone #31)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * SAR Drain
- * watercress & cattails in stream
- * very turbid water
- * pools with small riffles showing a slow flow north.



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: J7

Waterbody: unknown

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: Oct 5 '10

Time Started: 15:15

Time Finished: 15:40

Site Location:

GPS Datum: NAD83 **Easting:**

Zone: 17 T **Northing:**

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind:) **Cloud Cover (%):** 100%

Precipitation: None

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)		
	Extent of Natural Vegetation (m)		0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Tree-Mixed Herbaceous (Golden Rod) Grass				
Riparian Zone	Flood Plain - extent of frequent flood (m):		0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Tree-Mixed Herbaceous (Jewelweed)				
	Vegetation Density (HML):					
Canopy	Type: Tree	Quality and % shade: Excellent 100%				
Land Use	Agriculture					
Other Notes	(groundwater, soils, pools, vegetation, etc.)					

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.5

Bank Height (range (m)): 3 high water @ 3m

Bank Slope (degrees from surface of water): 135

Bank Vegetation Type: Herbaceous (Jewelweed/Golden Rod)

Gradient (H/M/L):

Meander/Straight:

Bank Stability: Good

Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck:
Silt: ✓	Pebble:	Bedrock:	Detritus:
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble:
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:

AHP Aquatic Habitat Point	SWI Surface Water Input	SCS Stream Cross Section
AHY Aquatic Habitat Area	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
TMP Temp Monitor Stn	CKC Creek Crossing	VSS Visual Survey Stn
FLW Flow Monitor Stn	WEL Well	WQS Water Quality Stn
	CUL Culvert	

FLOW CONDITIONS

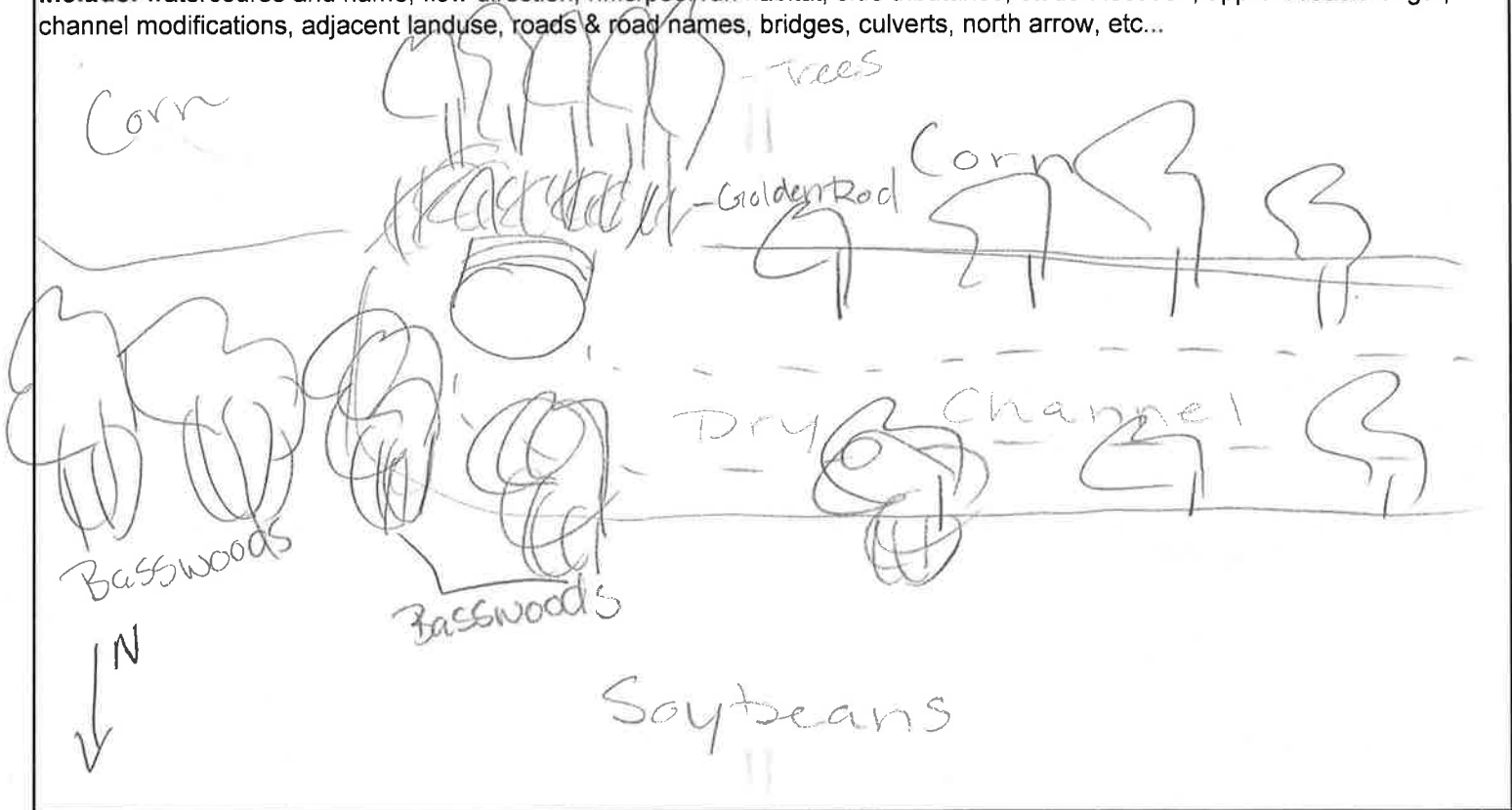
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Dry
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Dry
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	east (cell phone # 32)		
#2	west (cell phone # 33)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* Dry Channel



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: L7 (call)

Waterbody: unknown

Drainage System: Skipper Drain

Location in System:

Appr. Reach Length (m):

Survey Date: Oct. 6 '10

Time Started: 8:19

Time Finished: 8:40

Site Location:

GPS Datum: NAD 83 **Easting:**

Zone: 17 T **Northing:**

Municipality: Chatham, Kent

Lot & Concession:

Weather Conditions:

Wind: 1 **Cloud Cover (%):** 90%

Precipitation: light rain

ADJACENT LANDS

Valley

Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)

Extent of Natural Vegetation (m): 0-10 10 to 20 -14 20 to 30 30+

Vegetation Type: Grass

Riparian Zone

Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+

Vegetation Type: Herbaceous - Golden Rod, Tree - Mixed (L), Shrub - Willow (L), Grass

Vegetation Density (H/M/L):

Canopy

Type: Shrub, Tree, Herbaceous **Quality and % shade:** Poor 25%

Land Use: Agriculture

Other (groundwater, soils, pools, vegetation, etc.):

Notes: *right beside two dirt roads (run-off)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 3.5m

Bank Height (range (m)): 4m High water @ 2m

Bank Slope (degrees from surface of water): 135

Bank Vegetation Type: Herbaceous (Golden Rod) Shrub (Willow) Tree (Mixed)

Gradient (H/M/L):

Meander/Straight:

Bank Stability: Good

Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓ **Gravel:** **Boulder:** **Muck:** ✓

Silt: ✓ **Pebble:** ✓ **Bedrock:** **Detritus:**

Sand: ✓ **Cobble:** ✓ **Marl:** **Other:**

INSTREAM HABITAT AND COVER

Pools: ✓ **Undercut Banks:** ✓ **Boulder/Rock:** ✓

Riffles: **Woody Debris:** ✓ **Cobble:** ✓

Backwater: **Vegetation:** **Other:**

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

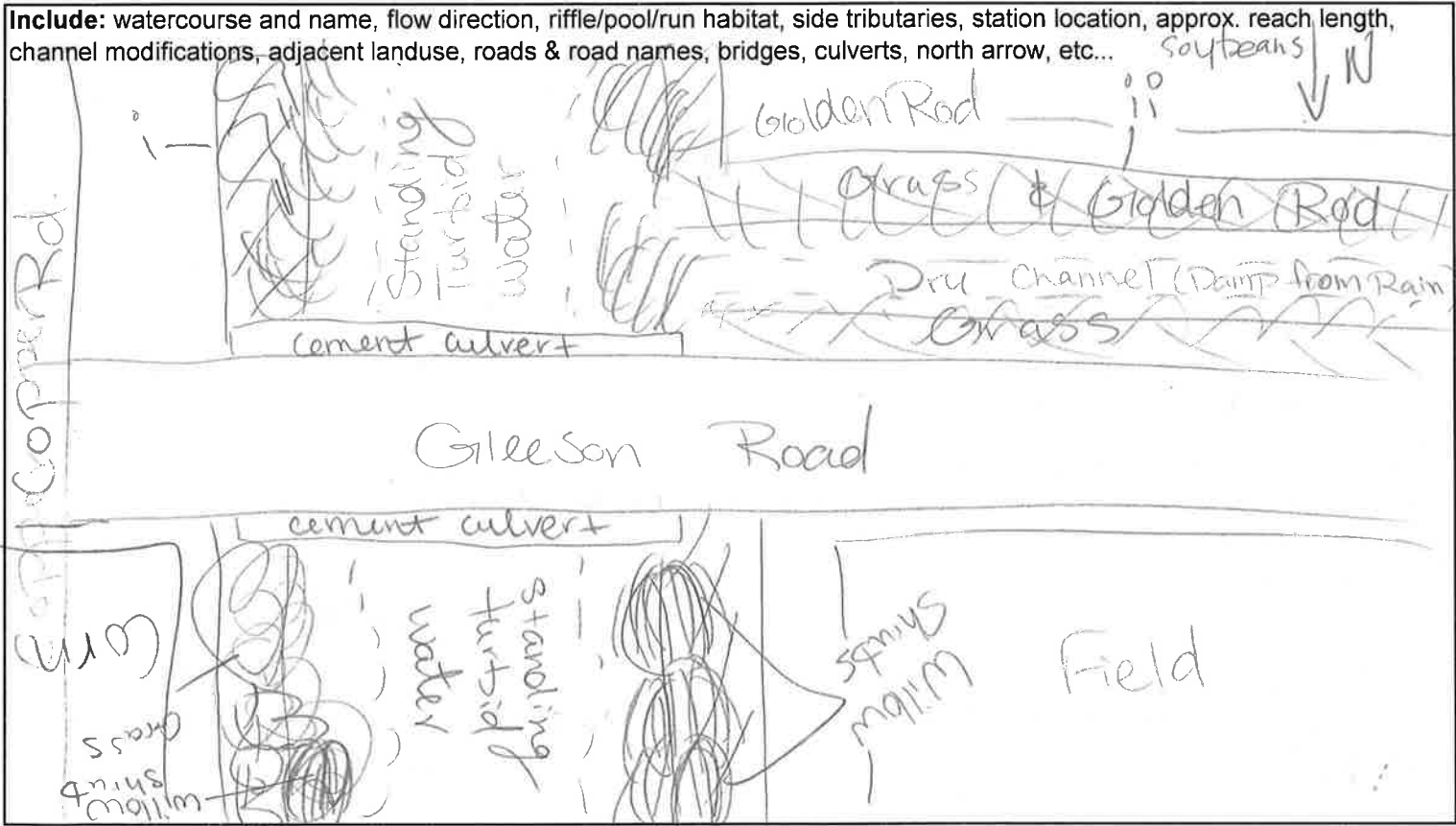
FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	3.27	16, 19, 23, 18, 13	Pool
2			(south side)
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 11°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing turbid water
Air Temp. (°C): 10°C	D.O. (%):	TDS (ppm):	
Time Taken: 8:35	Conductivity (µs/cm):		
Location Taken: In Stream / roadside			

SITE DRAWING



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North	#3	on camera
#2	South	#4	"
#3	West	#5	"
	LD II		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* inverts observed, hard to tell what ones b/c water is very turbid.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: N7
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct. 6 '10
Time Started: 10:14
Time Finished: 10:42

Site Location:
GPS Datum: NAD 83 **Easting:**
Zone: 17T **Northing:**
Municipality: Chatham, Kent
Lot & Concession:

Weather Conditions:
Wind: 1 **Cloud Cover (%):** 100%
Precipitation: None

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Grass		
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Herbaceous (Golden Rod) Shrub (Willow) Grass		
	Vegetation Density (HML):			
Canopy	Type:	Shrub, Herbaceous		Quality and % shade: Good 50%
Land Use	Agriculture & Residence			
Other Notes	(groundwater, soils, pools, vegetation, etc.)			

CHANNEL MORPHOLOGY

Channel Width (range (m)): 2.5 **Gradient (H/M/L):**
Bank Height (range (m)): 4.5 **Meander/Straight:**
Bank Slope (degrees from surface of water): 135 **Bank Stability:** Good
Bank Vegetation Type: Herbaceous (Golden Rod) Shrub (Willow) **Bank Veg. Density (H/M/L):**
 Grass

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder:	Muck:
Silt: <input checked="" type="checkbox"/>	Pebble:	Bedrock:	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: **Undercut Banks:** **Boulder/Rock:**
Riffles: **Woody Debris:** **Cobble:**
Backwater: **Vegetation:** (grass) **Other:**

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.59	15, 24, 26, 20, 16	Run
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 11°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Slow flow north west slightly turbid water
Air Temp. (°C): 13°C	D.O. (%):	TDS (ppm):	
Time Taken: 10:31	Conductivity (µs/cm):		
Location Taken: Roadside / In stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	Northwest (down stream)	#8	on camera
#2	South east (up stream)	#9	"

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * Heard a frog
- * Refer to 'K' as well -> (saw muskrats & mussel shells that day!)



PROJECT (Number & Name): 1184 South Kent	
Field Staff: S. Murray	
Station: 07	Site Location:
Waterbody: unknown	GPS Datum: NAD 83 Easting:
Drainage System:	Zone: MT Northing:
Location in System:	Municipality: Chatham, Kent
Appr. Reach Length (m):	Lot & Concession:
Survey Date: Oct 6/10	Weather Conditions:
Time Started: 11:00	Wind: 1 Cloud Cover (%): 95%
Time Finished: 11:46	Precipitation: none

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass
	Vegetation Density (HML):
Canopy	Type: Grass Quality and % shade: Poor 5%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.5 - 2m	Gradient (H/M/L):
Bank Height (range (m)): 4m High water @ 2.5m	Meander/Straight:
Bank Slope (degrees from surface of water): 135	Bank Stability: Good
Bank Vegetation Type: Grass	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel: ✓	Boulder:	Muck: ✓
Silt: ✓	Pebble: ✓	Bedrock:	Detritus:
Sand: ✓	Cobble: ✓	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles: ✓	Woody Debris:	Cobble: ✓
Backwater: ✓	Vegetation: ✓ filamentous algae	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	filamentous algae	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWI Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

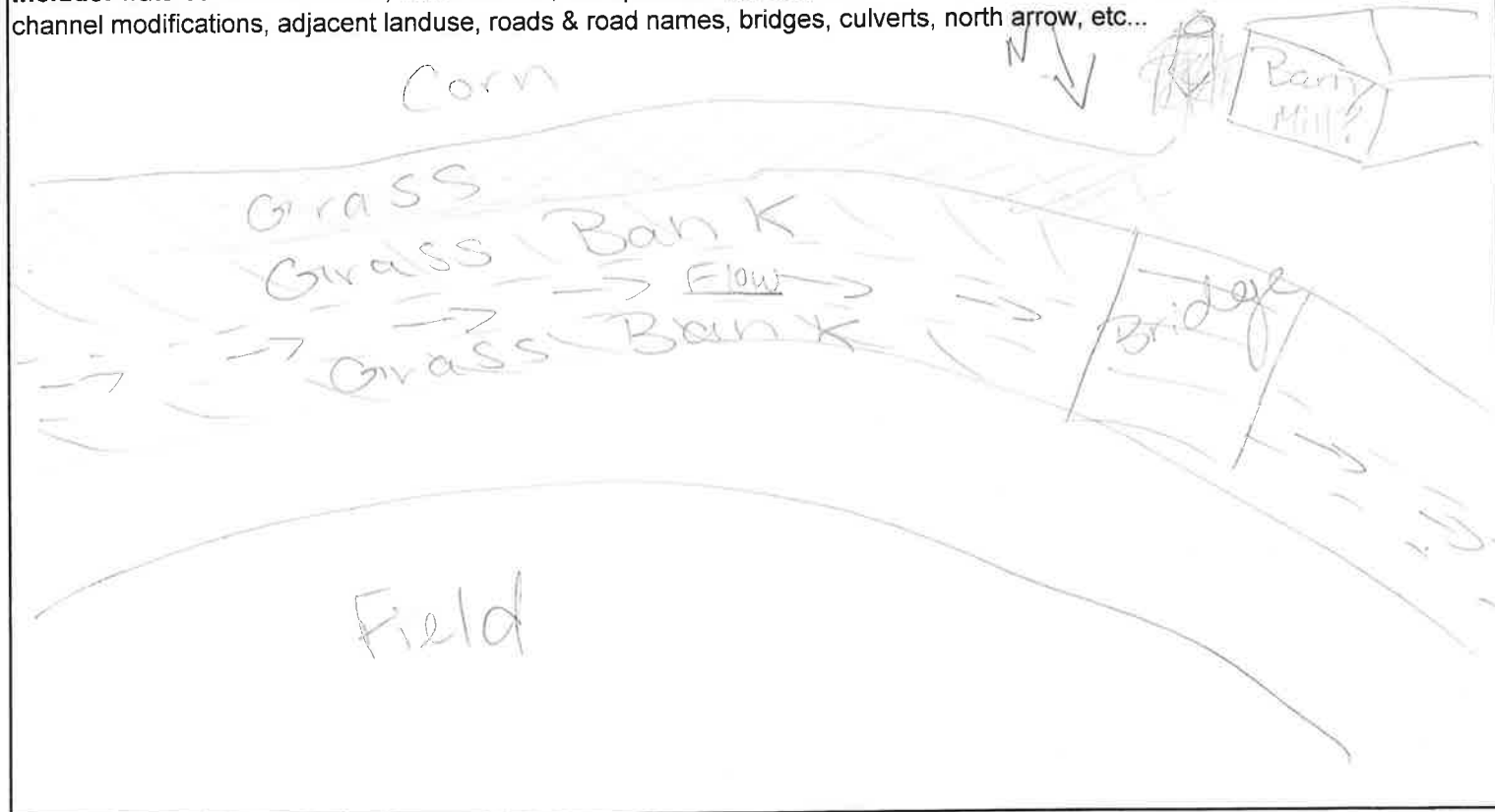
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.0	14, 20, 20, 19, 12	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 12°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Slow flow northwest water turbid? Smell like manure
Air Temp. (°C): 14°C	D.O. (%):	TDS (ppm):	
Time Taken: 11:26 / 11:46	Conductivity (µs/cm):		
Location Taken: Stream/Roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	South east (up stream)		
#2	north west (down stream)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * muskrat seen
- * water smells like manure
- * isopoda & plecoptera seen
- * cyprinids seen
- * crayfish seen (dead)
- * mussel found w 1/2 shell
- babies (3) attached.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: PT
Waterbody: unknown
Drainage System: Gregory drain (eastern trib after fork)
Location in System:
Appr. Reach Length (m):
Survey Date: Oct 6'10
Time Started: 12:15
Time Finished: 12:58
Site Location:
GPS Datum: NAD83 **Easting:**
Zone: 17T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 1 **Cloud Cover (%):** 5%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass, Herbaceous (Golden Rod), Tree (Mixed)
	Vegetation Density (H/M/L):
Canopy	Type: Tree, Grass, Herbaceous Quality and % shade: Poor 30%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.5 - 2.5
Bank Height (range (m)): 4m high water @ 3m
Bank Slope (degrees from surface of water): 135
Bank Vegetation Type: Herbaceous (Golden Rod), Tree, Grass (Mixed)
Gradient (H/M/L):
Meander/Straight:
Bank Stability: Good
Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input checked="" type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: **Undercut Banks:** **Boulder/Rock:**
Riffles: **Woody Debris:** **Cobble:**
Backwater: **Vegetation:** Filamentous algae **Other:**

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Filamentous algae	Small amount on rocks & woody debris

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWI Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

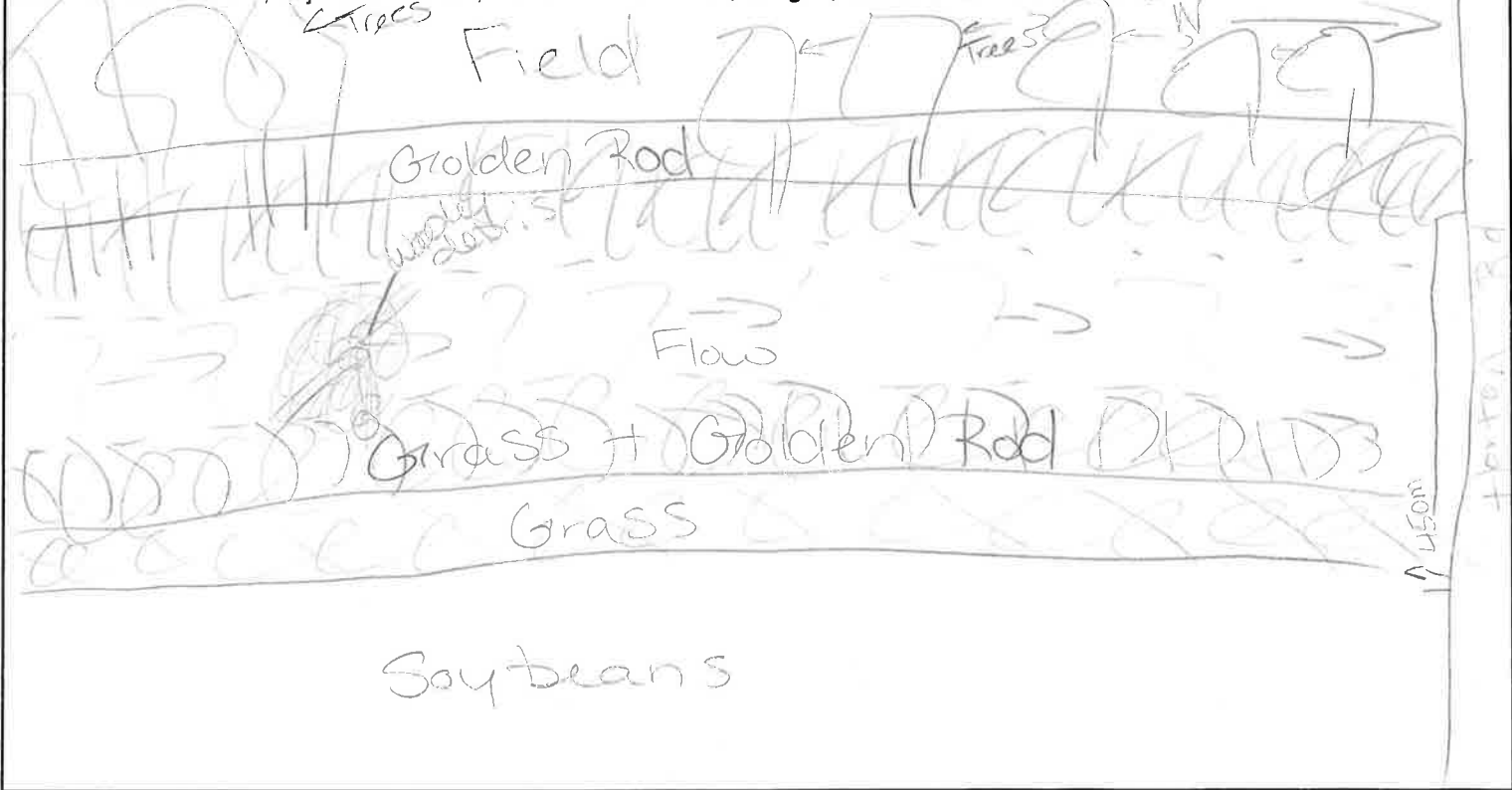
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.46	6, 10, 15, 13, 6	Run
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 13°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: slow flow north west water clear, but gets turbid easily
Air Temp. (°C): 15°C	D.O. (%):	TDS (ppm):	
Time Taken: 12:35	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	South (u/s)		
#2	north (d/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * cyprinids seen (couple were common shiners, others maybe fatheads.)
- * Great Blue Heron seen.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: Q7
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct. 6/10
Time Started: 13:04
Time Finished: 13:40
Site Location:
GPS Datum: NAD 83 **Easting:**
Zone: 17T **Northing:**
Municipality: Chatham/Kent
Lot & Concession:
Weather Conditions:
Wind: 3 **Cloud Cover (%):** 75%
Precipitation: None

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)	
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Grass			
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Grass, Tree			
	Vegetation Density (HML):				
Canopy	Type:	Tree, Herbaceous, Grass		Quality and % shade: Poor 35%	
Land Use	Agriculture				
Other Notes	(groundwater, soils, pools, vegetation, etc.)				

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1m
Bank Height (range (m)): 3.5 high water @ 2m
Bank Slope (degrees from surface of water): 135
Bank Vegetation Type: Grass, Herba
Gradient (H/M/L):
Meander/Straight:
Bank Stability: Good
Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: **Undercut Banks:** **Boulder/Rock:**
Riffles: **Woody Debris:** **Cobble:**
Backwater: **Vegetation:** **Other:**

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWI Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

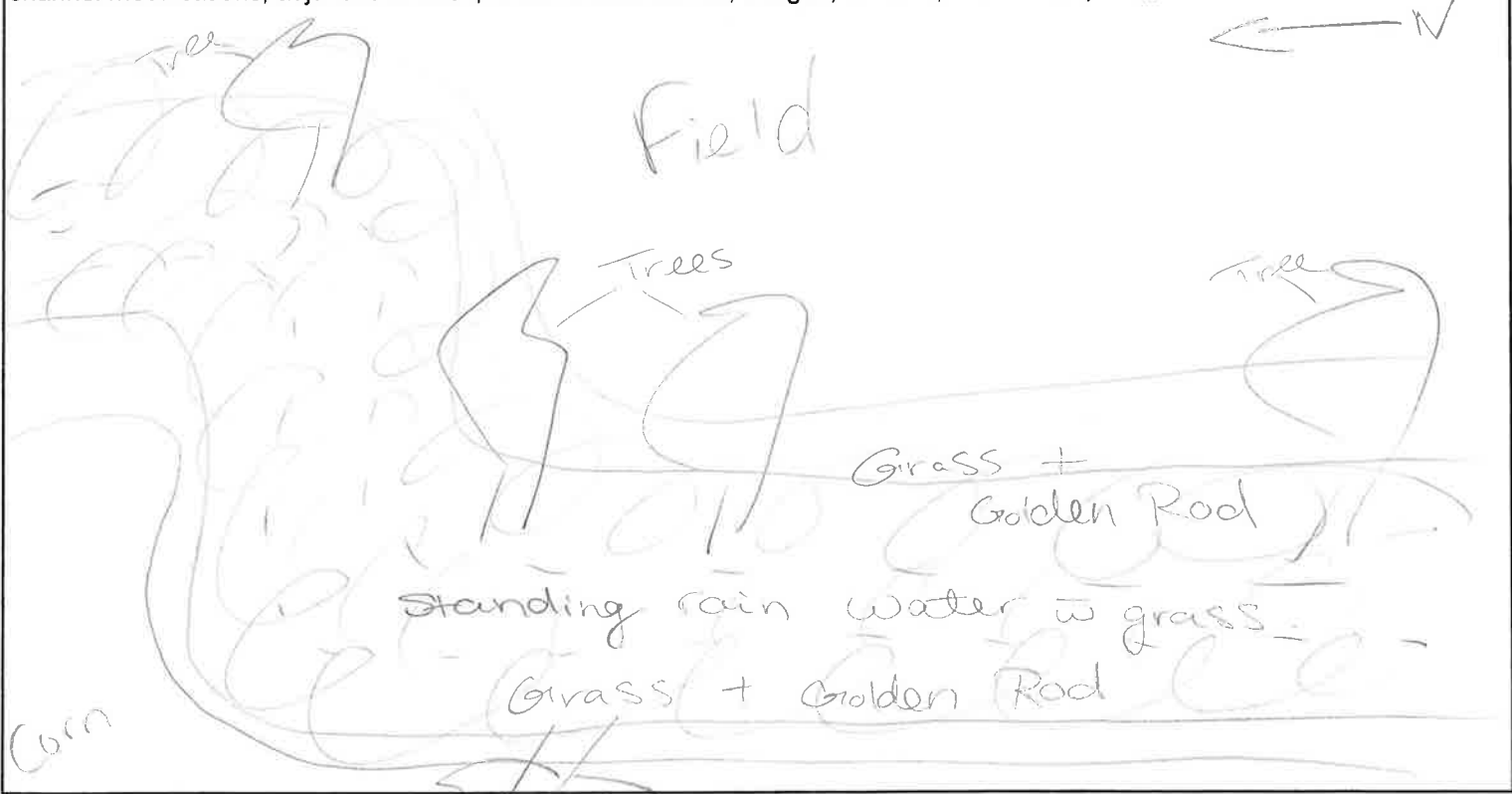
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Standing rain water
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing rain water
Air Temp. (°C): 17°C	D.O. (%):	TDS (ppm):	
Time Taken: 13:40	Conductivity (µs/cm):		
Location Taken: Roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North		
#2	South		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* deer tracks observed



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: R7
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct. 6 '10
Time Started: 13:55
Time Finished: 14:15
Site Location:
GPS Datum: NAD 83 **Easting:**
Zone: 17T **Northing:**
Municipality: Chatham, Kent
Lot & Concession:
Weather Conditions:
Wind: 2 **Cloud Cover (%):** 10%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Herbaceous (Golden Rod) Tree (Mixed)
	Vegetation Density (HML):
Canopy	Type: Tree, Herbaceous Quality and % shade: Poor 15%
Land Use	Agriculture + Residence
Other Notes	(groundwater, soils, pools, vegetation, etc.) * water cress

CHANNEL MORPHOLOGY

Channel Width (range (m)): 5 - 2.5	Gradient (H/M/L):
Bank Height (range (m)): 3m High water @ 2.5m	Meander/Straight:
Bank Slope (degrees from surface of water): 135	Bank Stability: Good
Bank Vegetation Type:	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel: ✓	Boulder:	Muck: ✓
Silt: ✓	Pebble: ✓	Bedrock:	Detritus: ✓
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles: ✓	Woody Debris: ✓	Cobble:
Backwater: ✓	Vegetation: ✓ (water cress)	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Watercress	Good amount of patches & patches are fairly large

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

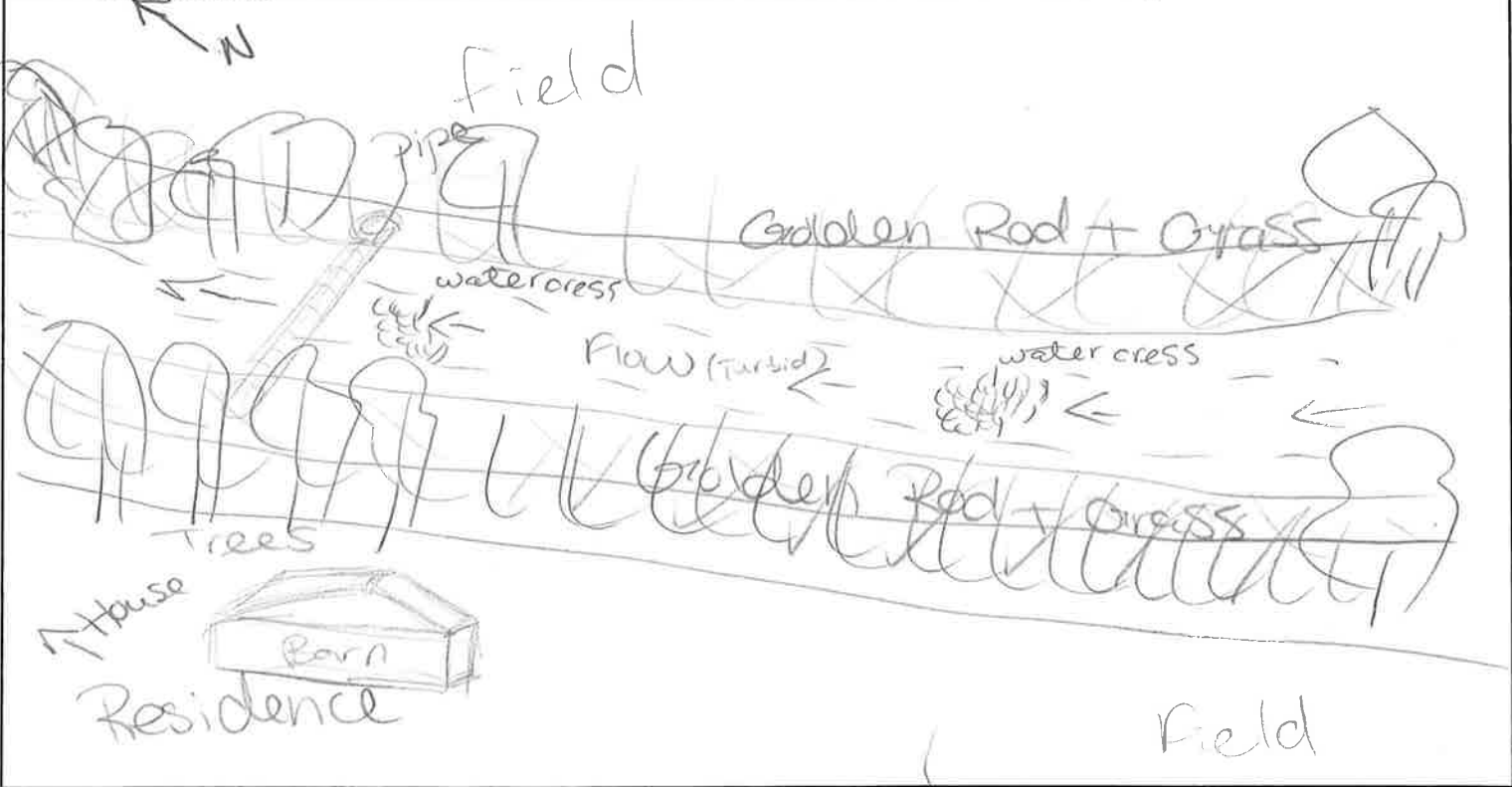
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.34	11, 17, 14, 13, 8	Run
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 14°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Slow flow north west very turbid
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
	#1 - north west (d/s)		
	#2 - south east (u/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* watercress



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: 87
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct. 6 '10
Time Started: 14:50
Time Finished: 15:25
Site Location:
GPS Datum: NAD83 **Easting:**
Zone: 17T **Northing:**
Municipality: Chatham, Kent
Lot & Concession:
Weather Conditions:
Wind: 3 **Cloud Cover (%):** 0
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Tree (Mixed), Shrub
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree (Mixed), Herbaceous (Golden Rod) Shrub, Grass
	Vegetation Density (HML):
Canopy	Type: Tree, Shrub, Herbaceous Quality and % shade: Excellent 90%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 1.5m **Gradient (H/M/L):**
Bank Height (range (m)): 4m High water @ **Meander/Straight:**
Bank Slope (degrees from surface of water): 135 **Bank Stability:** Good
Bank Vegetation Type: Tree, Shrub, Herbaceous **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: ✓	Gravel: ✓	Boulder: ✓	Muck: ✓
Silt: ✓	Pebble: ✓	Bedrock: ✓	Detritus: ✓
Sand: ✓	Cobble: ✓	Marl: ✓	Other: ✓

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock: ✓
Riffles: ✓	Woody Debris: ✓	Cobble: ✓
Backwater: ✓	Vegetation: ✓	Other: ✓

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

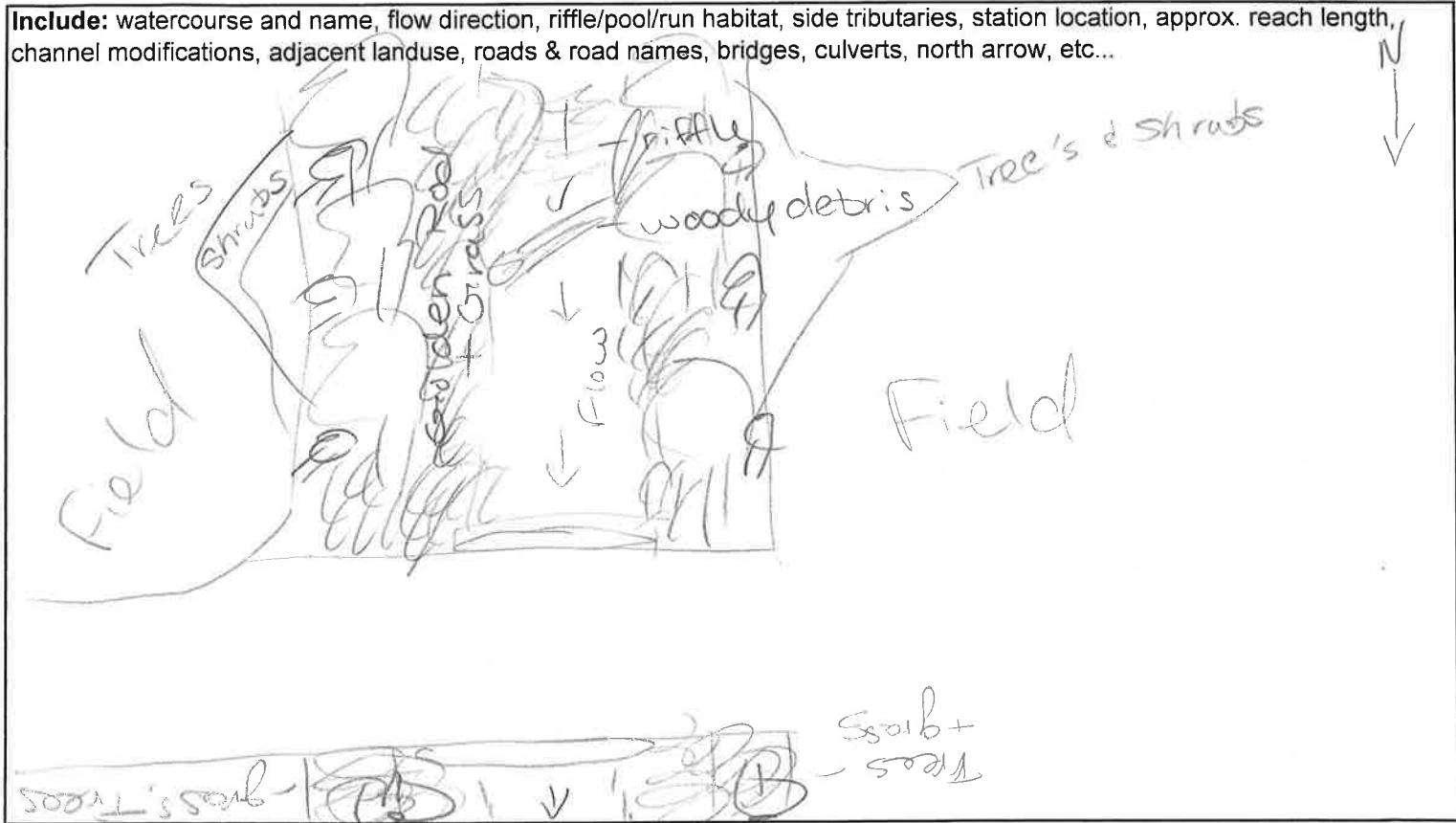
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	0.68	7, 9, 11, 10, 7	Run
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 13°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Slow flow north
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken: 15:10	Conductivity (µs/cm):		
Location Taken: In Stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	South (u/s)		
#2	North (d/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * water striders seen
- * raccoon tracks observed.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: T7 *SHR (yellow)
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct. 6 '10
Time Started: 15:55
Time Finished: 16:25
Site Location:
GPS Datum: NAD 83 **Easting:**
Zone: 17T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 1 **Cloud Cover (%):** 2/3
Precipitation: None

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Grass		
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Grass Herbaceous (Golden Rod)		
	Vegetation Density (HML):			
Canopy	Type:	Herbaceous, Typha		Quality and % shade: Poor 10%
Land Use	Agriculture			
Other Notes	(groundwater, soils, pools, vegetation, etc.)			

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1	Gradient (H/M/L):
Bank Height (range (m)): 2.5 High water	Meander/Straight:
Bank Slope (degrees from surface of water):	Bank Stability: Good
Bank Vegetation Type: Grass, Herbaceous	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks:	Boulder/Rock:
Riffles:	Woody Debris:	Cobble:
Backwater:	Vegetation: <input checked="" type="checkbox"/> Typha	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Typha	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Dry
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Dry
Air Temp. (°C): 21°C	D.O. (%):	TDS (ppm):	
Time Taken: 16:20	Conductivity (µs/cm):		
Location Taken: Roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
	#1 - north		
	#2 - south		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* SAR channel (yellow)



PROJECT (Number & Name): 1184 South Kent	
Field Staff: S. Murray	
Station: U7	Site Location:
Waterbody: unknown	GPS Datum: NAD83 Easting:
Drainage System:	Zone: 17 J Northing:
Location in System:	Municipality: Chatham / Kent
Appr. Reach Length (m):	Lot & Concession:
Survey Date: Oct. 7'10	Weather Conditions:
Time Started: 9:25	Wind: 2 Cloud Cover (%): 0%
Time Finished: 9:50	Precipitation: None

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Grass Tree (Mixed)		

Riparian Zone	(m):	1	10 to 20	20 to 30	30+
	Vegetation Type:	Tree (deciduous)			
					X

Canoe Land Use: re

Other Notes: (groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.5	Gradient
Bank Height (range (m)): 2m +	Bank Stability
Bank Slope (degrees from surface of Bank):	Bank

water @ 0.5m

CHANNEL SUBSTRATE %

Clay:	Gravel:	Boulder:	Muck:
Silt:	Pebble:	Bedrock:	Detritus:
Sand:	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Boulder/Rock:
Riffles:	Cobble:
Backwater:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	undance
---------------------------------	----------------------	---------

CODES

AHP Habitat Point	SWI Surface Water	SCS Stream Cross Section
AHY Aquatic Habitat Area	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
TMP Temp Monitor Stn	CKC Creek Crossing	VSS Visual S Stn
FLW Flow Monitor Stn	WEL Well	WQS Water Quality Stn
	CUL Culvert	

FLOW CONDITIONS

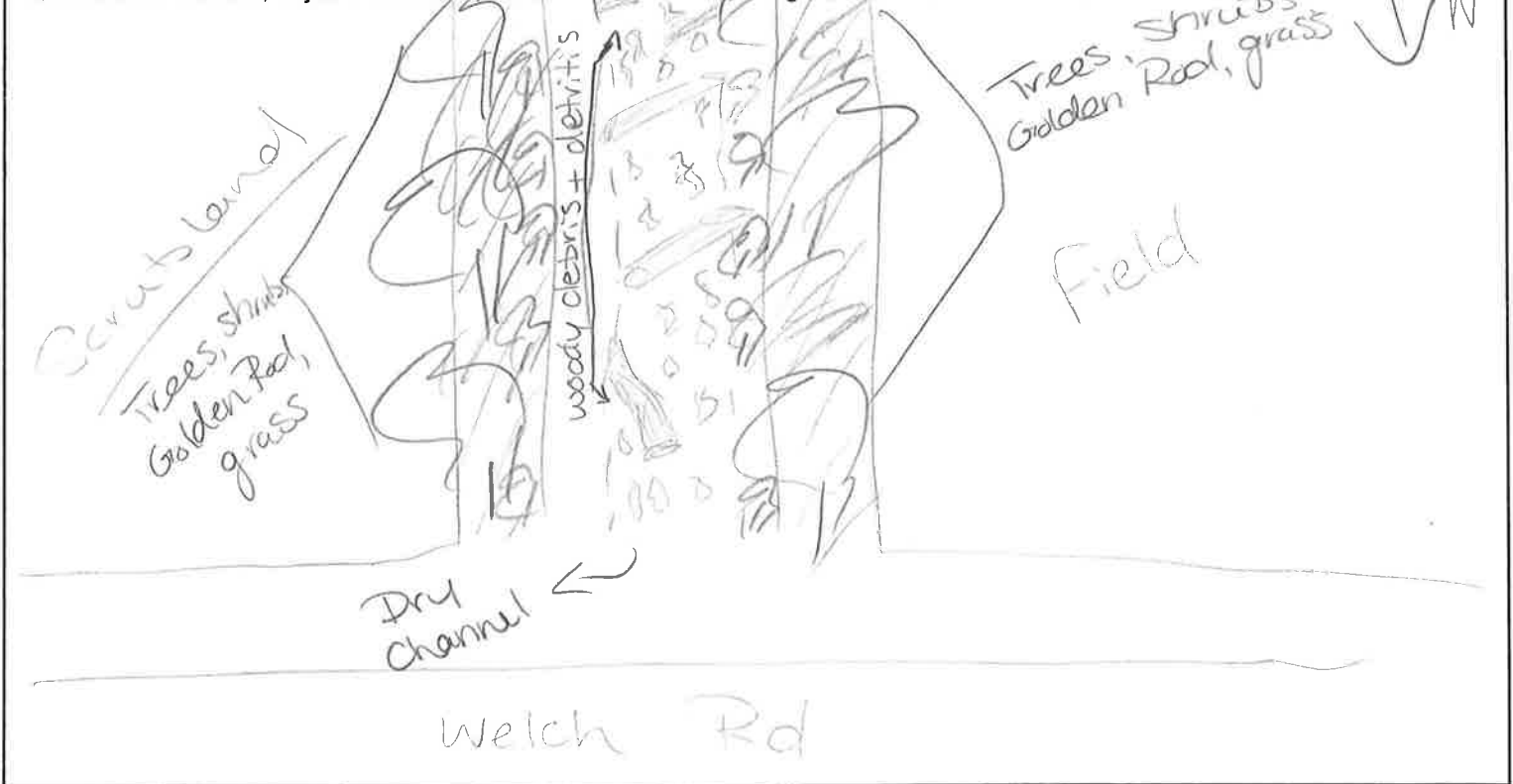
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Dry
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	Dry	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Dry
Air Temp. (°C):	17°C	D.O. (%):	TDS (ppm):	
Time Taken:	9:45	Conductivity (µs/cm):		
Location Taken:	Roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	South		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * Did observation drawing & pic from road, very dense vegetation (same all the way through)
- * Completely dry with lots of detritus & woody debris.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S Murray
Station: V7
Waterbody: unknown
Drainage System: Jackson Drain
Location in System:
Appr. Reach Length (m):
Survey Date: Oct. 7th 10
Time Started: 10:05
Time Finished: 10:30
Site Location:
GPS Datum: NAD 83 **Easting:**
Zone: 17T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 2 **Cloud Cover (%):** 0%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass, Shrub (Sumack), Tree (Mixed) Herbaceous (Golden Rod)
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass, Shrub (Sumack) Herbaceous (Golden Rod)
	Vegetation Density (HML):
Canopy	Type: Shrub, Herbaceous Quality and % shade: Poor 40%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1m **Gradient (H/M/L):**
Bank Height (range (m)): 3m high water @ 2m **Meander/Straight:**
Bank Slope (degrees from surface of water): 35 **Bank Stability:** Good
Bank Vegetation Type: Shrub (Sumack) herbaceous (Golden Rod) **Bank Veg. Density (H/M/L):**
↳ Grass

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck:
Silt: ✓	Pebble:	Bedrock:	Detritus:
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble:
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

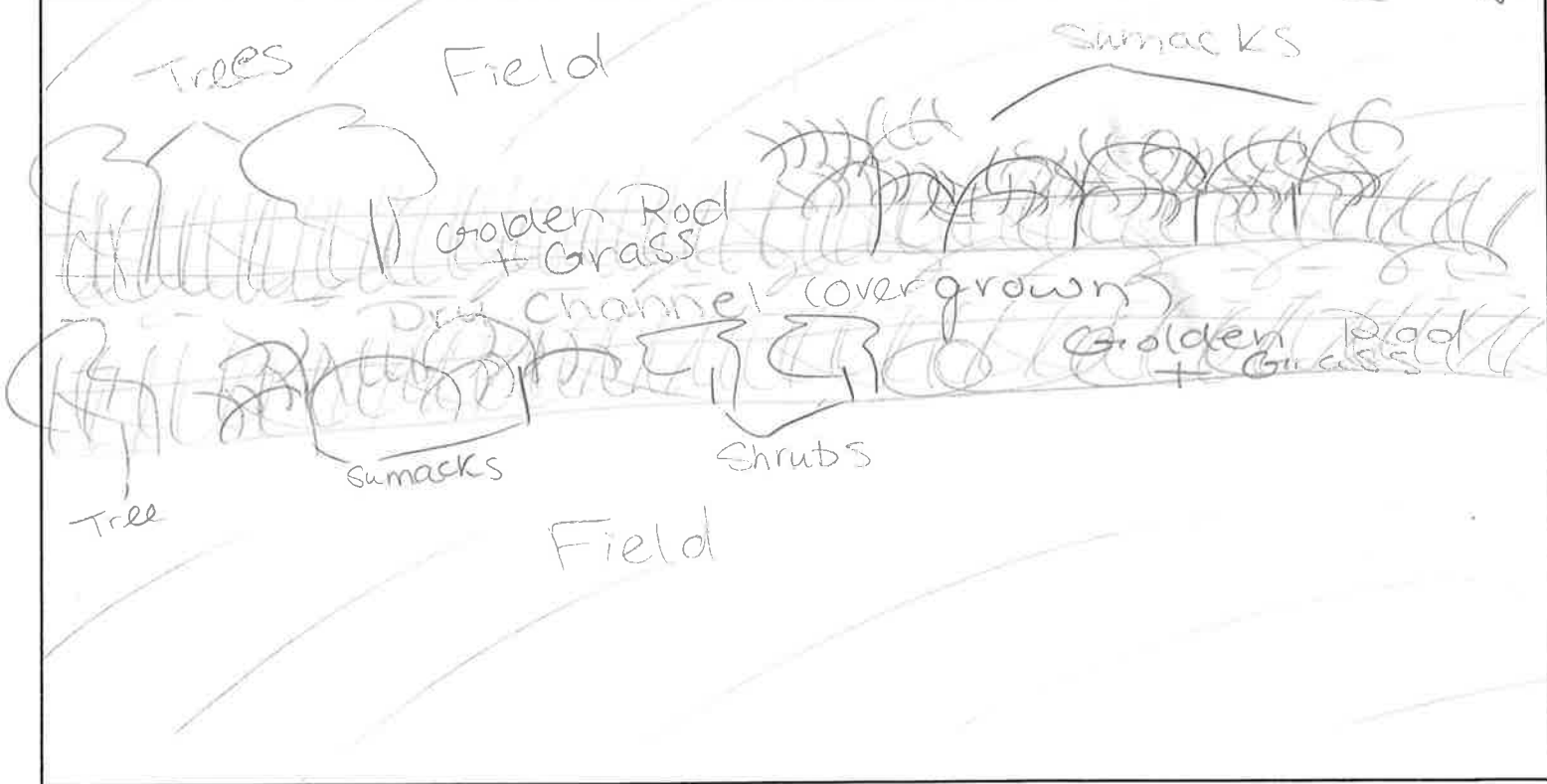
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Dry
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Dry
Air Temp. (°C): 17°C	D.O. (%):	TDS (ppm):	
Time Taken: 10:25	Conductivity (µs/cm):		
Location Taken: Roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North		
#2	South		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* Channel very overgrown & dry.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: W7
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct 21/10
Time Started: 11:39
Time Finished: 12:07
Site Location:
GPS Datum: NAD 83 **Easting:** 423516
Zone: 17 T **Northing:** 4690022
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 3 **Cloud Cover (%):** 90%
Precipitation: None

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)	
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Shrub (Sumac) Grass Herbaceous (Golden Rod)			
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Shrub (Sumac) Grass, Herbaceous (Golden Rod)			
	Vegetation Density (HML):				
Canopy	Type:	Shrub Herbaceous, Grass			Quality and % shade: Poor 15%
Land Use	Agriculture				
Other Notes	(groundwater, soils, pools, vegetation, etc.)				

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 1
Bank Height (range (m)): 4m high water @ 1.5m
Bank Slope (degrees from surface of water): 135
Bank Vegetation Type:
Gradient (H/M/L):
Meander/Straight:
Bank Stability: Good
Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

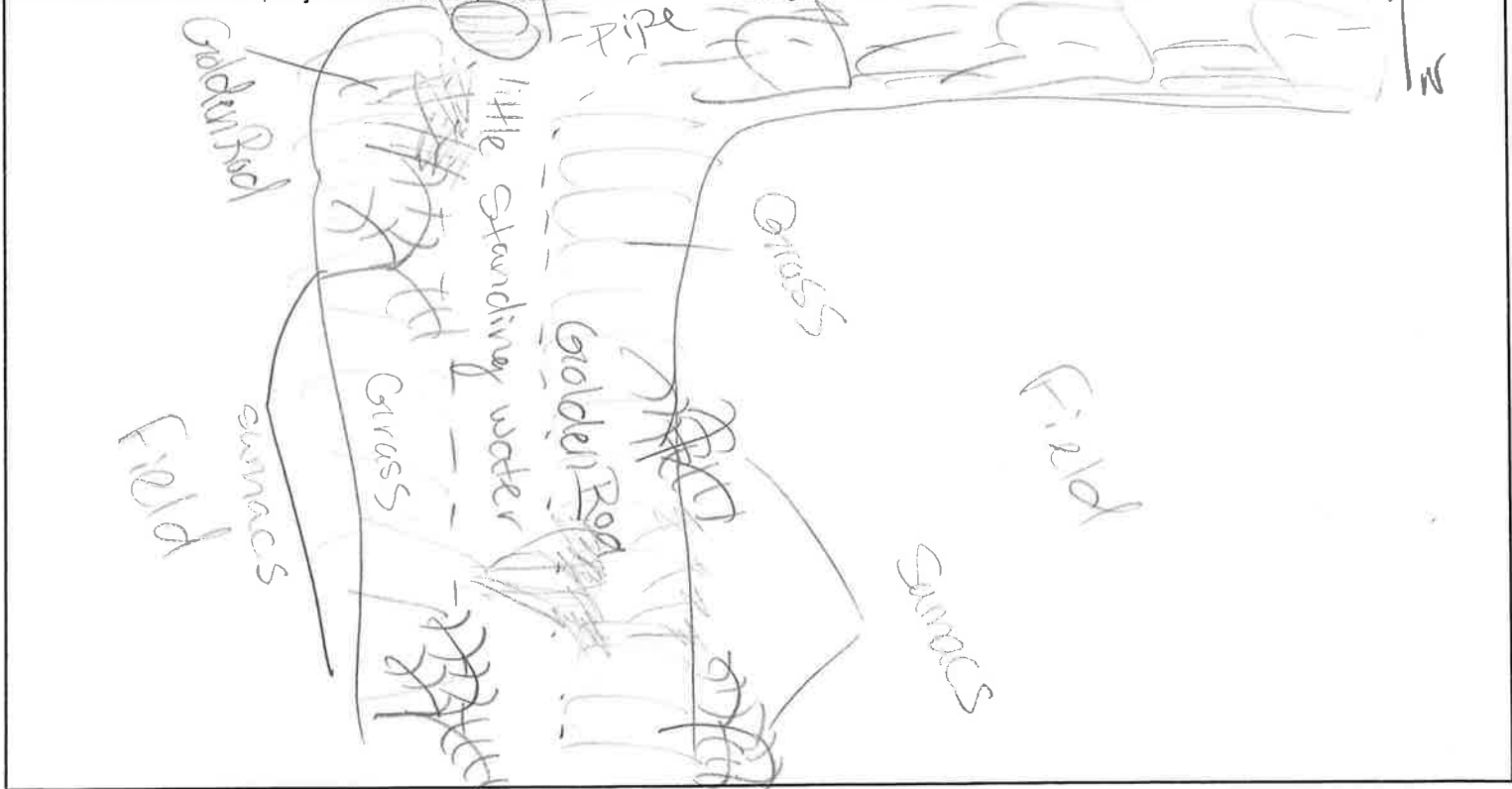
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Standing water little rain water
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing water, very little (rain water)
Air Temp. (°C): 10°C	D.O. (%):	TDS (ppm):	
Time Taken: 11:57	Conductivity (µs/cm):		
Location Taken: roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North (#87)		
#2	South (#88)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

*for P009 & P006 same conditions.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: X7
Waterbody: Unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct. 21 '10
Time Started: 12:29
Time Finished: 13:03
Site Location:
GPS Datum: NAD83 **Easting:** 416 894
Zone: 17 T **Northing:** 4690647
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 4 **Cloud Cover (%):** 95%
Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 8m 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree (Mixed) Shrub, Herbaceous (Golden Rod) Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous (Golden Rod) Grass, Shrub.
	Vegetation Density (HML):
Canopy	Type: Tree, Shrub Quality and % shade: Poor 15%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1m - 2m	Gradient (H/M/L):
Bank Height (range (m)): 3m high water @ 2.5	Meander/Straight:
Bank Slope (degrees from surface of water): 135	Bank Stability: Good
Bank Vegetation Type: 3	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus:
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble:
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Typha (Dry)	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

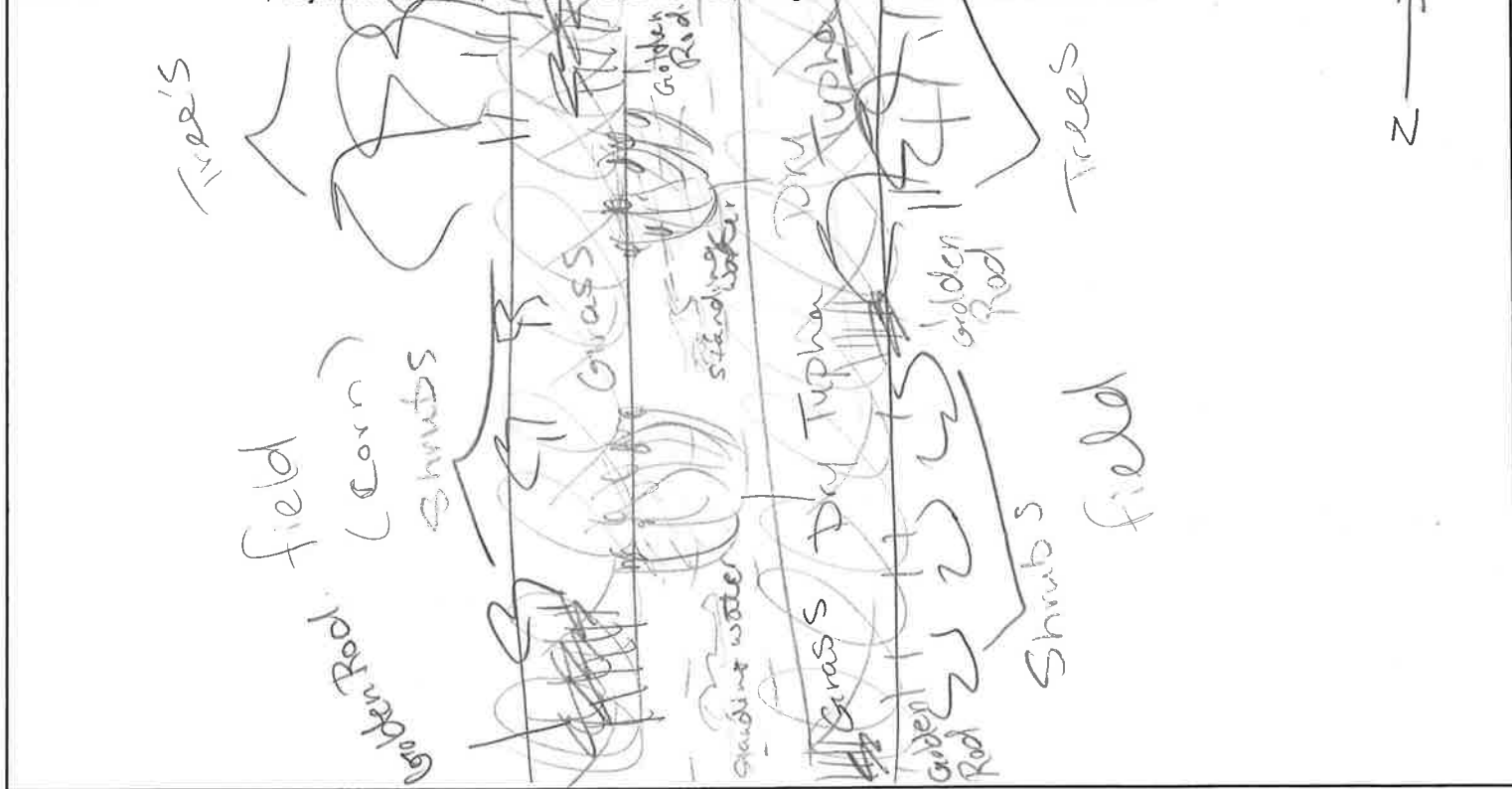
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Small amount of standing water (rain water)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Small standing water (rain water)
Air Temp. (°C): 12°C	D.O. (%):	TDS (ppm):	
Time Taken: 12:52	Conductivity (µs/cm):		
Location Taken: Roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges/culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#89	north		
#90	South		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * channel had some standing water, thought to be rain water
- * typha was present in channel, but was dry.



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: 47

Waterbody: unknown

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: Oct. 21/10

Time Started: 13:10

Time Finished: 13:48

Site Location:

GPS Datum: NAD 83 **Easting:** 414801

Zone: MT **Northing:** 4693944

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind: 4 **Cloud Cover (%):** 90%

Precipitation: None

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)	
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Shrub, Herbaceous (Golden Rod) Grass, Tree			
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Grass, Herbaceous (Golden Rod)			
	Vegetation Density (HML):				
Canopy	Type:	Herbaceous, Grass		Quality and % shade: Very Poor 5%	
Land Use	Agriculture				
Other Notes	(groundwater, soils, pools, vegetation, etc.)				

CHANNEL MORPHOLOGY

Channel Width (range (m)):	.5 - 2 m	Gradient (H/M/L):	
Bank Height (range (m)):	2.5m high water @ 2m	Meander/Straight:	
Bank Slope (degrees from surface of water):	135	Bank Stability:	Good
Bank Vegetation Type:	Grass, Herbaceous (Golden Rod)	Bank Veg. Density (H/M/L):	

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input checked="" type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Filamentous	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

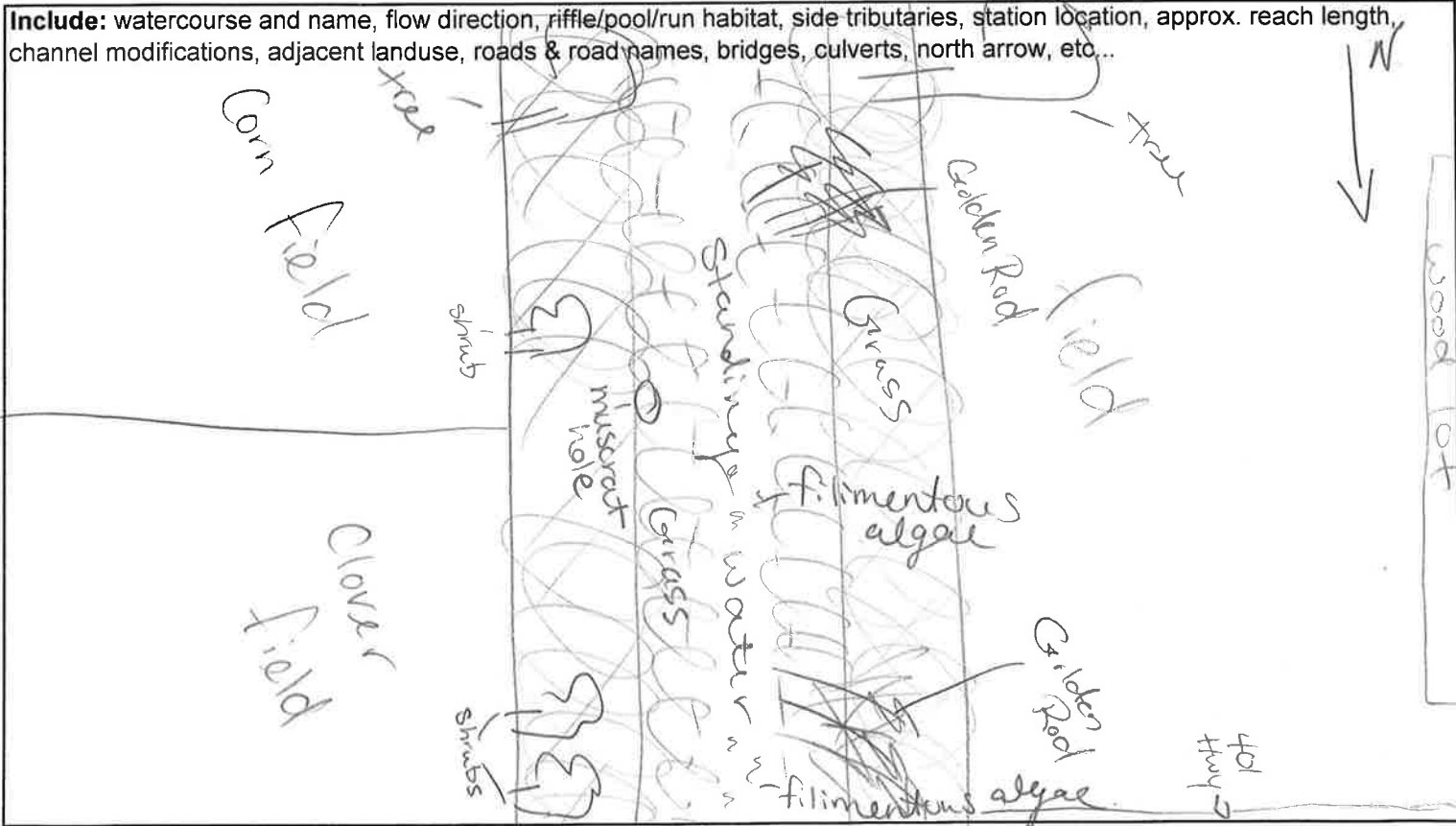
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.48	21, 29, 27, 23, 15	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 10°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing water (lots) clear, but gets turbid easily.
Air Temp. (°C): 10°C	D.O. (%):	TDS (ppm):	
Time Taken: 13:40 / 13:25	Conductivity (µs/cm):		
Location Taken: Roadside/Instream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#91	- North (401)		
#92	- South		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* muskrat hole observed
 * water was clear, but got turbid very easily.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: 27
Waterbody: unknown
Drainage System:
Location in System:
Apr. Reach Length (m):
Survey Date: Oct. 21st 10
Time Started: 14:02
Time Finished:
Site Location:
GPS Datum: NAD83 **Easting:** 416409
Zone: 17T **Northing:** 4688480
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 3 **Cloud Cover (%):** 95%
Precipitation: None

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)
	Extent of Natural Vegetation (m)		0-10 10 to 20 20 to 30 30+	
	Vegetation Type:	Shrub, Herbaceous (Golden Rod) Grass		
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Shrub, herbaceous (Golden Rod) Grass		
	Vegetation Density (HML):			
Canopy	Type:	Shrub, herbaceous	Quality and % shade:	Good 50%
Land Use	Agriculture / Residential			
Other	(groundwater, soils, pools, vegetation, etc.)			
Notes				

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.5 - 2
Bank Height (range (m)): 4m high water @ 2m
Bank Slope (degrees from surface of water): 135
Bank Vegetation Type: Shrub, herbaceous
Gradient (H/M/L):
Meander/Straight:
Bank Stability: Good
Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.52	6, 12, 13, 10, 9	Run
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 10°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Slow flow North east.
Air Temp. (°C): 11°C	D.O. (%):	TDS (ppm):	
Time Taken: 14:25/14:11	Conductivity (µs/cm):		
Location Taken: Roadside/Instream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#93	North east (down stream)		
#94	South west (up stream)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * slow flow north east.
- * water clear but got turbid very easily.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: A8
Waterbody: Unknown
Drainage System: Flook and Hinton Drain
Location in System:
Appr. Reach Length (m):
Survey Date: Oct 21/10
Time Started: 14:40
Time Finished: 15:10
Site Location:
GPS Datum: NAD83 **Easting:** 407731
Zone: MT **Northing:** 4687450
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 4 **Cloud Cover (%):** 90%
Precipitation: light rain

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 14-0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree (Oak), Shrub, Herbaceous (Golden Rod) Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Shrubs, Herbaceous (Golden Rod) Grass
	Vegetation Density (HML):
Canopy	Type: Shrub, Tree, Herbaceous Quality and % shade: Poor 30%
Land Use	Agriculture / Residence
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 5 - 2m **Gradient (H/M/L):**
Bank Height (range (m)): 4m high water @ 3m **Meander/Straight:**
Bank Slope (degrees from surface of water): 35 **Bank Stability:** Good
Bank Vegetation Type: **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input checked="" type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

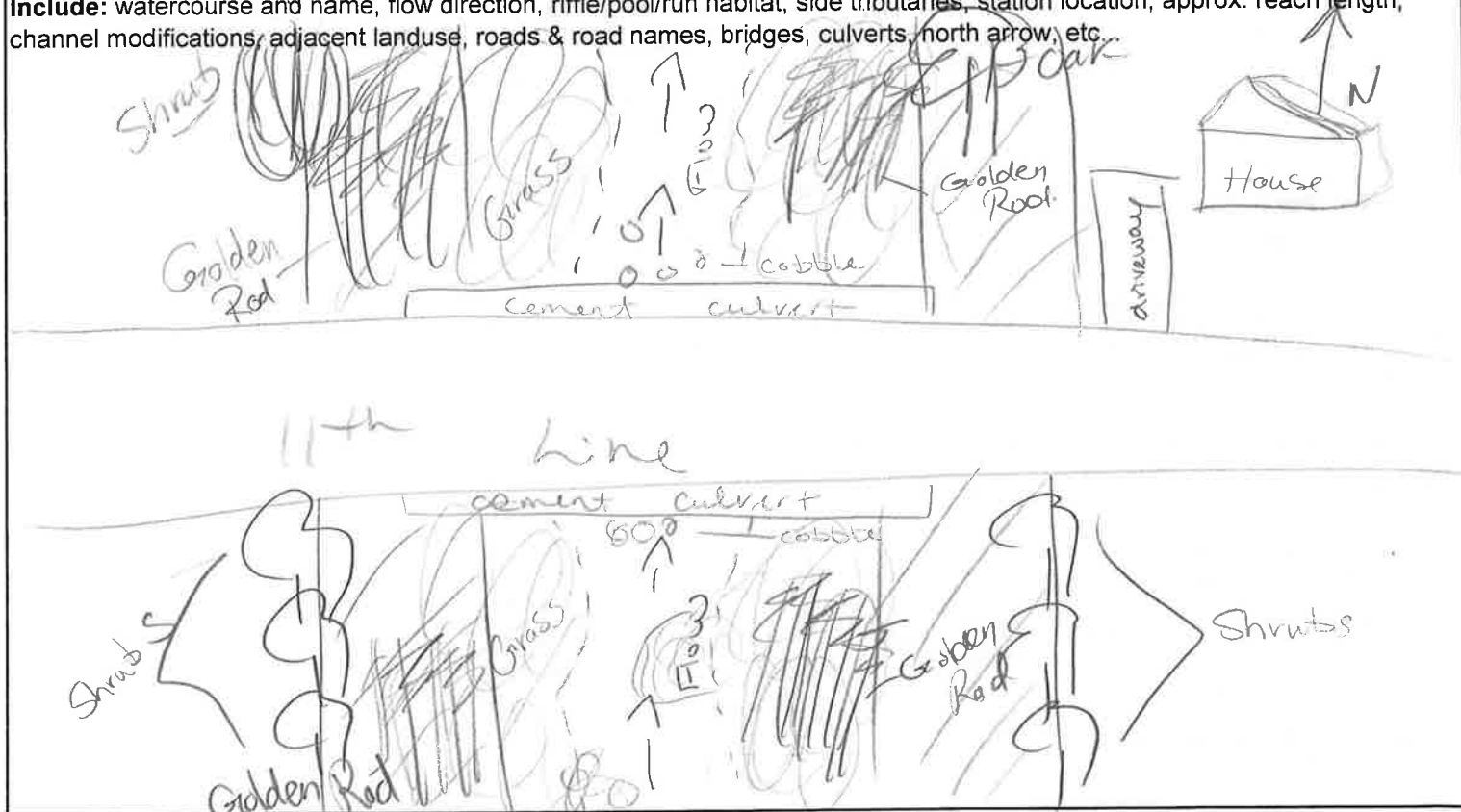
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.15	11, 15, 17, 9, 8	Riffle
2			Hydraulic Head 1cm
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 10°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Moderate flow north.
Air Temp. (°C): 11°C	D.O. (%):	TDS (ppm):	
Time Taken: 15:00	Conductivity (µs/cm):		
Location Taken: In Stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc.



PHOTOS TAKEN

Photo #	Description	Photo #	Description
# 95	north (down stream)		
# 96	South (up stream)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* lots of water, looks like good fish habitat, but no cyprinids were seen
 * raccoon tracks observed.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S Murray
Station: 38 **Site Location:**
 Waterbody: unknown GPS Datum: NAD83 Easting: 406930
 Drainage System: Flook and Hinton Drain Zone: 17 T Northing: 4688586
 Location in System: Municipality: Chatham / Kent
 Appr. Reach Length (m): Lot & Concession:
Survey Date: Oct. 21/10 **Weather Conditions:**
 Time Started: 15:20 Wind: 3 Cloud Cover (%): 95%
 Time Finished: 16:10 Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 8-0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass, Herbaceous (Golden Rod) Tree (Maple)
	Vegetation Density (H/M/L):
Canopy	Type: Herbaceous, Tree, Grass Quality and % shade: Poor 5%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.5 - 1m Gradient (H/M/L):
 Bank Height (range (m)): 5m high water @ 2m Meander/Straight:
 Bank Slope (degrees from surface of water): 135 Bank Stability: Good
 Bank Vegetation Type: Tree (Maple) Herbaceous (Golden Rod) Grass Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus:
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble:
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None.		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

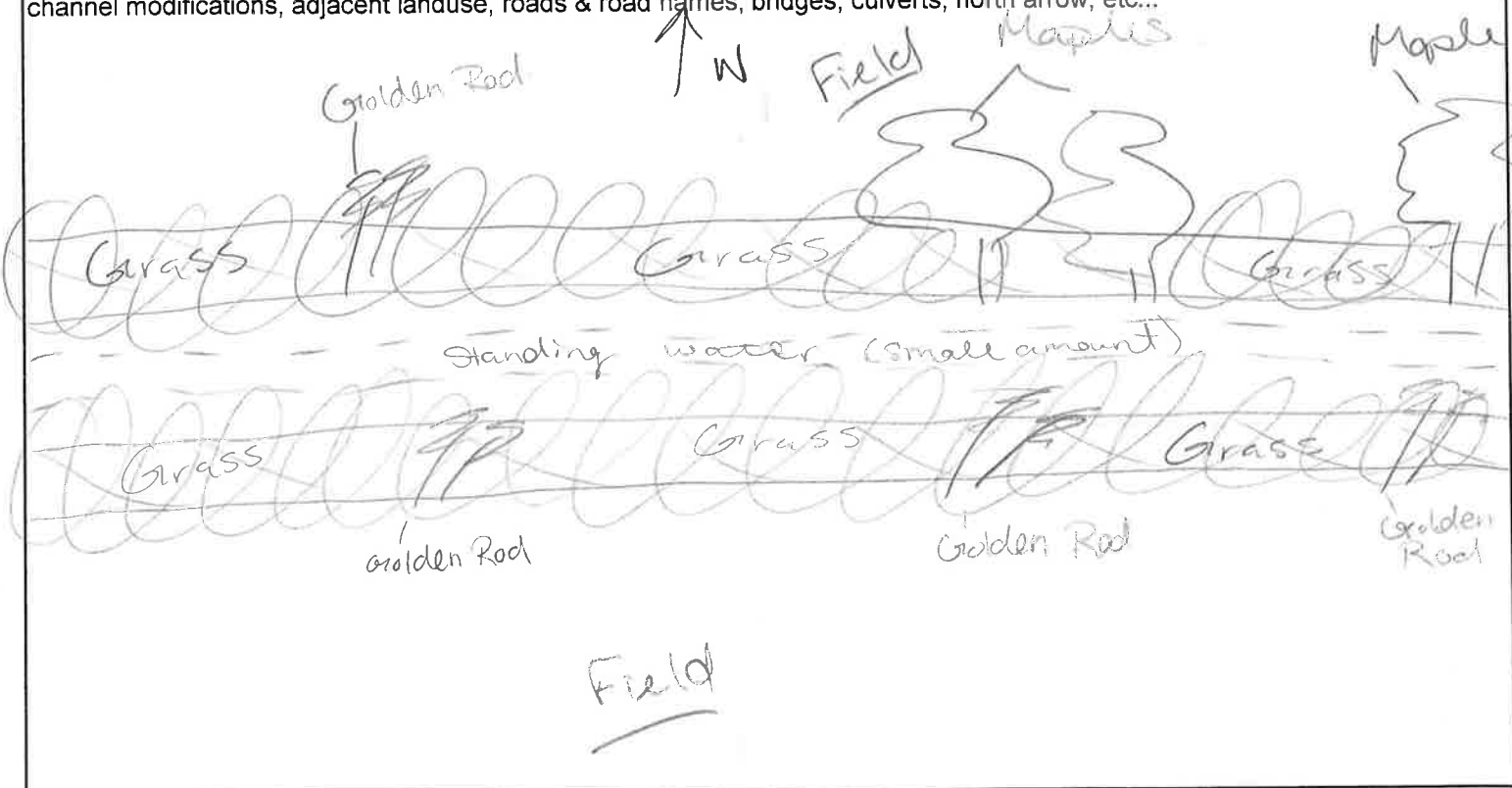
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Small amount of standing water (rain water)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters:
Air Temp. (°C): 11°C	D.O. (%):	TDS (ppm):	
Time Taken: 15:50	Conductivity (µs/cm):		
Location Taken: Roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#97 - East			
#98 - West			

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * Vegetation consisted mostly of grasses. There were only a couple of Maples & a small amount of Golden Rod.
- * Coyote scats observed on the walk in.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: C8
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct. 21'10
Time Started: 16:26
Time Finished: 16:56
Site Location:
GPS Datum: NAD83 **Easting:** 404723
Zone: MT **Northing:** 4690280
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 3 **Cloud Cover (%):** 80%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree (Poplar) Shrub (Sumac) Herbaceous (Golden Rod) Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Shrub (Sumac & Willow) Herbaceous (Golden Rod)
	Vegetation Density (HML):
Canopy	Type: Tree, Shrub Quality and % shade: Excellent 85%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 2m **Gradient (H/M/L):**
Bank Height (range (m)): 4m high water @ 2.5m **Meander/Straight:**
Bank Slope (degrees from surface of water): 135 **Bank Stability:** Good
Bank Vegetation Type: Shrub (Sumac) Herbaceous (Golden Rod) Grass **Bank Veg. Density (H/M/L):**
 Willow

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus: ✓
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble:
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Phragmites	Some in one part of the channel (very tall)

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

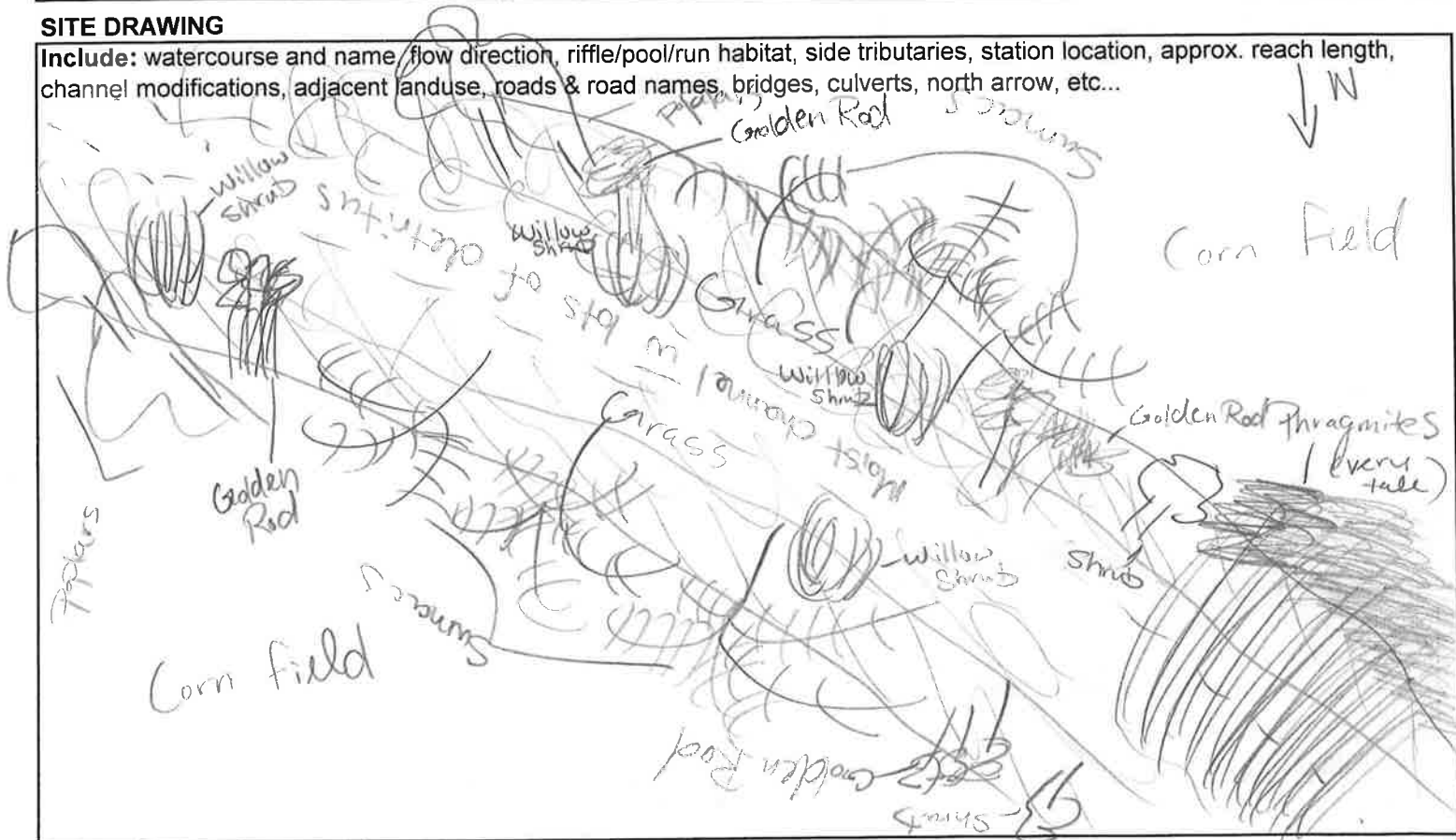
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Only moist
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Moist soil only
Air Temp. (°C): 10°C	D.O. (%):	TDS (ppm):	
Time Taken: 16:45	Conductivity (µs/cm):		
Location Taken: Road hole			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
# 99 = north			
# 100 = S			

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * moist channel standing turbid water @ culvert that goes under 8th line.
- * lots of detritus
- * raccoon tracks observed



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: D8 * SAR (yellow)
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct 22 '10
Time Started: 7:45
Time Finished: 8:15
Site Location:
GPS Datum: NAD 83 **Easting:** 387476
Zone: 17 T **Northing:** 4676312
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 0 **Cloud Cover (%):** 0%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Bare
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Bare
	Vegetation Density (HML):
Canopy	Type: None Quality and % shade: 0% - very poor
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 25m	Gradient (H/M/L):
Bank Height (range (m)): 0.15m	Meander/Straight:
Bank Slope (degrees from surface of water): 45	Bank Stability: Good
Bank Vegetation Type: Bare	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck:
Silt: ✓	Pebble:	Bedrock:	Detritus:
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks:	Boulder/Rock:
Riffles:	Woody Debris:	Cobble:
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

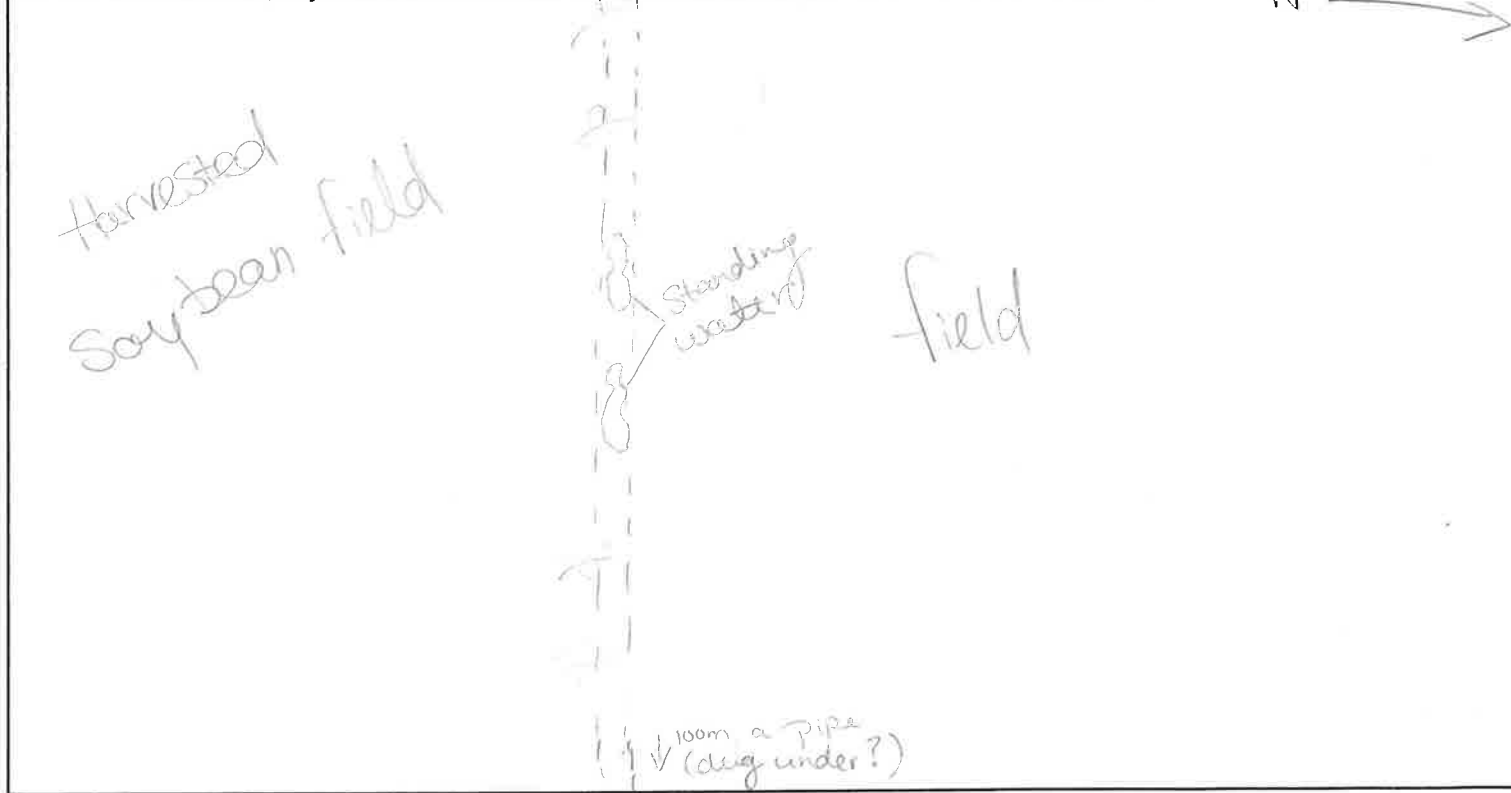
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Only small amount of standing water (rain water)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Small amount of standing water
Air Temp. (°C): 1°C	D.O. (%):	TDS (ppm):	
Time Taken: 8:05	Conductivity (µs/cm):		
Location Taken: Roadside			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#101 - east			
#102 - west			

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* Drain is a yellow SAP drain, however it appears that this drain has been dug under see 'I' for information on east side of drain that is not dug under (east of Oak Rd)



PROJECT (Number & Name): 184 South Kent

Field Staff: S. Murray

Station: E 8 * SAR (yellow)

Waterbody: Unknown

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: Oct 22 10

Time Started: 8:25

Time Finished: 9:00

Site Location:

GPS Datum: NAD83 **Easting:** 386559

Zone: 17T **Northing:** 4680429

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind: 1 **Cloud Cover (%):** 0%

Precipitation: 0

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)
	Extent of Natural Vegetation (m)	0-10	10 to 20	25 20 to 30 30+
	Vegetation Type:	Tree (Mixed) Shrub (Sumac) Herbaceous (Golden Rod) Grass		
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Tree (Mixed) Shrub (Sumac) Herbaceous (Golden Rod)		
	Vegetation Density (HML):			
Canopy	Type:	Tree Shrub		Quality and % shade: Excellent 80%
Land Use	Agriculture			
Other Notes	(groundwater, soils, pools, vegetation, etc.)			

CHANNEL MORPHOLOGY

Channel Width (range (m)): 2.5 - 4.5

Bank Height (range (m)): 5m high water @ 2.5m

Bank Slope (degrees from surface of water): 135

Bank Vegetation Type: Tree (Mixed) Shrub (Sumac) Grass Herbaceous (Golden Rod)

Gradient (H/M/L):

Meander/Straight:

Bank Stability: Good

Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input checked="" type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None.		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	4.45	4, 9, 15, 10, 3	Run.
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 5°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: slow flow North
Air Temp. (°C): 3°C	D.O. (%):	TDS (ppm):	
Time Taken: 8:45	Conductivity (µs/cm):		
Location Taken: In Stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#103	North		
#104	South		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * Found a dead eastern fox snake on the road.
- * SAR (yellow) drain
- * Slow flow north ward.
- * excellent fish habitat, however no cyprinids observed.



PROJECT (Number & Name): 1184 South Kent	
Field Staff: S. Murray	
Station: RPI (all)	Site Location:
Waterbody: unknown	GPS Datum: NAD83 Easting: 421299
Drainage System:	Zone: NT Northing: 4690441
Location in System:	Municipality: Chatham / Kent
Appr. Reach Length (m):	Lot & Concession:
Survey Date: Oct 27-10	Weather Conditions:
Time Started: 8:15	Wind: 3 Cloud Cover (%): 0
Time Finished: 8:45	Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree (Mixed) Shrub (Sumac, Grey Dogwood) Herbaceous (Golden Rod)
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree (Mixed) Shrub (Sumac) Herbaceous (Golden Rod)
	Vegetation Density (HML):
Canopy	Type: Tree, Shrub Quality and % shade: Good 60%
Land Use	Agriculture / Residential
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.5 - 4.5m	Gradient (H/M/L):
Bank Height (range (m)): 3.5m high water @ 2.5m	Meander: Straight
Bank Slope (degrees from surface of water): 135	Bank Stability: Good
Bank Vegetation Type: Tree (Mixed) Shrub (Sumac) Herbaceous (Golden Rod)	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input checked="" type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

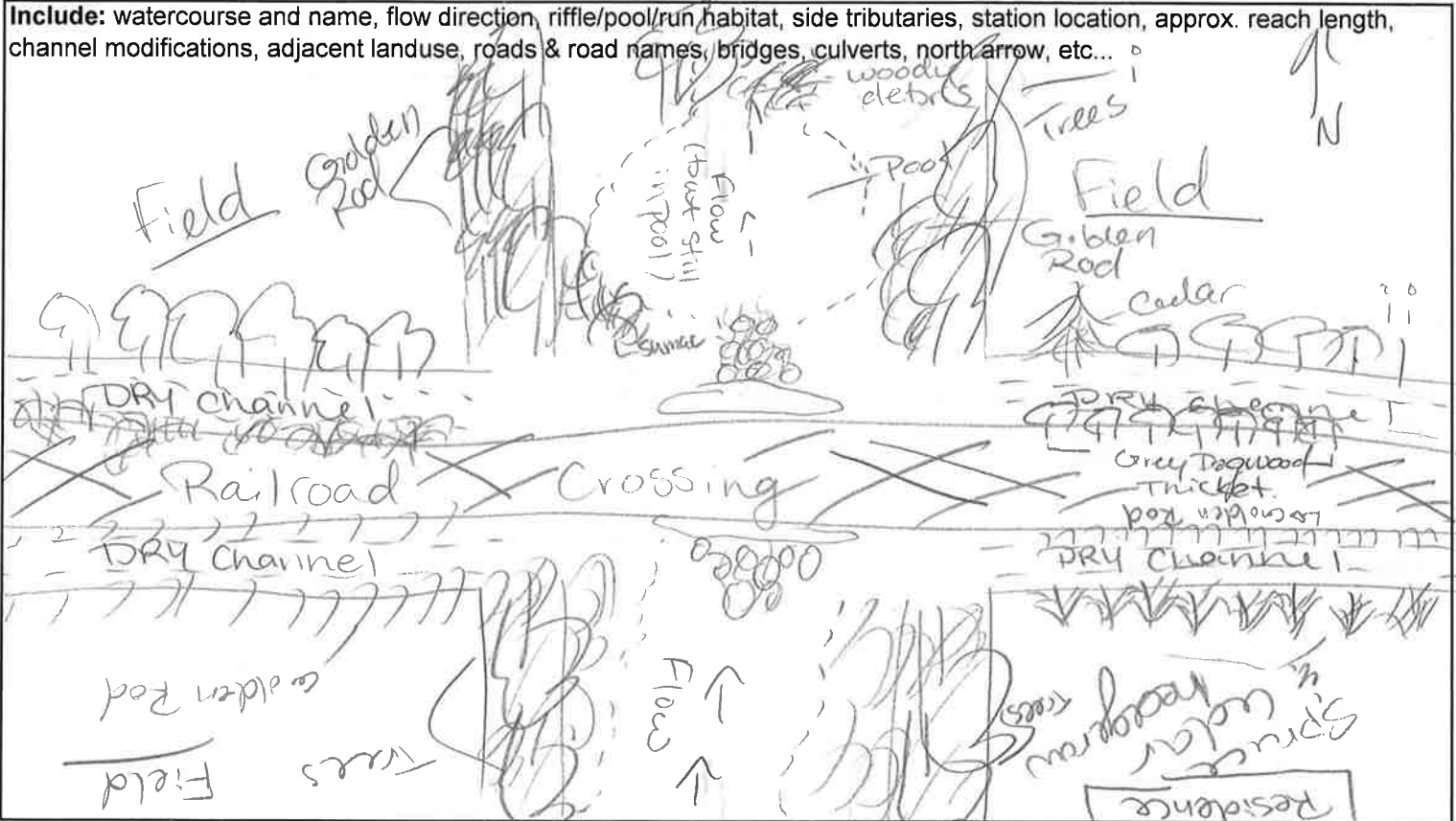
CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.27	18, 24, 20, 14, 14	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 11°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Slow flow north @ culvert, standing water north of culvert +
Air Temp. (°C): 11°C	D.O. (%):	TDS (ppm):	
Time Taken: 8:25	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	(108 on camera - north)		
#2	(109 on camera - south)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:
 * water got turbid very easily.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: RR2
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct. 27 '10
Time Started: 9:00
Time Finished: 9:30
Site Location:
GPS Datum: NAD 83 **Easting:** 4707.01
Zone: 17 T **Northing:** 4696.015
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 3 **Cloud Cover (%):** 0%
Precipitation: 0

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)	
	Extent of Natural Vegetation (m)		0-10 10 to 20	20 to 30 30+	
	Vegetation Type:	Tree (Mixed) Shrub (Willow) Herbaceous (Golden Rod)			
Riparian Zone	Flood Plain - extent of frequent flood (m):		0-10 10 to 20	20 to 30 30+	
	Vegetation Type:	Tree (Mixed) Shrub (Willow) Herbaceous (Golden Rod)			
	Vegetation Density (HML):				
Canopy	Type:	Tree Shrub Herbaceous Phragmites		Quality and % shade: Good 45%	
Land Use	Agriculture / Residential				
Other Notes	(groundwater, soils, pools, vegetation, etc.)				

CHANNEL MORPHOLOGY

Channel Width (range (m)): 5-1 **Gradient (H/M/L):**
Bank Height (range (m)): 1.5 high water @ .5m **Meander/Straight:**
Bank Slope (degrees from surface of water): 135 **Bank Stability:** Good
Bank Vegetation Type: Herbaceous (Golden Rod) Tree (Mixed) Shrub (Willow) **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus:
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: ✓	Boulder/Rock:
Riffles:	Woody Debris: ✓	Cobble:
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Phragmites	Pockets

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

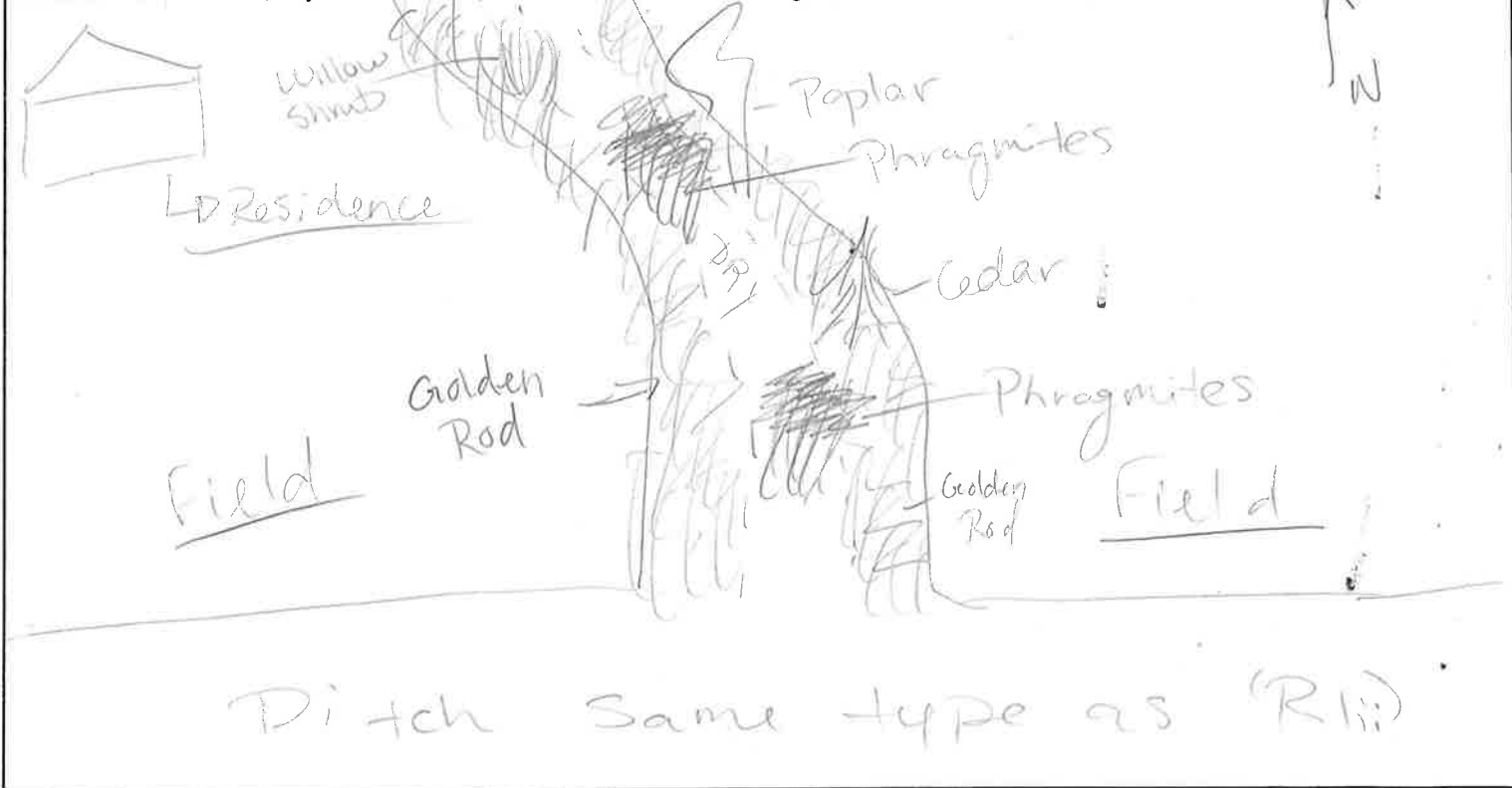
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			DRY
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	DRY	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: DRY
Air Temp. (°C):	12°C	D.O. (%):	TDS (ppm):	
Time Taken:	9:25	Conductivity (µs/cm):		
Location Taken:	on Railway			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
	Picture - north		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * drain is only to the north.
- * ditch is same as in "R111"



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: RRB
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct. 27, 10
Time Started: 9:40
Time Finished: 9:55
Site Location:
GPS Datum: NAD83 **Easting:** 420256
Zone: 17E **Northing:** 695692
Municipality: Clackamas, Kent
Lot & Concession:
Weather Conditions:
Wind: 3 **Cloud Cover (%):** 0
Precipitation: 0

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (6 - 15°)	Steep (> 15°)
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Tree (Mixed) Herbaceous (Golden Rod)		
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Herbaceous (Golden Rod)		
	Vegetation Density (HML):			
Canopy	Type:	Tree Herbaceous, Typha		Quality and % shade: Poor 15%
Land Use	Agr. cultural			
Other Notes	(groundwater, soils, pools, vegetation, etc.)			

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 1m
 Bank Height (range (m)): 2.5m high water @ 2m
 Bank Slope (degrees from surface of water): 135
 Bank Vegetation Type: Tree, Herbaceous, Grass
 Gradient (H/M/L):
 Meander/Straight:
 Bank Stability: Good
 Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools:
 Riffles:
 Backwater:
 Undercut Banks:
 Woody Debris:
 Vegetation: (Typha + watercress)
 Boulder/Rock:
 Cobble:
 Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Typha	
	watercress	

CODES:

SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWI Groundwater Input
DOX Dissolved Oxygen Stn	CKC Creek Crossing
AHY Aquatic Habitat Area	WEL Well
VSS Visual Survey Stn	CUL Culvert
TMP Temp Monitor Stn	WQS Water Quality Stn
FLW Flow Monitor Stn	

FLOW CONDITIONS

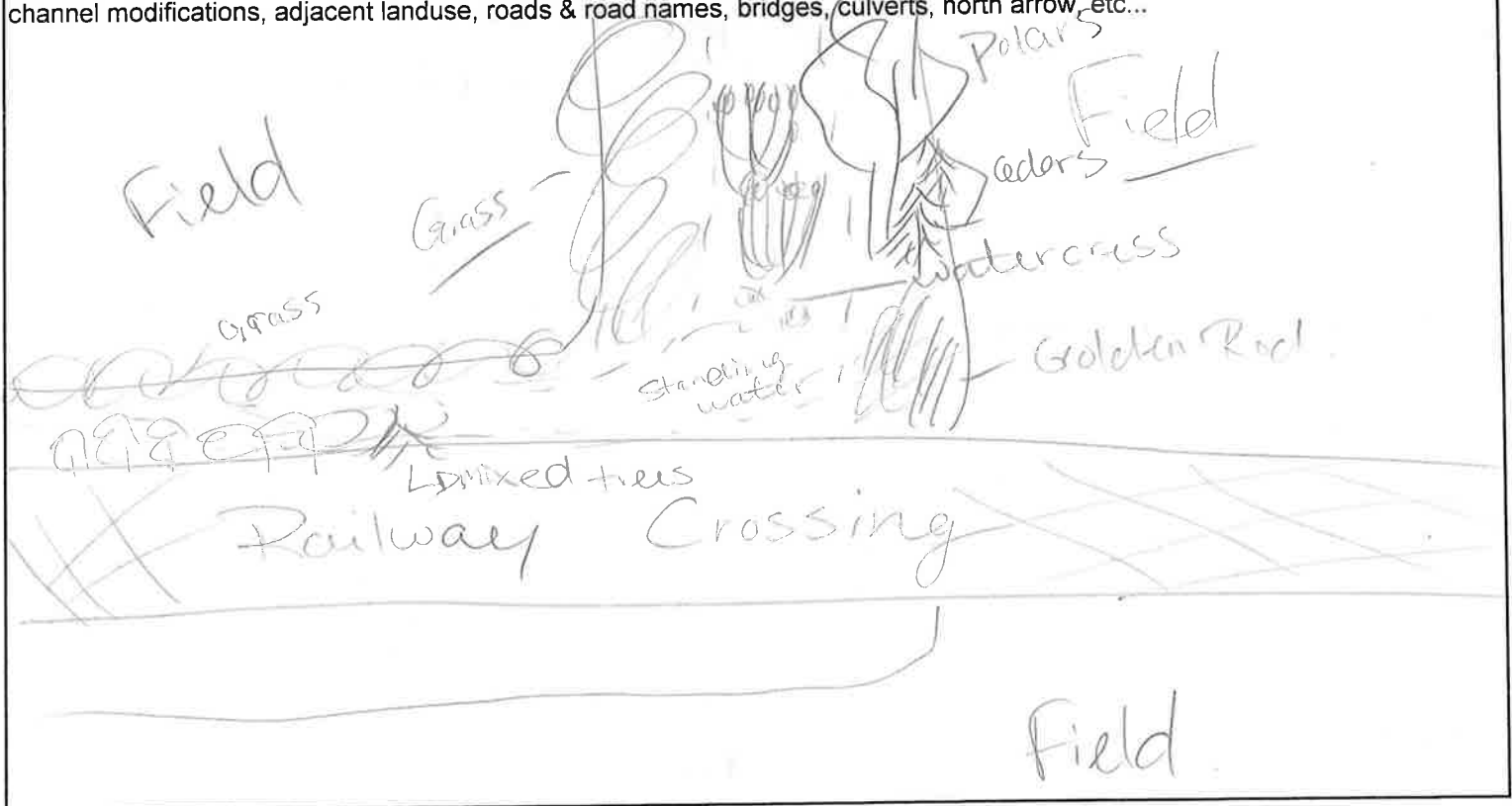
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.26	10, 10, 17, 16, 9	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 9°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing water
Air Temp. (°C): 10°C	D.O. (%):	TDS (ppm):	
Time Taken: 9:50	Conductivity (µs/cm):		
Location Taken: In stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1 - North			
#2 - South			

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* muskrat observed



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: RR 4

Waterbody: unknown

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: Oct. 27 '10

Time Started: 10:00

Time Finished: 10:28

Site Location:

GPS Datum: NAD 83 **Easting:** 419125

Zone: 17 T **Northing:** 4694884

Municipality: Chatham/Kent

Lot & Concession:

Weather Conditions:

Wind: 3 **Cloud Cover (%):** 0

Precipitation: 0

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)		
	Extent of Natural Vegetation (m)		0-10	10 to 20	20 to 30	30+
	Vegetation Type:	- Tree (Mixed) Shrubs (Sumac) Herbaceous (Golden Rod)				
Riparian Zone	Flood Plain - extent of frequent flood (m):		0-10	10 to 20	20 to 30	30+
	Vegetation Type:	- Tree (Mixed) Shrub (Willow) Herbaceous (Golden Rod)				
	Vegetation Density (H/M/L):					
Canopy	Type: Tree Shrub	Quality and % shade: Poor 20%				
Land Use	Agriculture					
Other Notes	(groundwater, soils, pools, vegetation, etc.)					

CHANNEL MORPHOLOGY

Channel Width (range (m)): 5-3

Bank Height (range (m)): 2.5m high water @ 2m

Bank Slope (degrees from surface of water): 35

Bank Vegetation Type: Tall, Shrub, herbaceous

Gradient (H/M/L):

Meander/Straight:

Bank Stability: Good

Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel:	Boulder:	Muck: ✓
Silt: ✓	Pebble:	Bedrock:	Detritus: ✓
Sand: ✓	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles: ✓	Woody Debris: ✓	Cobble:
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

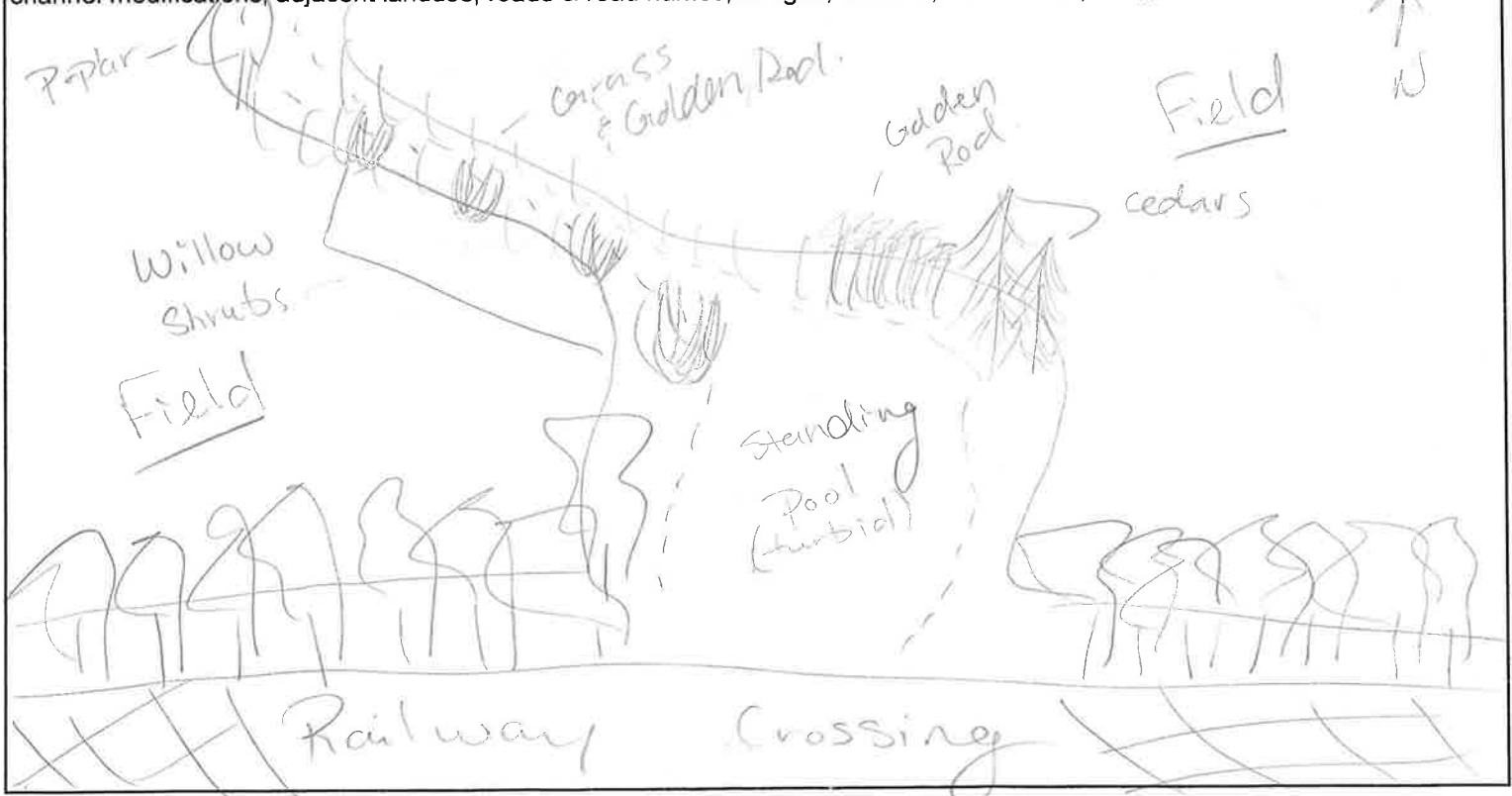
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.91	7, 10, 14, 11, 5	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 11°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters:
Air Temp. (°C): 12°C	D.O. (%):	TDS (ppm):	
Time Taken: 10:14	Conductivity (µs/cm):		
Location Taken: In Stream.			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
	#1 - north		
	#2 - south		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* very turbid.



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: RPS

Waterbody: unknown

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: Oct. 27'10

Time Started: 10:35

Time Finished: 10:50

Site Location:

GPS Datum: NAD83

Easting: 418421

Zone: NT

Northing: 4694330

Municipality: Chatham/Kent

Lot & Concession:

Weather Conditions:

Wind: 3

Cloud Cover (%): 0

Precipitation: 0

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Tree (Mixed) Shrub (Sumac) Herbaceous (Golden Rod)		
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Shrub (Sumac) Herbaceous (Golden Rod) Grass		
	Vegetation Density (HML):			
Canopy	Type:	Shrub, Tree, Herbaceous		
	Quality and % shade:	Poor 15%		
Land Use	Agriculture			
Other Notes	(groundwater, soils, pools, vegetation, etc.)			

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 1.5m

Bank Height (range (m)): 3m high water @ 2m

Bank Slope (degrees from surface of water):

Bank Vegetation Type: Shrub (Sumac) Herbaceous (Golden Rod)
Grass

Gradient (H/M/L):

Meander/Straight:

Bank Stability: Good

Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools:

Riffles:

Backwater:

Undercut Banks:

Woody Debris:

Vegetation: Typha

Boulder/Rock:

Cobble:

Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Typha	South side

CODES:

AHP Aquatic Habitat Point	SWI Surface Water Input	SCS Stream Cross Section
AHY Aquatic Habitat Area	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
TMP Temp Monitor Stn	CKC Creek Crossing	VSS Visual Survey Stn
FLW Flow Monitor Stn	WEL Well	WQS Water Quality Stn
	CUL Culvert	

FLOW CONDITIONS

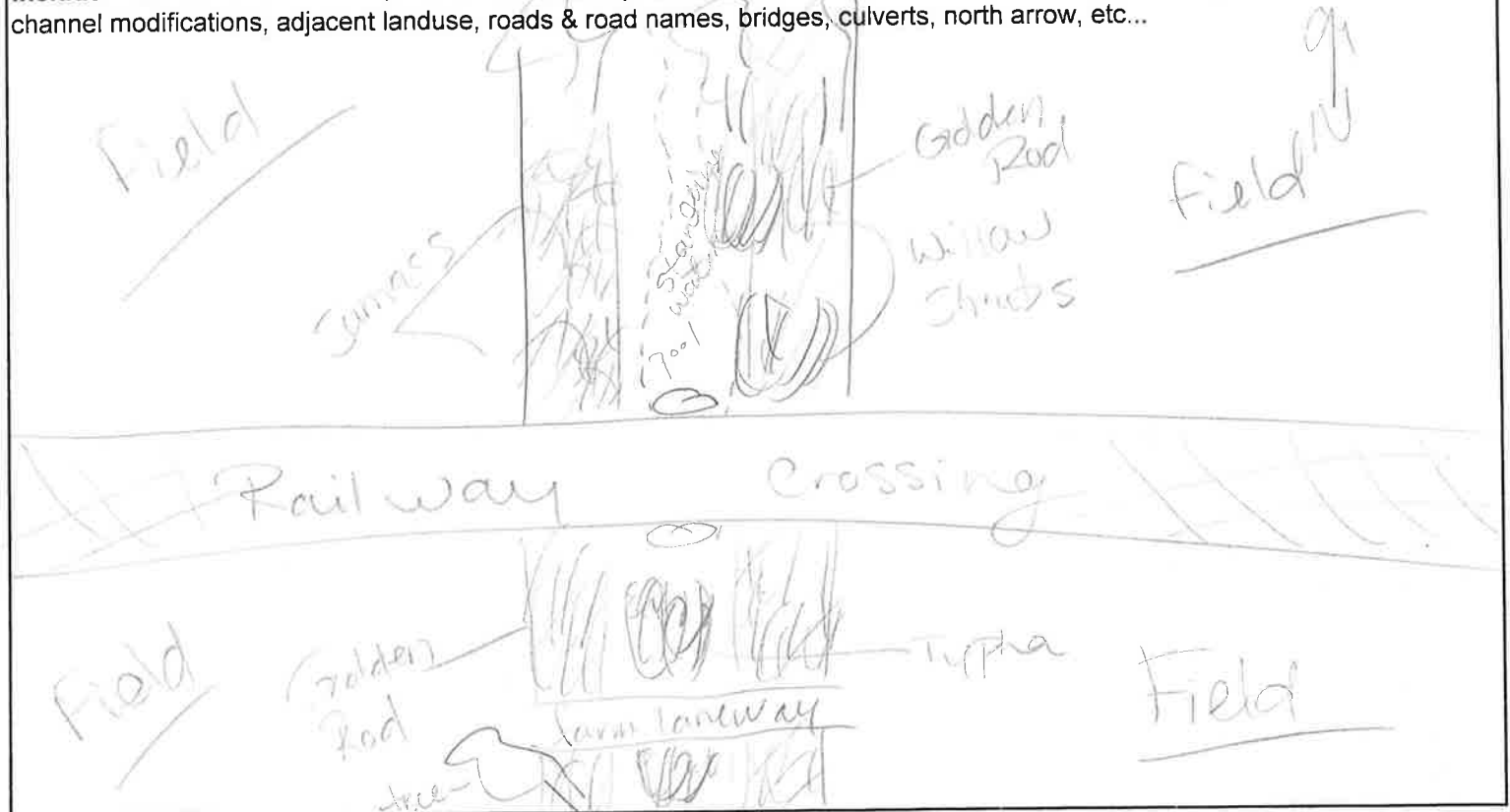
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.65	4, 7, 10, 11, 8, 5	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 10°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing turbid water
Air Temp. (°C): 12°C	D.O. (%):	TDS (ppm):	
Time Taken: 10:45	Conductivity (µs/cm):		
Location Taken: in stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
H1	north		
H2	south		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* very turbid water



PROJECT (Number & Name): 1184 South Kent

Field Staff: S Murray

Station: RR6

Waterbody: unknown

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: Oct. 27/10

Time Started: 10:55

Time Finished: 11:10

Site Location:

GPS Datum: NAD 83 **Easting:** 417633

Zone: 17 T **Northing:** 4693821

Municipality: Chatham Kent

Lot & Concession:

Weather Conditions:

Wind: 4 **Cloud Cover (%):** 0

Precipitation: 0

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)		
	Extent of Natural Vegetation (m)		0-10	10 to 20	20 to 30	30+
	Vegetation Type:	Tree (Mixed), Shrub (Sumac) Herbaceous (Golden Rod)				
Riparian Zone	Flood Plain - extent of frequent flood (m):		0-10	10 to 20	20 to 30	30+
	Vegetation Type:	Shrub (Sumac) Herbaceous (Golden Rod), Grass				
	Vegetation Density (HML):					
Canopy	Type:	Tree Shrub		Quality and % shade:	Good 55%	
Land Use	Agriculture					
Other Notes	(groundwater, soils, pools, vegetation, etc.)					

CHANNEL MORPHOLOGY

Channel Width (range (m)):	5-1m	Gradient (H/M/L):	
Bank Height (range (m)):	3m high water @ 1.5	Meander/Straight:	
Bank Slope (degrees from surface of water):	135	Bank Stability:	Good
Bank Vegetation Type:	Tree, Shrub, Herbaceous	Bank Veg. Density (H/M/L):	

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel:	Boulder:	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble:	Bedrock:	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock:
Riffles:	Woody Debris: <input checked="" type="checkbox"/>	Cobble:
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

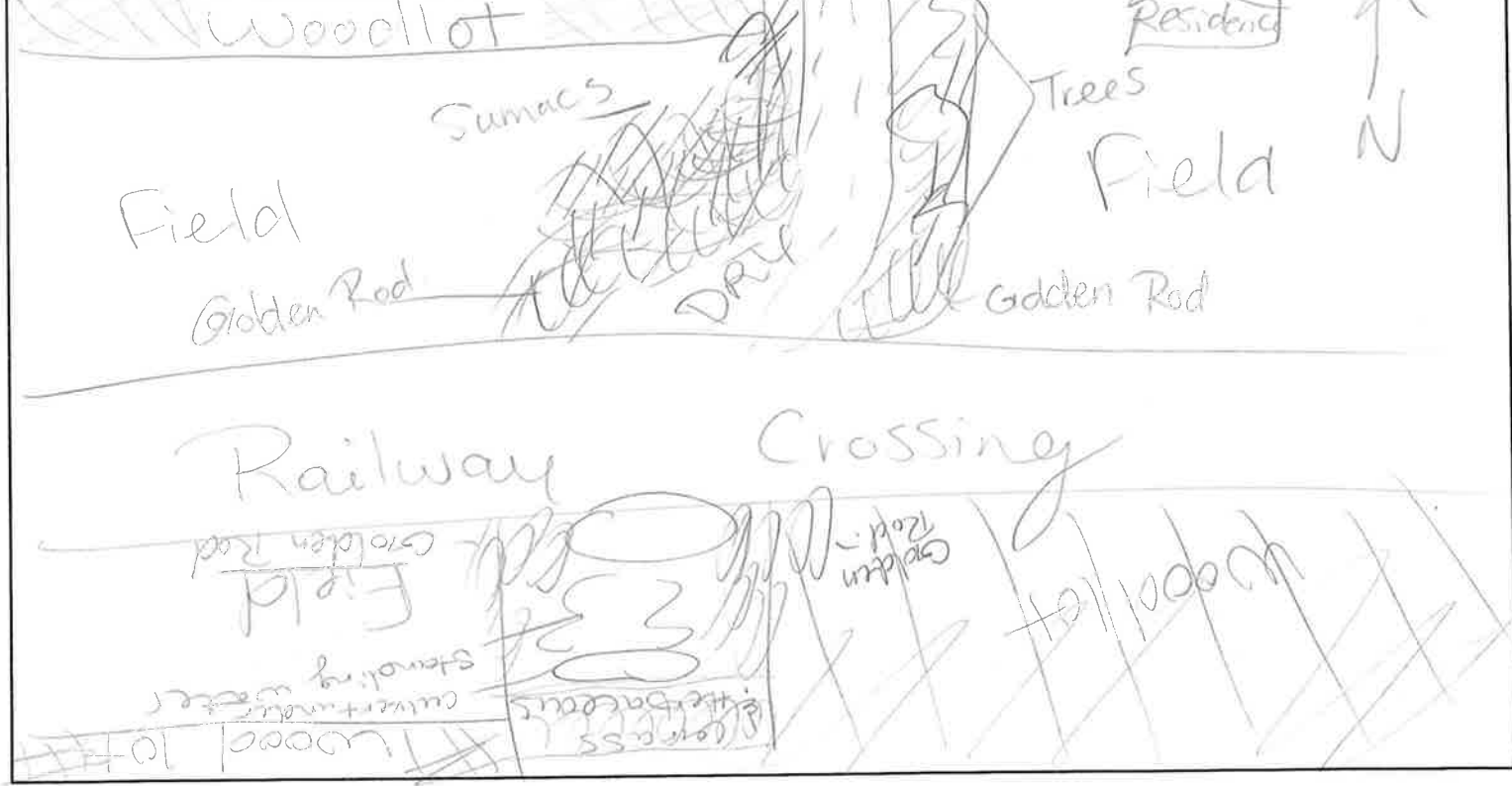
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Only some standing water @ south end
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing water (south)
Air Temp. (°C): 12°C	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North		
#2	South		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:
*channel had standing water on the south side only.



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: RR7

Waterbody: Unknown

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: Oct 27 '10

Time Started: 11:15

Time Finished: 11:34

Site Location:

GPS Datum: NAD83 **Easting:** 416192

Zone: 17T **Northing:** 4692783

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind: 4 **Cloud Cover (%):** 0

Precipitation: 0

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)		
	Extent of Natural Vegetation (m)		0-10	10 to 20	20 to 30	30+
	Vegetation Type:	Trees (Mixed) Shrub (Girey Dogwood + Sumac) Herbaceous (Golden Rod)				
Riparian Zone	Flood Plain - extent of frequent flood (m):		0-10	10 to 20	20 to 30	30+
	Vegetation Type:	Shrub (Sumac + Girey Dogwood) Herbaceous (Golden Rod) Grass				
	Vegetation Density (HML):					
Canopy	Type:	Tree Shrub.		Quality and % shade:	Good 50%	
Land Use	Agriculture.					
Other Notes	(groundwater, soils, pools, vegetation, etc.)					

CHANNEL MORPHOLOGY

Channel Width (range (m)):	0.5-2	Gradient (H/M/L):	
Bank Height (range (m)):	1-4m high water @ 3.5m	Meander/Straight:	
Bank Slope (degrees from surface of water):		Bank Stability:	Good
Bank Vegetation Type:	Shrub, Herbaceous, Grass	Bank Veg. Density (H/M/L):	

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input checked="" type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input checked="" type="checkbox"/>	Bedrock: <input checked="" type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input checked="" type="checkbox"/>	Other: <input checked="" type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input checked="" type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input checked="" type="checkbox"/>	Other: <input checked="" type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWI Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

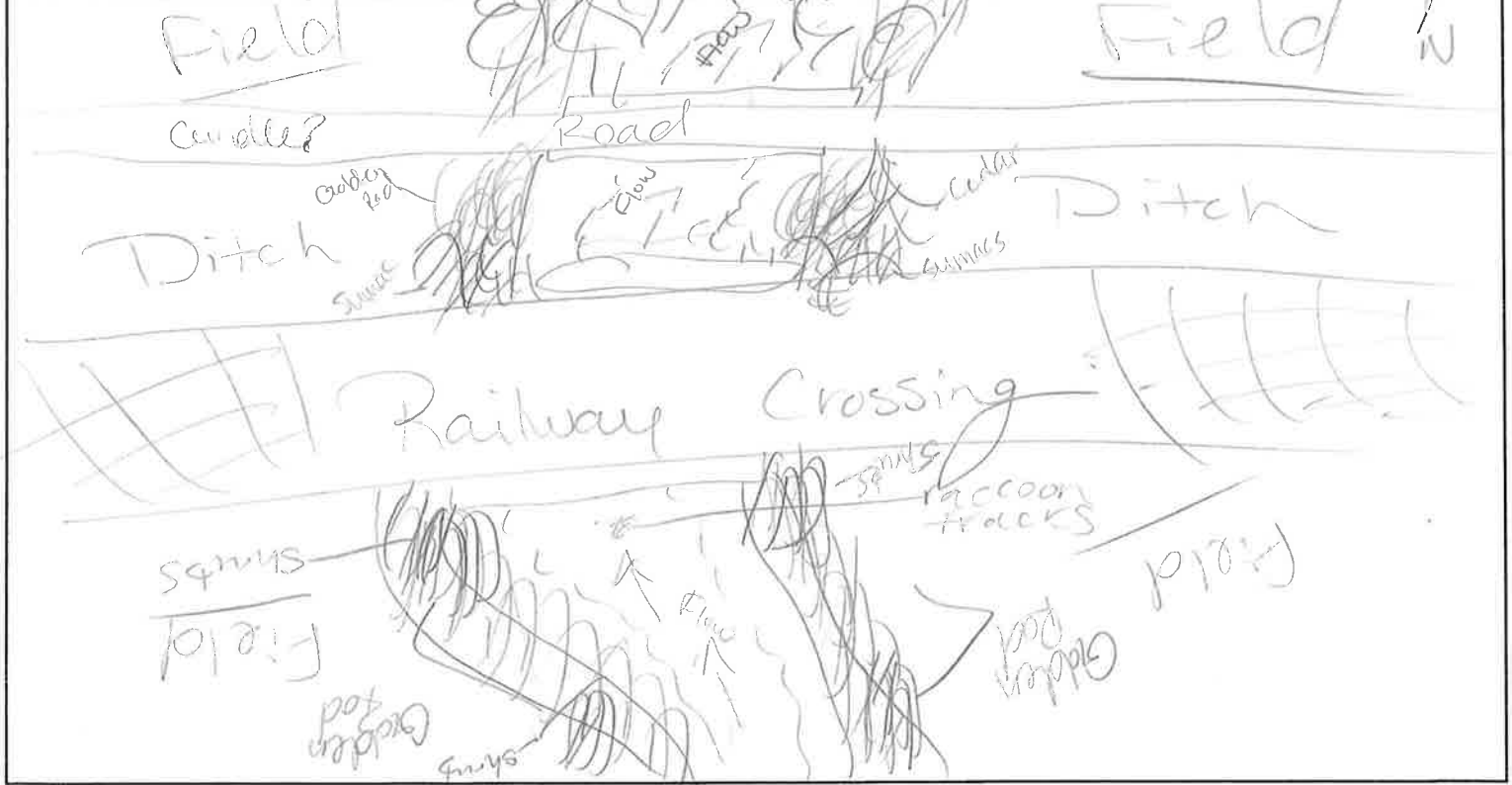
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.17	3, 5, 11, 9, 5	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 10°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters:
Air Temp. (°C): 12°C	D.O. (%):	TDS (ppm):	
Time Taken: 1:05	Conductivity (µs/cm):		
Location Taken: Railway			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north (d/s)		
#2	south (u/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* slow flow north.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: R28
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct 27
Time Started: 11:40
Time Finished: 12:00
Site Location:
GPS Datum: NAD 83 **Easting:** 415598
Zone: NT **Northing:** 4692356
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 4 **Cloud Cover (%):** 0
Precipitation: 0

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)		
	Extent of Natural Vegetation (m)		0-10	10 to 20	20 to 30	30+
	Vegetation Type:	Tree (Mixed) Herbaceous (Golden Rod) Grass				
Riparian Zone	Flood Plain - extent of frequent flood (m):		0-10	10 to 20	20 to 30	30+
	Vegetation Type:	Herbaceous (Golden Rod) Grass				
	Vegetation Density (HML):					
Canopy	Type: Tree	Quality and % shade: Poor - 10%				
Land Use	Agriculture / Residential					
Other Notes	(groundwater, soils, pools, vegetation, etc.)					

CHANNEL MORPHOLOGY

Channel Width (range (m)):	0.5m - 1.5m	Gradient (H/M/L):	
Bank Height (range (m)):	3m high water @ 2m	Meander/Straight:	
Bank Slope (degrees from surface of water):	35	Bank Stability:	Good
Bank Vegetation Type:	Herbaceous (Golden Rod) Grass	Bank Veg. Density (H/M/L):	

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

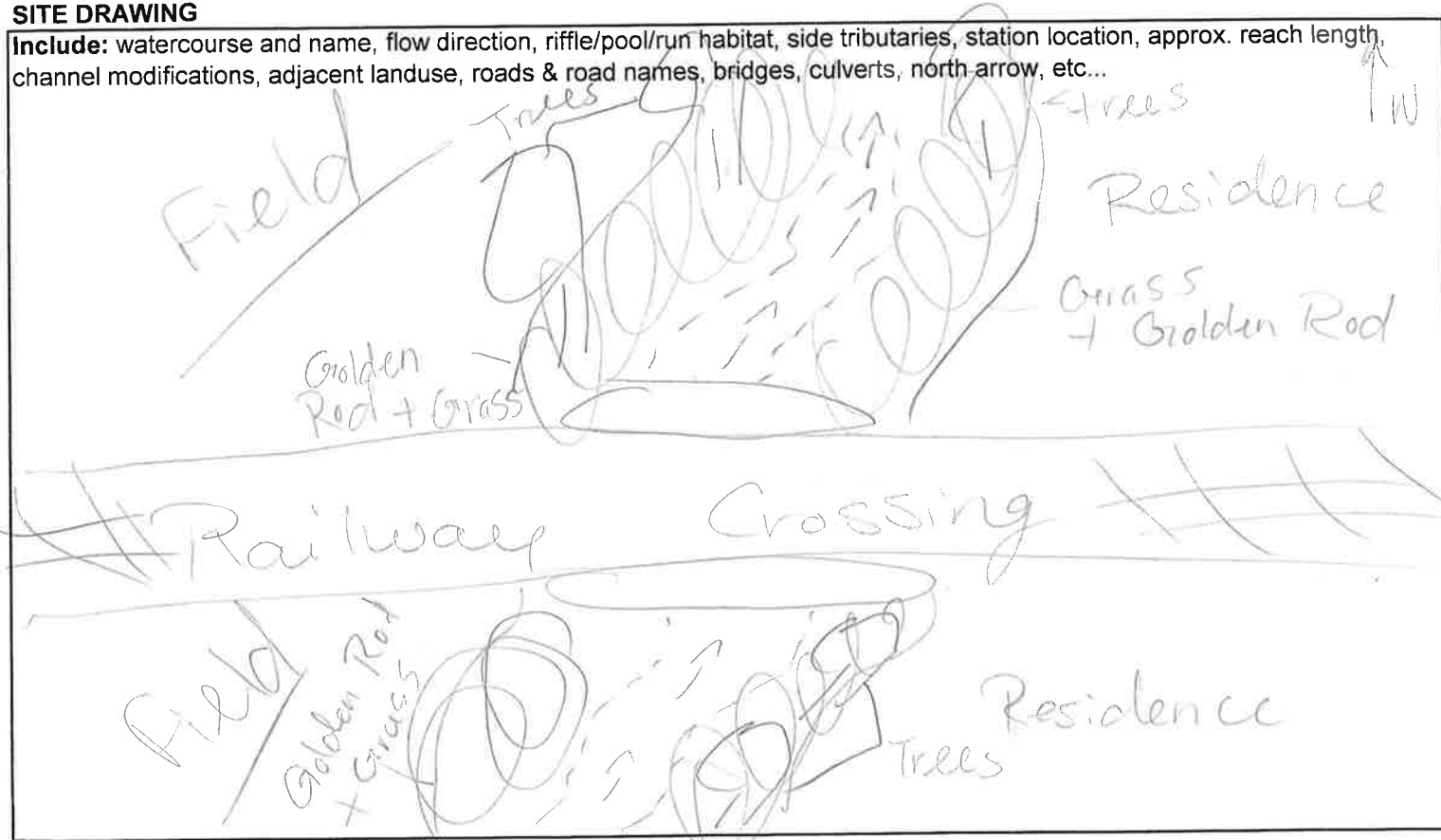
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	.89	2, 5, 8, 6, 3	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	10°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Slow flow north
Air Temp. (°C):	12°C	D.O. (%):	TDS (ppm):	
Time Taken:	11:50	Conductivity (µs/cm):		
Location Taken:	In Stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north (d/s)		
#2	south (u/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* green frogs seen
* raccoon tracks observed.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S Murray
Station: B11
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct. 27 '10
Time Started: 12:32
Time Finished: 13:07
Site Location:
GPS Datum: NAD83 **Easting:** 412698
Zone: 17T **Northing:** 4690262
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 4 **Cloud Cover (%):** 0
Precipitation: 0

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)	
	Extent of Natural Vegetation (m)		0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Trees (Mixed) Herbaceous (Golden Rod) Grass			
Riparian Zone	Flood Plain - extent of frequent flood (m):		0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Herbaceous (Golden Rod) Grass			
	Vegetation Density (HML):				
Canopy	Type:	Tree Herbaceous		Quality and % shade:	Ground 50%
Land Use	Agricultural				
Other Notes	(groundwater, soils, pools, vegetation, etc.)				

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.5 - 4m **Gradient (H/M/L):**
Bank Height (range (m)): 5m high water @ 3m **Meander/Straight:**
Bank Slope (degrees from surface of water): **Bank Stability:** Good
Bank Vegetation Type: Herbaceous, Grass **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input checked="" type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None.		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

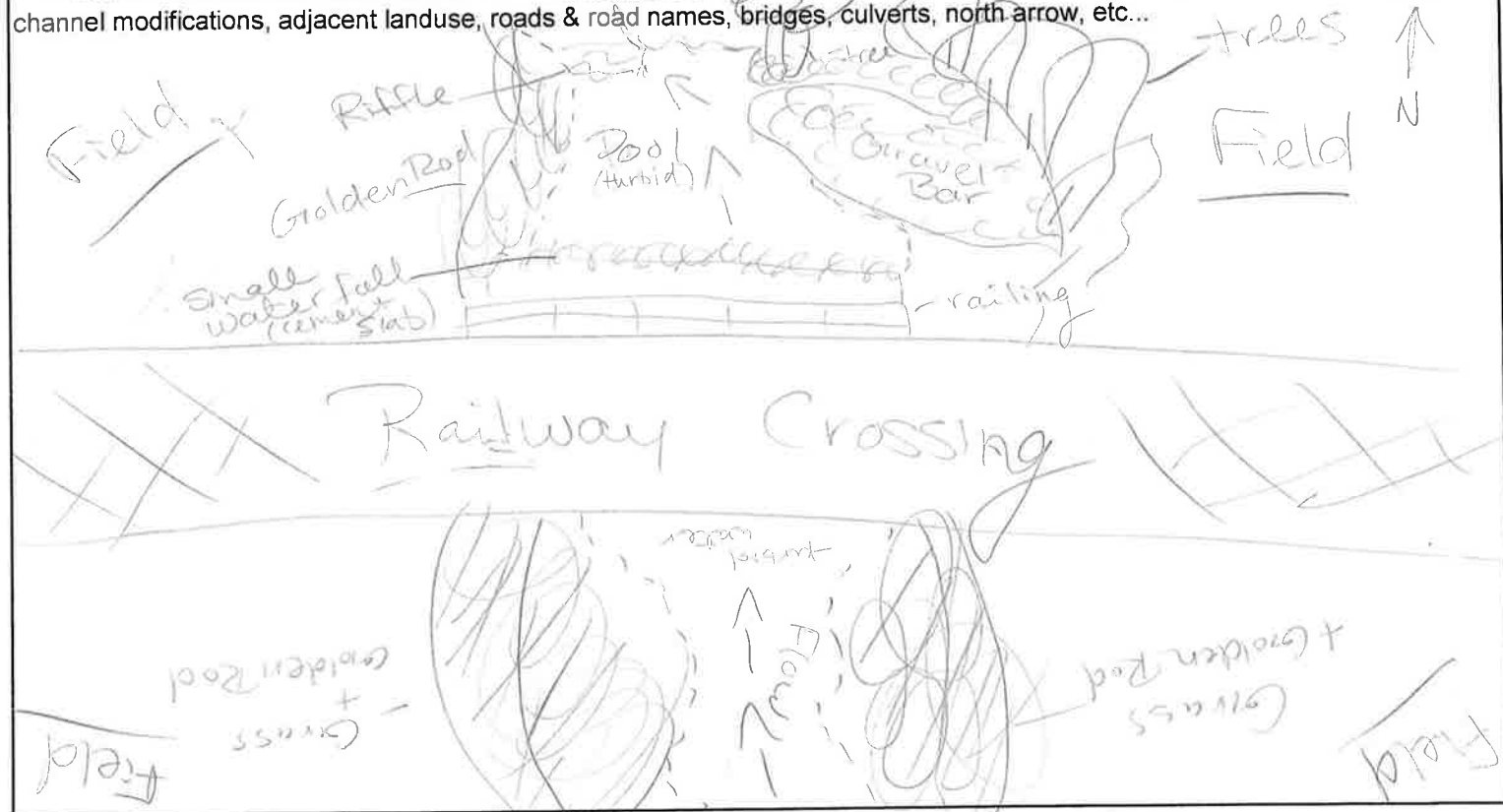
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	6.8	2, 3, 5, 4, 1	Riffle
2			
3			hydraulic head of 2 cm
4			
5			

WATER QUALITY

Water Temp. (°C): 10°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Flows is north water is turbid
Air Temp. (°C): 14°C	D.O. (%):	TDS (ppm):	
Time Taken: 17:50	Conductivity (µs/cm):		
Location Taken: In Stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
	#1 - north (d/s)		
	#2 - south (u/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * cyprinids seen
- * raccoon tracks observed



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: RR13
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct 28 '10
Time Started:
Time Finished:
Site Location:
GPS Datum: NAD83 **Easting:**
Zone: 17 T **Northing:**
Municipality: Chatham/Kent
Lot & Concession:
Weather Conditions:
Wind: 5 **Cloud Cover (%):** 0
Precipitation: 0

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Tree - (Mixed) Shrub (Hawthorn) Grass		
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Shrub (Hawthorn) Herbaceous (Golden Rod) Grass		
	Vegetation Density (HML):			
Canopy	Type: Tree, Shrub, Herbaceous	Quality and % shade: Good 50%		
Land Use	Agriculture / Residential			
Other Notes	(groundwater, soils, pools, vegetation, etc.)			

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 4 m	Gradient (H/M/L):
Bank Height (range (m)): 3m high water @ 2m	Meander/Straight:
Bank Slope (degrees from surface of water): 135	Bank Stability: Good
Bank Vegetation Type: Shrub, Herbaceous, Grass	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input checked="" type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

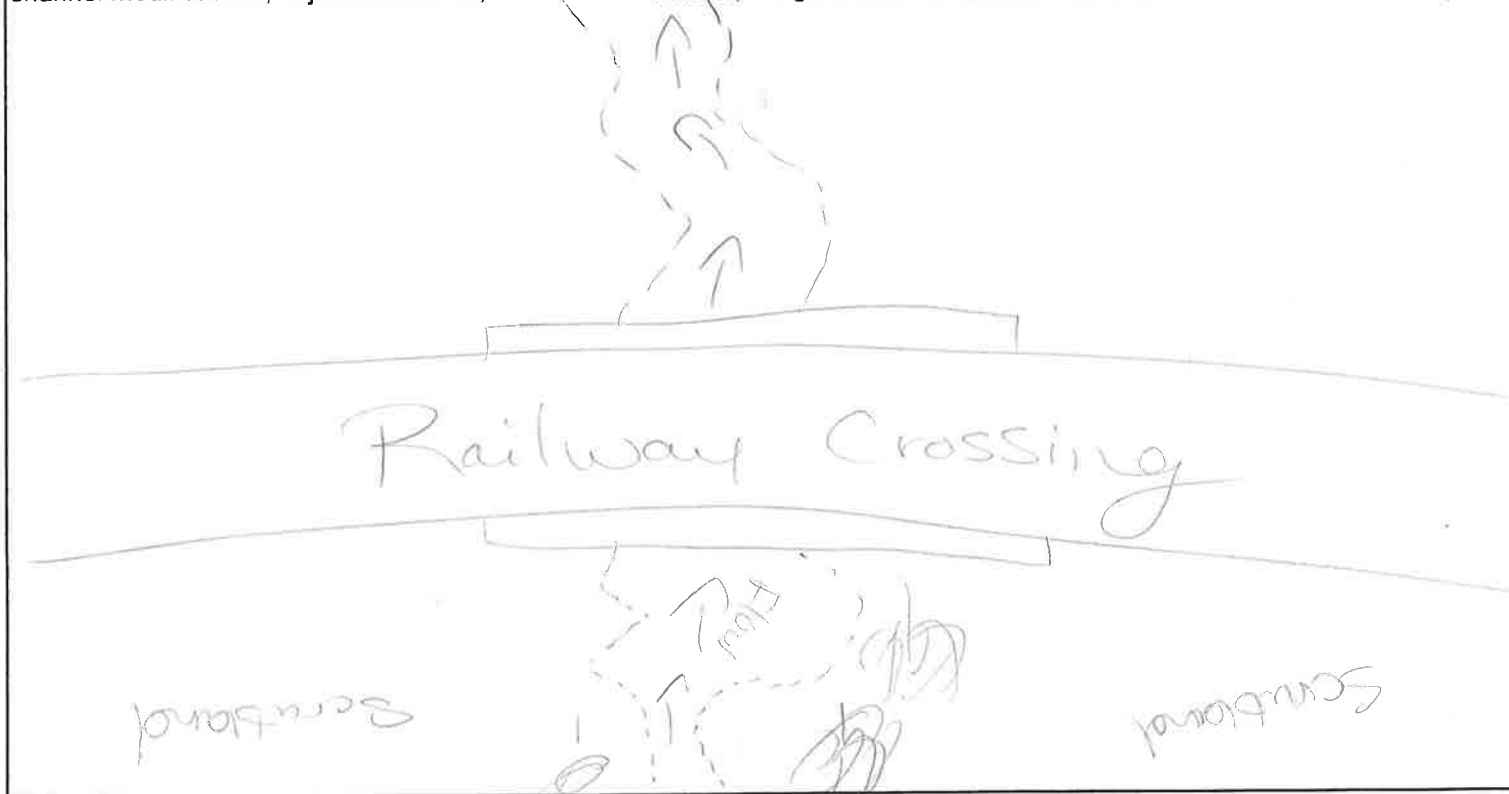
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.92	3, 6, 11, 12, 4	Run
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 9°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters:
Air Temp. (°C): 5°C	D.O. (%):	TDS (ppm):	
Time Taken: 8:10	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
	#1 - north = d/s		
	#2 - south = u/s		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 1184 South Kent
Field Staff: B. Murray
Station: RR14
Waterbody:
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct. 28/10
Time Started:
Time Finished:

Site Location:
GPS Datum: NAD83 **Easting:**
Zone: 17T **Northing:**
Municipality: Chatham
Lot & Concession:

Weather Conditions:
Wind: 5 **Cloud Cover (%):** 0
Precipitation: 0

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)	
	Extent of Natural Vegetation (m)		0-10	10 to 20	25-20 to 30 30+
	Vegetation Type:	Trees (Mixed) Herbaceous (Golden Rod) Grass			
Riparian Zone	Flood Plain - extent of frequent flood (m):		0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Herbaceous (Golden Rod) Grass			
	Vegetation Density (HML):				
Canopy	Type: Tree	Quality and % shade: Poor 40%			
Land Use	Agriculture / Residential				
Other Notes	(groundwater, soils, pools, vegetation, etc.)				

CHANNEL MORPHOLOGY

Channel Width (range (m)): .5 - 1m
Bank Height (range (m)): 4m high water @ 2m
Bank Slope (degrees from surface of water): 35
Bank Vegetation Type: Herbaceous, Grass

Gradient (H/M/L):
Meander/Straight:
Bank Stability: Good
Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: ✓	Gravel: ✓	Boulder: ✓	Muck: ✓
Silt: ✓	Pebble: ✓	Bedrock: ✓	Detritus: ✓
Sand: ✓	Cobble: ✓	Marl: ✓	Other: ✓

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock: ✓
Riffles: ✓	Woody Debris: ✓	Cobble: ✓
Backwater: ✓	Vegetation: ✓	Other: ✓

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None.		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

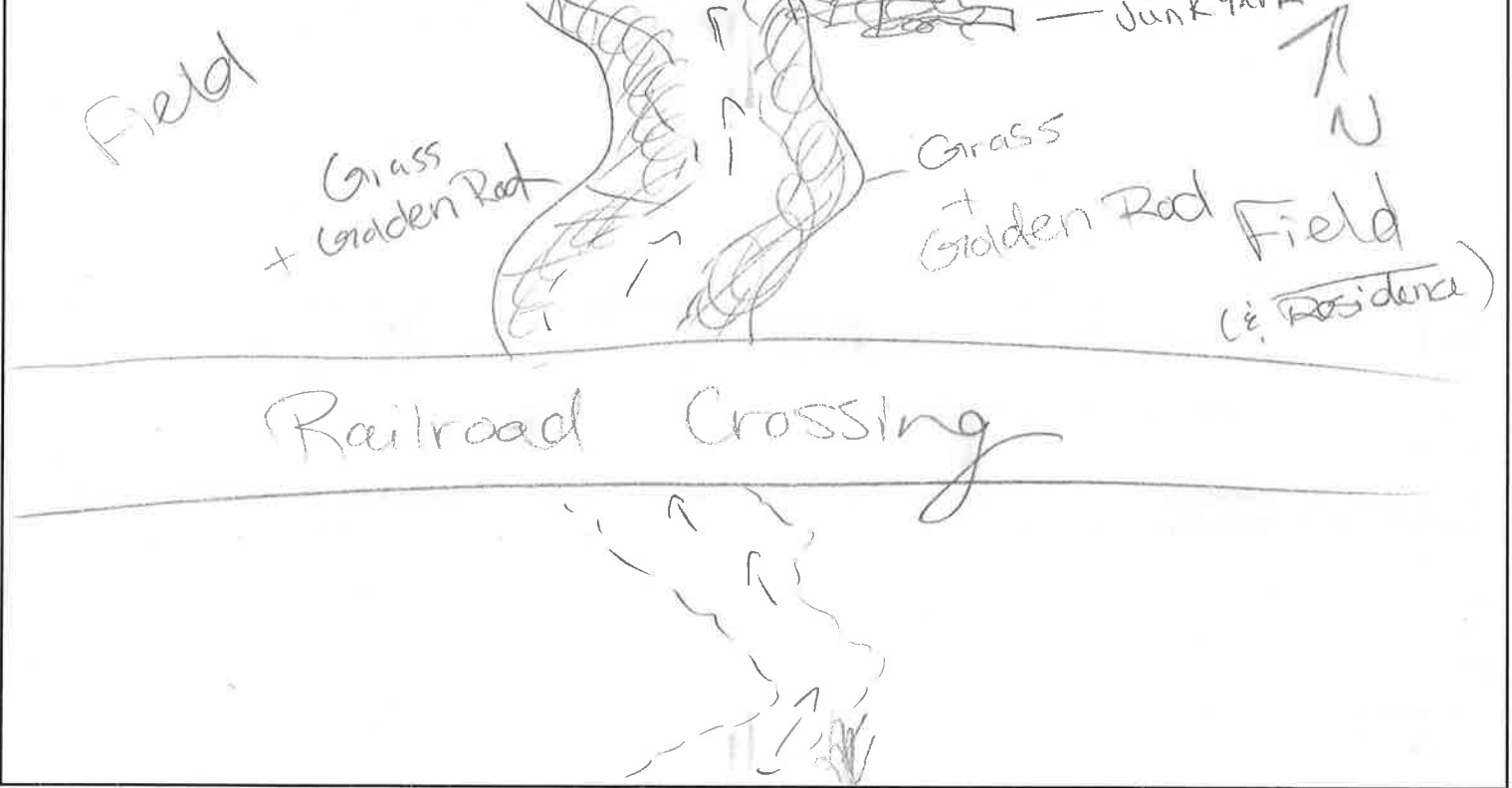
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	0.86	2, 4, 5, 5, 6,	Run
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 9°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: flow is towards North.
Air Temp. (°C): 5°C	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
	#1 - north (d/s)		
	#2 - south (u/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: R23
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct. 28 '10
Time Started:
Time Finished:

Site Location:
GPS Datum: NAD 83 **Easting:**
Zone: 17T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:

Weather Conditions:
Wind: 4 **Cloud Cover (%):** 100%
Precipitation: 0

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)	
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Tree (Mixed) Herbaceous (Golden Rod) Grass			
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Herbaceous (Golden Rod) Grass			
	Vegetation Density (HML):				
Canopy	Type: Tree, Shrub	Quality and % shade: Excellent 75%			
Land Use	Agriculture				
Other Notes	(groundwater, soils, pools, vegetation, etc.)				

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5-2m	Gradient (H/M/L):
Bank Height (range (m)): 5m high water @ 4m	Meander/Straight:
Bank Slope (degrees from surface of water):	Bank Stability: Good
Bank Vegetation Type: Herbaceous, grass	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input checked="" type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/> (lots)
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

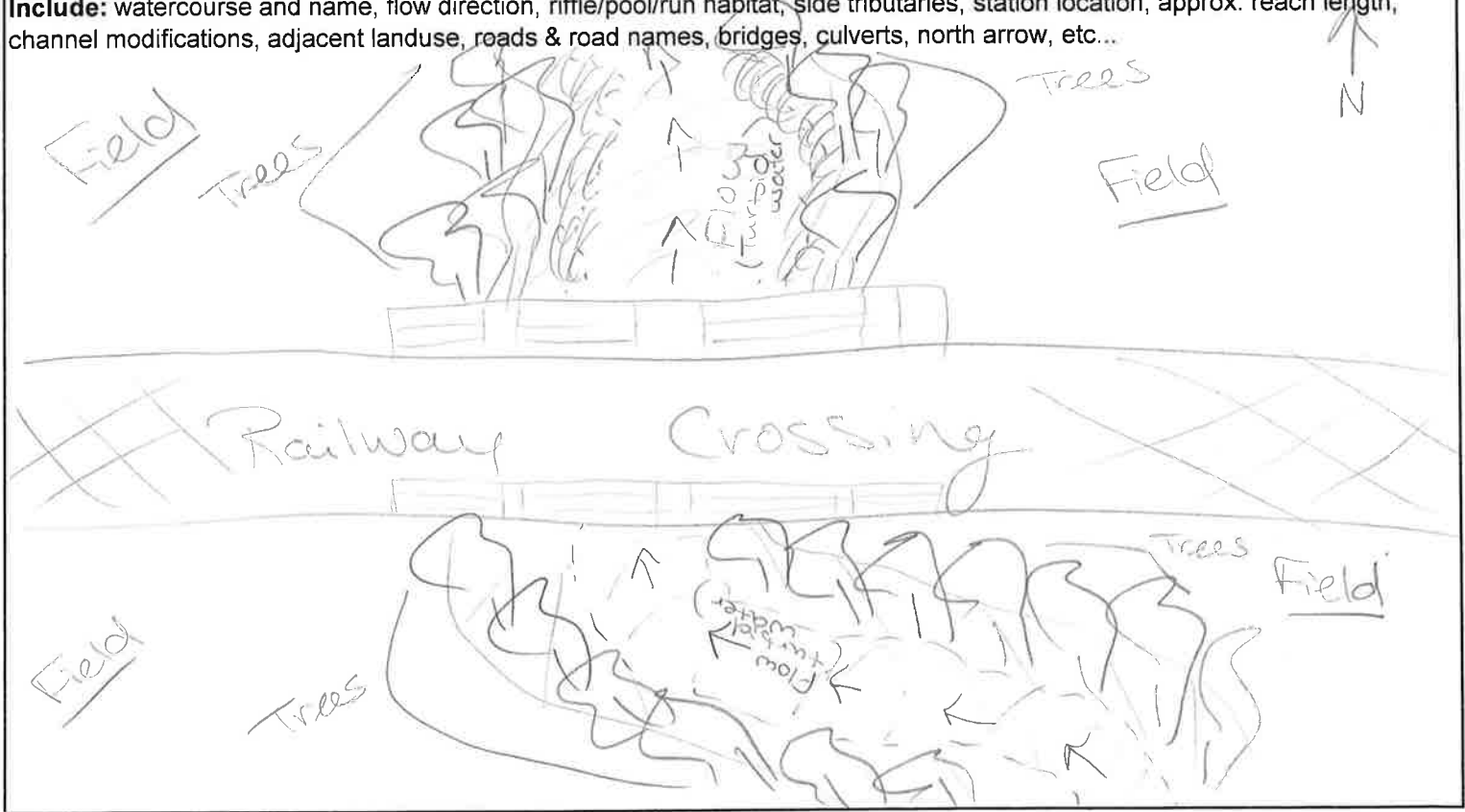
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.19	3, 5, 9, 10, 7	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 9°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters:
Air Temp. (°C): 6°C	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north (d/s) 149 on camera		
#2	south (u/s) 150 on camera		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: RR 24

Waterbody: unknown

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: Oct. 28 '10

Time Started:

Time Finished:

Site Location:

GPS Datum: NAD 83

Easting:

Zone: 17 T

Northing:

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind: 4

Precipitation: 0

Cloud Cover (%): 100%

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)
	Extent of Natural Vegetation (m)	0-10	10 to 20	25- 20 to 30 30+
	Vegetation Type:	Tree (Mixed) Shrub (Mixed) Herbaceous (Golden Rod) Grass		
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Herbaceous (Golden Rod) Grass		
	Vegetation Density (HML):			
Canopy	Type: Tree Shrub	Quality and % shade: Excellent 75%		
Land Use	Agriculture.			
Other Notes	(groundwater, soils, pools, vegetation, etc.)			

CHANNEL MORPHOLOGY

Channel Width (range (m)): 3m	Gradient (H/M/L):
Bank Height (range (m)): 4m high water @ 3m	Meander/Straight:
Bank Slope (degrees from surface of water):	Bank Stability: Good
Bank Vegetation Type: Herbaceous, Grass	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input checked="" type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

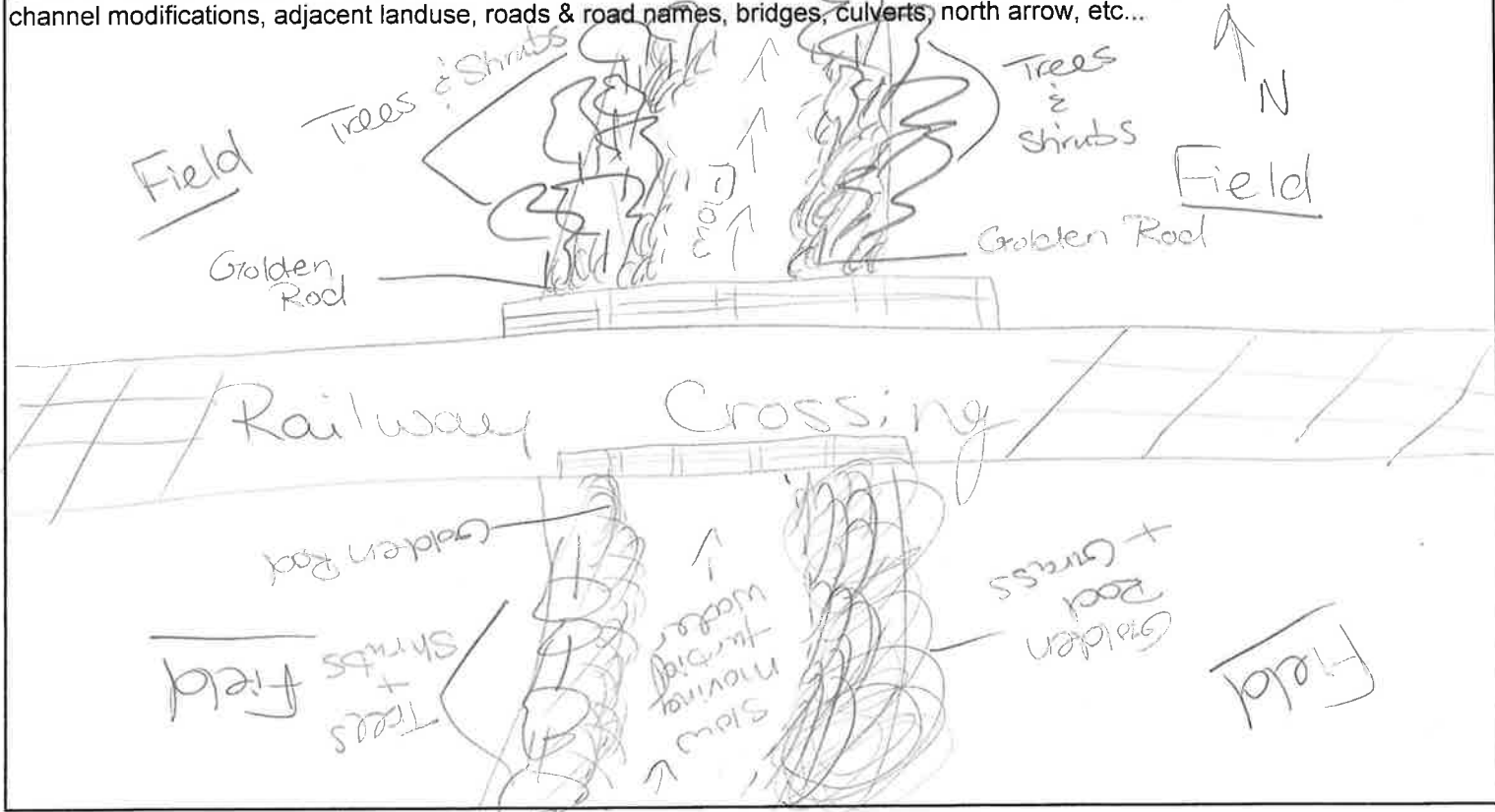
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.95	7, 9, 13, 15, 8	Run
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 9°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Slow flow north (turbid)
Air Temp. (°C): 6°C	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north (d/s) 151		
#2	South (u/s) 152		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 1184 South Kent	
Field Staff: S. Murray	
Station: RR25	Site Location:
Waterbody: unknown	GPS Datum: NAD83 Easting:
Drainage System:	Zone: 17T Northing:
Location in System:	Municipality: Chatham/Kent
Appr. Reach Length (m):	Lot & Concession:
Survey Date: Oct. 28'10	Weather Conditions:
Time Started:	Wind: 4 Cloud Cover (%): 100%
Time Finished:	Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 15 20 to 30 30+
	Vegetation Type: Tree (Mixed) Shrubs (Sumac) Herbaceous (Golden Rod) Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous (Golden Rod) Grass
	Vegetation Density (H/M/L):
Canopy	Type: Tree, Shrubs, Herbaceous Quality and % shade: Poor 20%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): .5m - 2m	Gradient (H/M/L):
Bank Height (range (m)): 3m high water @ 2.5m	Meander/Straight:
Bank Slope (degrees from surface of water):	Bank Stability: Good
Bank Vegetation Type:	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Duckweed	Some in packets

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

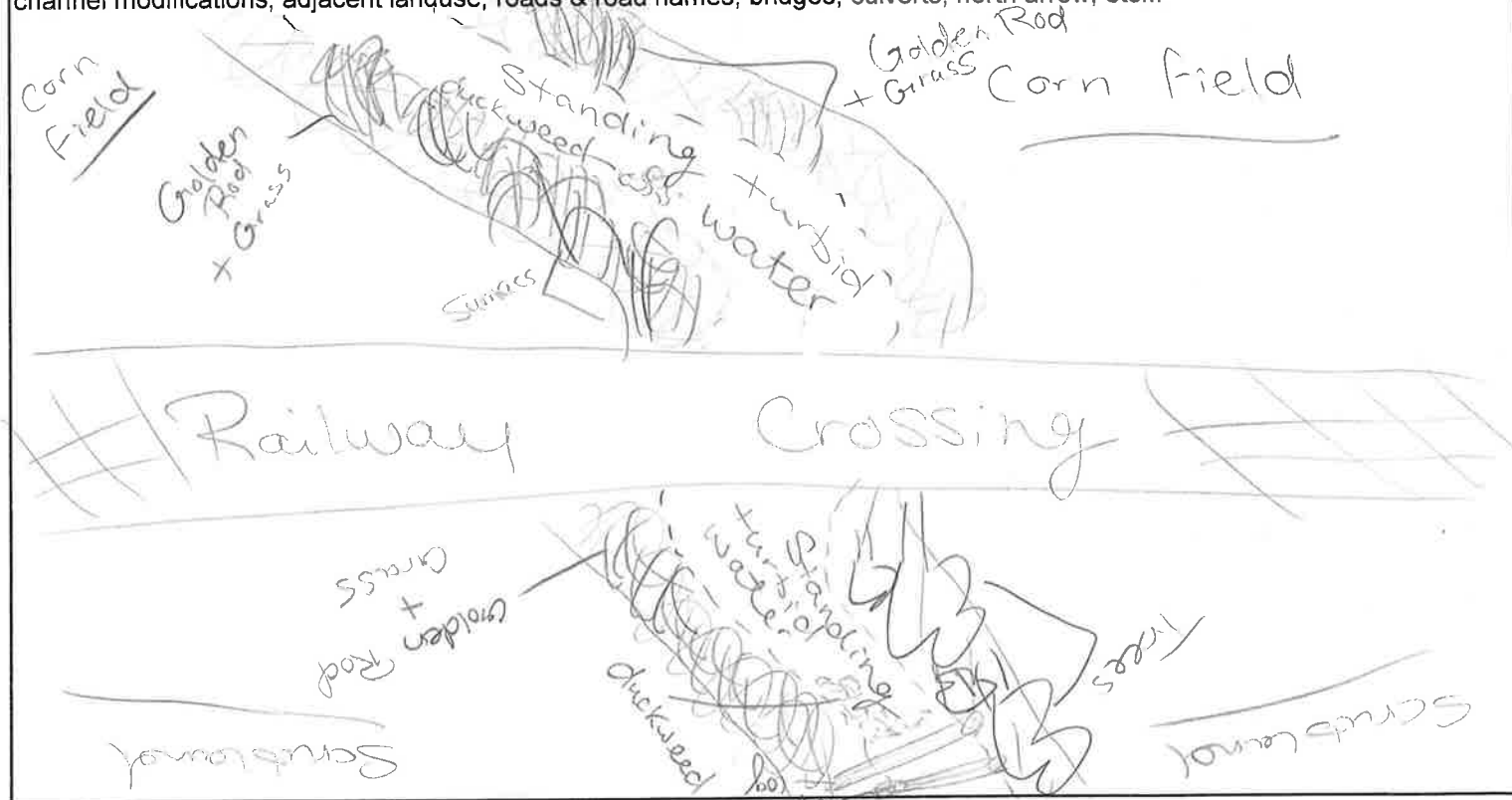
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.42	5, 9, 12, 8, 4	Run
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 9°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Slow flow north (Water turbid)
Air Temp. (°C): 7°C	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north (153 on camera)		
#2	south (154 on camera)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 1184 South Kent
Field Staff: S Murray
Station: RR27
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct 28/10
Time Started:
Time Finished:

Site Location:
GPS Datum: NAD83 **Easting:**
Zone: 17T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:

Weather Conditions:
Wind: 4 **Cloud Cover (%):** 0
Precipitation: 0

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)			
	Extent of Natural Vegetation (m)		0-10	10 to 20	18	20 to 30	30+
	Vegetation Type:	Tree (Mixed) Shrub (Mixed) Herbaceous (Golden Rod) Grass					
Riparian Zone	Flood Plain - extent of frequent flood (m):		0-10	10 to 20	20 to 30	30+	
	Vegetation Type:	Herbaceous (Golden Rod) Grass					
	Vegetation Density (HML):						
Canopy	Type:	Tree, Shrub		Quality and % shade:	Poor 20%		
Land Use	Agriculture						
Other Notes	(groundwater, soils, pools, vegetation, etc.)						

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1m **Gradient (H/M/L):**
Bank Height (range (m)): 3.5m high water @ 2m **Meander/Straight:**
Bank Slope (degrees from surface of water): 35 **Bank Stability:** Good
Bank Vegetation Type: Herbaceous (Golden Rod) Grasses **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input checked="" type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

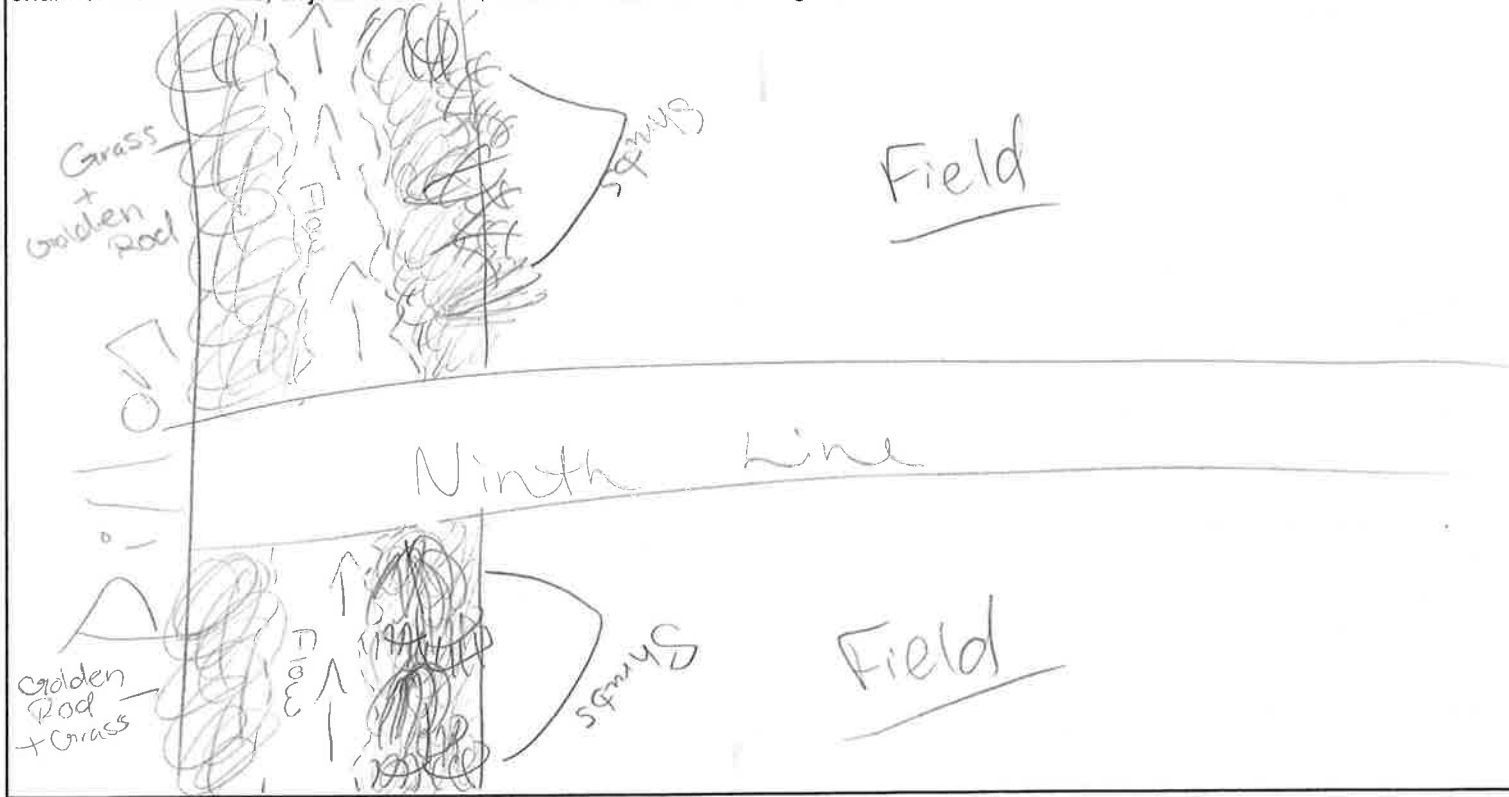
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	0.98	2, 5, 6, 4, 2	Run
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 9°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters:
Air Temp. (°C): 8°C	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North (d/s)		
#2	South (u/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* Ayriniads seen.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: RR28
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct. 28 '10
Time Started:
Time Finished:

Site Location:
GPS Datum: NAD 83 **Easting:**
Zone: 17T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:

Weather Conditions:
Wind: 4 **Cloud Cover (%):** 100
Precipitation: 0

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Tree (Mixed)	Shrub (Mixed)	
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Herbaceous (Golden Rod)	Shrub (Mixed)	
		Grass		
	Vegetation Density (HML):			
Canopy	Type:	Tree, Shrub	Quality and % shade: Excellent 75%	
Land Use	Agriculture			
Other Notes	(groundwater, soils, pools, vegetation, etc.)			

CHANNEL MORPHOLOGY

Channel Width (range (m)): 2m
Bank Height (range (m)): 3.5m high water @ 2.5m
Bank Slope (degrees from surface of water): 135
Bank Vegetation Type:

Gradient (H/M/L):
Meander/Straight:
Bank Stability: Good
Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input checked="" type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

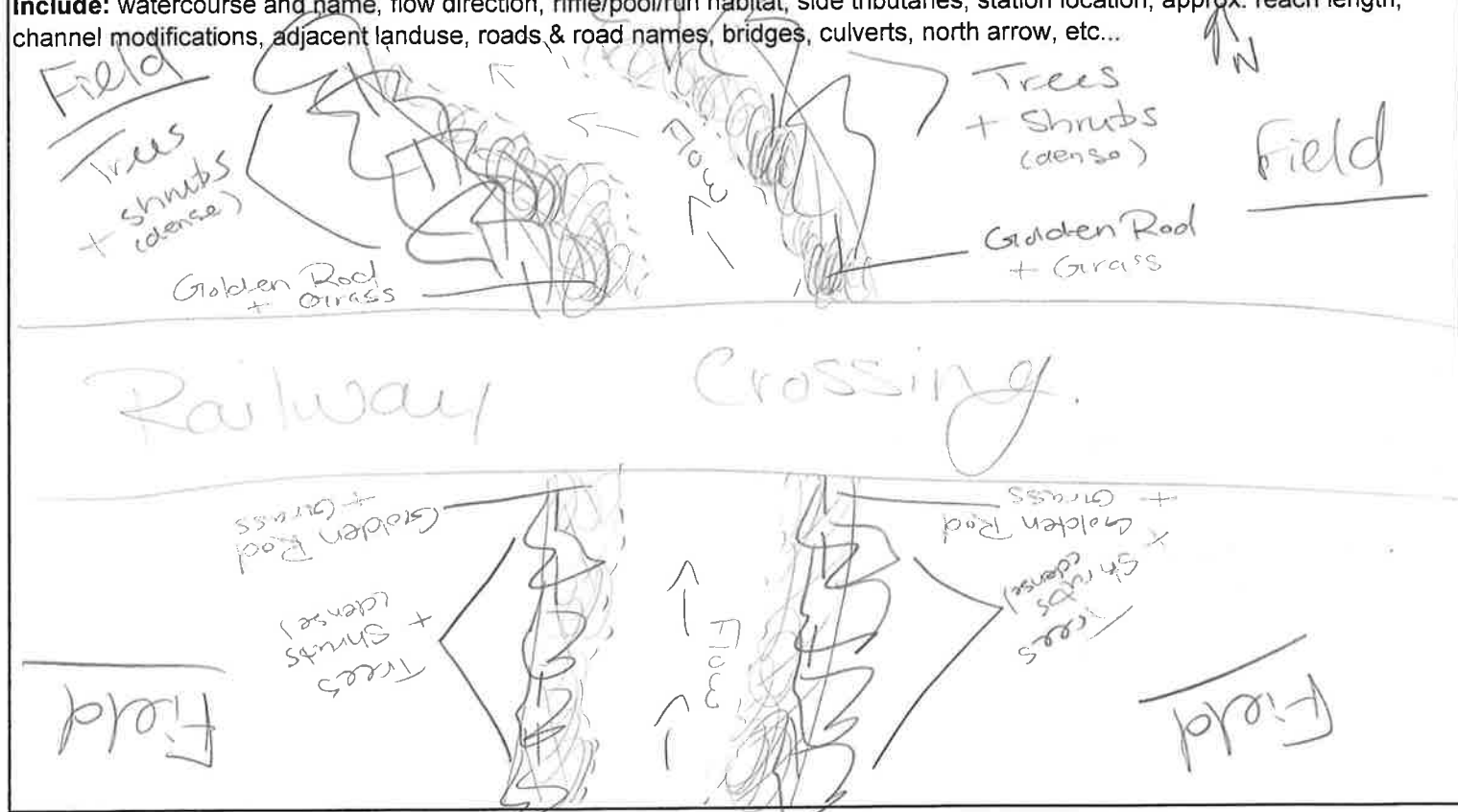
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.08	2, 6, 12, 8, 4	Run
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 9.0	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters:
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north (dis) 159		
#2	south (WS) 160		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: RR29
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct. 28'10
Weather Conditions:
Time Started:
Time Finished:
Site Location:
GPS Datum: NAD83 **Easting:**
Zone: 17 T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:
Wind: 4 **Cloud Cover (%):** 100%
Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree (Mixed) Herbaceous (Golden Rod) Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Tree (Mixed)
	Vegetation Density (H/M/L):
Canopy	Type: Tree Quality and % shade: Excellent 85%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 2.5 **Gradient (H/M/L):**
Bank Height (range (m)): 3m high water @ 2m **Meander/Straight:**
Bank Slope (degrees from surface of water): 135 **Bank Stability:** Good
Bank Vegetation Type: Tree, Grass **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

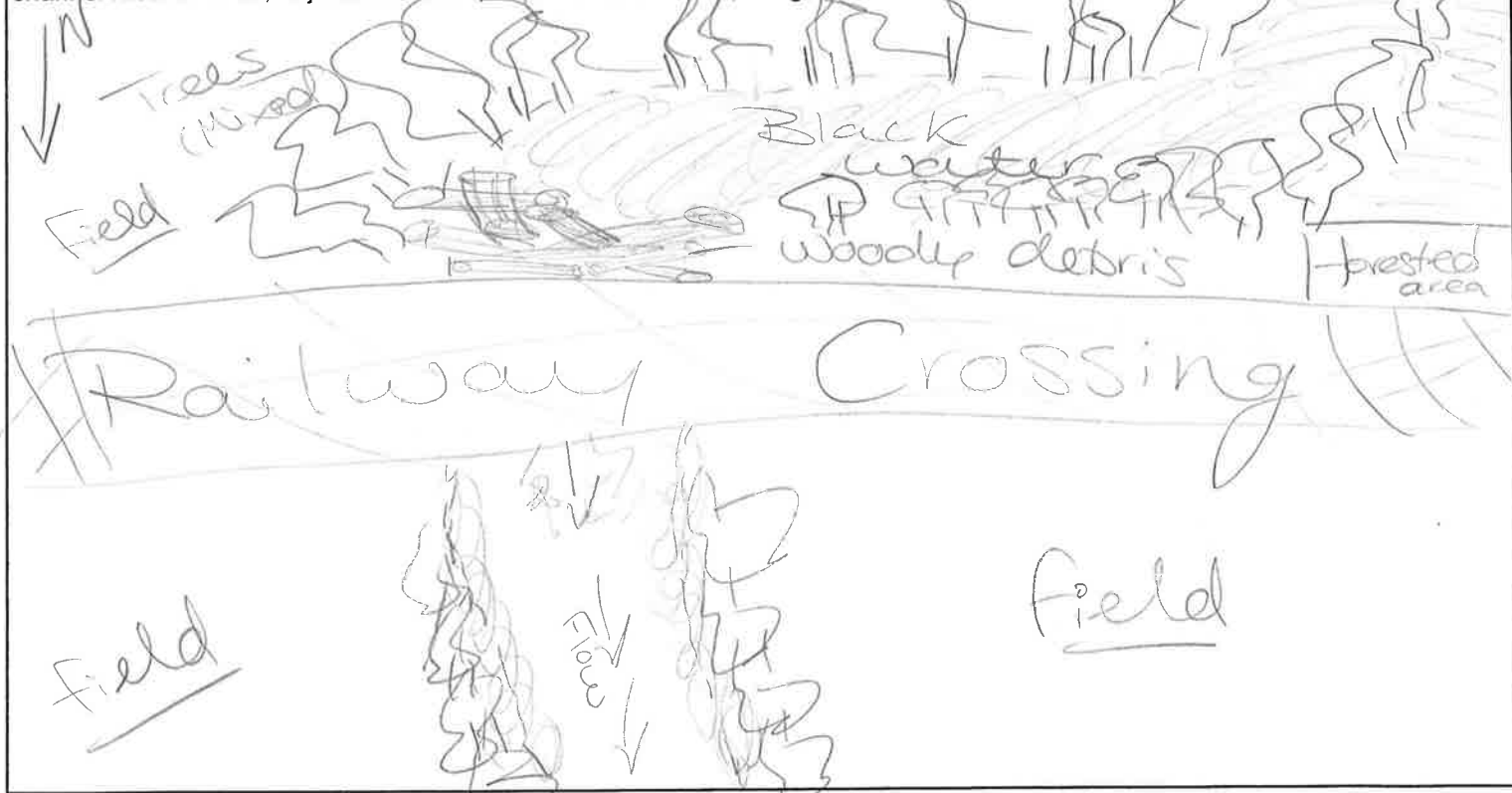
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.36	5, 6, 10, 7, 4	Pool
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 9°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Standing water (water goes black) (on north side)
Air Temp. (°C): 7°C	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North (d/s)		
#2	South (u/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * did drawing facing South.
- * water was black on the south side of the railway.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: RR 35
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Oct. 29, 10
Time Started: 8:35
Time Finished: 9:15
Site Location:
GPS Datum: NAD83 **Easting:** 422077
Zone: 17T **Northing:** 4697001
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 3 **Cloud Cover (%):** 100%
Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree (Mixed) Shrubs (Mixed) Herbaceous (Golden Rod) Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Shrub (Mixed) Herbaceous (Golden Rod) Grass
	Vegetation Density (HML):
Canopy	Type: Tree, Shrub Quality and % shade: Good 65%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 5-10m
Bank Height (range (m)): 5m high water @ 3m
Bank Slope (degrees from surface of water):
Bank Vegetation Type: Herbaceous, Grass, Shrub.
Gradient (H/M/L):
Meander/Straight:
Bank Stability: Good
Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: /	Gravel: /	Boulder: /	Muck: /
Silt: /	Pebble: /	Bedrock: /	Detritus: /
Sand: /	Cobble: /	Marl: /	Other: /

INSTREAM HABITAT AND COVER

Pools: /	Undercut Banks: /	Boulder/Rock: /
Riffles: /	Woody Debris: /	Cobble: /
Backwater: /	Vegetation: /	Other: /

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Phragmites	Small amount to the left & above drain on north side

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.11	3, 5, 9, 6, 2	Run
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 7°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Slow flow north
Air Temp. (°C): 5°C	D.O. (%):	TDS (ppm):	
Time Taken: 9:05	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north (dis)		
#2	south (u/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* filamentous algae
*



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: AR7

Waterbody: unknown

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: Nov. 16/10

Time Started: 16:02

Time Finished: 16:10

Site Location:

GPS Datum: NAD83 **Easting:** 283223

Zone: 17 T **Northing:** 4675204

Municipality: Chatham Kent

Lot & Concession:

Weather Conditions:

Wind: 2 **Cloud Cover (%):** 100%

Precipitation: light rain

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Grass Herbaceous - Golden Rod, Teasel		
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+
	Vegetation Type:			
	Vegetation Density (HML):			
Canopy	Type:	Phragmites, Herbaceous		Quality and % shade: Poor 15%
Land Use	Agriculture / Residential			
Other Notes	(groundwater, soils, pools, vegetation, etc.)			

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 1.5 m

Bank Height (range (m)): 3m high water @

Bank Slope (degrees from surface of water):

Bank Vegetation Type:

Gradient (H/M/L):

Meander/Straight:

Bank Stability:

Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input type="checkbox"/>	Bedrock: <input type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>	Marl: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input checked="" type="checkbox"/> - Phragmites	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Phragmites	

CODES:

AHP Aquatic Habitat Point	SWI Surface Water Input	SCS Stream Cross Section
AHY Aquatic Habitat Area	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
TMP Temp Monitor Stn	CKC Creek Crossing	VSS Visual Survey Stn
FLW Flow Monitor Stn	WEL Well	WQS Water Quality Stn
	CUL Culvert	

FLOW CONDITIONS

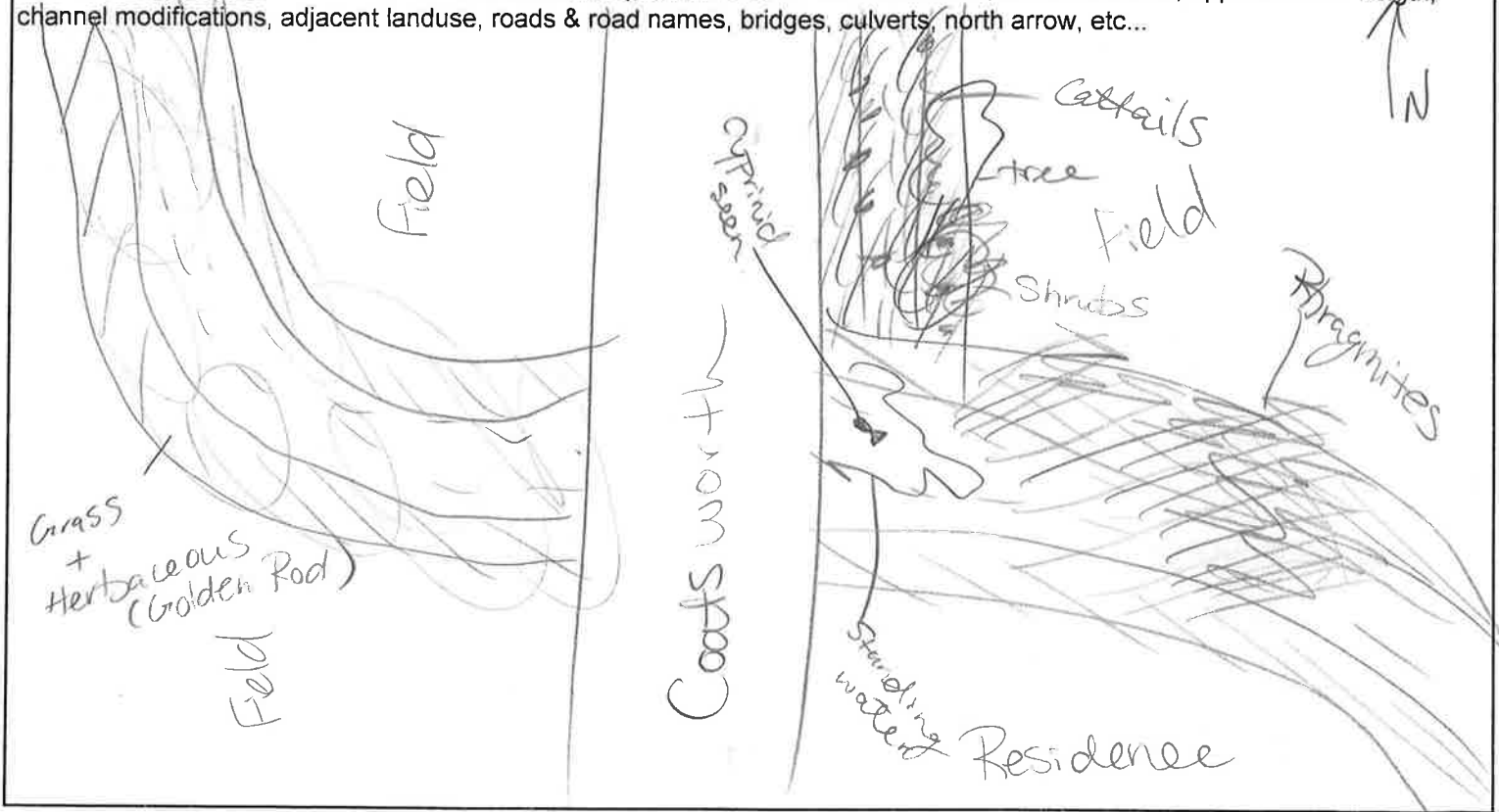
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			Standing water @ culvert
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: standing water @ culvert
Air Temp. (°C): 12°C	D.O. (%):	TDS (ppm):	
Time Taken:	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North west		
#2	South east		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * cyprinid seen
- * raccoon tracks observed



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: AR14
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Nov. 17'10
Time Started: 8:18
Time Finished: 8:35
Site Location:
GPS Datum: NAD 83 **Easting:** 392813
Zone: 17 T **Northing:** 4680886
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 3 **Cloud Cover (%):** 80%
Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 25-30 20 to 30 30+
	Vegetation Type: Tree (Mixed) Shrub (Mixed) Herbaceous (Golden Rod, Teasel) Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Shrub (Mixed), Herbaceous (Golden Rod, Teasel) Grass
	Vegetation Density (HML):
Canopy	Type: Tree, Shrub Quality and % shade: Poor 25%
Land Use	Agriculture / Residential
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): .5-4m avg. 1.5m **Gradient (H/M/L):**
Bank Height (range (m)): 5m high water @ 2.5m **Meander/Straight:**
Bank Slope (degrees from surface of water): 135 **Bank Stability:** Good
Bank Vegetation Type: Shrub (Mixed), Herbaceous (Golden Rod, Teasel) **Bank Veg. Density (H/M/L):**
 Grass

CHANNEL SUBSTRATE %

Clay: <input checked="" type="checkbox"/>	Gravel: <input checked="" type="checkbox"/>	Boulder: <input checked="" type="checkbox"/>	Muck: <input checked="" type="checkbox"/>
Silt: <input checked="" type="checkbox"/>	Pebble: <input checked="" type="checkbox"/>	Bedrock: <input checked="" type="checkbox"/>	Detritus: <input checked="" type="checkbox"/>
Sand: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>	Marl: <input checked="" type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input type="checkbox"/>	Other: <input type="checkbox"/>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	filamentous algae	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.68	5, 9, 12, 8, 3	Riffle
2			
3			Hydraulic Head of 1cm
4			
5			

WATER QUALITY

Water Temp. (°C): 5°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: water is pretty turbid.
Air Temp. (°C): 8°C	D.O. (%):	TDS (ppm):	
Time Taken: 8:25	Conductivity (µs/cm):		
Location Taken: in stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North east (d/s)		
#2	South west (u/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * Kestrel observed up the road from site.
- * no cyprinids observed, but looks like good fish habitat
- * water is turbid (could have had cyprinids but couldn't see because of turbid water)
- * raccoon tracks observed.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: AR15
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Nov. 17'10
Time Started: 8:45
Time Finished: 9:05
Site Location:
GPS Datum: MAD 83 **Easting:** 392721
Zone: 17T **Northing:** 4679794
Municipality: Chatham, Kent
Lot & Concession:
Weather Conditions:
Wind: 3 **Cloud Cover (%):** 30%
Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree (Mixed) Shrub (Mixed) Herbaceous (Golden Rod, Teasel) Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous (Golden Rod) Grass + Teasel
	Vegetation Density (HML):
Canopy	Type: Tree, Shrub Quality and % shade: Poor 15%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 4.5m (Avg. 1m)	Gradient (H/M/L):
Bank Height (range (m)): 3.5m high water @ 2m	Meander/Straight:
Bank Slope (degrees from surface of water): 135	Bank Stability: Good
Bank Vegetation Type: Herbaceous (Golden Rod) Grass (Teasel)	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: 10%	Gravel: 15%	Boulder:	Muck: 10%
Silt: 10%	Pebble: 15%	Bedrock:	Detritus: 5%
Sand: 20%	Cobble: 15%	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock: <input checked="" type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input checked="" type="checkbox"/>	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	filamentous algae	

CODES:

SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well
FLW Flow Monitor Stn	WQS Water Quality Stn
CUL Culvert	

FLOW CONDITIONS

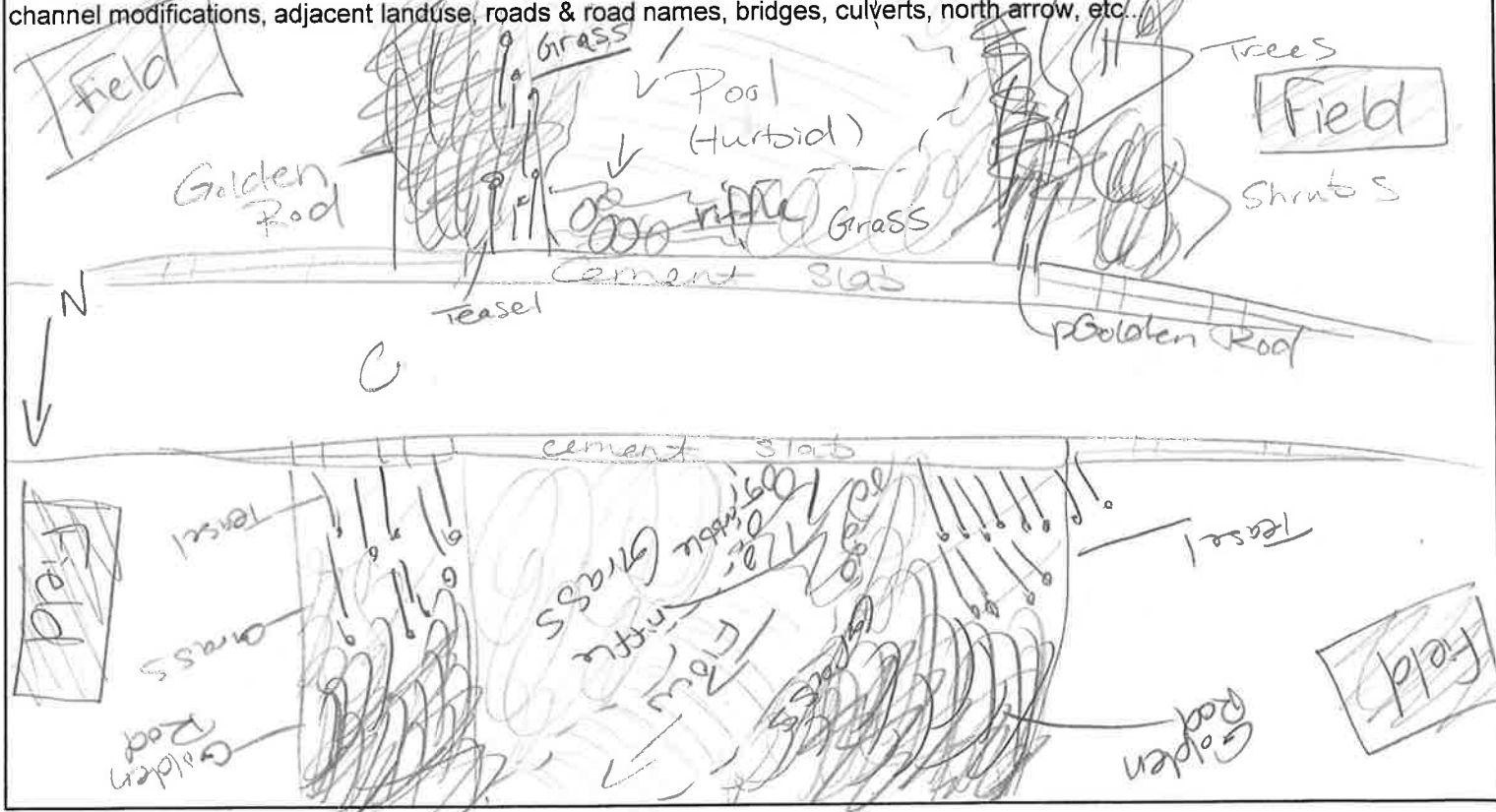
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.17	4, 7, 15, 9, 5	Riffle
2			
3			Hydraulic Head
4			= 2.5 cm
5			

WATER QUALITY

Water Temp. (°C): 5°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: turbid water with a flow north east
Air Temp. (°C): 8°C	D.O. (%):	TDS (ppm):	
Time Taken: 8:55	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc.



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north east (d/s)		
#2	South west (u/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* cyprinids observed
 * raccoon ; great blue heron tracks seen
 (drew picture facing south)



PROJECT (Number & Name): 1184 South Kent
Field Staff: S Murray
Station: HR25
Waterbody:
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Nov. 17 '10
Time Started: 10:45
Time Finished: 11:05
Weather Conditions:
Wind: 3
Precipitation: 0
Site Location:
GPS Datum: NAD 83 **Easting:** 386811
Zone: 17 T **Northing:** 4681240
Municipality: Chatham / Kent
Lot & Concession:

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree-Mixed, Shrub-Mixed Herbaceous - Golden Rod, Teasel Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous - Golden Rod, Teasel Grass
	Vegetation Density (HML):
Canopy	Type: Tree, shrub Quality and % shade: Good 50%
Land Use	Agriculture / Railroad
Other	(groundwater, soils, pools, vegetation, etc.)
Notes	

CHANNEL MORPHOLOGY

Channel Width (range (m)): .5 - 1.5 **Gradient (H/M/L):**
Bank Height (range (m)): 5m **Meander/Straight:**
Bank Slope (degrees from surface of water):
Bank Vegetation Type: Herbaceous (Teasel, Golden Rod) Grass **Bank Stability:** Good
Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: 10%	Gravel: 5%	Boulder:	Muck: 20%
Silt: 10%	Pebble: 5%	Bedrock:	Detritus: 10%
Sand: 20%	Cobble: 20%	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: **Undercut Banks:** **Boulder/Rock:**
Riffles: **Woody Debris:** **Cobble:**
Backwater: **Vegetation:** Phragmites **Other:**

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Phragmites	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

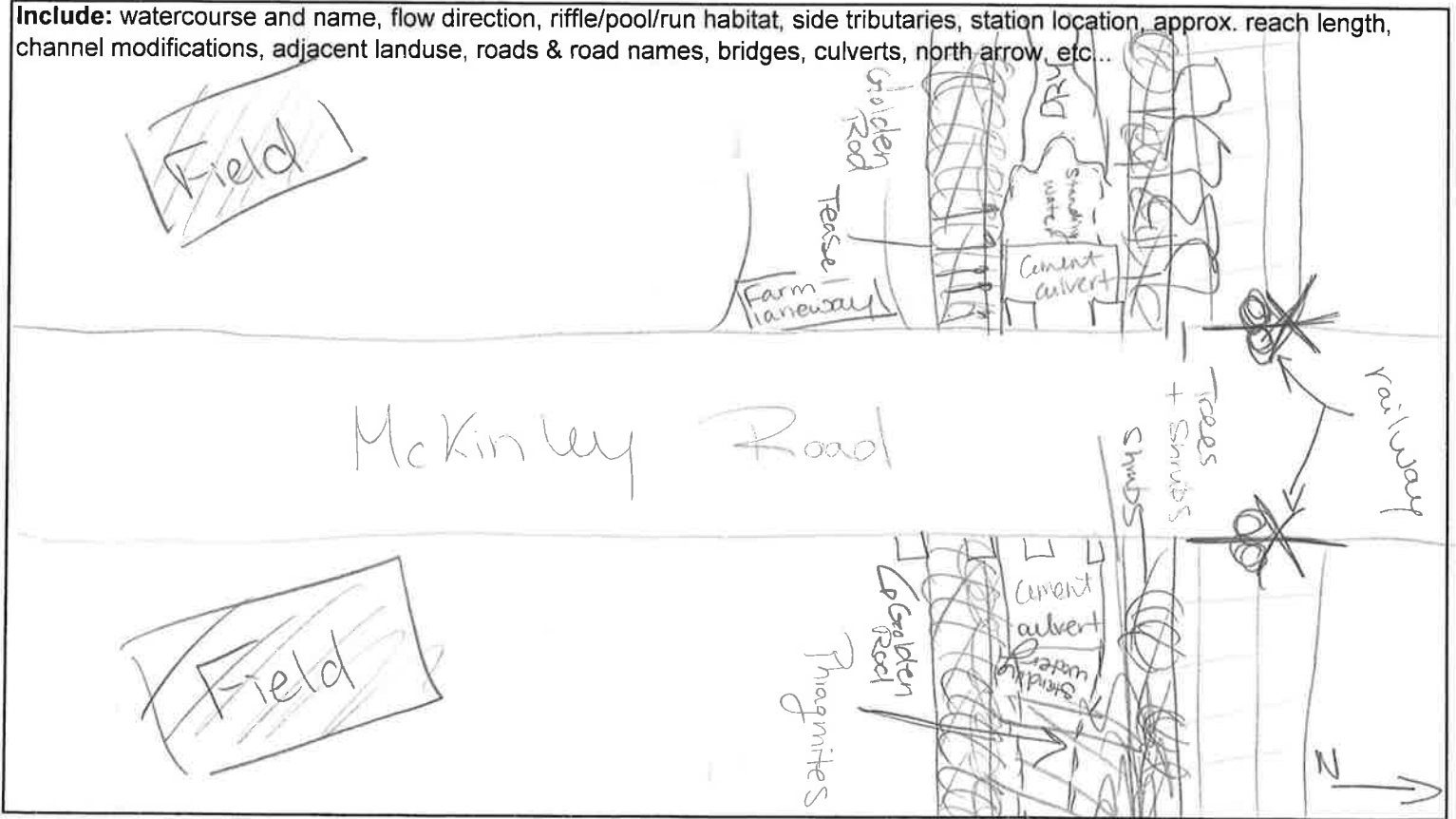
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.92	7, 10, 14, 15, 9	Standing water
2			@ culvert
3			(turbid)
4			* taken on east side
5			

WATER QUALITY

Water Temp. (°C): 6°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: standing water @ culvert, very turbid
Air Temp. (°C): 10°C	D.O. (%):	TDS (ppm):	
Time Taken: 10:50	Conductivity (µs/cm):		
Location Taken: In stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	east		
#2	west		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* channel had standing turbid water, water was mostly on east side, with water just under 1/2 surrounding culvert on west side.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S Murray
Station: AR 26
Waterbody:
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Nov. 17 '10
Time Started: 11:30
Time Finished: 11:45
Site Location:
GPS Datum: NAD 83 **Easting:**
Zone: 17 T **Northing:**
Municipality: Chatham / Kent
Lot & Concession:
Weather Conditions:
Wind: 4 **Cloud Cover (%):** 0%
Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Grass Shrub (Mixed)
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous (Golden Rod & Teasel) Grass
	Vegetation Density (H/M/L):
Canopy	Type: Shrub, Herbaceous Quality and % shade: Poor 5%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.) right beside Drake Road.

CHANNEL MORPHOLOGY

Channel Width (range (m)): .5 - 3.5m (Avg 2m)	Gradient (H/M/L):
Bank Height (range (m)): 4m high water @ 2.5	Meander/Straight:
Bank Slope (degrees from surface of water): 135	Bank Stability: Good
Bank Vegetation Type: Herbaceous (Golden Rod, Teasel) Grass	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: 20%	Gravel: 5%	Boulder:	Muck: 20%
Silt: 20%	Pebble: 5%	Bedrock:	Detritus: 5%
Sand: 20%	Cobble: 5%	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles: ✓	Woody Debris: ✓	Cobble: ✓
Backwater: ✓	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

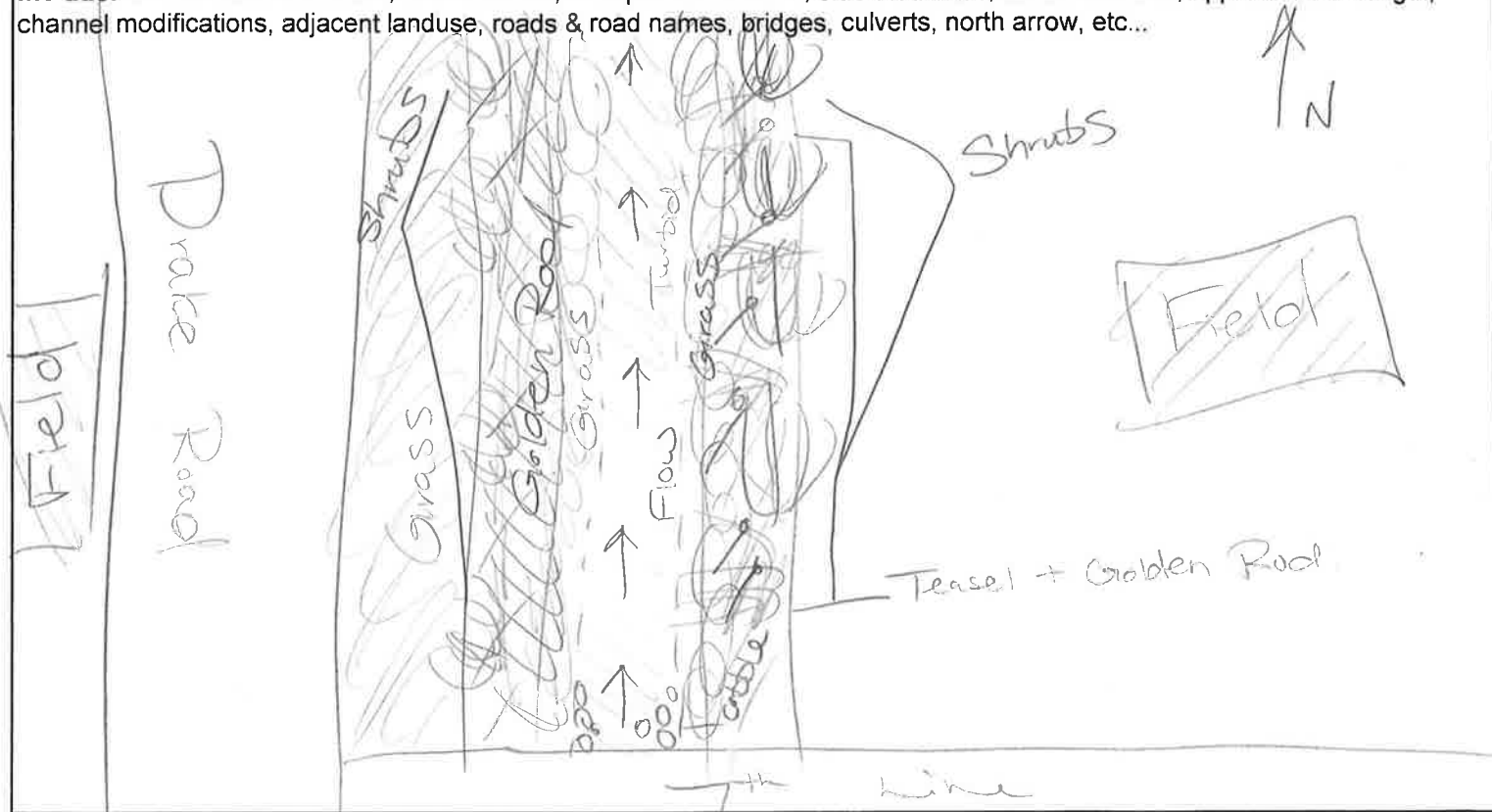
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.98	11, 14, 19, 20, 12	Run
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 6.0	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Turbid water with a very slow flow north
Air Temp. (°C): 11.0	D.O. (%):	TDS (ppm):	
Time Taken: 11:37	Conductivity (µs/cm):		
Location Taken: In stream.			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north (d/s)		
#2	south (u/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * water very turbid, but lots of it, could have cyprinids, but too turbid to see.
- * Cotton-tail observed.



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: AR27

Waterbody:

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: Nov. 17 '10

Time Started: 11:55

Time Finished: 12:15

Site Location:

GPS Datum: NAD 83 **Easting:** 397974

Zone: 17 T **Northing:** 4685317

Municipality: Chatham Kent

Lot & Concession:

Weather Conditions:

Wind: 4 **Cloud Cover (%):** 0%

Precipitation: 0

ADJACENT LANDS

Valley

Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)

Extent of Natural Vegetation (m): 0-10 10 to 20 25 20 to 30 30+

Vegetation Type: Shrub (Mixed) Tree (Mixed)
Herbaceous (Golden Rod) Grass

Riparian Zone

Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+

Vegetation Type: Herbaceous (Golden Rod, Teasel)
Shrub (Mixed) Grass

Vegetation Density (H/M/L):

Canopy

Type: Shrub, Tree, Herbaceous **Quality and % shade:** Excellent 75%

Land Use: Agriculture / Residential

Other Notes (groundwater, soils, pools, vegetation, etc.):

CHANNEL MORPHOLOGY

Channel Width (range (m)): 5 - 4m (Avg. 2m)

Bank Height (range (m)): 4.5m high water @ 3.5m

Bank Slope (degrees from surface of water):

Bank Vegetation Type: Shrub (Mixed) Tree (Mixed) Herbaceous (+ Teasel)

Gradient (H/M/L): Meander/Straight

Bank Stability: Good

Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: 20% **Gravel:** 5% **Boulder:** **Muck:**

Silt: 20% **Pebble:** 5% **Bedrock:** **Detritus:** 20%

Sand: 20% **Cobble:** 10% **Marl:** **Other:**

INSTREAM HABITAT AND COVER

Pools: **Undercut Banks:** **Boulder/Rock:**

Riffles: **Woody Debris:** **Cobble:**

Backwater: **Vegetation:** filamentous algae **Other:**

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	filamentous algae	

CODES:

AHP Aquatic Habitat Point	SWI Surface Water Input	SCS Stream Cross Section
AHY Aquatic Habitat Area	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
TMP Temp Monitor Stn	CKC Creek Crossing	VSS Visual Survey Stn
FLW Flow Monitor Stn	WEL Well	WQS Water Quality Stn
	CUL Culvert	

FLOW CONDITIONS

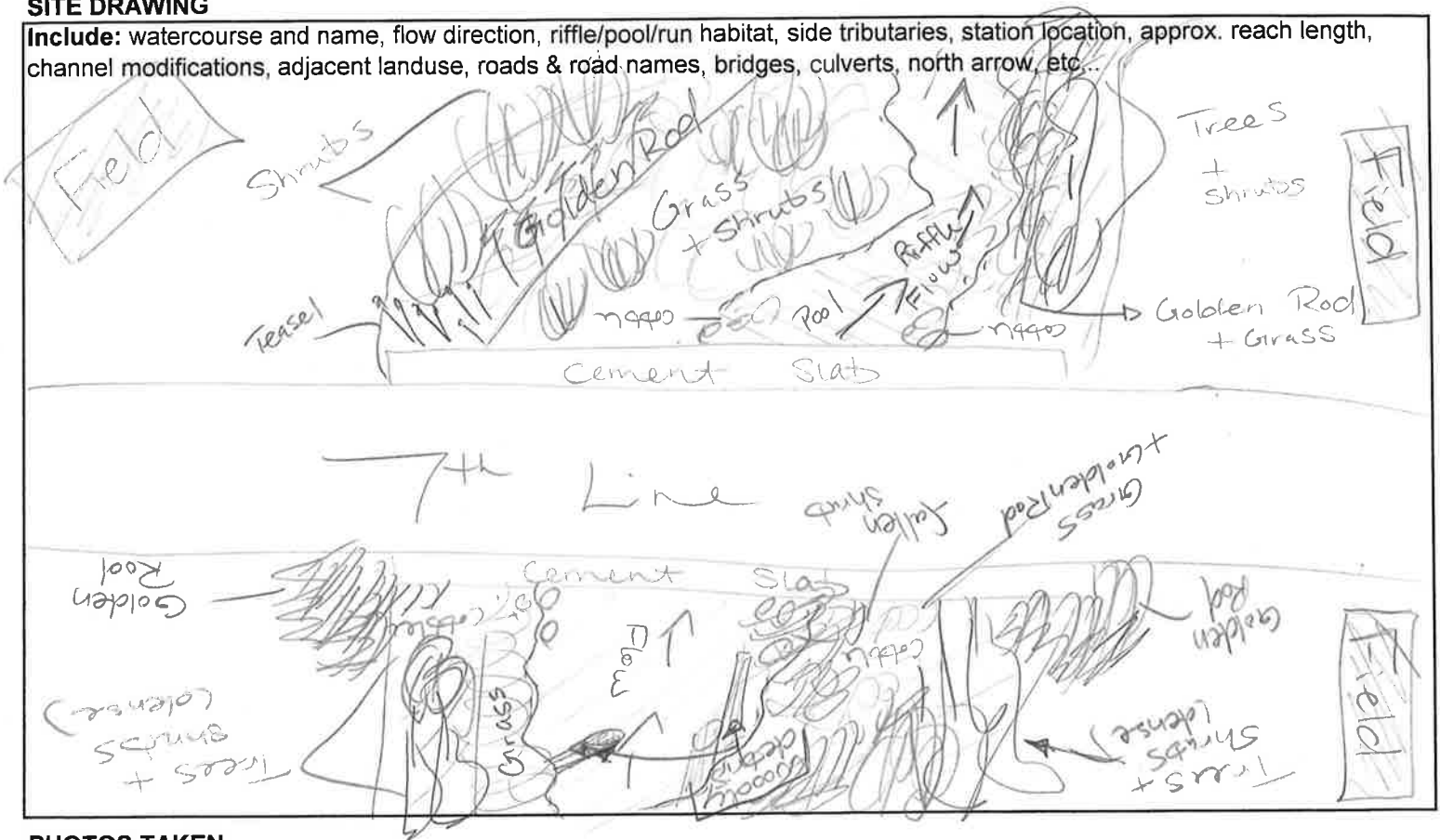
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.28	4, 9, 15, 10, 3	Riffle
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 5°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Slow flow north
Air Temp. (°C): 11°C	D.O. (%):	TDS (ppm):	
Time Taken: 12:08	Conductivity (µs/cm):		
Location Taken: In stream.			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North (C/S)		
#2	South (W/S)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * aprinids observed.
- * lots of detritus ; only small amounts of filamentous algae observed.



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: AR 28

Waterbody:

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: Nov. 17 '10

Time Started: 12:30

Time Finished: 12:50

Site Location:

GPS Datum: NAD 83 **Easting:** 402977

Zone: 17 T **Northing:** 4686872

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind: 4 **Cloud Cover (%):** 0%

Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m): 0-10 10 to 20 15m 20 to 30 30+
	Vegetation Type: Tree (Mixed) Shrub (Mixed) Herbaceous (Golden Rod)
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous (Golden Rod) Grass
	Vegetation Density (HML):
Canopy	Type: Quality and % shade: Poor (20%)
Land Use	Agriculture / Residential
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 2m (Avg 1m)

Bank Height (range (m)): 3.5m high water @ 2.5m

Bank Slope (degrees from surface of water):

Bank Vegetation Type:

Gradient (H/M/L): Meander/Straight

Bank Stability: Good

Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: 20%	Gravel: 5%	Boulder:	Muck: 10%
Silt: 20%	Pebble: 5%	Bedrock:	Detritus: 10%
Sand: 20%	Cobble: 10%	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:

Riffles:

Backwater:

Undercut Banks:

Woody Debris:

Vegetation: filamentous algae

Boulder/Rock:

Cobble:

Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	filamentous algae	Sparse (pockets of it around culvert)
	Phragmites	Sparse (Southwest bank)

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

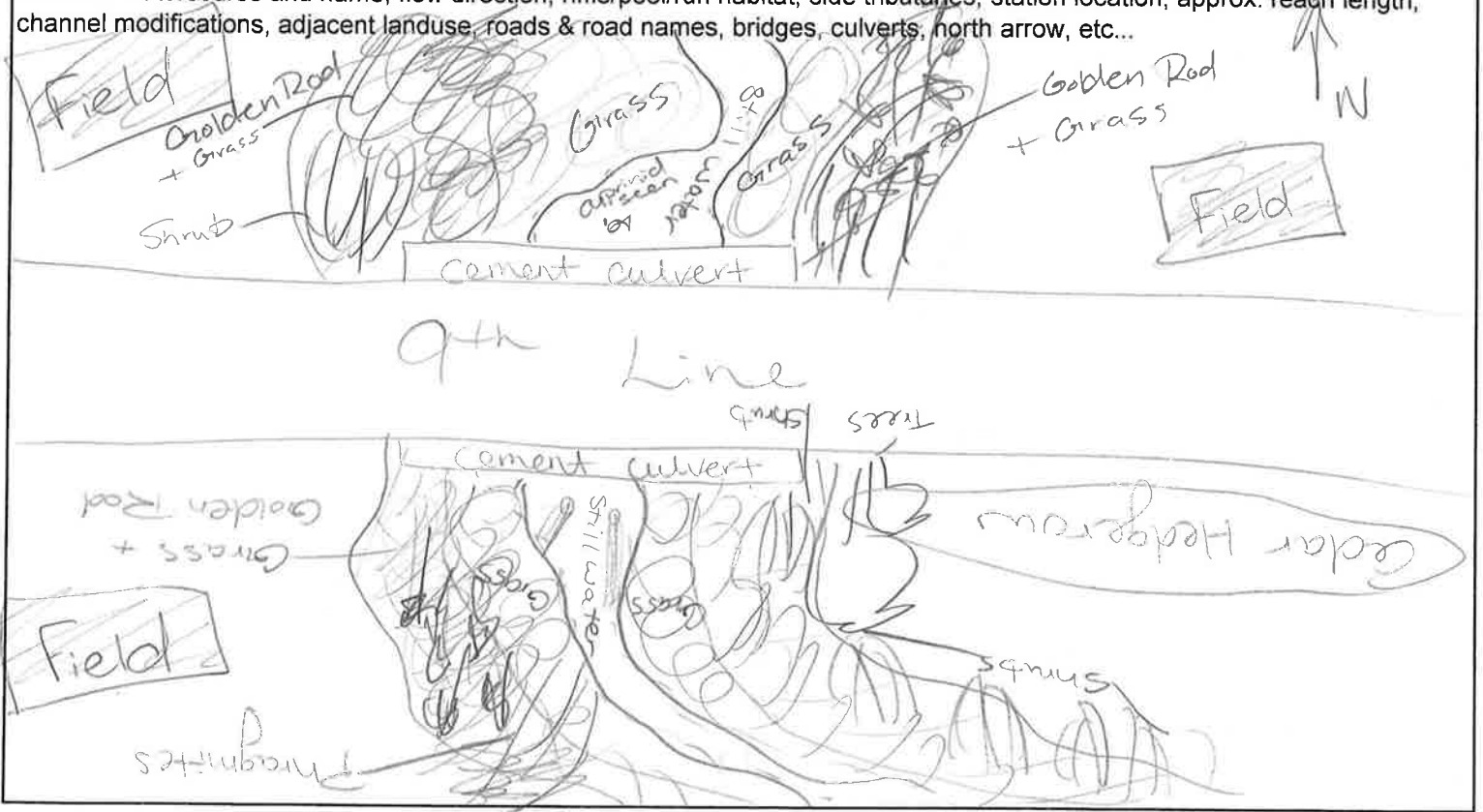
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	.58	2, 3, 5, 3, 1	Run
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 6°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Still water
Air Temp. (°C): 11°C	D.O. (%):	TDS (ppm):	
Time Taken: 12:40	Conductivity (µs/cm):		
Location Taken: In stream.			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North		
#2	South		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * cyprinids observed
- * raccoon tracks observed



PROJECT (Number & Name): 1184 South Kent
Field Staff: S Murray
Station: AR29
Waterbody:
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Nov. 17'10
Time Started: 13:05
Time Finished: 13:20

Site Location:
GPS Datum: NAD 83 **Easting:** 402639
Zone: 17 T **Northing:** 4686567
Municipality: Chatham / Kent
Lot & Concession:

Weather Conditions:
Wind: 4 **Cloud Cover (%):** 0%
Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree (Mixed) Shrub (Mixed) Grass Herbaceous (Golden Rod)
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous (Golden Rod & Teasel)
	Vegetation Density (H/M/L):
Canopy	Type: Tree, Shrub Quality and % shade: Poor 25%
Land Use	Agriculture / Residential
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 5 - 4m (Avg 2.5m) **Gradient (H/M/L):**
Bank Height (range (m)): 4.5 High water @ 3m **Meander/Straight:**
Bank Slope (degrees from surface of water): **Bank Stability:** Good
Bank Vegetation Type: Shrub (Mixed) Herbaceous (Golden Rod & Teasel) **Bank Veg. Density (H/M/L):**
 Grass.

CHANNEL SUBSTRATE %

Clay: 20%	Gravel: 5%	Boulder:	Muck: 20%
Silt: 20%	Pebble:	Bedrock:	Detritus: 5%
Sand: 20%	Cobble: 10%	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓ **Undercut Banks:** ✓ **Boulder/Rock:**
Riffles: ✓ **Woody Debris:** ✓ **Cobble:** ✓
Backwater: ✓ **Vegetation:** ✓ filamentous algae **Other:**

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	filamentous algae	Sparse

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.12	9, 14, 20, 21, 12	Pool (turbid)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 6°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: water <u>very</u> turbid
Air Temp. (°C): 11°C	D.O. (%):	TDS (ppm):	
Time Taken: 13:10	Conductivity (µs/cm):		
Location Taken: In stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North		
#2	South		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * water very turbid : deep
- * lots of litter (beer cans etc.)



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: AR 35

Waterbody: unknown

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: Nov. 17'10

Time Started: 14:55

Time Finished: 15:20

Site Location:

GPS Datum: WAD 83 **Easting:** 411217

Zone: 17T **Northing:** 4693643

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind: 2 **Cloud Cover (%):** 75%

Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m): 0-10 10 to 20 25 20 to 30 30+
	Vegetation Type: Grass Herbaceous (Golden Rod, Teasel) Tree (Mixed)
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous (Golden Rod, Teasel) Shrub (Mixed) Grass
	Vegetation Density (HML):
Canopy	Type: Shrub Quality and % shade: Poor 5%
Land Use	Agriculture, Residential, Crown Forest.
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): .5 - 5m (Avg 2.5)	Gradient (H/M/L):
Bank Height (range (m)): 5	Meander/Straight:
Bank Slope (degrees from surface of water): 1-5	Bank Stability: Good
Bank Vegetation Type: Shrubs, herbaceous, Grass	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: 10%	Gravel: 20%	Boulder:	Muck: 10%
Silt: 10%	Pebble: 20%	Bedrock:	Detritus: 5%
Sand: 20%	Cobble: 5%	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles: ✓	Woody Debris: ✓	Cobble: ✓
Backwater: ✓	Vegetation: ✓	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	filamentous algae	Sparse

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

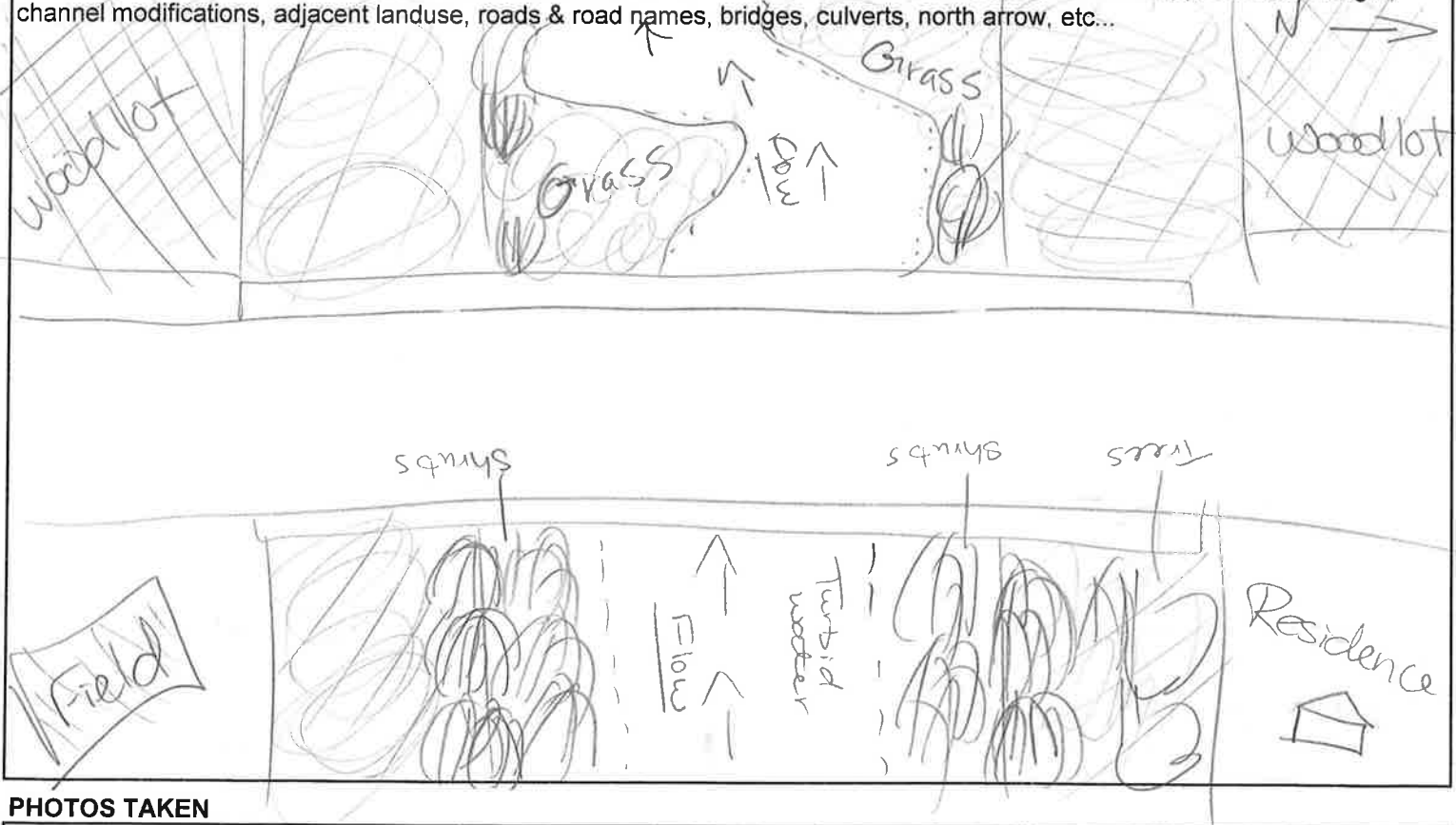
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.37	12, 11, 9, 4, 1	Run (west side)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 6°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: western flow turbid water
Air Temp. (°C): 12°C	D.O. (%):	TDS (ppm):	
Time Taken: 13:10	Conductivity (µs/cm):		
Location Taken: in stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	east (U/S)		
#2	west (D/S)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* lots of water → no fish observed, however ^{water turbid} this channel could support larger fish (suckers etc.)
 * water very turbid.



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: AR 36

Waterbody:

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: Nov. 17 '10

Time Started: 15:20

Time Finished: 15:40

Site Location:

GPS Datum: NAD 83 **Easting:** 411576

Zone: 17 T **Northing:** 4693406

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind: 2 **Cloud Cover (%):** 70%

Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree-Mixed Grass Herbaceous (Golden Rod, Teasel)
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous (Golden Rod, Teasel) Shrub (Mixed) Grass
	Vegetation Density (H/M/L):
Canopy	Type: Quality and % shade: Poor (15%)
Land Use	Agriculture, Residential (trailer), highway 50m away
Other Notes	(groundwater, soils, pools, vegetation, etc.) 401 located ~50m away from channel. * small channel

CHANNEL MORPHOLOGY

Channel Width (range (m)): 2.5m - 1m

Bank Height (range (m)): 4m high water @ 1.5

Bank Slope (degrees from surface of water): 135

Bank Vegetation Type: Herbaceous, Shrub

Gradient (H/M/L):

Meander/Straight:

Bank Stability: Good

Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: 20%	Gravel: 10%	Boulder:	Muck: 5%
Silt: 20%	Pebble: 10%	Bedrock:	Detritus: 5%
Sand: 20%	Cobble: 10%	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:

Riffles:

Backwater:

Undercut Banks:

Woody Debris:

Vegetation: filamentous algae

Boulder/Rock:

Cobble:

Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

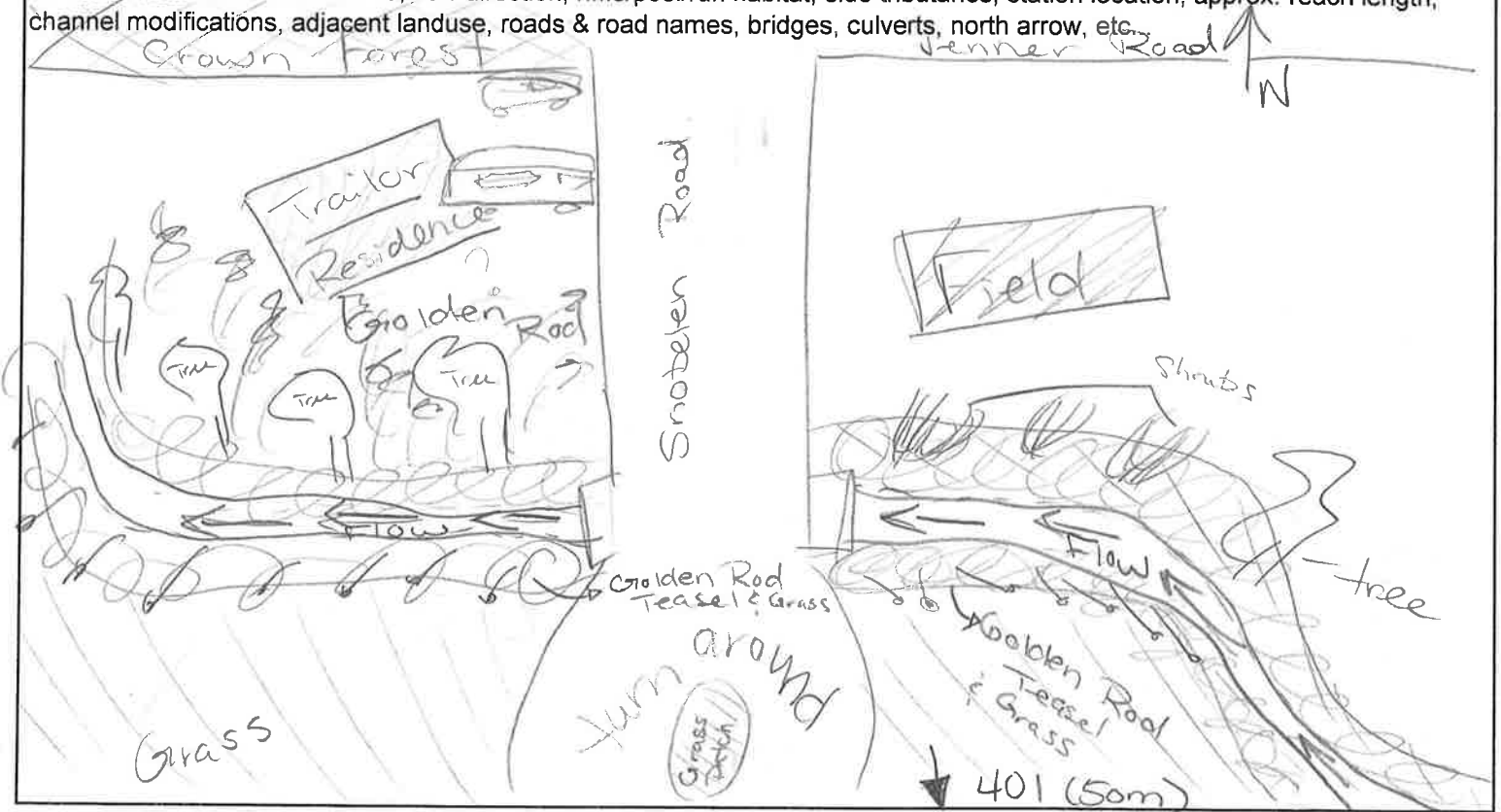
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	.57	2, 3, 6, 4, 1	Run
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 6°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: turbid water w a flow to the west
Air Temp. (°C): 12°C	D.O. (%):	TDS (ppm):	
Time Taken: 15:35	Conductivity (µs/cm):		
Location Taken: In Stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc.



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	east (u/s)		
#2	west (d/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * muskrat observed.
- * water very turbid.
- * 401 50m South of channel.



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: AR40 **Site Location:**

Waterbody: unknown **GPS Datum:** NAD 83 **Easting:** 422776

Drainage System: **Zone:** MT **Northing:** 4690658

Location in System: **Municipality:** Chatham / Kent

Appr. Reach Length (m): **Lot & Concession:**

Survey Date: Nov. 18, 10 **Weather Conditions:**

Time Started: 8:35 **Wind:** 1 **Cloud Cover (%):** 0%

Time Finished: 9:00 **Precipitation:** 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m): 0-10 10 to 20 15 20 to 30 30+
	Vegetation Type: Tree (Mixed), Shrub (Mixed) Herbaceous (Golden Rod, Milkweed)
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Shrub (Mixed) Tree (Mixed)
	Vegetation Density (HML):
Canopy	Type: Tree, Shrub Quality and % shade: Excellent 85%
Land Use	Agriculture / Residential
Other Notes	(groundwater, soils, pools, vegetation, etc.) * very turbid water & very sinky

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1-3m (Avg 1.5m) **Gradient (H/M/L):**

Bank Height (range (m)): 5m high water @ 3m **Meander/Straight:**

Bank Slope (degrees from surface of water): 135 **Bank Stability:** Good

Bank Vegetation Type: Tree (Mixed), Shrub (Mixed), Herbaceous (Milkweed) **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: 20%	Gravel:	Boulder:	Muck: 20%
Silt: 20%	Pebble:	Bedrock:	Detritus: 20%
Sand: 20%	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles: ✓	Woody Debris: ✓	Cobble:
Backwater: ✓	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.09	6, 7, 7, 8, 5	Run
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 5°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Very turbid water with a south west flow
Air Temp. (°C): 5°C	D.O. (%):	TDS (ppm):	
Time Taken: 8:50	Conductivity (µs/cm):		
Location Taken: In Stream.			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north (u/s)		
#2	south (d/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * lots of birds (cardinal, black-capped chickadee etc.)
- * water very turbid & sediment very silty



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: AR 41
Waterbody: Unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Nov 18/10
Time Started: 9:05
Time Finished: 9:25
Site Location:
GPS Datum: NAD83 **Easting:** 424469
Zone: 17 T **Northing:** 4689027
Municipality: Chatham, Kent
Lot & Concession:
Weather Conditions:
Wind: 1 **Cloud Cover (%):** 0
Precipitation: 0

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)		
	Extent of Natural Vegetation (m)		0-10	10 to 20	20 to 30	30+
	Vegetation Type:	Tree (Mixed) Shrub (Mixed) Herbaceous (Golden Rod, Teasel, Milkweed) Grass				
Riparian Zone	Flood Plain - extent of frequent flood (m):		0-10	10 to 20	20 to 30	30+
	Vegetation Type:	Shrub (Mixed) Herbaceous (Golden Rod, Teasel, Milkweed) Grass				
	Vegetation Density (HML):					
Canopy	Type:	Tree, Shrub, Herbaceous		Quality and % shade:	Good 50%	
Land Use	Agriculture					
Other Notes	(groundwater, soils, pools, vegetation, etc.)					

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.5 - 4 (Avg. 5m)
Bank Height (range (m)): 4m high water @ 1.5m
Bank Slope (degrees from surface of water): 35
Bank Vegetation Type: Shrub, Herbaceous, Grass
Gradient (H/M/L):
Meander/Straight:
Bank Stability: Good
Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: 20%	Gravel:	Boulder:	Muck: 20%
Silt: 20%	Pebble:	Bedrock:	Detritus: 10%
Sand: 20%	Cobble: 10%	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: **Undercut Banks:** **Boulder/Rock:**
Riffles: **Woody Debris:** **Cobble:**
Backwater: **Vegetation:** Typha **Other:**

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Typha	Sparse

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

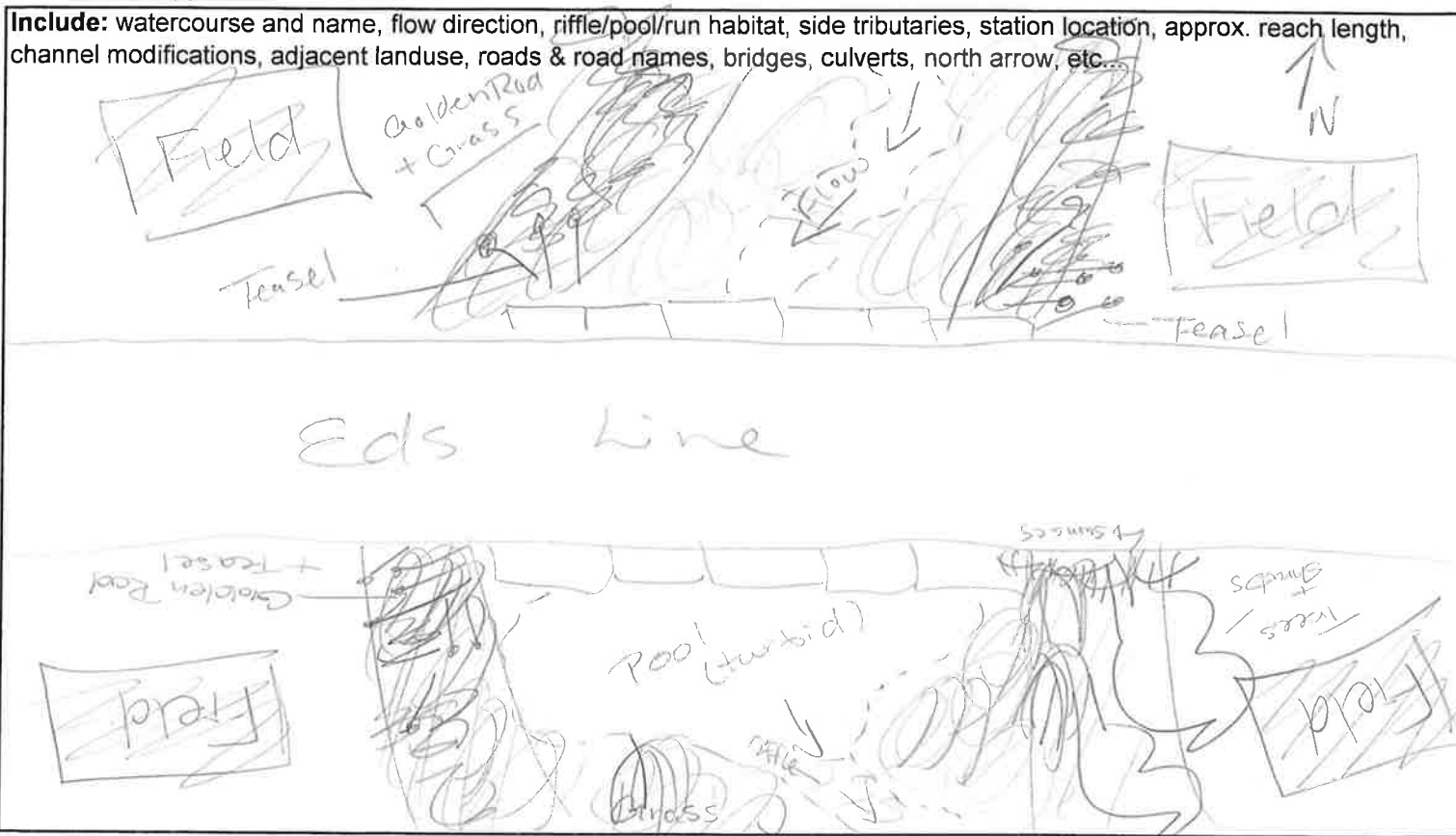
FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	0.47	2, 3, 8, 4, 2	Run
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 5°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: slow flow south turbid water
Air Temp. (°C): 6°C	D.O. (%):	TDS (ppm):	
Time Taken: 9:10	Conductivity (µs/cm):		
Location Taken: in stream			

SITE DRAWING



PHOTOS TAKEN

Photo #	Description	Photo #	Description
	#1 - north (u/s)		
	#2 - south (d/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.: *water fairly turbid.



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: AR42 **Site Location:**

Waterbody: unknown **GPS Datum:** NAD 83 **Easting:** 425281

Drainage System: **Zone:** MT **Northing:** 468792.1

Location in System: **Municipality:** Chatham / Kent

Appr. Reach Length (m): **Lot & Concession:**

Survey Date: Nov. 18 '10 **Weather Conditions:**

Time Started: 9:35 **Wind:** 2 **Cloud Cover (%):** 0

Time Finished: 9:55 **Precipitation:** 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree (Mixed) Shrubs (Mixed) Herbaceous (Golden Rod) Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous (Golden Rod) Shrub (Mixed) Grass
	Vegetation Density (H/M/L):
Canopy	Type: Tree, Shrub Quality and % shade: Excellent 85%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): .25 - 1m (Avgd. 25cm) **Gradient (H/M/L):**

Bank Height (range (m)): 4m high water @ 2.5m **Meander/Straight:**

Bank Slope (degrees from surface of water): **Bank Stability:** Good

Bank Vegetation Type: Herbaceous, shrubs, grass **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: 20%	Gravel:	Boulder:	Muck: 20%
Silt: 20%	Pebble:	Bedrock:	Detritus: 20%
Sand: 20%	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles: ✓	Woody Debris: ✓	Cobble:
Backwater: ✓	Vegetation: ✓ Phragmites	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	Phragmites	Spare - located @ the north side culvert only.

CODES:

SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	VSS Visual Survey Stn
TMP Temp Monitor Stn	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert

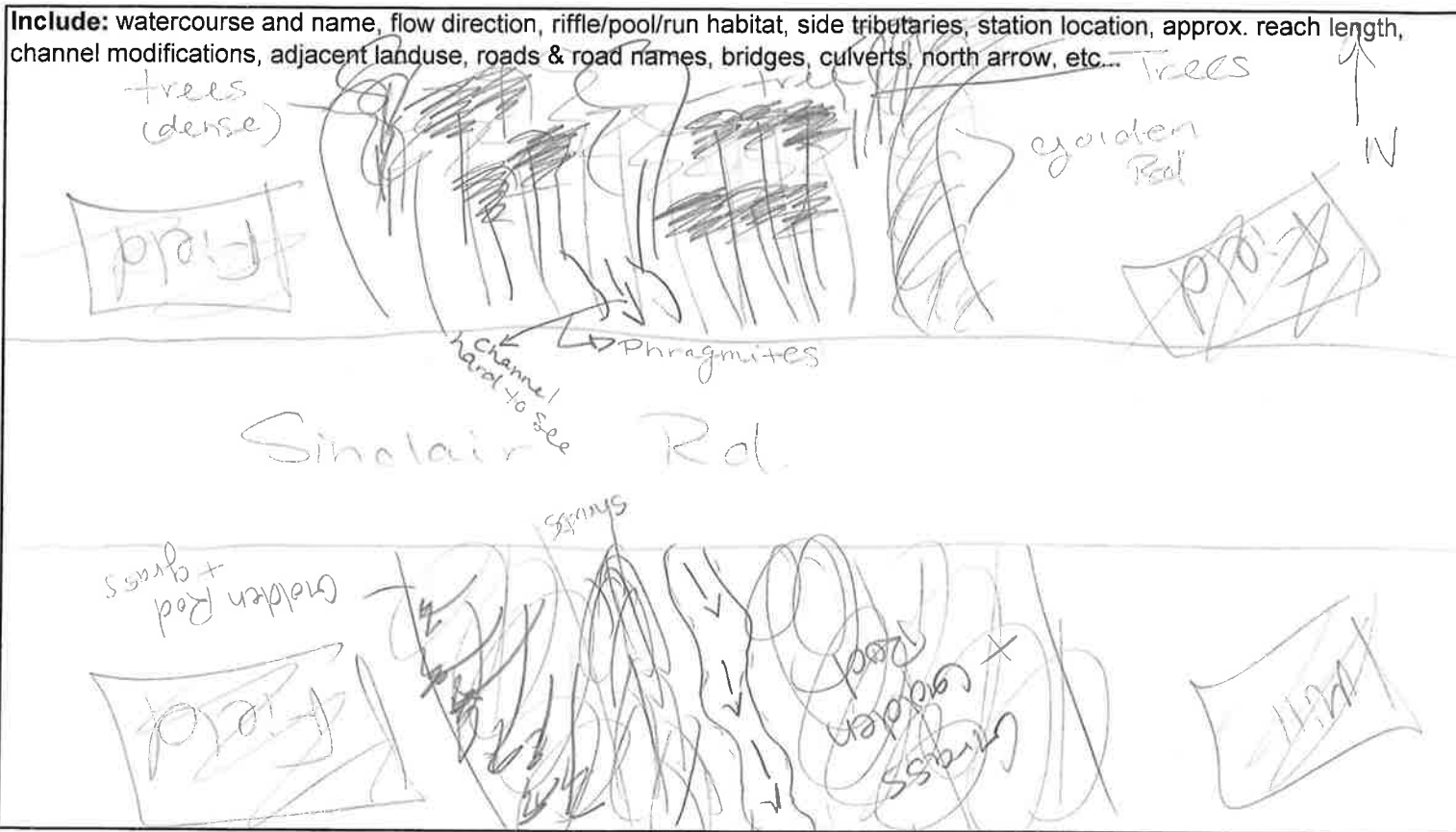
FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	0.22	2, 5, 7, 4, 1	Run (south side)
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 5°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: slow flow south very little water
Air Temp. (°C): 6°C	D.O. (%):	TDS (ppm):	
Time Taken: 9:45	Conductivity (µs/cm):		
Location Taken: In stream			

SITE DRAWING



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north (LHS)		
#2	South (RHS)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * red-tailed hawk observed.
- * not much water, channel on north side hard to see because of tall phragmites.



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: AR 43

Waterbody: unknown

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: Nov. 18, 10

Time Started: 10:00

Time Finished: 10:20

Site Location:

GPS Datum: NAD 83

Easting: 425070

Zone: 17T

Northing: 4687724

Municipality: Chatham

Lot & Concession:

Weather Conditions:

Wind: 2

Cloud Cover (%): 5%

Precipitation: 0

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)	
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Tree (Mixed) Shrub (Mixed) Herbaceous (Golden Rod)			
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+	
	Vegetation Type:	Tree (Mixed) Herbaceous (Golden Rod) Grass			
	Vegetation Density (HML):				
Canopy	Type: Tree, Shrub	Quality and % shade: Excellent 85%			
Land Use	Agriculture / Residential.				
Other Notes	(groundwater, soils, pools, vegetation, etc.)				

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.5 - 2.5 (Avg 1.5)	Gradient (H/M/L):
Bank Height (range (m)): 5m high water @ 3m	Meander/Straight:
Bank Slope (degrees from surface of water): 35	Bank Stability: Good
Bank Vegetation Type: Shrub, Tree, Herbaceous	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: 20%	Gravel: 5%	Boulder:	Muck:
Silt: 20%	Pebble: 5%	Bedrock:	Detritus: 20%
Sand: 20%	Cobble: 10%	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock:
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

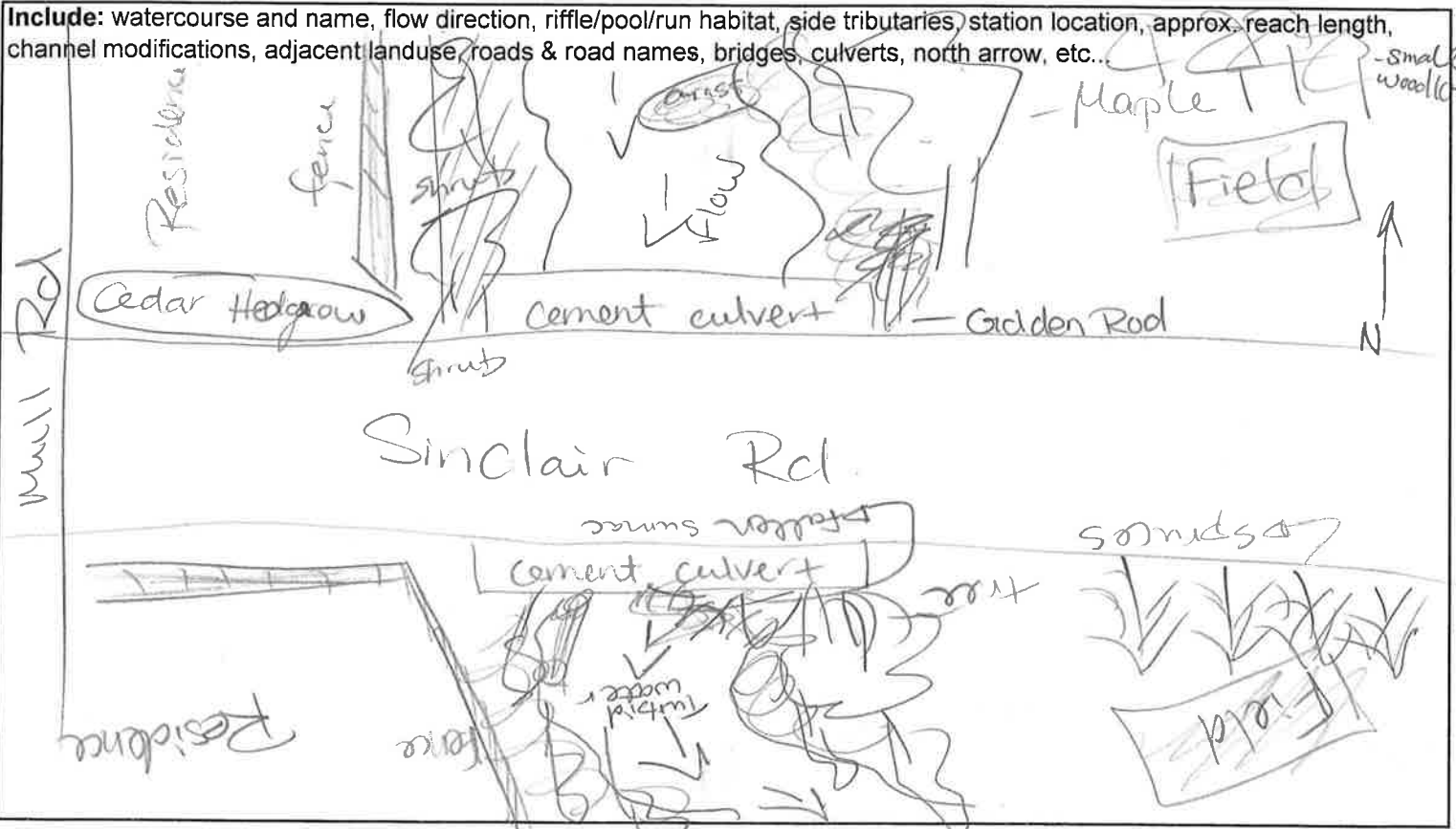
FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.86	7, 10, 17, 12, 4	Run
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 5°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Southern flow.
Air Temp. (°C): 6°C	D.O. (%):	TDS (ppm):	
Time Taken: 10:05	Conductivity (µs/cm):		
Location Taken: In stream			

SITE DRAWING



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	- north (u/s)		
#2	- south (d/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* blue jay, chickadee heard.



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: AR144

Waterbody: unknown

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: Nov. 18 '10

Time Started: 10:20

Time Finished: 10:40

Site Location:

GPS Datum: NAD 83 **Easting:** 424074

Zone: 17T **Northing:** 4686812

Municipality: Chatham / Kent

Lot & Concession:

Weather Conditions:

Wind: 2 **Cloud Cover (%):** 85%

Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m): 0-10 10 to 20 25 20 to 30 30+
	Vegetation Type: Tree (Mixed) Shrub (Mixed) Herbaceous (Golden Rod) Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Shrub (Mixed) Herbaceous (Golden Rod) Grass
	Vegetation Density (HML):
Canopy	Type: Tree, Shrub Quality and % shade: Excellent 85%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 5 - 3m (Avg.)	Gradient (H/M/L):
Bank Height (range (m)): 5m high water @ 2.5m	Meander/Straight:
Bank Slope (degrees from surface of water): 135	Bank Stability: good
Bank Vegetation Type: Shrub, grass, herbaceous	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: 10%	Gravel: 30%	Boulder:	Muck:
Silt: 10%	Pebble: 30%	Bedrock:	Detritus: 10%
Sand: 10%	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles: ✓	Woody Debris: ✓	Cobble:
Backwater: ✓	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:

AHP Aquatic Habitat Point	SWI Surface Water Input	SCS Stream Cross Section
AHY Aquatic Habitat Area	GWl Groundwater Input	DOX Dissolved Oxygen Stn
TMP Temp Monitor Stn	CKC Creek Crossing	VSS Visual Survey Stn
FLW Flow Monitor Stn	WEL Well	WQS Water Quality Stn
	CUL Culvert	

FLOW CONDITIONS

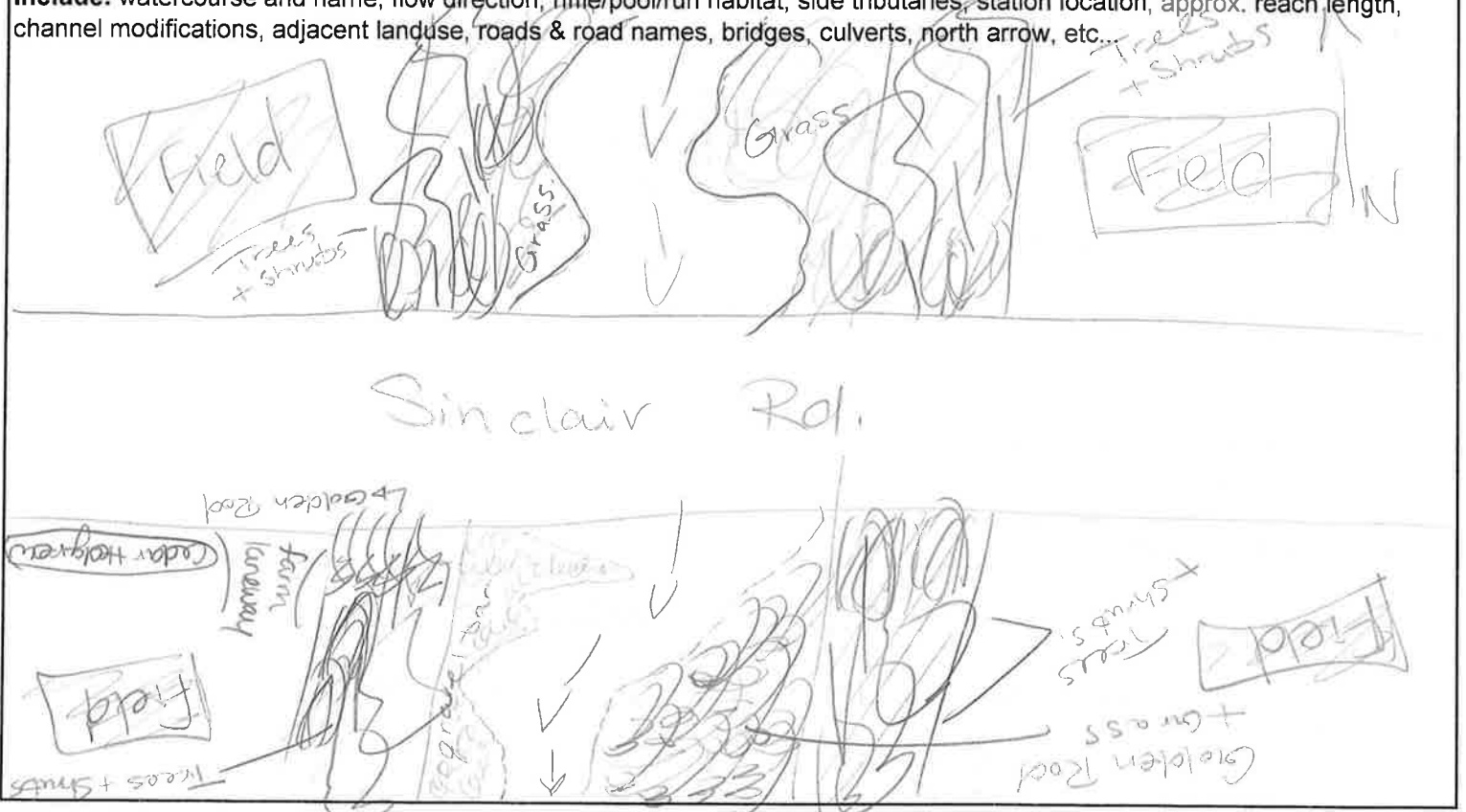
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.19	3, 5, 7, 4, 2	Run
2			
3			hydraulic head of 0.5cm
4			
5			

WATER QUALITY

Water Temp. (°C): 5°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Slow flow south.
Air Temp. (°C): 8°C	D.O. (%):	TDS (ppm):	
Time Taken: 10:28	Conductivity (µs/cm):		
Location Taken: In stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc.



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	North (U/S)		
#2	South (D/S)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * water flowing south
- * lots of cover (trees, shrubs, herbaceous)



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: AR46

Waterbody: unknown

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: Nov. 18, 10

Time Started: 10:45

Time Finished: 11:05

Site Location:

GPS Datum: NAD83 **Easting:** 423171

Zone: 17T **Northing:** 4685976

Municipality: Chatham | Kent

Lot & Concession:

Weather Conditions:

Wind: 2 **Cloud Cover (%):** 85%

Precipitation: 0

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)		
	Extent of Natural Vegetation (m)		0-10	10 to 20	20 to 30	30+
	Vegetation Type:	Tree (Mixed) Shrub (Mixed) Grass Herbaceous (Golden Rod)				
Riparian Zone	Flood Plain - extent of frequent flood (m):		0-10	10 to 20	20 to 30	30+
	Vegetation Type:	Herbaceous (Golden Rod) Grass				
	Vegetation Density (HML):					
Canopy	Type:	Tree Shrub		Quality and % shade: Excellent 85%		
Land Use	Agriculture					
Other Notes	(groundwater, soils, pools, vegetation, etc.)					

CHANNEL MORPHOLOGY

Channel Width (range (m)): .25 - 1m (Avg .5)

Bank Height (range (m)): 3m high water @ 1m

Bank Slope (degrees from surface of water):

Bank Vegetation Type:

Gradient (H/M/L):

Meander/Straight:

Bank Stability: Good

Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: 20%	Gravel: 10%	Boulder:	Muck:
Silt: 20%	Pebble: 10%	Bedrock:	Detritus: 20%
Sand: 70%	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input checked="" type="checkbox"/>	Boulder/Rock:
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble:
Backwater: <input checked="" type="checkbox"/>	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	0.82	5, 6, 10, 7, 4	Run
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 5.0	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Slow flow South
Air Temp. (°C): 8.0	D.O. (%):	TDS (ppm):	
Time Taken: 10:55	Conductivity (µs/cm):		
Location Taken: In stream			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc..



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	north (u/s)		
#2	south (d/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

* heard some blue jays



PROJECT (Number & Name): 1184 South Kent

Field Staff: S. Murray

Station: AR48 **Site Location:**

Waterbody: unknown **GPS Datum:** NAD 83 **Easting:** 428108

Drainage System: **Zone:** 17 T **Northing:** 4689752

Location in System: **Municipality:** Chatham, Kent

Appr. Reach Length (m): **Lot & Concession:**

Survey Date: Nov. 18, 10 **Weather Conditions:**

Time Started: 11:45 **Wind:** 2 **Cloud Cover (%):** 40%

Time Finished: 12:10 **Precipitation:** 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree (Mixed) Shrub (Mixed) Herbaceous (Golden Rod) Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous (Golden Rod) Grass
	Vegetation Density (H/M/L):
Canopy	Type: Tree, Shrub Quality and % shade: Good 65%
Land Use	Agriculture / Residential
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 2.5 - 1.5 (Avg 1m)	Gradient (H/M/L):
Bank Height (range (m)): 4m high water @ 2m	Meander/Straight:
Bank Slope (degrees from surface of water): 135	Bank Stability: Good
Bank Vegetation Type: Herbaceous, Shrub, grass	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: 20%	Gravel: 20%	Boulder:	Muck: 5%
Silt: 20%	Pebble: 10%	Bedrock:	Detritus: 5%
Sand: 20%	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles: ✓	Woody Debris: ✓	Cobble:
Backwater:	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	filamentous algae	Sparse

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

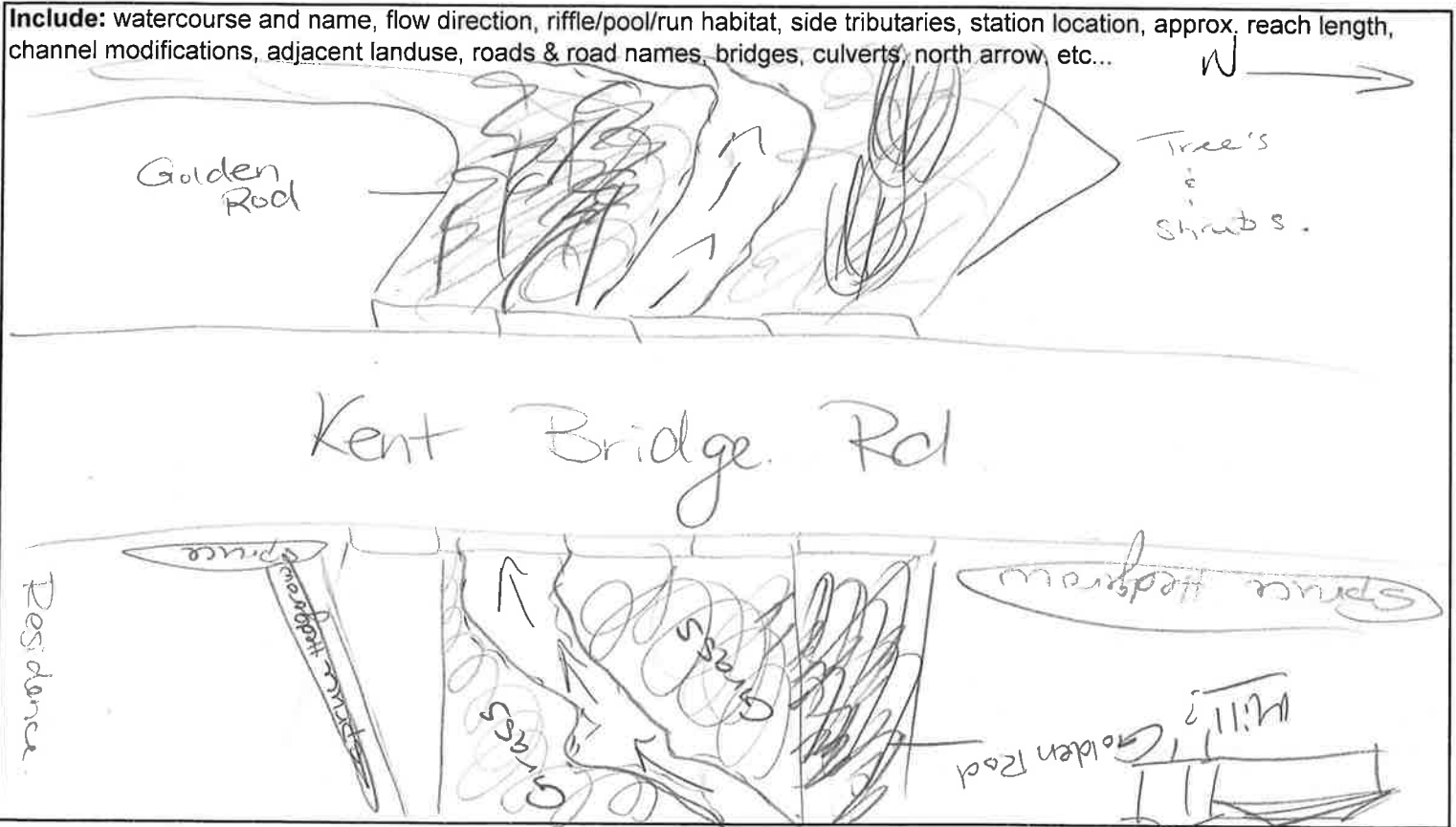
FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.14	10, 7, 6, 4, 1	Run.
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 5°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Slow flow south west (fairly turbid)
Air Temp. (°C): 7°C	D.O. (%):	TDS (ppm):	
Time Taken: 11:58	Conductivity (µs/cm):		
Location Taken: in stream			

SITE DRAWING



PHOTOS TAKEN

Photo #	Description	Photo #	Description
	#1 - north (w/s)		
	#2 - south (d/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * channel runs right through a mill
- * water was fairly turbid.



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: AR 49
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Nov. 18/10
Time Started: 12:25
Time Finished: 12:50

Site Location:
GPS Datum: NAD 83 **Easting:** 419667
Zone: 17T **Northing:** 4696849
Municipality: Chatham / Kent
Lot & Concession:

Weather Conditions:
Wind: 2 **Cloud Cover (%):** 20%
Precipitation: 0

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)	
	Extent of Natural Vegetation (m)		0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Tree (Mixed) Shrub (Mixed) Herbaceous (Golden Rod) Grass			
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30	30+
	Vegetation Type:	Shrub (Mixed) Tree (Mixed) Herbaceous (Golden Rod) Grass			
	Vegetation Density (H/M/L):				
Canopy	Type: Tree, Shrub	Quality and % shade: Excellent 95%			
Land Use	Agriculture / Residential				
Other Notes	(groundwater, soils, pools, vegetation, etc.)				

CHANNEL MORPHOLOGY

Channel Width (range (m)): .5 - 4m **Gradient (H/M/L):**
Bank Height (range (m)): 5m high water @ 3m **Meander/Straight:**
Bank Slope (degrees from surface of water): 135 **Bank Stability:**
Bank Vegetation Type: **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: 20%	Gravel:	Boulder:	Muck: 20%
Silt: 20%	Pebble:	Bedrock:	Detritus: 20%
Sand: 20%	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles: ✓	Woody Debris: ✓	Cobble:
Backwater: ✓	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

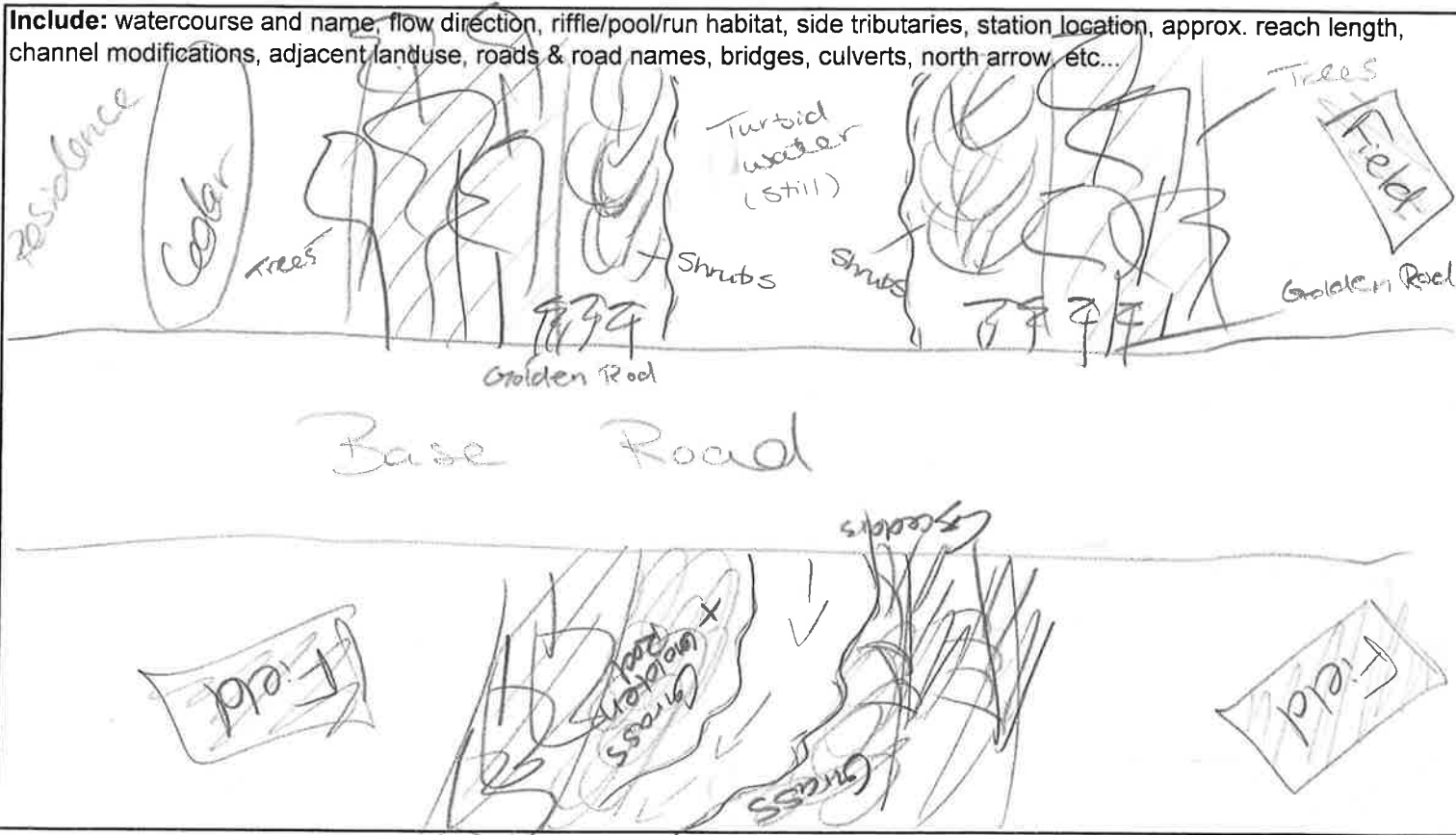
FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.12	5, 11, 12, 15, 4	Run.
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 6°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Slow flow west water very turbid
Air Temp. (°C): 8°C	D.O. (%):	TDS (ppm):	
Time Taken: 12:42	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING



PHOTOS TAKEN

Photo #	Description	Photo #	Description
#1	east (WS)		
#2	west (DIS)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * black capped chickadees observed
- * great fish habitat, none observed → could be because of such turbid water



PROJECT (Number & Name): 1184 South Kent
Field Staff: S. Murray
Station: AR54
Waterbody: unknown
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: Nov. 18/10
Time Started: 14:35
Time Finished: 15:00

Site Location:
GPS Datum: NAD83 **Easting:** 408721
Zone: 17 T **Northing:** 4690328
Municipality: Chatham / Kent
Lot & Concession:

Weather Conditions:
Wind: 2 **Cloud Cover (%):** 90%
Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Tree (Sycamore) Herbaceous (Golden Rod) Grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous (Golden Rod) Grass
	Vegetation Density (HML):
Canopy	Type: Tree, Herbaceous Quality and % shade: Poor 5%
Land Use	Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 2.5 **Gradient (H/M/L):**
Bank Height (range (m)): 4.5 high water @ 3 **Meander/Straight:**
Bank Slope (degrees from surface of water): **Bank Stability:** Good
Bank Vegetation Type: Herbaceous (Golden Rod) Grass **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: 10%	Gravel: 20%	Boulder:	Muck:
Silt: 10%	Pebble: 20%	Bedrock:	Detritus: 10%
Sand: 10%	Cobble: 20%	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock: ✓
Riffles: ✓	Woody Debris: ✓	Cobble: ✓
Backwater: ✓	Vegetation:	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
None		

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

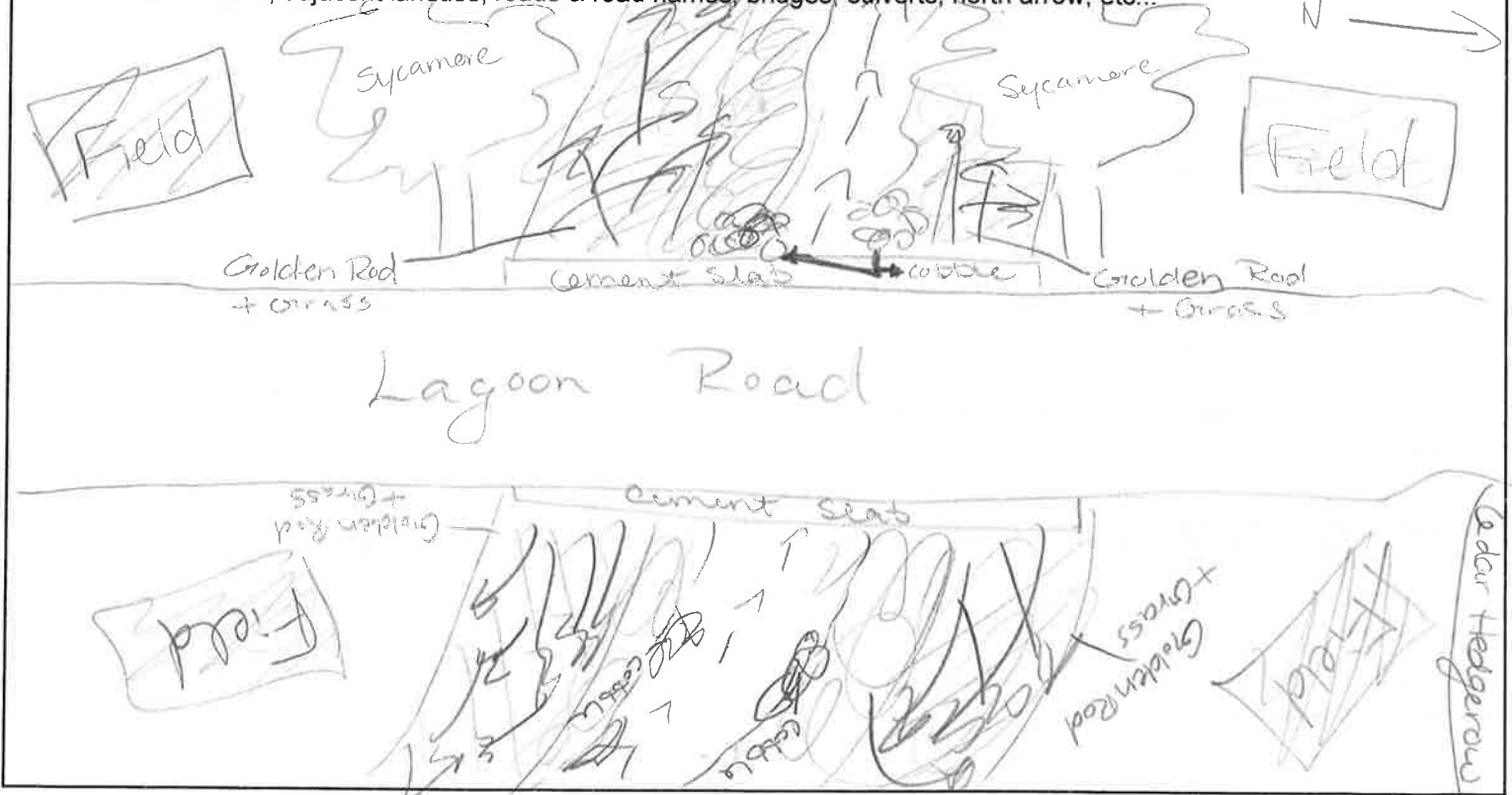
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.64	12, 17, 21, 13, 5	Run
2			(west side)
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 5°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters:
Air Temp. (°C):	D.O. (%):	TDS (ppm):	
Time Taken: 14:45	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
	#1 - east (w/s)		
	#2 - west (d/s)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- * very nice fish habitat, although none seen.
- * Refer to 'E' also (done in Sep: Ayrinids were observed then)



PROJECT (Number & Name): 11842 South Kent
Field Staff: G. MacVeigh
Station: AHY002
Waterbody: Burgess Drain West Branch
Drainage System: —
Location in System: @ crossing of Hornick Line.
Appr. Reach Length (m): —
Survey Date: 4 Oct 11
Time Started: 1050
Time Finished: 1105

Site Location:
GPS Datum: NAD83 **Easting:** 0382986
Zone: 17T **Northing:** 4674785
Municipality: Chatham Kent/Tilbury
Lot & Concession: —

Weather Conditions:
Wind: 2 **Cloud Cover (%):** ∅
Precipitation: ∅ - rained last 24hrs

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: pine, cedar, spruce west side east side
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: goldenrod, asters, shrubs, grasses, herbs
	Vegetation Density (HML): H
Canopy	Type: Grasses Quality and % shade: Poor - 30%
Land Use	agricultural - houses
Other Notes	(groundwater, soils, pools, vegetation, etc.) tile drains flowing/road ditch culverts emptying water

CHANNEL MORPHOLOGY

Channel Width (range (m)): 2.5 - 3.5m 3.5m	Gradient (H/M/L): —
Bank Height (range (m)): 2.75 - 3.5m	Meander/Straight: few slight meanders
Bank Slope (degrees from surface of water): 45 - 80°	Bank Stability: good
Bank Vegetation Type: grass, herbs	Bank Veg. Density (H/M/L): H

CHANNEL SUBSTRATE %

Clay: —	Gravel: 5	Boulder: 5	Muck: 60
Silt: 10	Pebble: —	Bedrock: —	Detritus: —
Sand: 20	Cobble: —	Marl: —	Other: —

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: —	Boulder/Rock: ✓
Riffles: —	Woody Debris: —	Cobble: —
Backwater: —	Vegetation: ✓	Other: —

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	terrestrial grasses	abundant
	barred sweetflag	abundant
	cattail	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 14°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky water.
Air Temp. (°C): 10°	D.O. (%):	TDS (ppm):	
Time Taken: 1109	Conductivity (µs/cm):		
Location Taken: u/s of bridge			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...

- 4 m concrete box culvert under Hornick Line
- flow constant, defined channel
- bankfull approx ~ 5m wide
- channel u/s lined w grasses.
- water murky from recent rain
- permant / intermittent watercourse.
- soya fields.

PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-005	- d/s view (north)		
100-006	- u/s view (south)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

no fish / frogs observed



PROJECT (Number & Name): 1184a South Kent WF

Field Staff: G. MacVegh

Station: AH4003

Waterbody: Burgess Drain East Branch

Drainage System:

Location in System: @ Coatsworth Rd

Appr. Reach Length (m):

Survey Date: 4 Oct 2011

Time Started: 1124

Time Finished: 1145

Site Location:

GPS Datum: NAD83 **Easting:** 0383214

Zone: 17T **Northing:** 4675217

Municipality: Chatham Kent

Lot & Concession:

Weather Conditions:

Wind: 2 **Cloud Cover (%):** 0

Precipitation: 0

ADJACENT LANDS

Valley Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)

Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+

Vegetation Type: grass, herbs, few shrubs.

Riparian Zone Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+

Vegetation Type: grass, cattail, phragmites

Vegetation Density (HML): H

Canopy Type: grass Quality and % shade: poor - 30%

Land Use agriculture - fields

Other (groundwater, soils, pools, vegetation, etc.)

Notes ~~egg~~ murky - slow flow

CHANNEL MORPHOLOGY

Channel Width (range (m)): 2.5 - 3m Gradient (H/M/L):

Bank Height (range (m)): 2 - 3 Meander/Straight:

Bank Slope (degrees from surface of water): 45 - 80 Bank Stability:

Bank Vegetation Type: grass, herbs, goldenrod Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: 5 Gravel: Boulder: Muck: 60

Silt: 10 Pebble: Bedrock: Detritus: 5

Sand: 20 Cobble: Marl: Other:

INSTREAM HABITAT AND COVER

Pools: Undercut Banks: _____ Boulder/Rock: _____

Riffles: _____ Woody Debris: _____ Cobble: _____

Backwater: _____ Vegetation: _____ Other: _____

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	terrestrial grasses	
	cattail	
	phragmites	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 14	D.O. (ppm): _____	pH: _____	Visible Characteristics/Other Parameters: murky
Air Temp. (°C): 10	D.O. (%): _____	TDS (ppm): _____	
Time Taken: 1130	Conductivity (µs/cm): _____		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...

- 4.5m wide box culvert under road.
- slow flow due to rain
- defined channel.
- depth ~.25 - .5m
- tile drains light flow
- pool u/s side of culvert ~ 6.5m across + .5m long
- very heavily vegetated ~ 30m u/s. of road.

PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-009	- u/s view		
100-010	- d/s view		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

No fish/frags seen



PROJECT (Number & Name): 1184a South Kent		
Field Staff: G. MacVeigh		
Station: AHY009	Site Location:	
Waterbody: McLeod Drain	GPS Datum: NAD83	Easting: 0386437
Drainage System:	Zone: 17T	Northing: 4679056
Location in System: @	Municipality:	
Appr. Reach Length (m):	Lot & Concession:	
Survey Date: 04 Oct 11	Weather Conditions:	
Time Started: 12:30	Wind: 1	Cloud Cover (%): 0
Time Finished: 1:55	Precipitation: 0	

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: dogwood, elm, hawthorn, goldenrod, maple, poplar
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: shrubs, g.rod, aster, willow sp, grass, herbs
	Vegetation Density (HML): H
Canopy	Type: deciduous Quality and % shade: poor - 30%
Land Use	agricultural
Other	(groundwater, soils, pools, vegetation, etc.)
Notes	fast flow - flow coming from surrounding drains murky

CHANNEL MORPHOLOGY

Channel Width (range (m)): 6-8	Gradient (H/M/L):
Bank Height (range (m)): 1-6m	Meander/Straight:
Bank Slope (degrees from surface of water): 45 - 70	Bank Stability: fair
Bank Vegetation Type: grass, shrubs, herbs	Bank Veg. Density (H/M/L): H

CHANNEL SUBSTRATE %

Clay:	Gravel: 15	Boulder:	Muck: 30
Silt: 20	Pebble: 15	Bedrock:	Detritus:
Sand: 20	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools:	Undercut Banks: —	Boulder/Rock:
Riffles:	Woody Debris:	Cobble: pebbles/gravel
Backwater: —	Vegetation: along banks	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	terrestrial grasses	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 14	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky.
Air Temp. (°C): 11	D.O. (%):	TDS (ppm):	
Time Taken: 1240	Conductivity (µs/cm):		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...

- over 1m in depth in some locations
- double box culvert each 6m wide
- high flow in spring - debris present up shrubs
- bankful ~ 12-15m wide
- may be boulders present - difficult to see due to murky water
- d/s side more shade ~ 50%
- fish habitat present
- flow from drain u/s of culvert east side. (Graham Drain)

PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-025	u/s view McLeod		
026	d/s view McLeod		
027	d/s view of Graham where it meets McLeod		
028	u/s view of Graham		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

no fish/frogs observed.



PROJECT (Number & Name): 11842		Site Location:	
Field Staff: G. MacVegh		GPS Datum: NAD83	Easting: 0387867
Station: AHV013		Zone: 17T	Northing: 4680988
Waterbody: Ross Narry Drain + unknown		Municipality:	
Drainage System: PWS		Lot & Concession:	
Location in System: @			
Appr. Reach Length (m): ^			
Survey Date: 4 Oct 11		Weather Conditions:	
Time Started: 1325		Wind: 1	Cloud Cover (%): 0
Time Finished: 1390		Precipitation: 0	

ADJACENT LANDS

Valley	Slope: Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)
	Extent of Natural Vegetation (m): 0-10	10 to 20	20 to 30 30+
	Vegetation Type: shrubs, grass		
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10	10 to 20	20 to 30 30+
	Vegetation Type: grass, shrubs, g. rod, aster, herbs		
	Vegetation Density (HML): H		
Canopy	Type: grass/herbs	Quality and % shade: good 65%	
Land Use	agriculture		
Other	(groundwater, soils, pools, vegetation, etc.)		
Notes	flow, water murky, veg heavy in channel		

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.5 - 2 m	Gradient (H/M/L): L
Bank Height (range (m)): 2 - 2.5 m	Meander/Straight: Straight
Bank Slope (degrees from surface of water): 40 - 80°	Bank Stability: good
Bank Vegetation Type: grass/herbs	Bank Veg. Density (H/M/L): H

CHANNEL SUBSTRATE %

Clay: 10	Gravel:	Boulder:	Muck: 40
Silt: 15	Pebble:	Bedrock:	Detritus: 20
Sand: 15	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: —	Boulder/Rock: —
Riffles: —	Woody Debris: —	Cobble: —
Backwater: —	Vegetation: ✓	Other: — culvert

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	terrestrial grasses	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 14	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky water
Air Temp. (°C): 11	D.O. (%):	TDS (ppm):	
Time Taken: @ 1330	Conductivity (µs/cm):		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...

Ross Norry Drain - flowing
 - heavy veg present in channel
 av.
 - depth ~ 0.25m
 - no fish observed
 - bankful ~ 3.5m.

Unknown Drain running parallel to Gleeson Line
 - flowing
 - drainage/road ditch, grassed, corridor 10m.
 - bank 1.5-2m.

PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-36	- u/s view Ross Norry		
100-37	- d/s view Ross Norry		
100-38	- u/s view from R.N. Drain (east view)		
100-39	- d/s view " " (west)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

no fish/frogs seen.



PROJECT (Number & Name): 11842 South Kent
Field Staff: G. MacVeigh
Station: AHY014
Waterbody: Jessop Drain + unknown (P114-B2)
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: 4 Oct 11
Time Started: 1340
Time Finished: 1405
Site Location:
GPS Datum: NAD83 **Easting:** 0388337
Zone: 17T **Northing:** 4681390
Municipality:
Lot & Concession:
Weather Conditions:
Wind: 1 **Cloud Cover (%):** 0
Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: d/s - g. rod, aster, dogwood u/s - dec. trees, shrubs
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: g. rod, aster, herbs, grasses
	Vegetation Density (HML): H
Canopy	Type: grass d/s tree u/s Quality and % shade: ~60% Good
Land Use	agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.) flowing

CHANNEL MORPHOLOGY

Channel Width (range (m)): 2.5 - 1.5m	Gradient (H/M/L): L
Bank Height (range (m)): 1 - 2.0m	Meander: Straight
Bank Slope (degrees from surface of water): 30 - 60	Bank Stability: good
Bank Vegetation Type: grass, herbs	Bank Veg. Density (H/M/L): H

CHANNEL SUBSTRATE %

Clay:	Gravel: 5	Boulder:	Muck: 55
Silt: 10	Pebble: 5	Bedrock:	Detritus: 15
Sand: 10	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: —	Boulder/Rock: —
Riffles: ✓	Woody Debris: —	Cobble: —
Backwater: —	Vegetation: ✓	Other: — culvert

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	terrestrial grass cattail	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

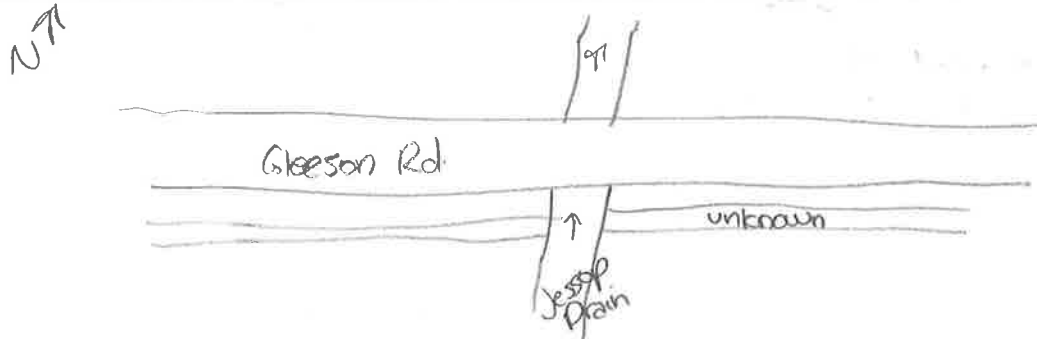
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 15	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky
Air Temp. (°C): 12	D.O. (%):	TDS (ppm):	
Time Taken: 1343	Conductivity (µs/cm):		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



Jessop Drain

- flowing, murky
- good fish habitat
- culvert box - 4m wide under rd.
- bankfull ~ 3m

unknown

- lots of cattails within channel
- wet from recent rain
- parallel to Gleeson

PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-040	u/s Jessop Drain		
100-041	d/s Jessop Drain		
100-042	u/s (east view) unknown from Jessop D.		
100-043	d/s (west view) "		"

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 11842 South Kent.

Field Staff: G. MacVeigh

Station: AHY018

Waterbody: Gov. #7 Drain

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: 4 Oct 11

Time Started: 1416

Time Finished: 1435

Site Location:

GPS Datum: NAD83 **Easting:** 0392035

Zone: 17T **Northing:** 4684570

Municipality:

Lot & Concession:

Weather Conditions:

Wind: 2 **Cloud Cover (%):** 0

Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)
	Extent of Natural Vegetation (m)	0-10	10 to 20 20 to 30 30+
	Vegetation Type: grass		

Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10	10 to 20	20 to 30	30+
	Vegetation Type: grass, herbs, goldenrod, aster, phragmites			
	Vegetation Density (HML): H			

Canopy Type: grass **Quality and % shade:** poor 10%

Land Use agricultural, roads

Other (groundwater, soils, pools, vegetation, etc.)

Notes murky, flowing

CHANNEL MORPHOLOGY

Channel Width (range (m)): 8-12

Bank Height (range (m)): 6-10

Bank Slope (degrees from surface of water): 45-60

Bank Vegetation Type: grass, herbs

Gradient (H/M/L): L

Meander: Straight

Bank Stability: fair - some erosion

Bank Veg. Density (H/M/L): H

CHANNEL SUBSTRATE %

Clay: 15	Gravel: 10	Boulder: 5	Muck: 30 25
Silt: 15	Pebble: 5	Bedrock:	Detritus:
Sand: 20	Cobble: 5	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: — **Undercut Banks:** — **Boulder/Rock:** —

Riffles: — **Woody Debris:** — **Cobble:** —

Backwater: — **Vegetation:** — **Other:** —

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	terrestrial grasses	

CODES:

AHP Aquatic Habitat Point	SWI Surface Water Input	SCS Stream Cross Section
AHY Aquatic Habitat Area	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
TMP Temp Monitor Stn	CKC Creek Crossing	VSS Visual Survey Stn
FLW Flow Monitor Stn	WEL Well	WQS Water Quality Stn
	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 14	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky
Air Temp. (°C): 12	D.O. (%):	TDS (ppm):	
Time Taken: 1420	Conductivity (µs/cm):		
Location Taken: @ gleeson line			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...

- large, murky flowing permanent watercourse.
- depth ~1m or greater
- fish present - unsure what kind
- bankful width ~15m wide
- steep banks.

PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-05a	- d/s view		
100-053	- u/s view		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 1184a South Kent
Field Staff: G. MacVeigh
Station: AHY019
Waterbody: Gov Drain #1 + ^{one} ~~two~~ unknowns +
Drainage System: ~~para~~ Marcel Dr.
Location in System: Parallel to Merlin Rd.
Appr. Reach Length (m):
Survey Date: 4 Oct 11
Time Started: 1445
Time Finished: 1500
Site Location:
GPS Datum: NAD83 **Easting:** 0392663
Zone: 17T **Northing:** 4683841
Municipality:
Lot & Concession:
Weather Conditions:
Wind: 2 **Cloud Cover (%):** 0
Precipitation: 0

ADJACENT LANDS

Valley	Slope: <u>Gentle (< 5°)</u> Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) <u>0-10</u> 10 to 20 20 to 30 30+
	Vegetation Type: grass - fields
Riparian Zone	Flood Plain - extent of frequent flood (m): <u>0-10</u> 10 to 20 20 to 30 30+
	Vegetation Type: grass, herbs, phragmites, goldenrod, aster, hurdock
	Vegetation Density (HML): H
Canopy	Type: grass/herbs Quality and % shade: Poor 10-20%
Land Use	agricultural.
Other	(groundwater, soils, pools, vegetation, etc.)
Notes	See diagram for more descriptions.

CHANNEL MORPHOLOGY - for Gov Drain

Channel Width (range (m)): 8-10m	Gradient (H/M/L): L
Bank Height (range (m)): 8-10m	Meander/Straight: <u>Straight</u>
Bank Slope (degrees from surface of water): 40-60°	Bank Stability: good
Bank Vegetation Type: grass, herbs	Bank Veg. Density (H/M/L): H

CHANNEL SUBSTRATE %

Clay: 15	Gravel: 10	Boulder: 5	Muck: 25
Silt: 15	Pebble: 5	Bedrock:	Detritus:
Sand: 20	Cobble: 5	Marl:	Other:

INSTREAM HABITAT AND COVER

<u>Pools:</u>	Undercut Banks: —	<u>Boulder/Rock:</u>
Riffles: —	Woody Debris: —	<u>Cobble:</u>
Backwater: —	<u>Vegetation:</u>	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

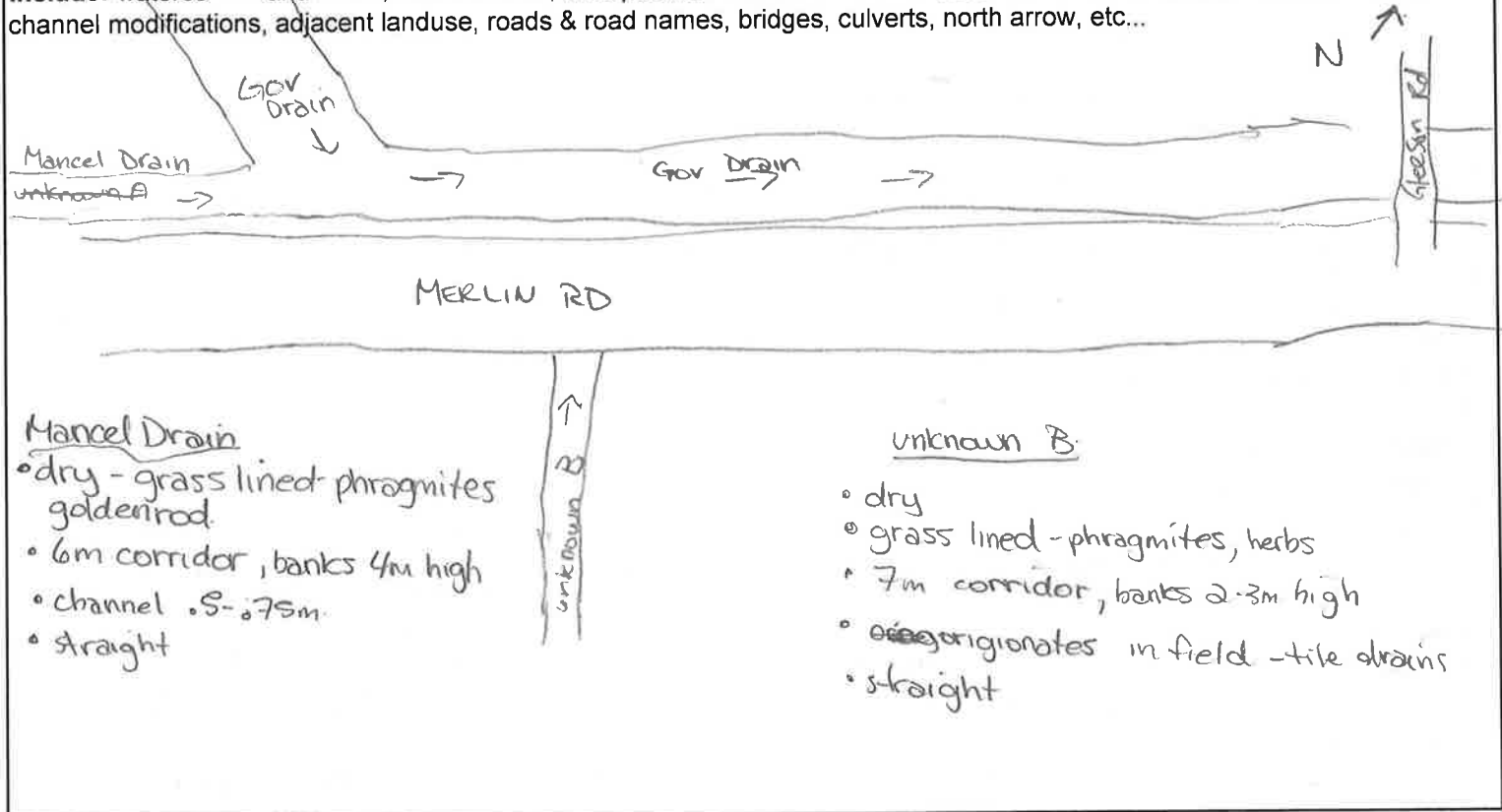
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 14	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky
Air Temp. (°C): 13	D.O. (%):	TDS (ppm):	
Time Taken: @ 1430	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-54	- d/s view of gov drain #1		
100-55	- u/s view " " (meanders through field)		
100-56	- d/s view of unknown B - perp to Merlin Rd.		
100-57	- u/s view of Mancel Drain - parallel to Merlin Rd.		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 1184 a South Kent
Field Staff: G. Mac Veigh
Station: AHY021
Waterbody: Gov. Drain #1
Drainage System:
Location in System: @ road
Appr. Reach Length (m):
Survey Date: 4 Oct 11
Time Started: 1510
Time Finished: 1530
Site Location:
GPS Datum: NAD83 **Easting:** 0392859
Zone: 17T **Northing:** 4681738
Municipality:
Lot & Concession:
Weather Conditions:
Wind: 2 **Cloud Cover (%):** 0
Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: maple, willow sp, grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: dogwood, vines, g. root, willow sp, herbs
	Vegetation Density (HML): H
Canopy	Type: shrubs Quality and % shade: fair 55%
Land Use	agricultural
Other Notes	(groundwater, soils, pools, vegetation, etc.) flowing, murky

CHANNEL MORPHOLOGY

Channel Width (range (m)): 5-8m	Gradient (H/M/L): L
Bank Height (range (m)): 4-7m	Meander/Straight:
Bank Slope (degrees from surface of water): 20-60°	Bank Stability: Good
Bank Vegetation Type: shrubs, herbs	Bank Veg. Density (H/M/L): H

CHANNEL SUBSTRATE %

Clay: 5	Gravel: 10	Boulder: 5	Muck: 40
Silt: 10	Pebble: 10	Bedrock:	Detritus: 10
Sand: 10	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: —	Undercut Banks: —	Boulder/Rock: —
Riffles: —	Woody Debris: —	Cobble: —
Backwater: —	Vegetation: —	Other: —

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	willow sp.	

CODES:

AHP Aquatic Habitat Point	SWI Surface Water Input	SCS Stream Cross Section
AHY Aquatic Habitat Area	GWl Groundwater Input	DOX Dissolved Oxygen Stn
TMP Temp Monitor Stn	CKC Creek Crossing	VSS Visual Survey Stn
FLW Flow Monitor Stn	WEL Well	WQS Water Quality Stn
	CUL Culvert	

FLOW CONDITIONS

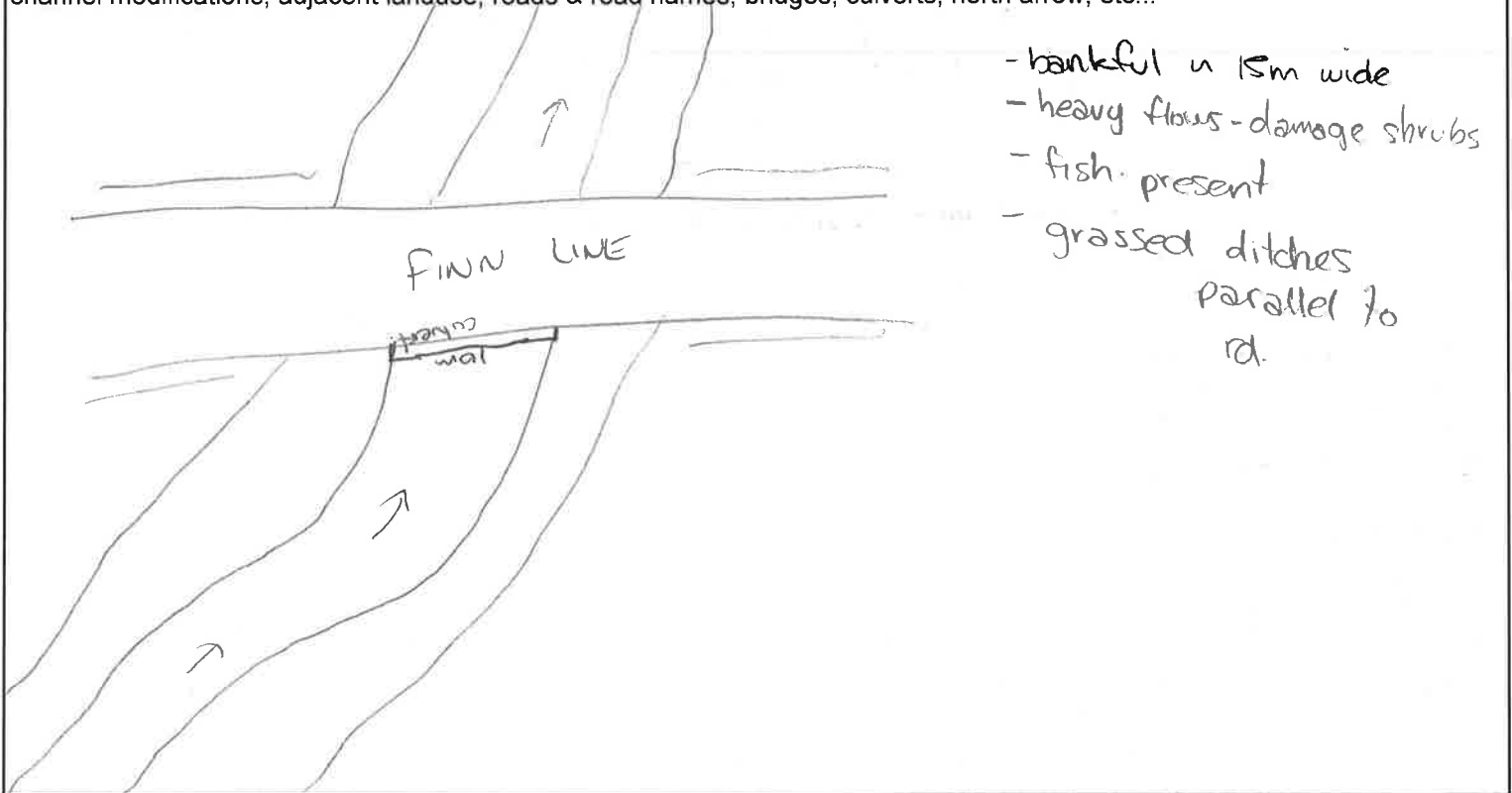
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 14°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky
Air Temp. (°C): 15	D.O. (%):	TDS (ppm):	
Time Taken: 1503	Conductivity (µs/cm):		
Location Taken: @ bridge/culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-100	view of gully down		
100-611	d/s view		
100-60	view of road - grassed ditches		
-63-	"		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 11842 South Kent
Field Staff: G. MacVeigh
Station: AHY022
Waterbody: Lewis Dr
Drainage System:
Location in System: @ road
Appr. Reach Length (m):
Survey Date: 4 Oct 11
Time Started: 1540
Time Finished: 1550

Site Location:
GPS Datum: NAD83 **Easting:** 0393322
Zone: 17T **Northing:** 4682142
Municipality:
Lot & Concession:

Weather Conditions:
Wind: 1 **Cloud Cover (%):** 0
Precipitation: 0

ADJACENT LANDS

Valley **Slope:** Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
Vegetation Type: grass, shrub

Riparian Zone **Flood Plain - extent of frequent flood (m):** 0-10 10 to 20 20 to 30 30+
Vegetation Type: goldenrod, herbs, aster, shrubs, grass
Vegetation Density (HML): H

Canopy **Type:** grass **Quality and % shade:** good - 65%

Land Use agricultural

Other Notes (groundwater, soils, pools, vegetation, etc.)
 murky - culvert under rd. 4m wide

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.75 - 1.5m **Gradient (H/M/L):**
Bank Height (range (m)): 3m **Meander/Straight:**
Bank Slope (degrees from surface of water): 40° **Bank Stability:**
Bank Vegetation Type: grass, herbs **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay: 10 **Gravel:** 10 **Boulder:** **Muck:** 60
Silt: 10 **Pebble:** **Bedrock:** **Detritus:**
Sand: 10 **Cobble:** **Marl:** **Other:**

INSTREAM HABITAT AND COVER

Pools: **Undercut Banks:** **Boulder/Rock:**
Riffles: **Woody Debris:** **Cobble:**
Backwater: **Vegetation:** **Other:**

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
1	terrestrial grasses	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

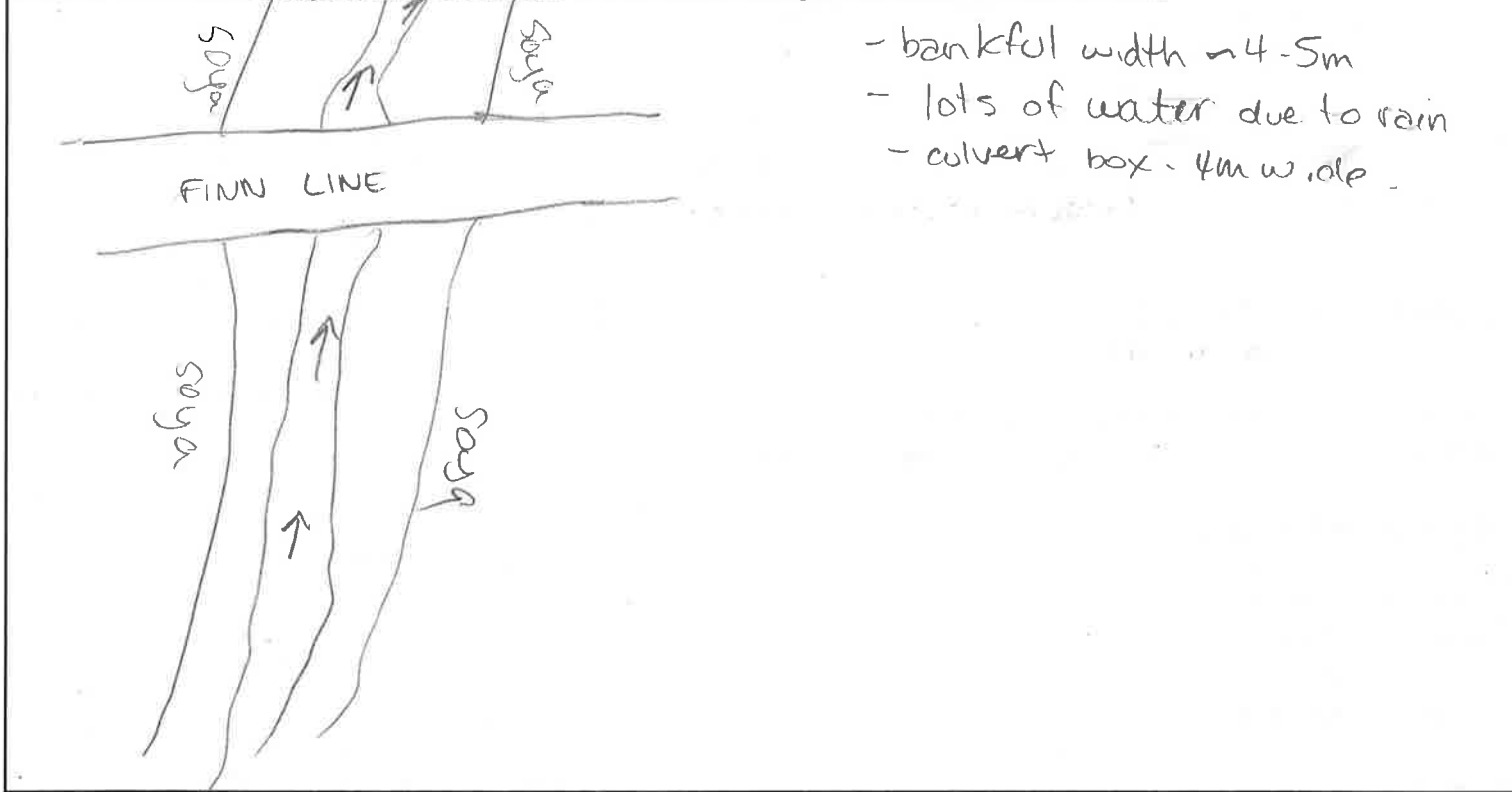
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 14°	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky
Air Temp. (°C): 16°	D.O. (%):	TDS (ppm):	
Time Taken: 1515	Conductivity (µs/cm):		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-62	- u/s view		
100-63	- d/s view		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- most likely dry in summer except after heavy rain.



PROJECT (Number & Name): 1184a South Kent
Field Staff: G. McVeigh
Station: AHY024
Waterbody: unknown A/Griffin Drain / ^{Drain} ~~Shaded~~
Drainage System:
Location in System: @ 7th Line
Appr. Reach Length (m):
Survey Date: Oct 4, 2011
Time Started: 1550 1555
Time Finished: 1615
Weather Conditions:
Wind: 1
Precipitation:
Site Location:
GPS Datum: NAD83
Zone: 17T
Easting: 0394703
Northing: 4682438
Municipality:
Lot & Concession:

ADJACENT LANDS

Valley Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
Vegetation Type: grass, shrub
Riparian Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
Zone **Vegetation Type:** grass, goldenrod, herbs, aster, shrubs
Vegetation Density (H/M/L):
Canopy **Type:** grass **Quality and % shade:** poor 10-15%
Land Use: agricultural
Other (groundwater, soils, pools, vegetation, etc.)
Notes: slight flow - usually stagnant - smelly.

CHANNEL MORPHOLOGY

Channel Width (range (m)): 2-4m **Gradient (H/M/L):** L
Bank Height (range (m)): 2-3 **Meander:** Straight
Bank Slope (degrees from surface of water): 40-60° **Bank Stability:** good
Bank Vegetation Type: grass, herbs **Bank Veg. Density (H/M/L):** H

CHANNEL SUBSTRATE %

Clay: **Gravel:** **Boulder:** Muck: 40
Silt: **Pebble:** **Bedrock:** Detritus: 40
Sand: 20 **Cobble:** **Marl:** **Other:**

INSTREAM HABITAT AND COVER

Pools: **Undercut Banks:** **Boulder/Rock:**
Riffles: **Woody Debris:** **Cobble:**
Backwater: **Vegetation:** **Other:**

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	duckweed	
	algae	
	milfoil	

CODES:

AHP Aquatic Habitat Point	SWI Surface Water Input	SCS Stream Cross Section
AHY Aquatic Habitat Area	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
TMP Temp Monitor Stn	CKC Creek Crossing	VSS Visual Survey Stn
FLW Flow Monitor Stn	WEL Well	WQS Water Quality Stn
	CUL Culvert	

FLOW CONDITIONS

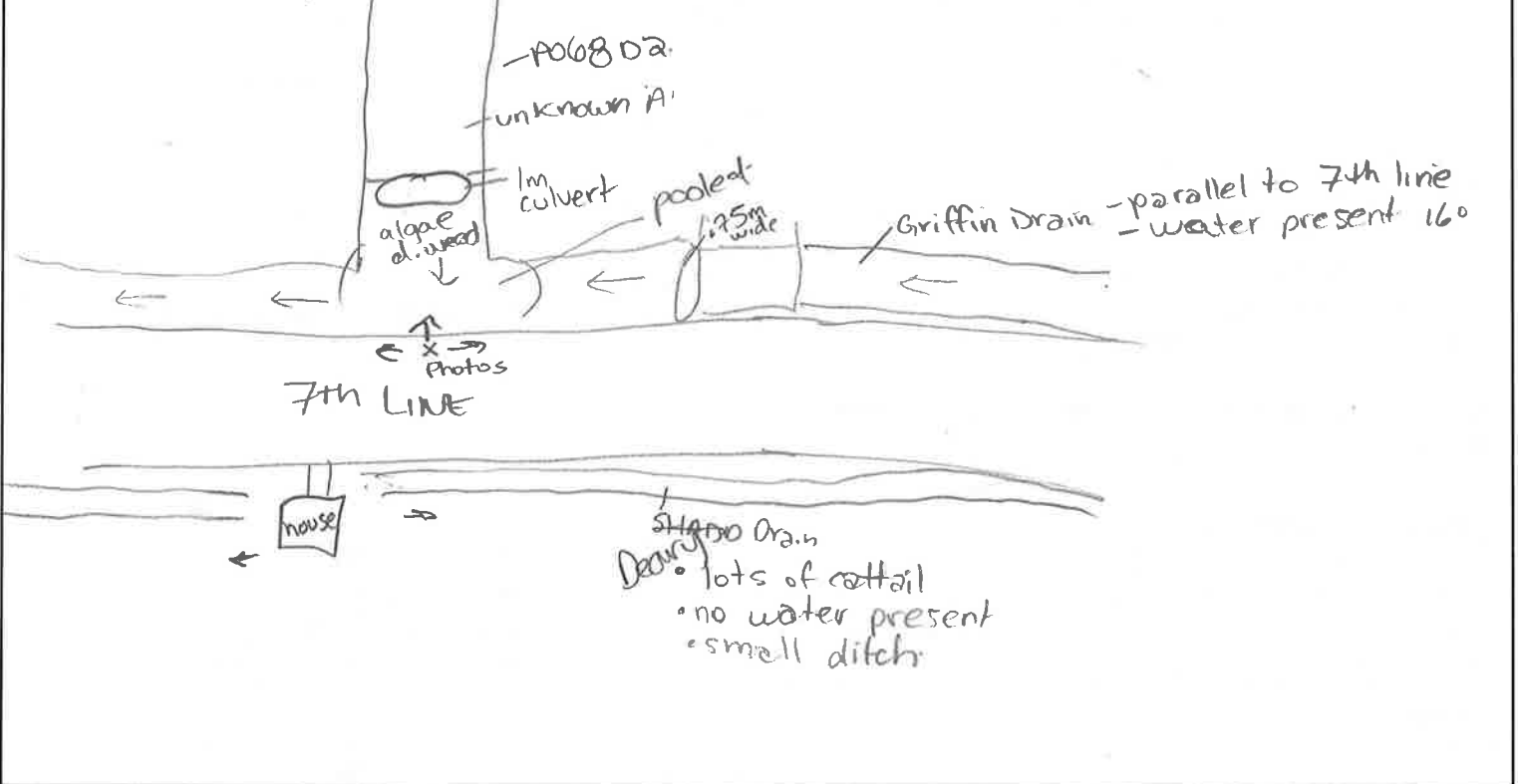
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 16	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky Smelly
Air Temp. (°C): 16	D.O. (%):	TDS (ppm):	
Time Taken: 1545	Conductivity (µs/cm):		
Location Taken:			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-067	u/s view of PO6802 (unknown)		
100-068	u/s view of Griffin		
100-069	d/s view "		
100-070	u/s view Shado		
100-071	d/s view Shado		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 1184a South Kent
Field Staff: G. MacVeigh
Station: AHY025
Waterbody: unknown Finn + Cooper
Drainage System:
Location in System:
Appr. Reach Length (m):
Survey Date: 4 Oct 11
Time Started: 1625
Time Finished: 1648
Site Location:
GPS Datum: NAD83 **Easting:** 0397208
Zone: 17T **Northing:** 4682310
Municipality:
Lot & Concession:
Weather Conditions:
Wind: 2 **Cloud Cover (%):** 0
Precipitation: 0

ADJACENT LANDS

Valley Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
 Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
 Vegetation Type: deciduous trees (a few), grass, g. rod
Riparian Zone Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
 Vegetation Type: grass, goldenrod, burdock, vines, herbs, shrubs
 Vegetation Density (HML): H
Canopy Type: grass Quality and % shade: poor 10-15%
Land Use agricultural
Other Notes (groundwater, soils, pools, vegetation, etc.)
 flow, murky.

CHANNEL MORPHOLOGY - for main drain

Channel Width (range (m)): 4-5m Gradient (H/M/L): L
 Bank Height (range (m)): 6-8m Meander/Straight: - been channelized
 Bank Slope (degrees from surface of water): 30-45 Bank Stability: good
 Bank Vegetation Type: grass, herbs, vines Bank Veg. Density (H/M/L): H

CHANNEL SUBSTRATE %

Clay: Gravel: 10 Boulder: 10 Muck: 30
 Silt: 20 Pebble: 10 Bedrock: Detritus:
 Sand: 20 Cobble: Marl: Other:

INSTREAM HABITAT AND COVER

Pools: ✓ Undercut Banks: — Boulder/Rock: ~~—~~ ✓
 Riffles: — Woody Debris: — Cobble: —
 Backwater: — Vegetation: ✓ Other: — culvert

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	terrestrial grasses	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

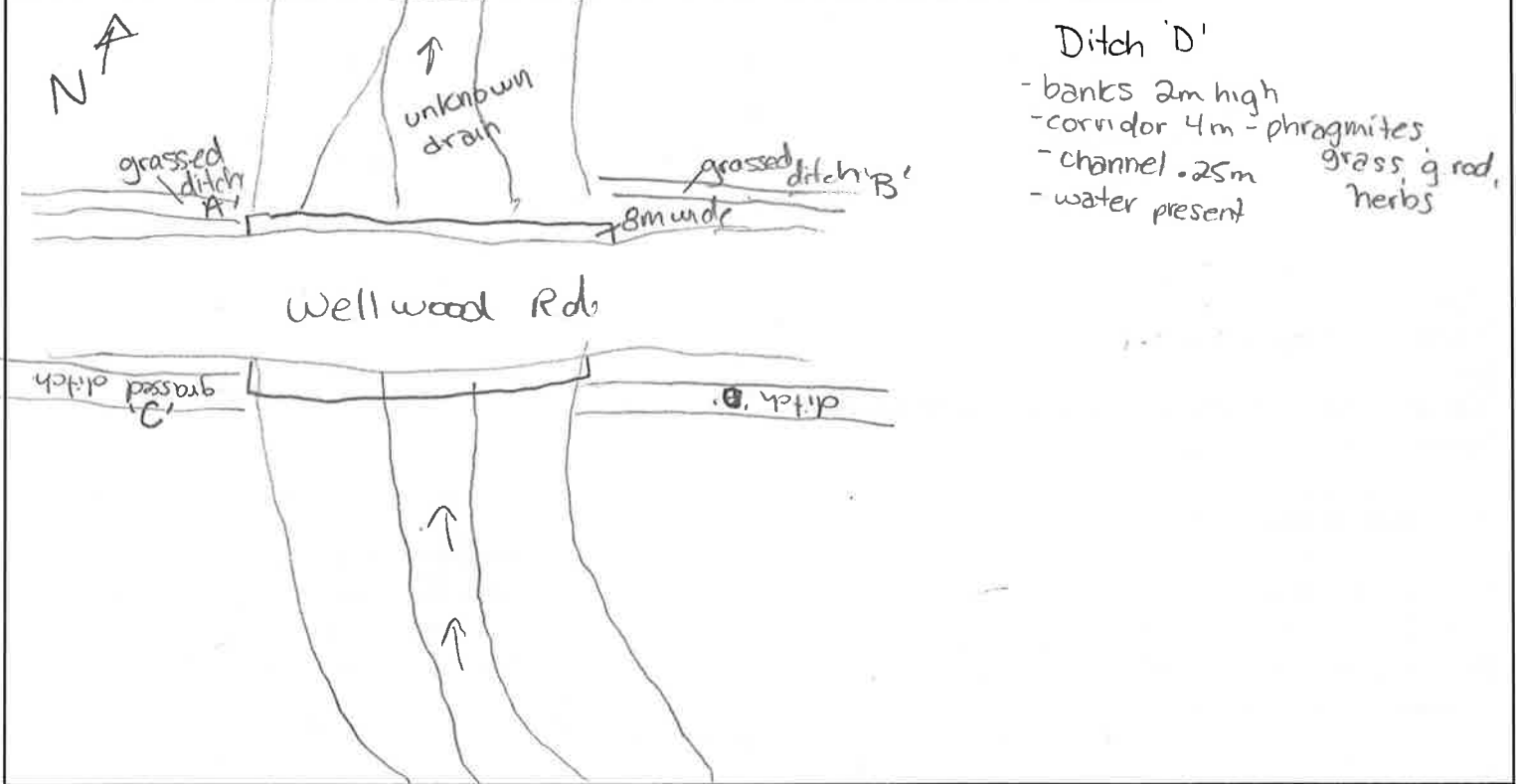
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 14	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky.
Air Temp. (°C): 16	D.O. (%):	TDS (ppm):	
Time Taken: 16:24	Conductivity (µs/cm):		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-072	-u/s view of unknown drain	100-077	-ditch 'D'
100-073	-d/s view of "		
100-074	- ditch 'A' view		
100-075	- ditch 'B' view		
100-076	- ditch 'C' view		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 11842 South Kent		Site Location:	
Field Staff: G. MacVeigh		GPS Datum: NAD83 Easting: 0401920	
Station: AHY026 d 7		Zone: 17T Northing: 4687754	
Waterbody: Waddick Drain		Municipality:	
Drainage System:		Lot & Concession:	
Location in System:			
Appr. Reach Length (m):			
Survey Date: 5 Oct 11		Weather Conditions:	
Time Started: 9:15		Wind: 1 Cloud Cover (%): 5	
Time Finished: 9:35		Precipitation: 3/4	

ADJACENT LANDS				
Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	grass, deciduous trees		
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	goldenrod, shrubs, aster, grasses, herbs		
	Vegetation Density (H/M/L):			
Canopy	Type:	grass		Quality and % shade:
Land Use	agriculture, houses			
Other	(groundwater, soils, pools, vegetation, etc.)			
Notes	water turbid			

CHANNEL MORPHOLOGY	
Channel Width (range (m)):	1 - 10m (pool)
Bank Height (range (m)):	6 - 8m
Bank Slope (degrees from surface of water):	15 - 30°
Bank Vegetation Type:	grass, herbs
Gradient (H/M/L):	L
Meander /Straight:	- been influenced
Bank Stability:	good
Bank Veg. Density (H/M/L):	H

CHANNEL SUBSTRATE %			
Clay:	Gravel: 20	Boulder:	Muck: 5
Silt: 10	Pebble: 10	Bedrock:	Detritus: 5
Sand: 40	Cobble: 10	Marl:	Other:

INSTREAM HABITAT AND COVER		
Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input checked="" type="checkbox"/>	Cobble: <input checked="" type="checkbox"/>
Backwater: <input type="checkbox"/>	Vegetation: <input checked="" type="checkbox"/>	Other: culvert

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	terrestrial grasses	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

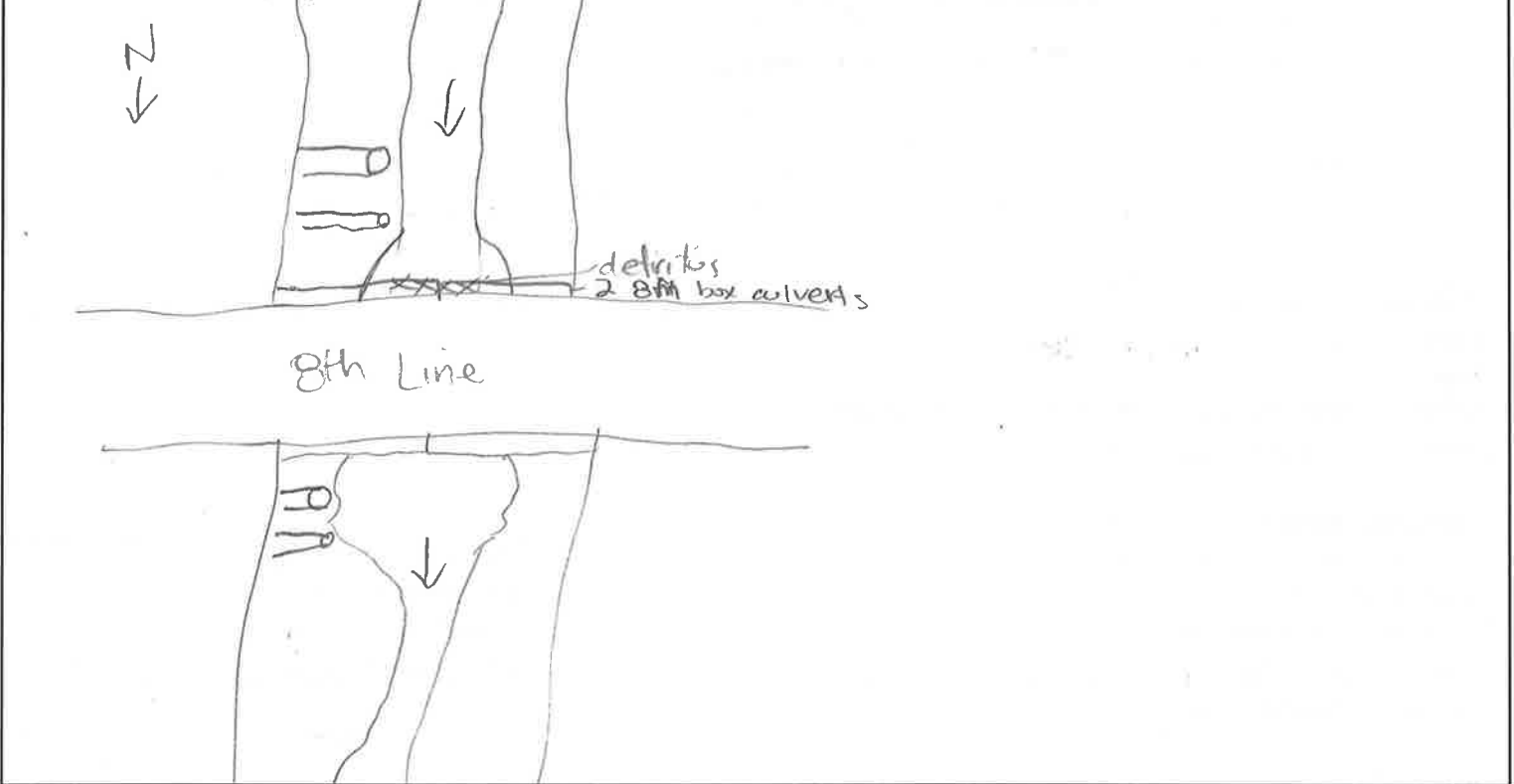
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 14°C	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky
Air Temp. (°C): 16°C	D.O. (%):	TDS (ppm):	
Time Taken: @ 9:30	Conductivity (µs/cm):		
Location Taken: @ bridge			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-083	- u/s view (south)		
100-084	- d/s view (north)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- fast flow, drainage culverts flowing
- water turbid
- bankfull width ~ 8-13m

- ditches parallel to road
- manicured - culverts under roads/driveways



PROJECT (Number & Name): 1184a South Kent	
Field Staff: G. MacVeigh	Site Location:
Station: AHY030	GPS Datum: NAD83 Easting: 0398722
Waterbody: unknown drain	Zone: 17T Northing: 4681173
Drainage System:	Municipality: Chatham-Kent - Essex
Location in System: @ 10th Line	Lot & Concession:
Appr. Reach Length (m):	
Survey Date: 5 Oct 11	Weather Conditions:
Time Started: 1010	Wind: 1 Cloud Cover (%): 5
Time Finished: 1030	Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: grass, deciduous trees (few)
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: goldenrod, aster, vines, grass, herbs, shrubs
	Vegetation Density (HML): H
Canopy	Type: grass/shrubs/trees Quality and % shade: good - 60-70%
Land Use	agicultural, house
Other Notes	(groundwater, soils, pools, vegetation, etc.) murky, good flow

CHANNEL MORPHOLOGY - on main Drain

Channel Width (range (m)): 2-7m	Gradient (H/M/L): L
Bank Height (range (m)): 0.5-4m	Meander/Straight: Straight
Bank Slope (degrees from surface of water): 30-60°	Bank Stability: good
Bank Vegetation Type: grass, herbs	Bank Veg. Density (H/M/L): H

CHANNEL SUBSTRATE %

Clay: 5	Gravel: 10	Boulder: 5	Muck: 20
Silt: 10	Pebble: 10	Bedrock:	Detritus: 20
Sand: 20	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: —	Boulder/Rock: ✓
Riffles: ✓	Woody Debris: —	Cobble: —
Backwater: —	Vegetation: ✓	Other: culvert

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	terrestrial grasses	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

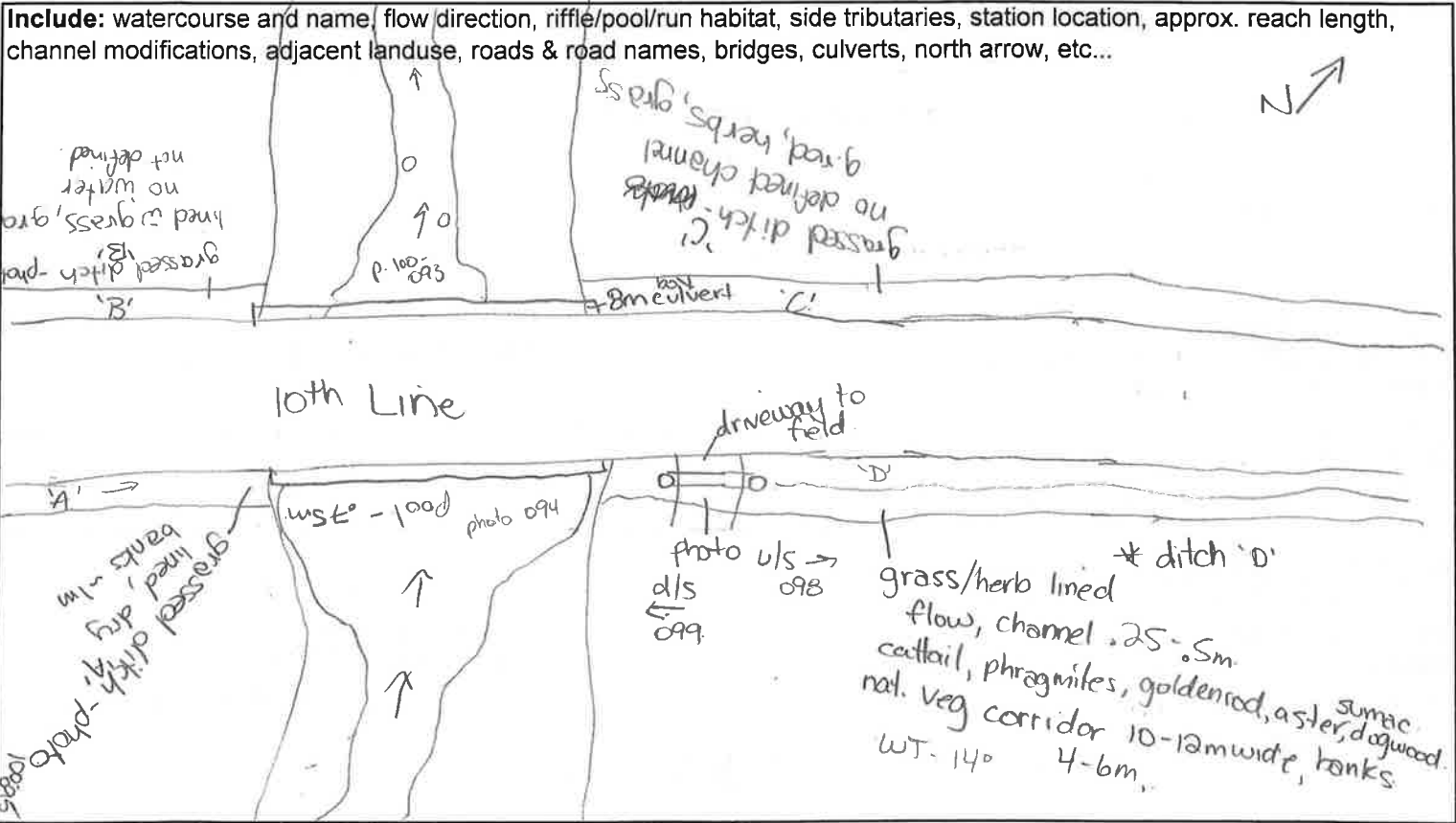
FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 14	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky, fast flowing
Air Temp. (°C): 16	D.O. (%):	TDS (ppm):	
Time Taken: 10:17	Conductivity (µs/cm):		
Location Taken: @ culvert/bridge			

SITE DRAWING



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-093	- u/s view of main drain	100-096	- u/s view ditch 'D' from driveway
100-094	- d/s view of main drain	100-097	- d/s view " " " "
100-095	- u/s view of ditch 'A' from drain	100-098	- d/s view " " " "
100-096	- u/s view of ditch 'B' " "		
100-097	- u/s view of ditch 'C' " "		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

-raccoon prints No fish/frogs observed.



PROJECT (Number & Name): 11842 South Kent	
Field Staff: G. MacVeigh	
Station: AHY 033	Site Location:
Waterbody: Carter Drain Unknown Drain	GPS Datum: NAD83 Easting: 0400061
Drainage System:	Zone: 17T Northing: 4682369
Location in System: @ 10th Line	Municipality: Chatham Kent Essex
Appr. Reach Length (m):	Lot & Concession:
Survey Date: 5 Oct 11	Weather Conditions:
Time Started: 1050	Wind: 1 Cloud Cover (%): 10
Time Finished: 1105	Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: grass, maples, poplar
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: goldenrod, vines, aster, herbs, garlic mustard
	Vegetation Density (HML): M
Canopy	Type: trees Quality and % shade: good 60%
Land Use	agricultural
Other Notes	(groundwater, soils, pools, vegetation, etc.) - cleared further downstream in field - 6m round culvert soya fields

CHANNEL MORPHOLOGY - on ~~Carter~~ Unknown Drain

Channel Width (range (m)): 3 - 5m	Gradient (H/M/L): L
Bank Height (range (m)): 1 - 2m	Meander/Straight:
Bank Slope (degrees from surface of water): 15 - 45°	Bank Stability: fair
Bank Vegetation Type: grass, herbs	Bank Veg. Density (H/M/L): M

CHANNEL SUBSTRATE %

Clay:	Gravel: 10	Boulder:	Muck: 50
Silt: 10	Pebble: 10	Bedrock:	Detritus:
Sand: 20	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: —	Boulder/Rock: —
Riffles: —	Woody Debris: —	Cobble: —
Backwater: —	Vegetation: ✓	Other: culvert

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	terrestrial grasses	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

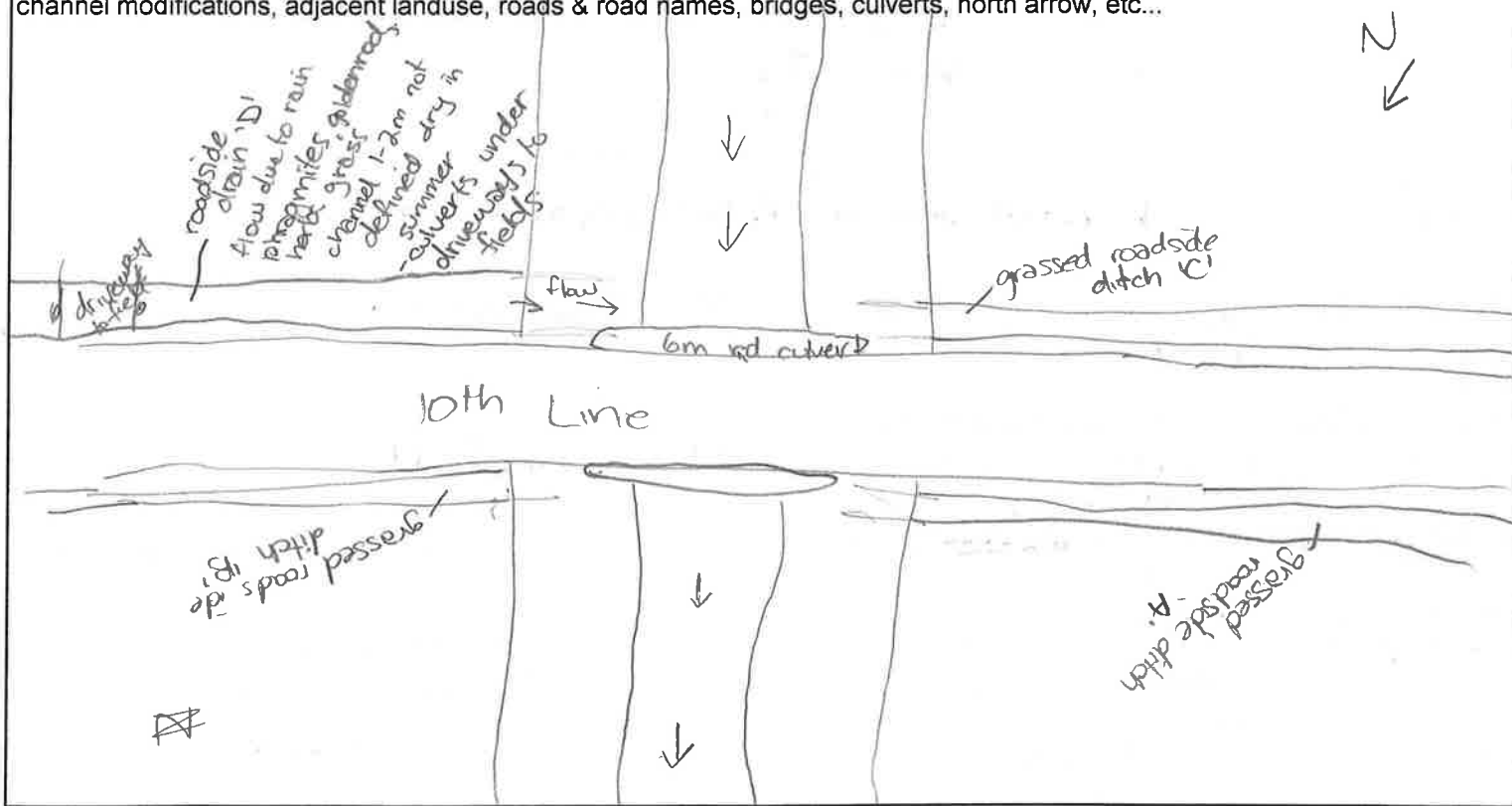
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 14	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky
Air Temp. (°C): 18	D.O. (%):	TDS (ppm):	
Time Taken: 1105	Conductivity (µs/cm):		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
photo 100-105	- u/s center ^{u/s} Drain	100-110	- u/s drain/ditch 'D'
100-106	- d/s center ^{u/s} Drain		
100-107	- u/s ditch A		
100-108	- u/s ditch B		
100-109	- u/s ditch C		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

Depth - .25 - .5m, Bankful ≈ 6-7m, good flow, No fish observed.
very straight.



PROJECT (Number & Name): 11842 South Kent

Field Staff: G. McVeigh

Station: AH1034 **Site Location:**

Waterbody: Carter Drain Symon Drain **GPS Datum:** NAD83 **Easting:** 040548

Drainage System: **Zone:** 171 **Northing:** 4683724

Location in System: @ 10th Line **Municipality:**

Appr. Reach Length (m): **Lot & Concession:**

Survey Date: Oct 5, 11 **Weather Conditions:**

Time Started: 1120 **Wind:** 1 **Cloud Cover (%):** 10

Time Finished: 1145 **Precipitation:** 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: cedar, spruce, golden rod
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: vines, r.o dogwood, goldenrod, willow sp, aster, herbs, grasses
	Vegetation Density (HML): H
Canopy	Type: grass Quality and % shade: poor 15%
Land Use	agricultural
Other Notes	(groundwater, soils, pools, vegetation, etc.) con box culvert under rd

CHANNEL MORPHOLOGY

Channel Width (range (m)): 2-6m	Gradient (H/M/L): L
Bank Height (range (m)): 3-5m	Meander/Straight:
Bank Slope (degrees from surface of water): 15-45°	Bank Stability: good
Bank Vegetation Type: grass	Bank Veg. Density (H/M/L): H

CHANNEL SUBSTRATE %

Clay:	Gravel: 10	Boulder: 10	Muck: 40
Silt: 10	Pebble: 10	Bedrock:	Detritus:
Sand: 20	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: —	Boulder/Rock: ✓
Riffles: —	Woody Debris: —	Cobble: —
Backwater: —	Vegetation: ✓	Other: culvert

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	terrestrial grasses	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

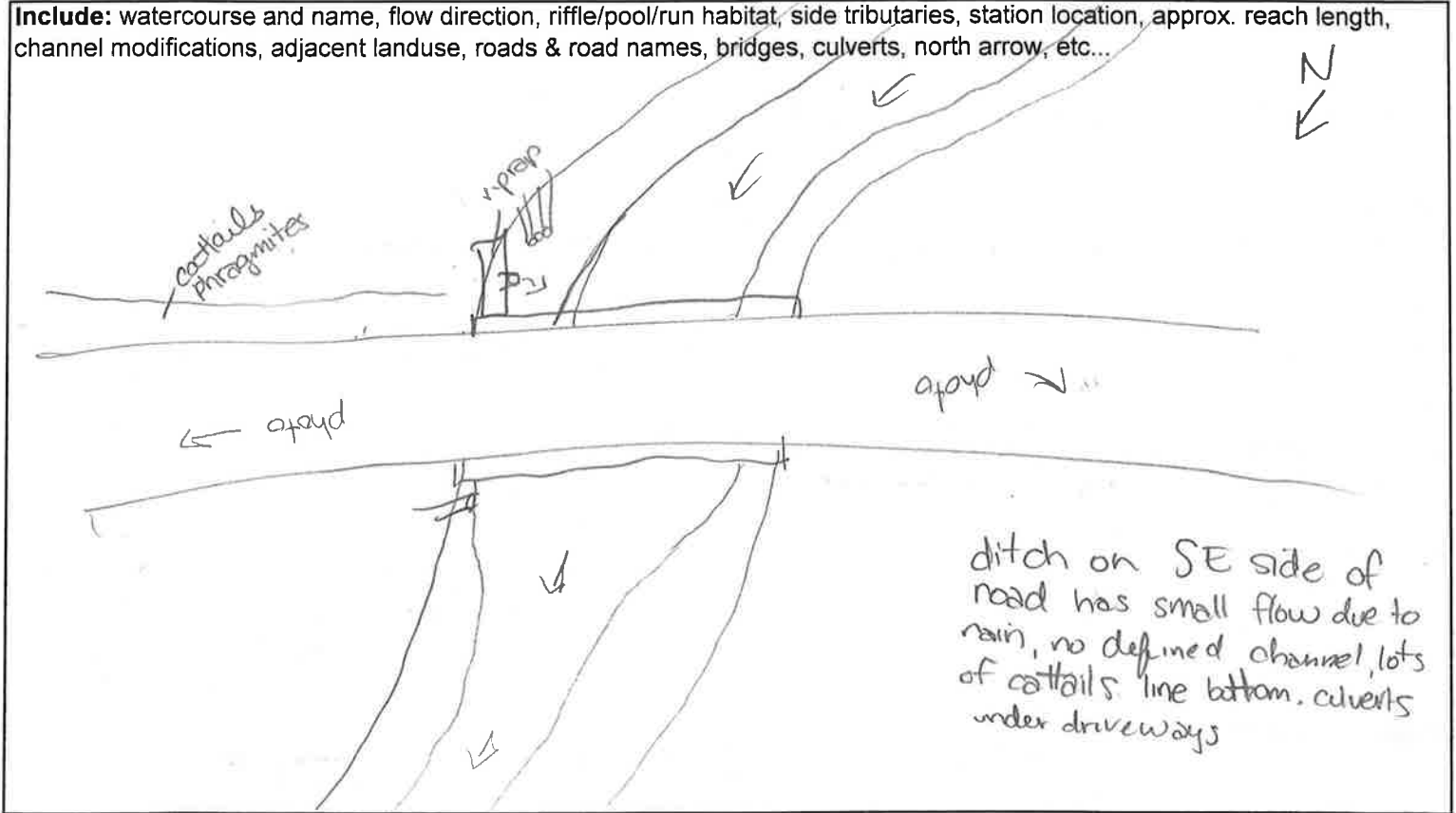
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 14	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: Murky
Air Temp. (°C): 18	D.O. (%):	TDS (ppm):	
Time Taken: 1130	Conductivity (µs/cm):		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-111	u/s view of earthen drain		
100-112	d/s view of " "		
100-113	E facing shot		
100-114	w facing shot		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

Depth average - .50 m, bank full ~ 6-7m, slow flow
culvert flowing on u/s side of road



PROJECT (Number & Name): 11842 South Kent
Field Staff: G. MacVeigh
Station: AHY 036
Waterbody: Doyle Drain
Drainage System:
Location in System: @ 10th Line
Appr. Reach Length (m):
Survey Date: 5 Oct 11
Time Started: 11:50
Time Finished: 12:05
Site Location:
GPS Datum: NAD83 **Easting:** 0403259
Zone: 17T **Northing:** 4685248
Municipality:
Lot & Concession:
Weather Conditions:
Wind: 1 **Cloud Cover (%):** 10
Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle ($\leq 5^\circ$) Moderate (5 - 15°) Steep ($> 15^\circ$)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: grass - fields
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: grass, goldenrod, phragmites, shrubs, aster.
	Vegetation Density (HML): H
Canopy	Type: Grass/herbs Quality and % shade: good 60-70%
Land Use	agricultural
Other Notes	(groundwater, soils, pools, vegetation, etc.) pool below culvert (box 5m wide)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.75 - 3m (pool) **Gradient (H/M/L):**
Bank Height (range (m)): 4 - 5m **Meander/Straight:** -influenced by human
Bank Slope (degrees from surface of water): 15 - 30° **Bank Stability:** good
Bank Vegetation Type: grass, herbs **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay:	Gravel: 10	Boulder:	Muck: 40
Silt: 10	Pebble:	Bedrock:	Detritus: 20
Sand: 20	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: **Undercut Banks:** **Boulder/Rock:**
Riffles: **Woody Debris:** **Cobble:**
Backwater: **Vegetation:** **Other:** culvert

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	terrestrial grasses	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

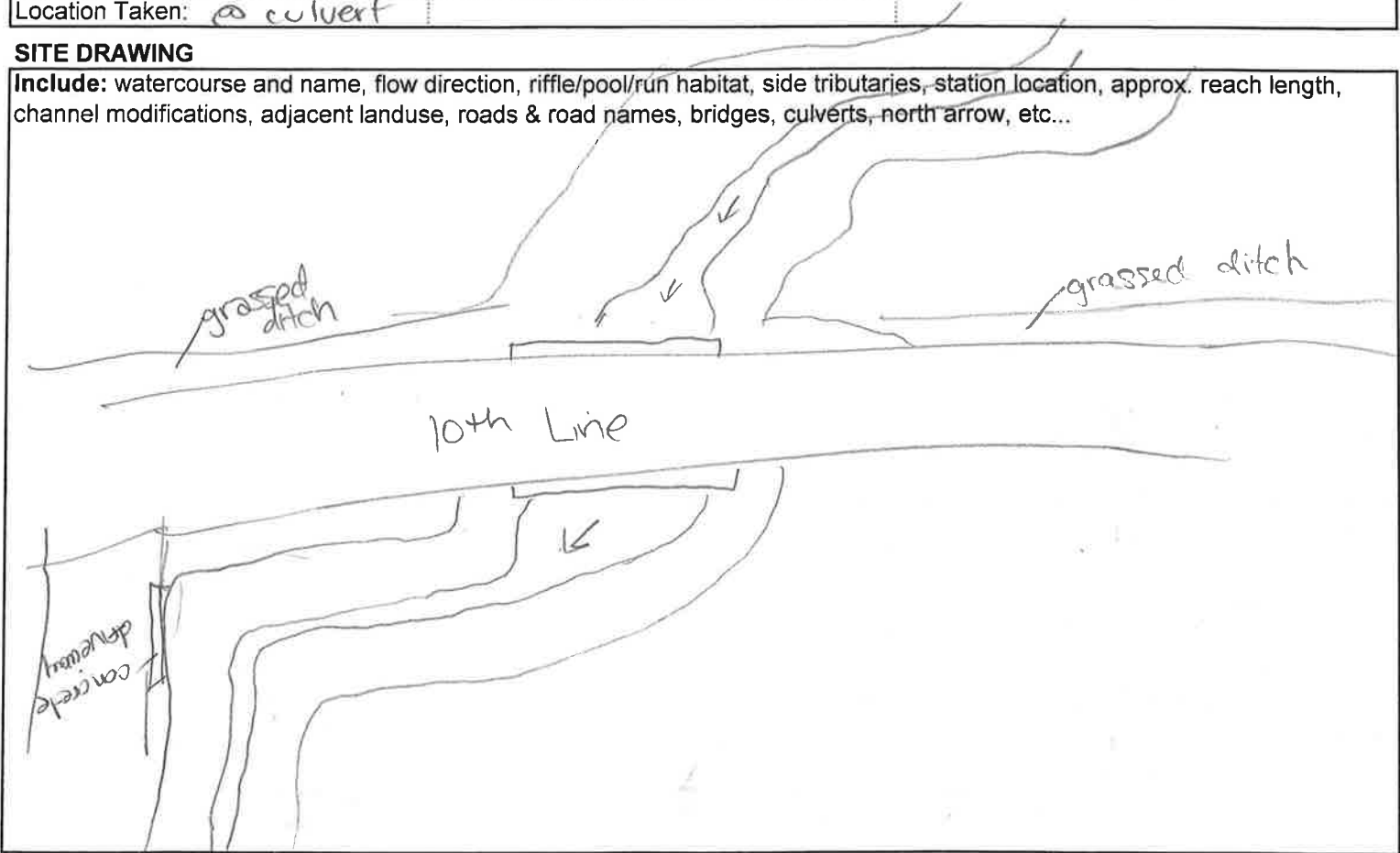
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 15°	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky/turbid
Air Temp. (°C): 19°	D.O. (%):	TDS (ppm):	
Time Taken: 1148	Conductivity (µs/cm):		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-117	- u/s view of drain		
100-118	- d/s view "		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- pool depth 0.5m, grass growing in channel/fragmites
- slow flow
- no fish observed!



PROJECT (Number & Name): 1184 Southkent

Field Staff: G. MacVeigh

Station: AHY038 **Site Location:**

Waterbody: Ferguson / Laurie Drain **GPS Datum:** NAD83 **Easting:** 0106232

Drainage System: **Zone:** 17T **Northing:** 4689788

Location in System: @ 9th Line **Municipality:**

Appr. Reach Length (m): **Lot & Concession:**

Survey Date: 5 Oct 11 **Weather Conditions:**

Time Started: 12:00 **Wind:** 1 **Cloud Cover (%):** 10

Time Finished: 12:45 **Precipitation:** 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: grass - then fields - corn/soya
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: goldenrod, aster, shrubs, grass, herbs
	Vegetation Density (HML): H
Canopy	Type: Grass Quality and % shade: Poor 10%
Land Use	agricultural
Other Notes	(groundwater, soils, pools, vegetation, etc.) slow flow

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1-3m	Gradient (H/M/L): L
Bank Height (range (m)): 2-4m	Meander: Straight
Bank Slope (degrees from surface of water): 30-40°	Bank Stability: good
Bank Vegetation Type: grass/herbs	Bank Veg. Density (H/M/L): H

CHANNEL SUBSTRATE %

Clay: 5	Gravel: 5	Boulder: 50
Silt: 5	Pebble: 20	Bedrock: 20
Sand: 20	Cobble: 5	Marl: 5
		Other: 5

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: —	Boulder/Rock: —
Riffles: —	Woody Debris: —	Cobble: —
Backwater: —	Vegetation: ✓	Other: —

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	terrestrial grasses	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 15°	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters:
Air Temp. (°C): 21°	D.O. (%):	TDS (ppm):	
Time Taken: 1230	Conductivity (µs/cm):		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...

- very straight
- murkiness starting to clear
- grass within channel
- drain between fields - tile drains present
- bankful width 2-4m
- depth average - .15 - .25m
- ditches parallel to road - grass lined

PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-121	- u/s Ferguson Drain		
100-122	- d/s "		
100-123	- south side of road facing east		
100-124	- " " facing west		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

no fish/frogs seen.



PROJECT (Number & Name): 1184a South Kent

Field Staff: G. MacVeigh

Station: AHY045 ^{FM} LUCAS

Waterbody: unknown ~~Lucas~~ Drain

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: 5 Oct 11

Time Started: 1335

Time Finished: 1350

Site Location:

GPS Datum: NAD83

Easting: 0411924

Zone: 17T

Northing: 4690923

Municipality:

Lot & Concession:

Weather Conditions:

Wind: 1

Cloud Cover (%): 20

Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 -u/s 20 to 30 30+
	Vegetation Type: poplar, elm, cedar, goldenrod, dogwood
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: aster, goldenrod, fleabane, shrubs, grass, herbs
	Vegetation Density (HML): H
Canopy	Type: dec trees / shrubs Quality and % shade: good 60%
Land Use	agricultural
Other Notes	(groundwater, soils, pools, vegetation, etc.) drains flowing parallel to road (on u/s side)

CHANNEL MORPHOLOGY

Channel Width (range (m)): 2-4m	Gradient (H/M/L): L
Bank Height (range (m)): 1-3m	Meander: Straight
Bank Slope (degrees from surface of water): 20-80°	Bank Stability: fair
Bank Vegetation Type: grass	Bank Veg. Density (H/M/L): M

CHANNEL SUBSTRATE %

Clay:	Gravel: 15	Boulder: 10	Muck: 15
Silt: 10	Pebble: 15	Bedrock:	Detritus: 10
Sand: 25	Cobble:	Marl:	Other: garbage

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: none a little u/s side	Boulder/Rock: ✓
Riffles: ✓	Woody Debris: ✓	Cobble: —
Backwater: —	Vegetation: ✓	Other: culvert

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	terrestrial veg	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

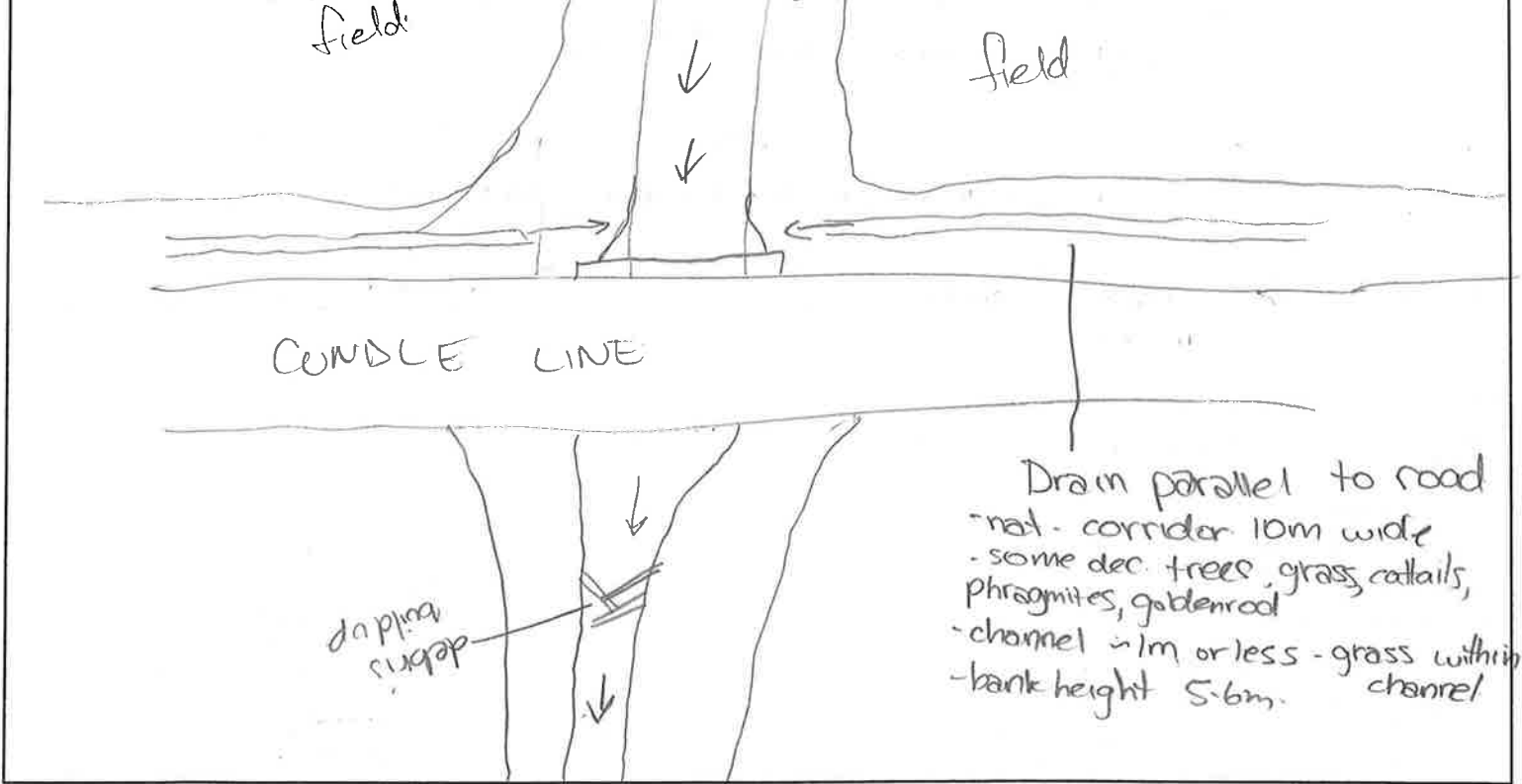
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 13	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky
Air Temp. (°C): 17	D.O. (%):	TDS (ppm):	
Time Taken: 1345	Conductivity (µs/cm):		
Location Taken: below culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-143	u/s view of Lucas Drain		
100-144	d/s view "		
100-145	South Side view of drainage ditch		
100-146	"		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- pool depth - .50m riffle - 10m
- fast flowing
- build up of debris d/s of road.
- good fish habitat.



PROJECT (Number & Name): 11842 South Kent
Field Staff: G. MacVeigh
Station: AHY 047
Waterbody: Kneehorne Drain
Drainage System:
Location in System: @ Burke Line
Appr. Reach Length (m):
Survey Date: 5 Oct 11
Time Started: 1410
Time Finished: 1425
Site Location:
GPS Datum: NAD83 **Easting:** 0414063
Zone: 17T **Northing:** 4692660
Municipality:
Lot & Concession:
Weather Conditions:
Wind: 1 **Cloud Cover (%):** 20
Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: grass, dec. trees u/s side
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: grass, herbs, shrubs, willow sp, g. rod, aster cattail
	Vegetation Density (HML): H
Canopy	Type: Grass Quality and % shade: good 60%
Land Use	agricultural
Other Notes	(groundwater, soils, pools, vegetation, etc.)

CHANNEL MORPHOLOGY

Channel Width (range (m)): .25 - .75 **Gradient (H/M/L):** L
Bank Height (range (m)): 1.5 - 2.0m **Meander:** Straight
Bank Slope (degrees from surface of water): 20 - 60° **Bank Stability:** good
Bank Vegetation Type: grass, herbs **Bank Veg. Density (H/M/L):** H

CHANNEL SUBSTRATE %

Clay:	Gravel:	Boulder:	Muck: 60
Silt: > 10	Pebble:	Bedrock:	Detritus: 10
Sand: > 20	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: _____ **Undercut Banks:** _____ **Boulder/Rock:** _____
Riffles: _____ **Woody Debris:** _____ **Cobble:** _____
Backwater: _____ **Vegetation:** **Other:** culvert

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	cattail	abundant

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

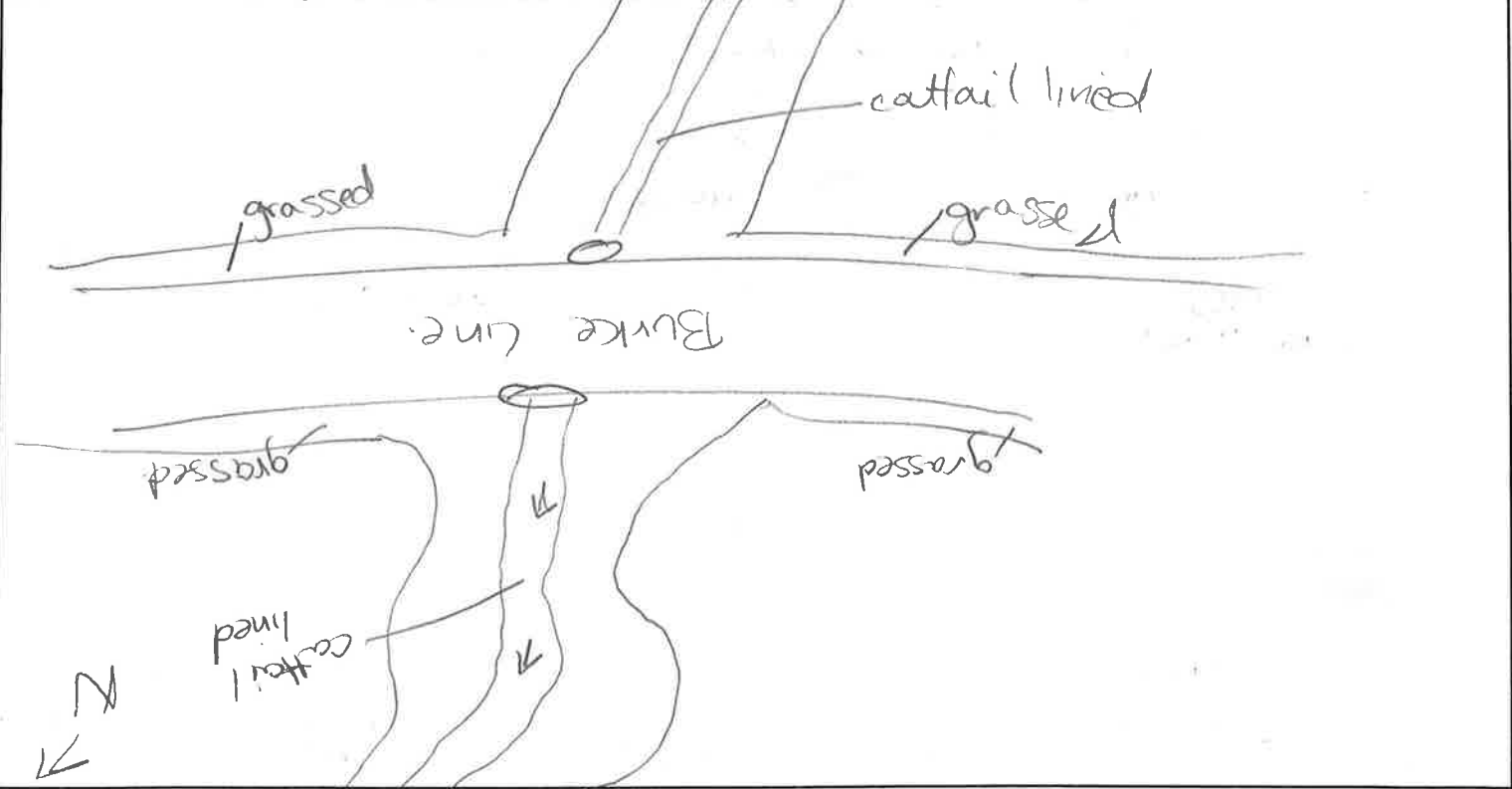
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 15.0	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky.
Air Temp. (°C): 17.0	D.O. (%):	TDS (ppm):	
Time Taken: 14:15	Conductivity (µs/cm):		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-149	u/s new Kneeborne Drain		
100-150	d/s new "		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- pockets of water - no flow
- lined with cattails
- bankfull approx - 4-5m
- culvert round 1m dia.
- no fish observed
- dry or moist in summer



PROJECT (Number & Name): 11842 South Kent		
Field Staff: G. MacVagh		
Station: AHY019	Site Location:	
Waterbody: Tedford Drain	GPS Datum: NAD83	Easting: 0415262
Drainage System:	Zone: 17T	Northing: 4693812
Location in System: @ Burke Line	Municipality:	
Appr. Reach Length (m):	Lot & Concession:	
Survey Date: 5 Oct 11	Weather Conditions:	
Time Started: 1435	Wind: 1	Cloud Cover (%): 25
Time Finished: 1455	Precipitation: 0	

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: grass, cedar, oak, g. rod
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: shrubs, goldenrod, oak, r.o. dogwood, aster, vines
	Vegetation Density (HML): H
Canopy	Type: Grass Quality and % shade: good
Land Use	agricultural
Other Notes	(groundwater, soils, pools, vegetation, etc.) tile drains flowing, drain-flowing, 5m box culvert.

CHANNEL MORPHOLOGY

Channel Width (range (m)): .5 - 1.5m (2.5m pool)	Gradient (H/M/L): L
Bank Height (range (m)): 2 - 4m	Meander/Straight:
Bank Slope (degrees from surface of water): 30 - 60°	Bank Stability: good
Bank Vegetation Type: grass, herbs	Bank Veg. Density (H/M/L): H

CHANNEL SUBSTRATE %

Clay:	Gravel: 5	Boulder: 5	Muck: 40
Silt: 15	Pebble: 5	Bedrock:	Detritus:
Sand: 30	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input checked="" type="checkbox"/>	Woody Debris: <input type="checkbox"/>	Cobble: <input type="checkbox"/>
Backwater: <input type="checkbox"/>	Vegetation: <input checked="" type="checkbox"/>	Other: culvert

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	rush	
	cattail	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

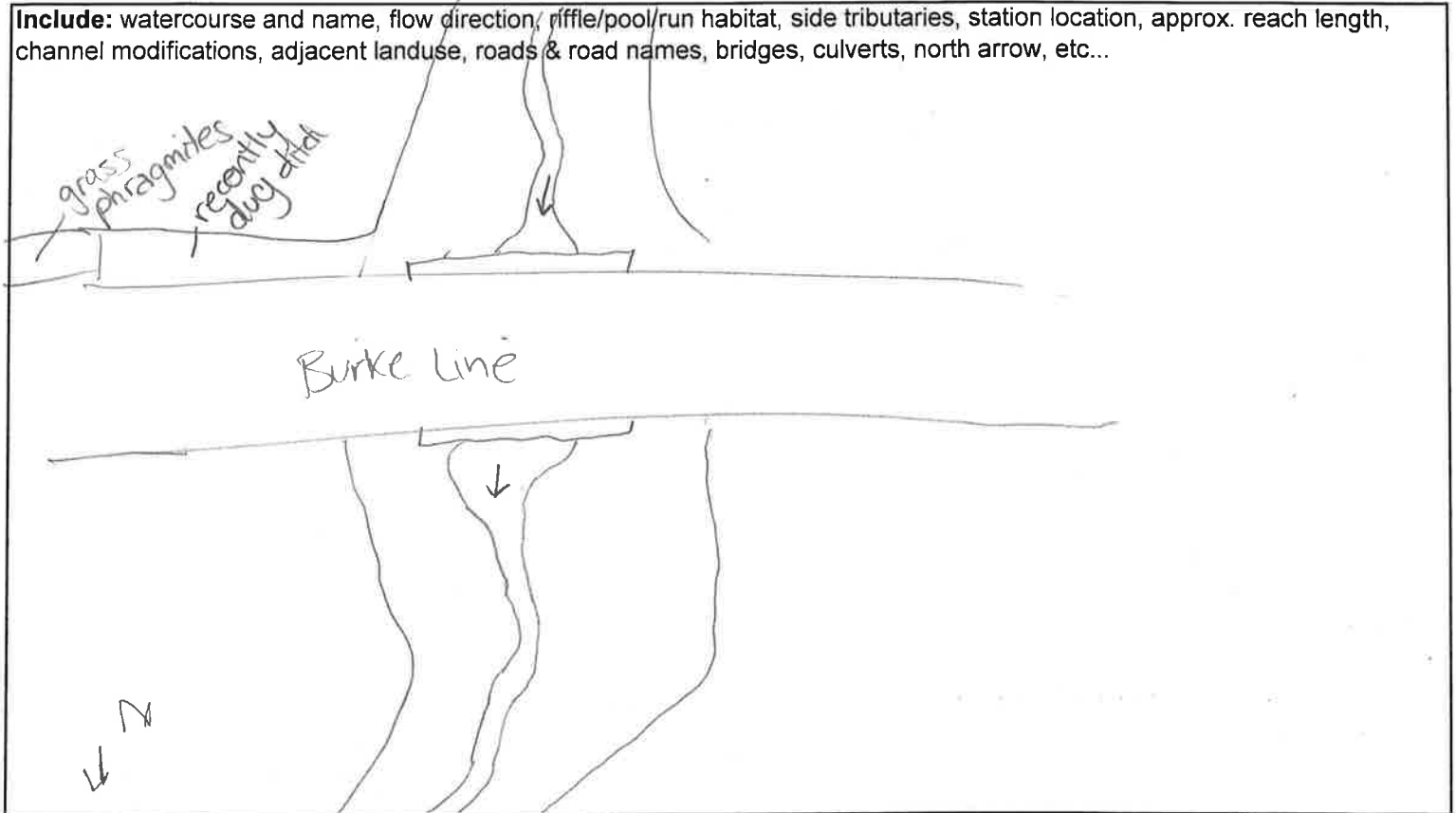
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 13	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky
Air Temp. (°C): 18°	D.O. (%):	TDS (ppm):	
Time Taken: 1440	Conductivity (µs/cm):		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-153	u/s view of Tedford Dr		
100-154	d/s view of Tedford Dr		
100-155	south side of rd (parallel) facing E		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- bankfull 6m
- no fish observed



PROJECT (Number & Name): 11842 South Kent
Field Staff: G. MacVeigh
Station: AHV052
Waterbody: Tedford Drain
Drainage System:
Location in System: @ Welch Line
Appr. Reach Length (m):
Survey Date: 5 Oct 11
Time Started: 1510
Time Finished: 1530
Weather Conditions:
Wind: 1
Precipitation: 0
Site Location:
GPS Datum: NAD83
Easting: 0417220
Zone: 17T
Northing: 4691853
Municipality:
Lot & Concession:

ADJACENT LANDS

Valley	Slope: <u>Gentle (< 5°)</u> Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) <u>0-10</u> 10 to 20 20 to 30 30+
	Vegetation Type: <u>grass, poplar, maple</u> <u>< -> few</u>
Riparian Zone	Flood Plain - extent of frequent flood (m): <u>0-10</u> 10 to 20 20 to 30 30+
	Vegetation Type: <u>r.o dogwood, goldenrod, cattails, sumac, aster, herbs, grass</u>
	Vegetation Density (HML): <u>H</u>
Canopy	Type: <u>grass/cattail</u> Quality and % shade: <u>good 60%</u>
Land Use	<u>agriculture</u>
Other Notes	<u>(groundwater, soils, pools, vegetation, etc.)</u> <u>tile drains flowing, limited flow in Tedford</u>

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1-3m Gradient (H/M/L): L
 Bank Height (range (m)): 4-6m Meander/Straight: Straight
 Bank Slope (degrees from surface of water): 15-45° Bank Stability: good
 Bank Vegetation Type: grass/herbs Bank Veg. Density (H/M/L): H

CHANNEL SUBSTRATE %

Clay:	Gravel:	Boulder:	<u>Muck</u> 50
<u>Silt</u> 10	Pebble:	Bedrock:	<u>Detritus</u> 30
<u>Sand</u> 20	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: Undercut Banks: Boulder/Rock:
 Riffles: Woody Debris: Cobble:
 Backwater: Vegetation: Other: culvert

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	<u>cattail</u>	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

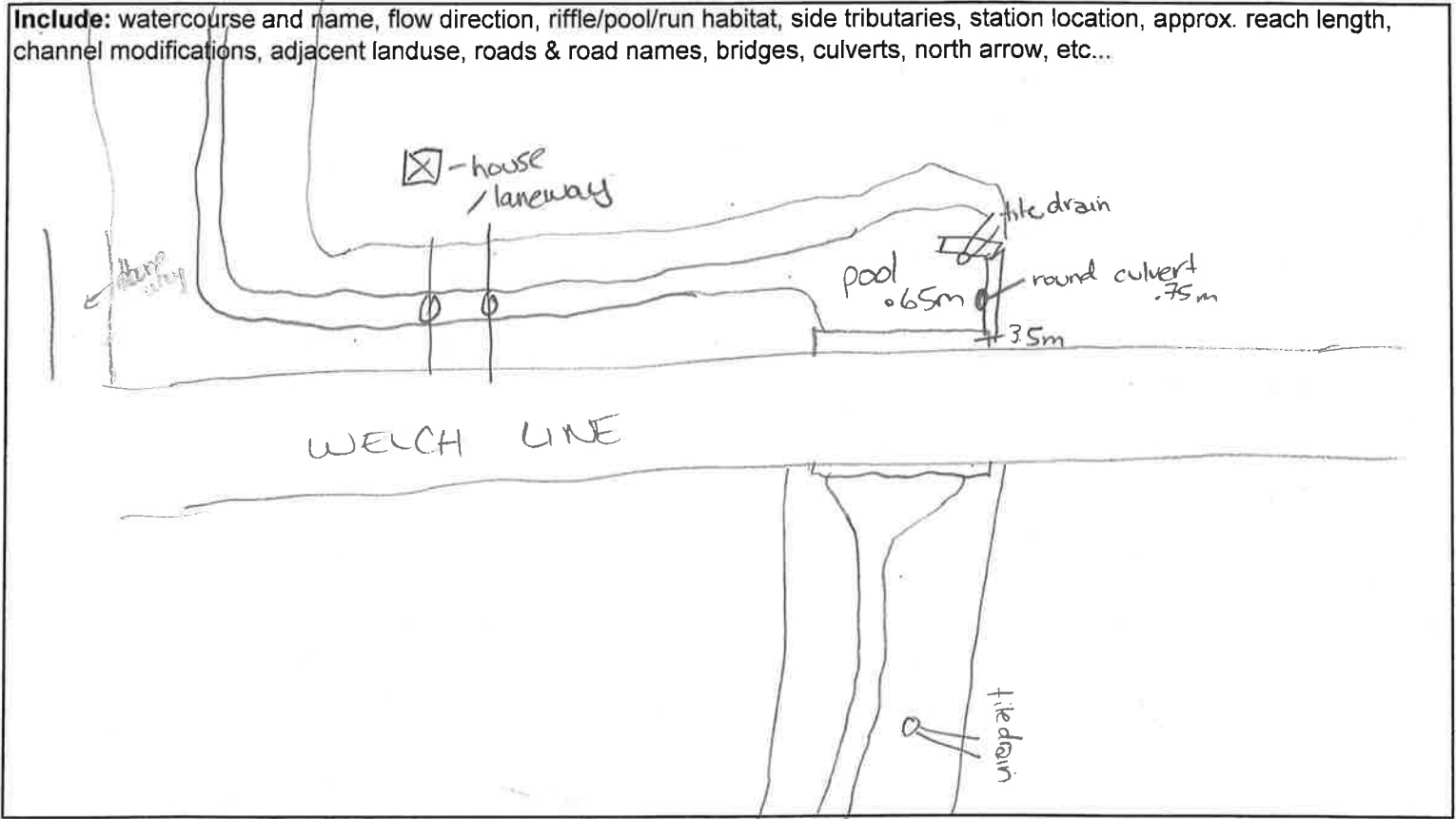
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 12°	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky
Air Temp. (°C): 18°	D.O. (%):	TDS (ppm):	
Time Taken: 1520	Conductivity (µs/cm):		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-158	- u/s view Tedford Dr		
100-159	- d/s view ' ' "		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- channel defined
- lots of cattails/bulrush
- bankfull w 4-5m
- flow



PROJECT (Number & Name): 11842 South Kent
Field Staff: G. McVeigh
Station: AHY058
Waterbody: White Drain
Drainage System:
Location in System: @ Harwich Rd
Appr. Reach Length (m):
Survey Date: 6 Oct 11
Time Started: 850
Time Finished: 910
Weather Conditions:
Wind: 1
Precipitation: 0
Site Location:
GPS Datum: NAD83
Easting: 0417225
Zone: 17T
Northing: 4690749
Municipality:
Lot & Concession:

ADJACENT LANDS

Valley	Slope: <u>Gentle (< 5°)</u> Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) <u>0-10</u> 10 to 20 20 to 30 30+
	Vegetation Type: <u>grass, g. rod</u>
Riparian Zone	Flood Plain - extent of frequent flood (m): <u>0-10</u> 10 to 20 20 to 30 30+
	Vegetation Type: <u>grass, goldenrod, cattails, phragmites, aster, herbs, r.o dogwood, raspberry</u>
	Vegetation Density (HML):
Canopy	Type: <u>grass</u> Quality and % shade: <u>good - 60-70%</u>
Land Use	<u>agricultural</u>
Other Notes	(groundwater, soils, pools, vegetation, etc.) <u>pockets of water</u>

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.25 - 1.25 Gradient (H/M/L): L
Bank Height (range (m)): 2 - 3 m Meander/Straight: —
Bank Slope (degrees from surface of water): 15 - 40° Bank Stability: good
Bank Vegetation Type: grass, shrubs Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: <u>20</u>	Gravel:	Boulder:	Muck: <u>60</u>
Silt:	Pebble:	Bedrock:	Detritus: <u>10</u>
Sand: <u>10</u>	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: — ✓ Undercut Banks: — Boulder/Rock: —
Riffles: — Woody Debris: — Cobble: —
Backwater: — Vegetation: ✓ Other: culvert

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	<u>cattails</u>	<u>abundant</u>

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

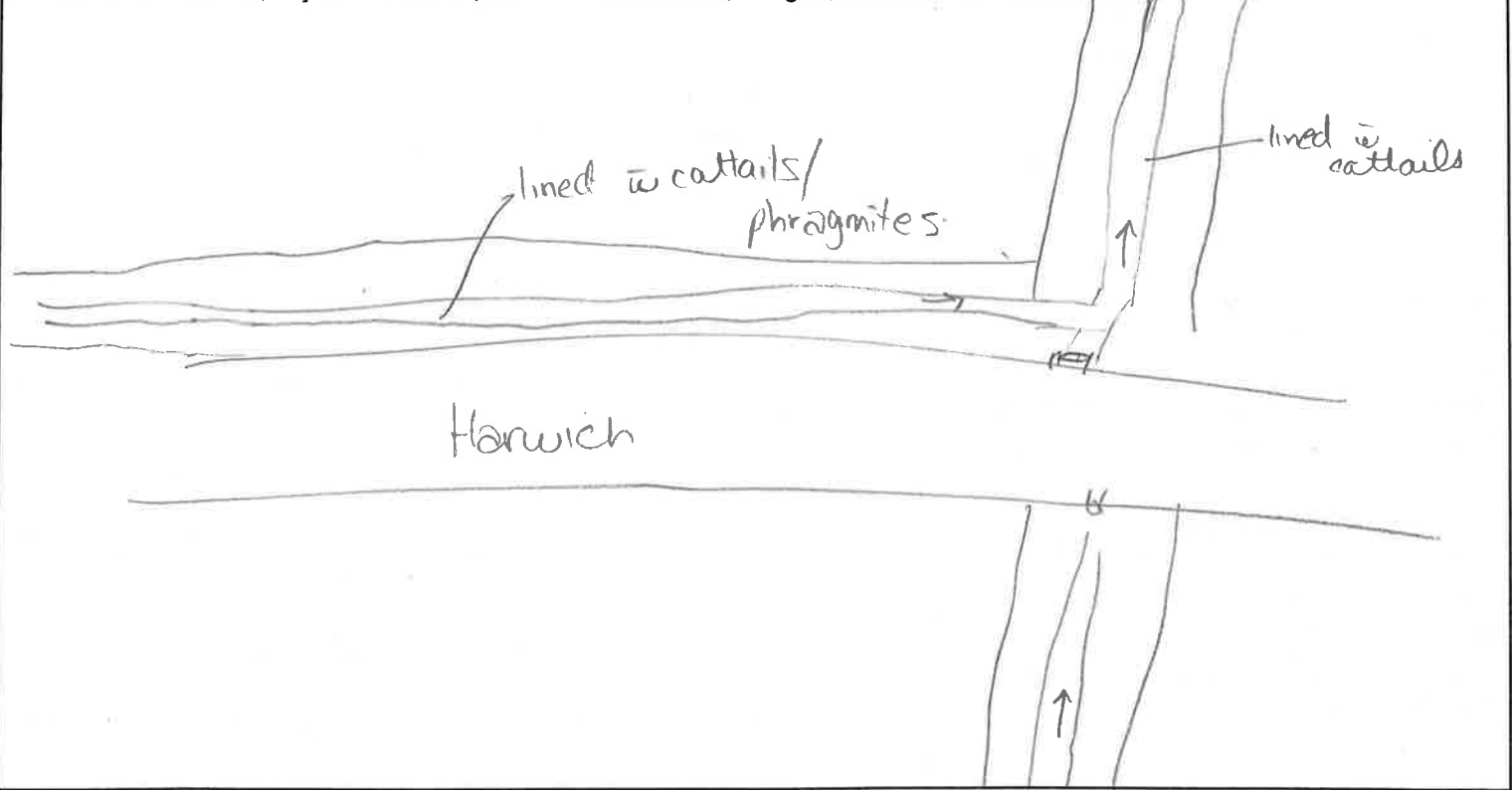
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 12°	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky.
Air Temp. (°C): 16°	D.O. (%):	TDS (ppm):	
Time Taken: 9:03	Conductivity (µs/cm):		
Location Taken: @ road c			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-173	d/s view of White Drain (perp)	100-173	westside
100-174	view parallel to Horwich (west side)	100-174	side
100-175	u/s view of white drain	100-175	of drain (u/s view)
100-176	u/s view of white drain		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

depth - .10 - .25m
 no flow, pockets of water
 bankfull - 4-5m.



PROJECT (Number & Name): 1184a South Kent

Field Staff: G. McVeigh

Station: AHY0602

Waterbody: McArthur E. Drain

Drainage System:

Location in System: @ Hbrwich (perp to road)

Appr. Reach Length (m):

Survey Date: 6 Oct 11

Time Started: 9:30

Time Finished: 9:50

Site Location:

GPS Datum: NAD83 **Easting:** 0419441

Zone: 17T **Northing:** 4688315

Municipality:

Lot & Concession:

Weather Conditions:

Wind: 1 **Cloud Cover (%):** 0

Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: grass, goldenrod grass, poplar, willow, maple, sumac
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: sumac, goldenrod, aster, herbs, grass
	Vegetation Density (HML): H
Canopy	Type: grass Quality and % shade: good 60-70%
Land Use	agricultural
Other Notes	(groundwater, soils, pools, vegetation, etc.) tile drains - N side of road - to culvert into drain, flow

CHANNEL MORPHOLOGY

Channel Width (range (m)): .75 - 3

Bank Height (range (m)): 3m

Bank Slope (degrees from surface of water): 15-30°

Bank Vegetation Type: grass/herbs

Gradient (H/M/L): L

Meander/Straight: Meander

Bank Stability: good

Bank Veg. Density (H/M/L): H

CHANNEL SUBSTRATE %

Clay: 10	Gravel: 10	Boulder:	Muck: 50
Silt: 10	Pebble:	Bedrock:	Detritus:
Sand: 20	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: **Undercut Banks:**

Riffles: **Woody Debris:**

Backwater: **Vegetation:** **Other:** culvert

Boulder/Rock:

Cobble:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	watercress	
	willow	
	terrestrial sp. grass	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

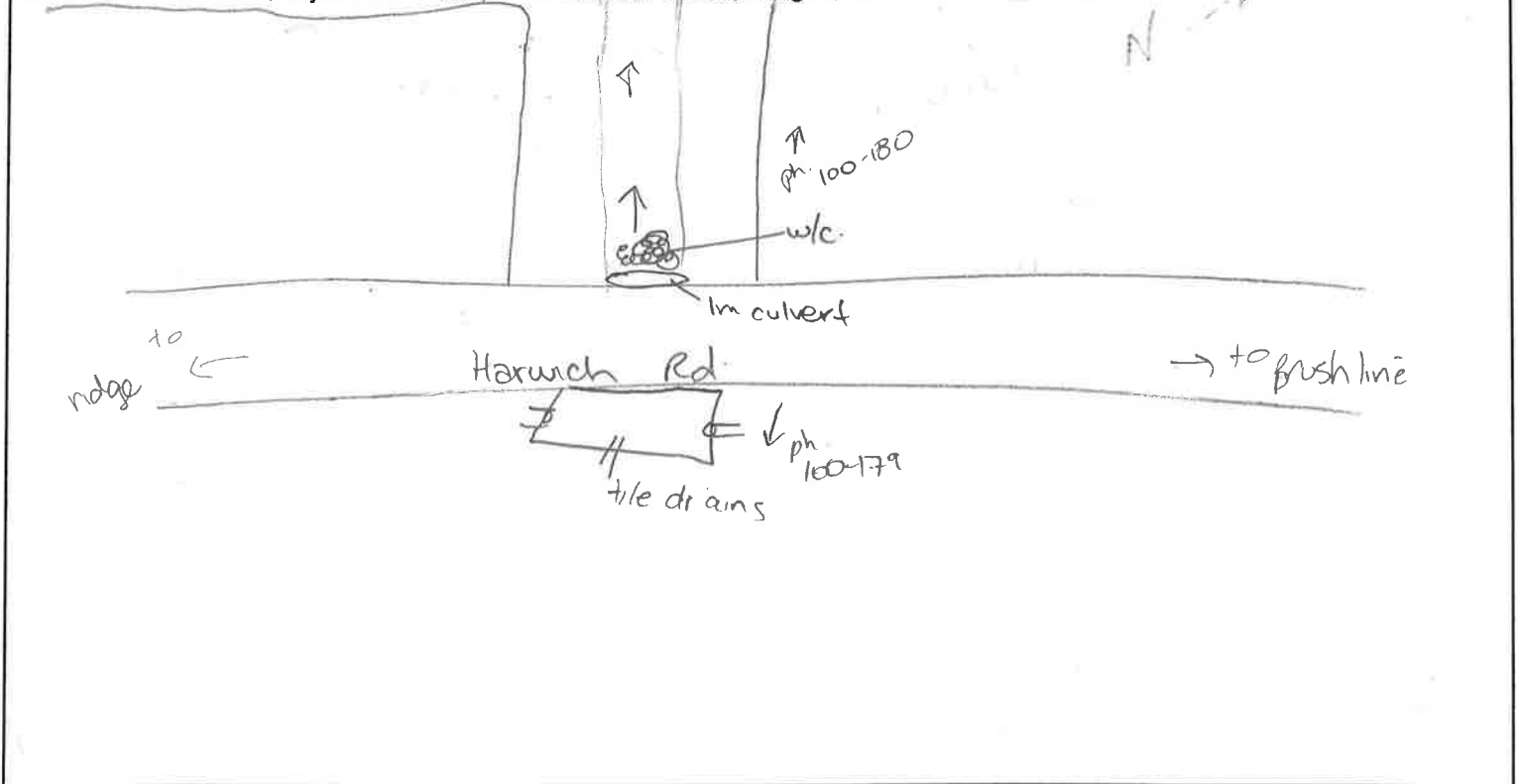
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 12°	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: clear - foamy.
Air Temp. (°C): 17°	D.O. (%):	TDS (ppm):	
Time Taken: 9:35	Conductivity (µs/cm):		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-179	ups view		
100-180	dfs view		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- clear
- Bankful - 4-5m.
- no fish seen
- N. Harrier observed



PROJECT (Number & Name): 11842 South Kent

Field Staff: G. MacVeigh

Station: AHY061

Waterbody: unknown drain

Drainage System:

Location in System:

Appr. Reach Length (m):

Survey Date: 6 Oct 11

Time Started: 1004

Time Finished: 1025

Site Location:

GPS Datum: NAD83 **Easting:** 0423469

Zone: 17T **Northing:** 4683684

Municipality:

Lot & Concession:

Weather Conditions:

Wind: 1 **Cloud Cover (%):** 0

Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: grass, Queen Anne's lace
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: cattail, broad leaf grass, phragmites, goldenrod, sedge, rush, grape vine
	Vegetation Density (HML): +1
Canopy	Type: grass / herbs Quality and % shade: good 60%
Land Use	residential / agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.) no flow standing water

CHANNEL MORPHOLOGY

Channel Width (range (m)): 3-5 m	Gradient (H/M/L): L
Bank Height (range (m)): 1-2.5 m	Meander/Straight: Straight
Bank Slope (degrees from surface of water):	Bank Stability: good
Bank Vegetation Type: 45-70°	Bank Veg. Density (H/M/L): H

CHANNEL SUBSTRATE %

Clay:	Gravel: 10	Boulder:	Muck: 50
Silt:	Pebble: 10	Bedrock:	Detritus: 10
Sand: 20	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input type="checkbox"/>	Woody Debris: <input type="checkbox"/>	Cobble: <input type="checkbox"/>
Backwater: <input type="checkbox"/>	Vegetation: <input checked="" type="checkbox"/>	Other: culverts

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	lesser duckweed	algae
	sedges	
	broad leafed arrowhead	
	rush	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

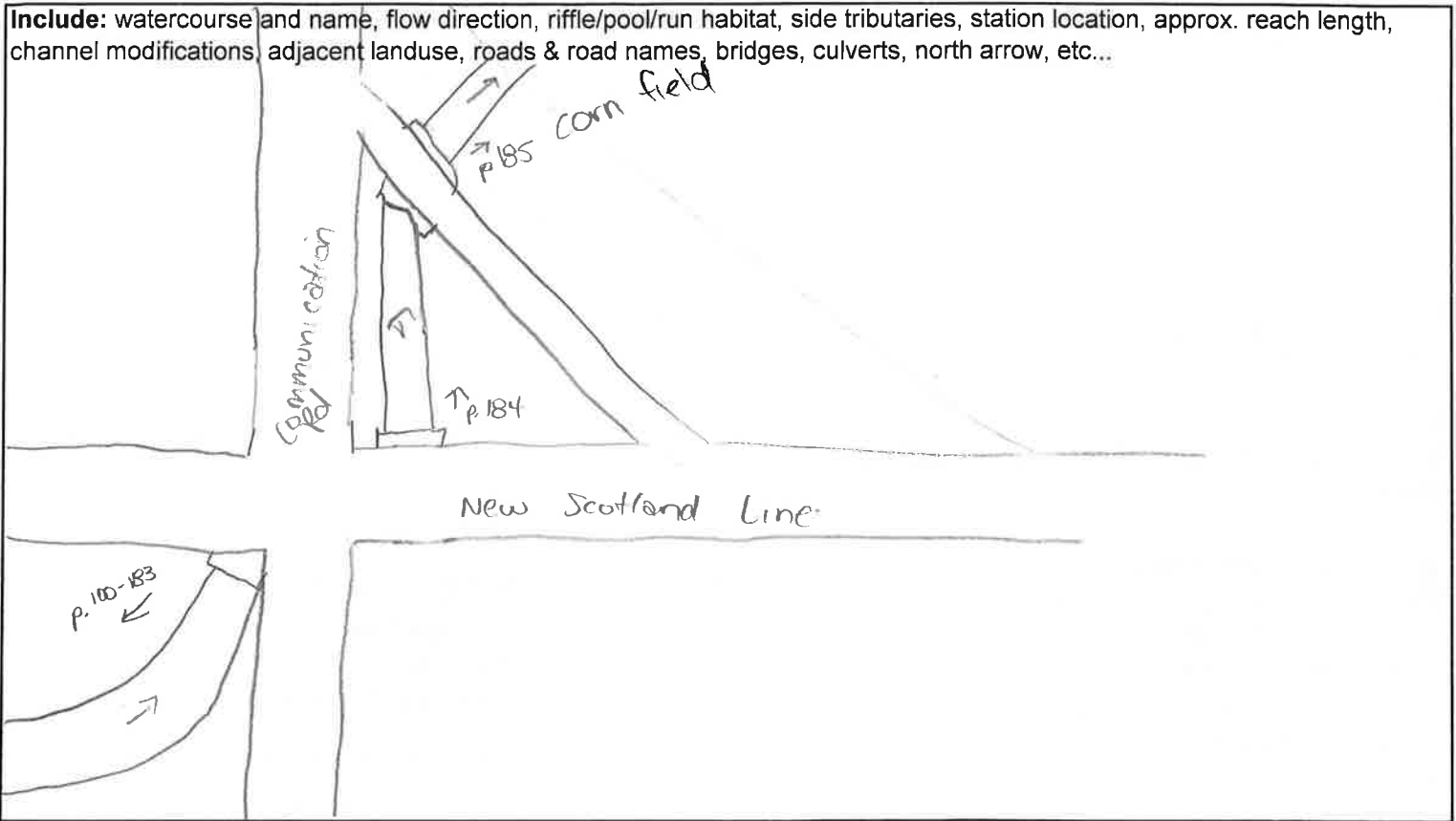
FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 15°	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: clear
Air Temp. (°C): 19°	D.O. (%):	TDS (ppm):	
Time Taken: 10:15	Conductivity (µs/cm):		
Location Taken: @ culvert			

SITE DRAWING



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-183	view from N. Scotland Line		
100-184	view from N. Scotland Line (parallel to communication)		
100-185	view into corn field		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- pool @ culvert ~ 7.5m deep
- no flow
- bank full ~ 8-9m



PROJECT (Number & Name): 1184a South kent

Field Staff: G. MacVeigh

Station: AHY 063

Waterbody: ~~Cree~~ unknown Drain

Drainage System:

Location in System: @ N Scotland line

Appr. Reach Length (m):

Survey Date: 6 Oct 11

Time Started: 1035

Time Finished: 1050

Weather Conditions:

Wind: 1

Precipitation:

Site Location:

GPS Datum: NAD83

Eastings: 0424010

Zone: 17T

Northing: 4684444

Municipality:

Lot & Concession:

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: phragmites, willow sp. cedar
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: phragmites, cattail, goldenrod, willow sp., sedges, herbs, vines, jewelweed
	Vegetation Density (HML): H
Canopy	Type: Grass Quality and % shade: fair 30%
Land Use	agricultural
Other Notes	(groundwater, soils, pools, vegetation, etc.) large wet cattail/Phragmites wetland

CHANNEL MORPHOLOGY

Channel Width (range (m)): 2-7m 2-7m (pool)	Gradient (H/M/L):
Bank Height (range (m)): .75-2m	Meander/Straight:
Bank Slope (degrees from surface of water): 15-30°	Bank Stability:
Bank Vegetation Type: grass, phragmites	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay:	Gravel: 10	Boulder: 5	Muck: 20
Silt: 10	Pebble: 5	Bedrock:	Detritus:
Sand: 50	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input type="checkbox"/>	Boulder/Rock: <input checked="" type="checkbox"/>
Riffles: <input type="checkbox"/>	Woody Debris: <input type="checkbox"/>	Cobble: <input type="checkbox"/>
Backwater: <input checked="" type="checkbox"/>	Vegetation: <input checked="" type="checkbox"/>	Other: culvert

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	duckweed	-abundant
	milkfoil	
	cattail	
	algae	-abundant
	rush	-abundant
	water cress	(little)
	broad leaved arrowhead	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

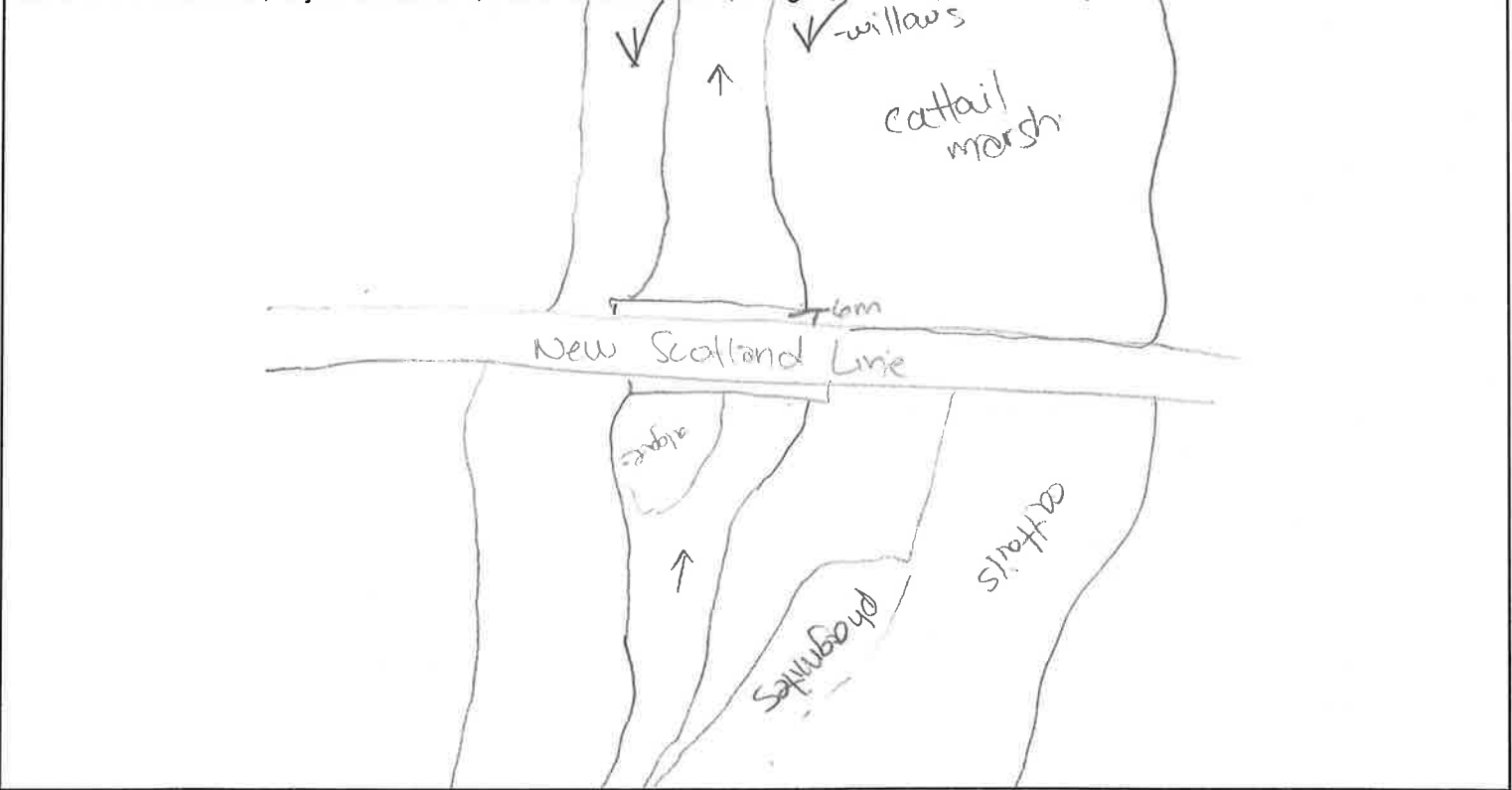
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 14	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters:
Air Temp. (°C): 19	D.O. (%):	TDS (ppm):	
Time Taken: 1040	Conductivity (µs/cm):		
Location Taken: @ bridge			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-189	u/s view of unknown Drain		
100-190	d/s view of " "		
100-191	cattail marsh		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- depths range .25 to 1.1m
- no flow
- bankfull 14-16m
- fish present
- frogs observed



PROJECT (Number & Name): 11842 South Kent

Field Staff: G. MacVeigh

Station: AHN068

Waterbody: McDougall Drain

Drainage System:

Location in System: @ New Scotland line

Appr. Reach Length (m):

Survey Date: Oct 6, 2011

Time Started: 1115

Time Finished: 1130

Site Location:

GPS Datum: NAD83 **Easting:** 0425062

Zone: 17T **Northing:** 4685805

Municipality:

Lot & Concession:

Weather Conditions:

Wind: 1 **Cloud Cover (%):** 0

Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: grass, phragmites, cedar → right side d/s of road - poplar, maple - lots of dec. trees.
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: phragmites, red osier dogwood, herbs, aster, grass, vines, jewelweed
	Vegetation Density (HML): H
Canopy	Type: grass Quality and % shade: poor - 15% to 70
Land Use	agriculture, farm, bird reserve
Other Notes	(groundwater, soils, pools, vegetation, etc.) back flow, 6m box culvert

CHANNEL MORPHOLOGY

Channel Width (range (m)): 5 - 8m	Gradient (H/M/L): L
Bank Height (range (m)): 2 - 3m	Meander/Straight: Straight
Bank Slope (degrees from surface of water): 60 - 80°	Bank Stability: good
Bank Vegetation Type: grass/herbs	Bank Veg. Density (H/M/L): H

CHANNEL SUBSTRATE %

Clay:	Gravel: 10	Boulder: 5	Muck: 40
Silt: 10	Pebble: 5	Bedrock:	Detritus: 10
Sand: 20	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: —	Boulder/Rock: ✓
Riffles: —	Woody Debris: —	Cobble: —
Backwater: —	Vegetation: ✓	Other: culvert

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	dixweed	celery grass
	cattail	bullrush
	milfoil	
	b.L arrowhead	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

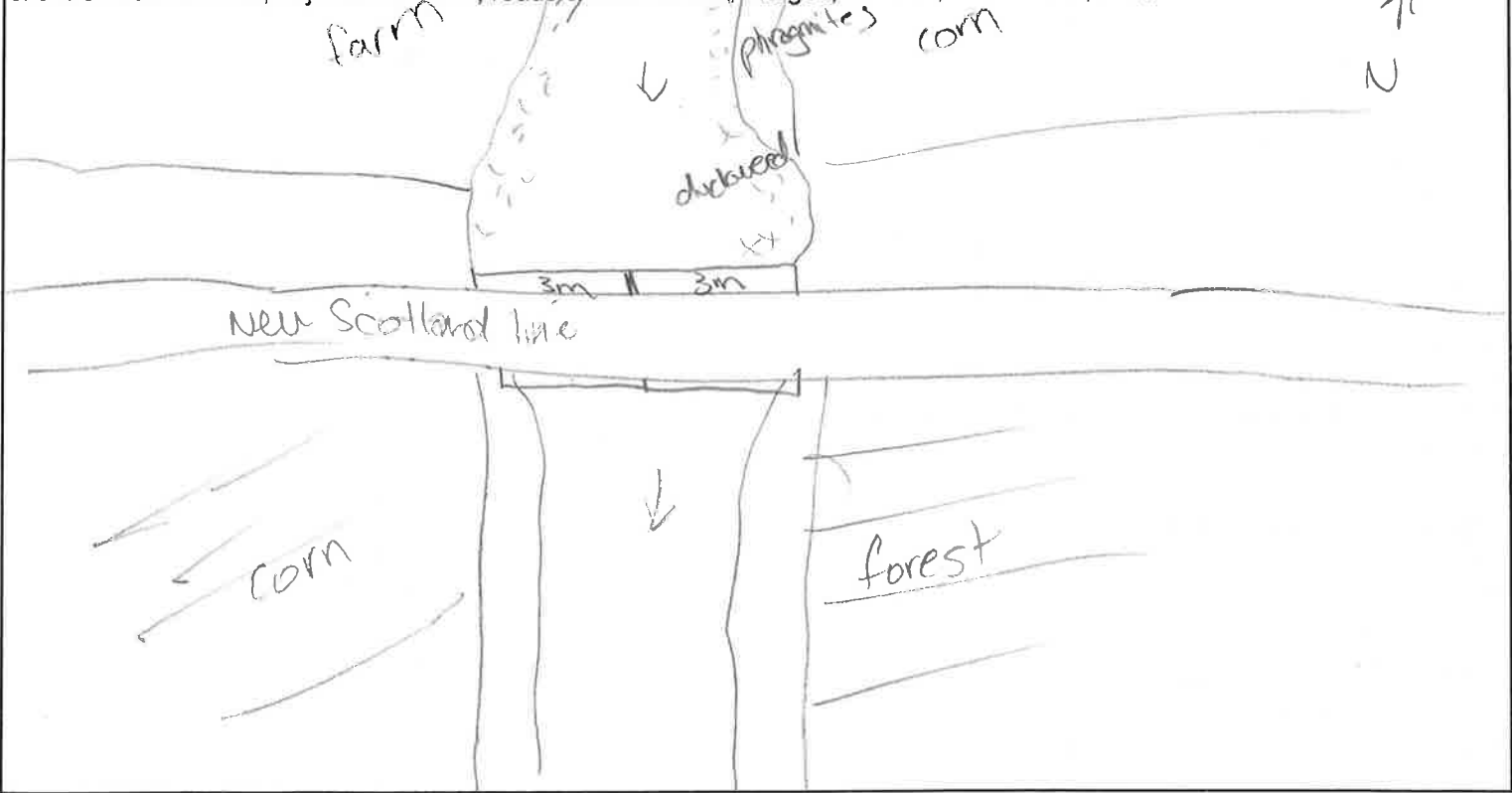
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 15°	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky
Air Temp. (°C): 18°	D.O. (%):	TDS (ppm):	
Time Taken: 1120	Conductivity (µs/cm):		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-196	u/s view		
100-197	d/s view		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

fish observed
frog seen
backflow effect

- lots of d. weed
- depth .5 - .9m @ culvert
- bankful ~ 9-10m



PROJECT (Number & Name): 1184 a South Kent

Field Staff: G. MacVeigh

Station: ~~AHY064~~ AHY064

Waterbody: Cumming Drain

Drainage System:

Location in System: @ New Scotland Line

Appr. Reach Length (m):

Survey Date: 6 Oct 11

Weather Conditions:

Time Started: 10:50

Wind: 1

Cloud Cover (%): 0

Time Finished: 11:05

Precipitation: 0

Site Location:

GPS Datum: NAD83

Easting: 0424205

Zone: 17+

Northing: 4684730

Municipality:

Lot & Concession:

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: grass, phragmites
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: grass, phragmites, cattail, goldenrod, shrubs, herbs, sedges
	Vegetation Density (HML): H
Canopy	Type: grass Quality and % shade: poor 10%
Land Use	agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.) cattail marsh on South side

CHANNEL MORPHOLOGY

Channel Width (range (m)): 2 - 7 (pool)

Bank Height (range (m)): 1 - 2m

Bank Slope (degrees from surface of water): 15 - 30°

Bank Vegetation Type: phragmites, cattail

Gradient (H/M/L):

Meander/Straight:

Bank Stability:

Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay:	Gravel: 10	Boulder: 5	Mucks: 50
Silt: 10	Pebble: 5	Bedrock:	Detritus:
Sand: 20	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓

Riffles: —

Backwater: —

Undercut Banks: —

Woody Debris: —

Vegetation: ✓

Boulder/Rock: ✓

Cobble: —

Other: culvert

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	bl. arrowhead	cattail
	L. duckweed	
	algae	
	bl. rush	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

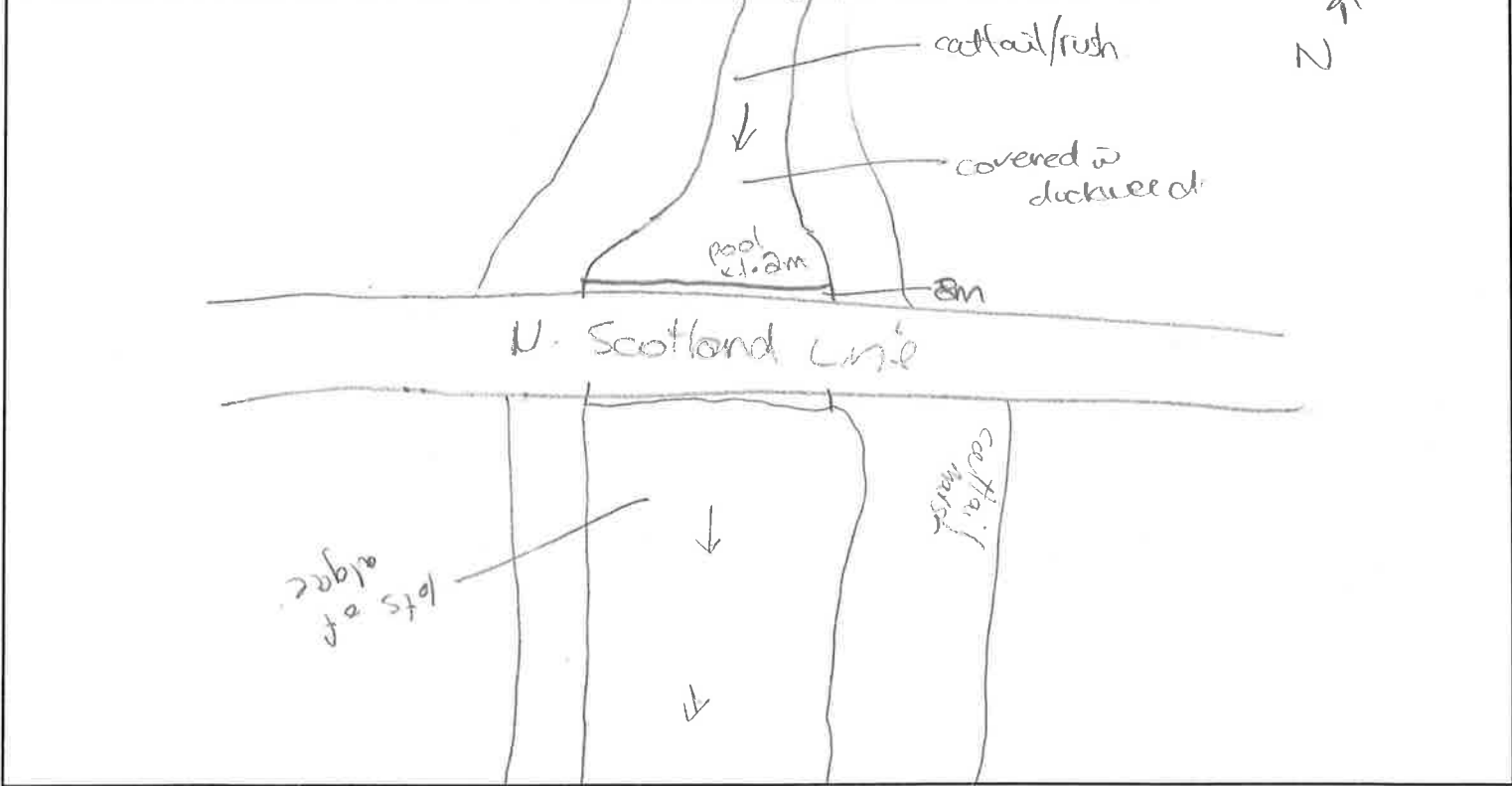
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 14°	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: clear murky
Air Temp. (°C): 19°	D.O. (%):	TDS (ppm):	
Time Taken: @ 1052	Conductivity (µs/cm):		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-192	- u/s view		
100-193	- d/s view		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- no flow
- bank 1 - 15m - flow into cattail marsh/backflow
- fish present



PROJECT (Number & Name): 1184a South Kent

Field Staff: G. MacVeigh

Station: A11065 A11065

Waterbody: Unknown Drain

Drainage System:

Location in System: @ New Scotland Iniz

Appr. Reach Length (m):

Survey Date: 6 Oct 11

Time Started: 1105

Time Finished: 1120

Site Location:

GPS Datum: NAD83 **Easting:** 0424556

Zone: 17T **Northing:** 4685252

Municipality:

Lot & Concession:

Weather Conditions:

Wind: 1 **Cloud Cover (%):** 0

Precipitation: 0

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: grass
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: phragmites, cattail, goldenrod, herbs, grasses jewelweed, aster, milkweed
	Vegetation Density (HML): H
Canopy	Type: grass Quality and % shade: Poor 10%
Land Use	agricultural
Other Notes	(groundwater, soils, pools, vegetation, etc.) - N of road drain - tiled

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1 - 2.25m **Gradient (H/M/L):**

Bank Height (range (m)): 1 - 2m **Meander/Straight:**

Bank Slope (degrees from surface of water): 15 - 30 **Bank Stability:**

Bank Vegetation Type: grass, herbs **Bank Veg. Density (H/M/L):**

CHANNEL SUBSTRATE %

Clay:	Gravel: 10	Boulder: 5	Muck: 40
Silt: 10	Pebble: 5	Bedrock:	Detritus: 10
Sand: 20	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓ **Undercut Banks:** — **Boulder/Rock:** ✓

Riffles: — **Woody Debris:** — **Cobble:** —

Backwater: — **Vegetation:** ✓ **Other:** culvert

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	duckweed	- abundant
	bullrush	
	algae	
	cattail	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

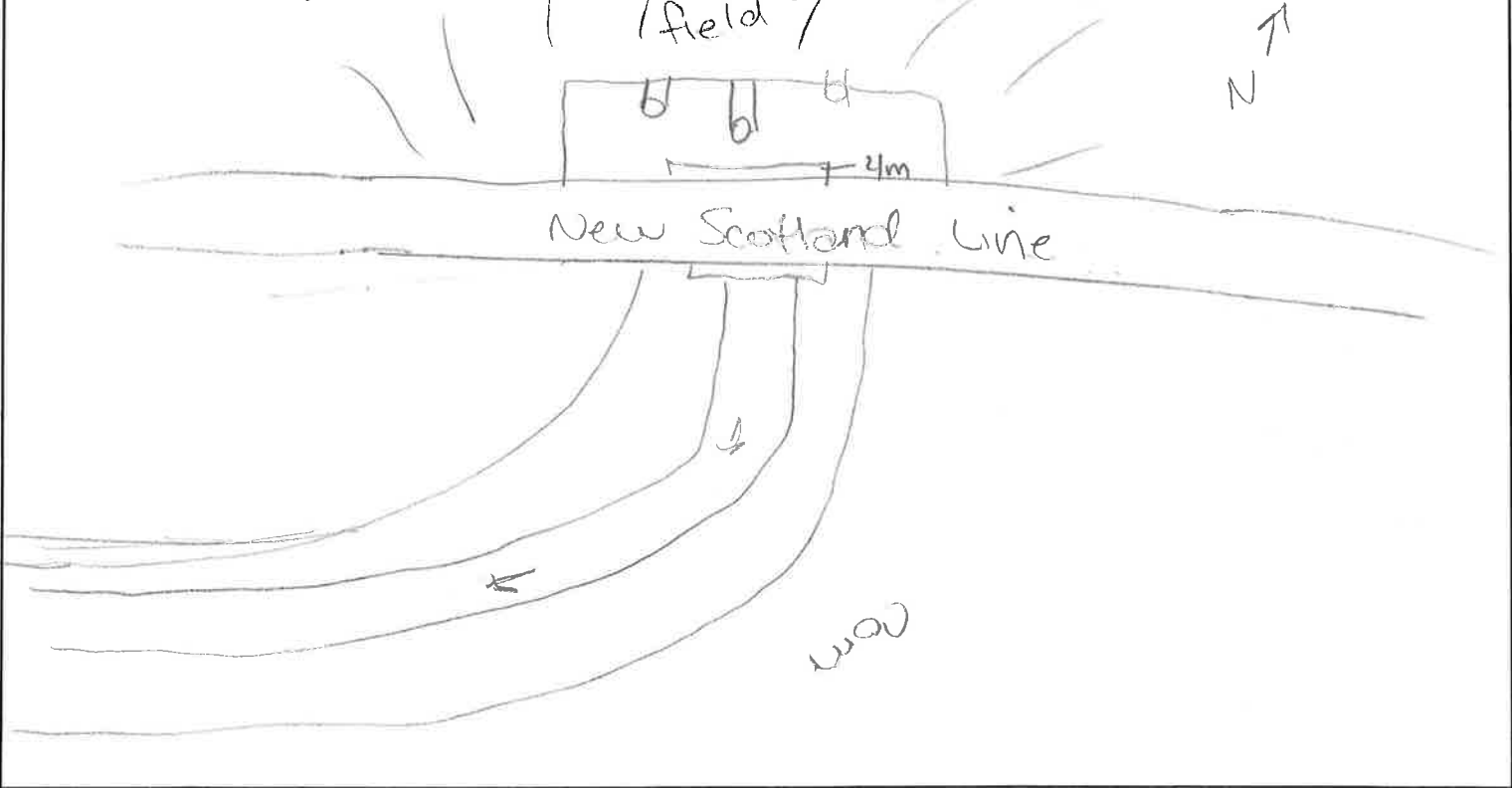
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 15	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: clear
Air Temp. (°C): 18	D.O. (%):	TDS (ppm):	
Time Taken: 1110	Conductivity (µs/cm):		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-194	- u/s view		
100-195	- d/s view		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- fish observed
- bankfull - 4m
- no flow



PROJECT (Number & Name): 1184 2 South Kent
Field Staff: G MacVeigh
Station: AHY068 **Site Location:**
Waterbody: Clendening Drain **GPS Datum:** NAD83 **Easting:** 04 26152
Drainage System: **Zone:** 17T **Northing:** 4686810
Location in System: @ N. Scotland Line **Municipality:**
Appr. Reach Length (m): **Lot & Concession:**
Survey Date: 6 Oct 11 **Weather Conditions:**
Time Started: 1140 **Wind:** **Cloud Cover (%):**
Time Finished: 1155 **Precipitation:**

ADJACENT LANDS

Valley	Slope: <u>Gentle (< 5°)</u> Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) <u>0-10</u> 10 to 20 20 to 30 30+
	Vegetation Type: <u>grass, herbs</u>
Riparian Zone	Flood Plain - extent of frequent flood (m): <u>0-10</u> 10 to 20 20 to 30 30+
	Vegetation Type: <u>phragmites, aster, red osier dogwood, willow sp, sumac, poplar</u>
	Vegetation Density (HML): <u>H</u>
Canopy	Type: <u>grass</u> Quality and % shade: <u>poor 10%</u>
Land Use	<u>agricultural</u>
Other Notes	<u>(groundwater, soils, pools, vegetation, etc.)</u> <u>lots of duckweed, no flow, murky. - 8m wide box culvert</u>

CHANNEL MORPHOLOGY

Channel Width (range (m)): <u>4 - 9m (pool)</u>	Gradient (H/M/L): <u>L</u>
Bank Height (range (m)): <u>.75 - 2.25m</u>	Meander/Straight: <u>—</u>
Bank Slope (degrees from surface of water): <u>15 - 45°</u>	Bank Stability: <u>good</u>
Bank Vegetation Type: <u>grass, shrubs, herb</u>	Bank Veg. Density (H/M/L): <u>H</u>

CHANNEL SUBSTRATE %

Clay: <u>—</u>	Gravel: <u>10</u>	Boulder: <u>—</u>	Muck: <u>50</u>
Silt: <u>10</u>	Pebble: <u>5</u>	Bedrock: <u>—</u>	Detritus: <u>10</u>
Sand: <u>15</u>	Cobble: <u>—</u>	Marl: <u>—</u>	Other: <u>—</u>

INSTREAM HABITAT AND COVER

Pools: <input checked="" type="checkbox"/>	Undercut Banks: <input type="checkbox"/>	Boulder/Rock: <input type="checkbox"/>
Riffles: <input type="checkbox"/>	Woody Debris: <input type="checkbox"/>	Cobble: <input type="checkbox"/>
Backwater: <input type="checkbox"/>	Vegetation: <input checked="" type="checkbox"/>	Other: <u>culvert</u>

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	<u>L duckweed</u>	<u>algae</u>
	<u>broad leaved arrowhead</u>	<u>bullrush</u>
	<u>willow sp</u>	
	<u>milfoil</u>	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

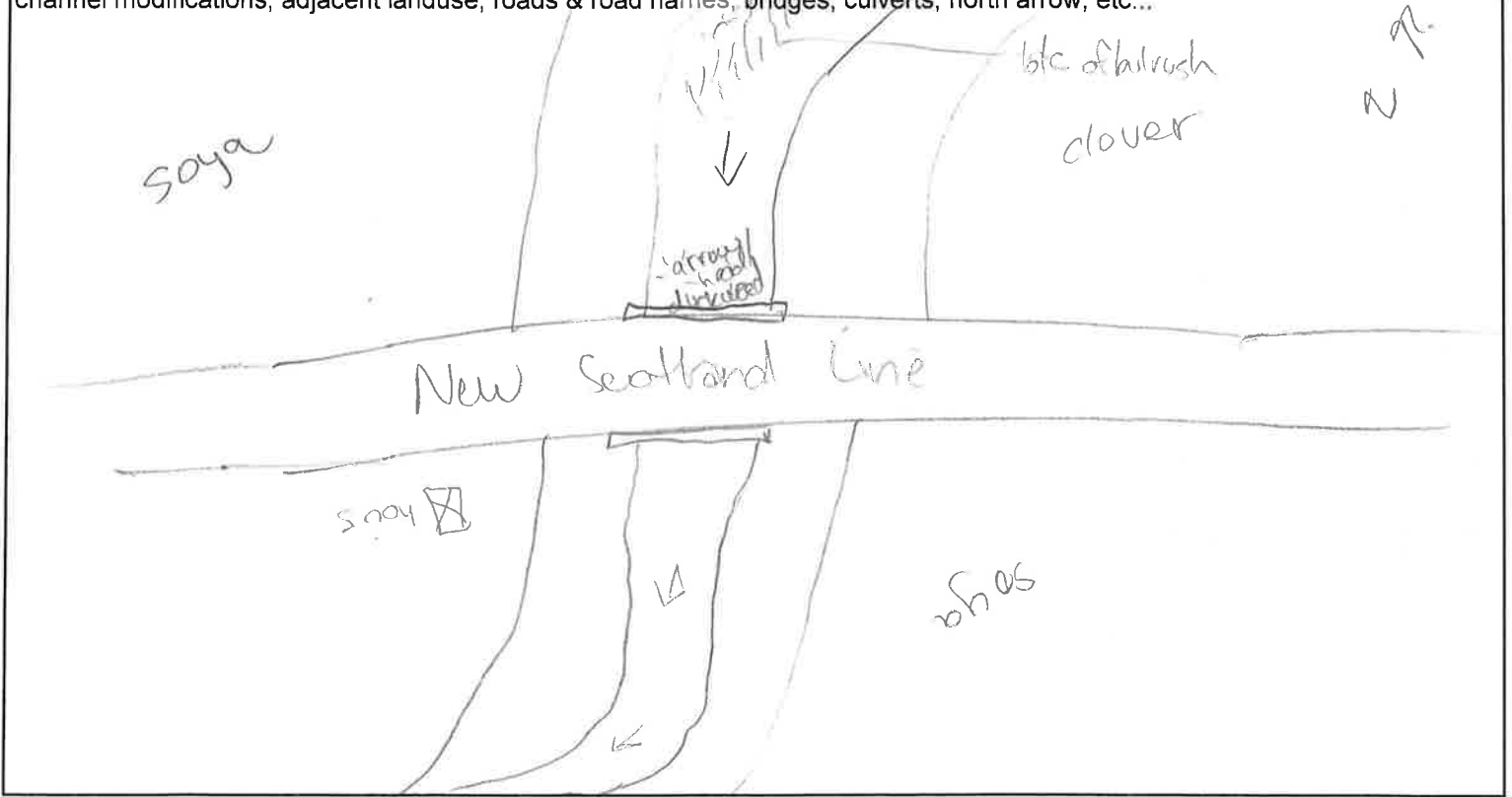
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 15	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky.
Air Temp. (°C): 19	D.O. (%):	TDS (ppm):	
Time Taken: 1145	Conductivity (µs/cm):		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc..



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-200	u/s view		
100-201	d/s view		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- fish/frags observed
- lots of aquatic veg
- bankfull ~15 m.
- dead kitty in water



PROJECT (Number & Name): 11842 South Kent
Field Staff: G. MacVeigh
Station: A11070
Waterbody: Nesbit Drain
Drainage System:
Location in System: @ New Scotland Line
Appr. Reach Length (m):
Survey Date: 6 Oct 11
Time Started: 1157
Time Finished: 1215
Weather Conditions:
Wind: 1
Precipitation: 0
Site Location:
GPS Datum: NAD83
Easting: 0427351
Zone: 17T
Northing: 4687926
Municipality:
Lot & Concession:

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: grass, phragmites - further w/s forest-deciduous ↑ 10-20m
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: goldenrod, aster, phragmites, r.o. dogwood, grass, herbs
	Vegetation Density (HML): H
Canopy	Type: grass Quality and % shade: poor 10%
Land Use	agricultural
Other Notes	(groundwater, soils, pools, vegetation, etc.) stagnant flow

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.5 - 2m (pool)	Gradient (H/M/L):
Bank Height (range (m)): 1-4m	Meander/Straight:
Bank Slope (degrees from surface of water): 15-45°	Bank Stability: good
Bank Vegetation Type: grass, herbs	Bank Veg. Density (H/M/L): H

CHANNEL SUBSTRATE %

Clay: 0	Gravel: 5	Boulder: 0	Muck: 60
Silt: 20	Pebble: 0	Bedrock: 0	Detritus: 10
Sand: 5	Cobble: 0	Marl: 0	Other: 0

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: —	Boulder/Rock: —
Riffles: ✓	Woody Debris: —	Cobble: —
Backwater: —	Vegetation: ✓	Other: culvert

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	terrestrial grasses	- overhanging

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

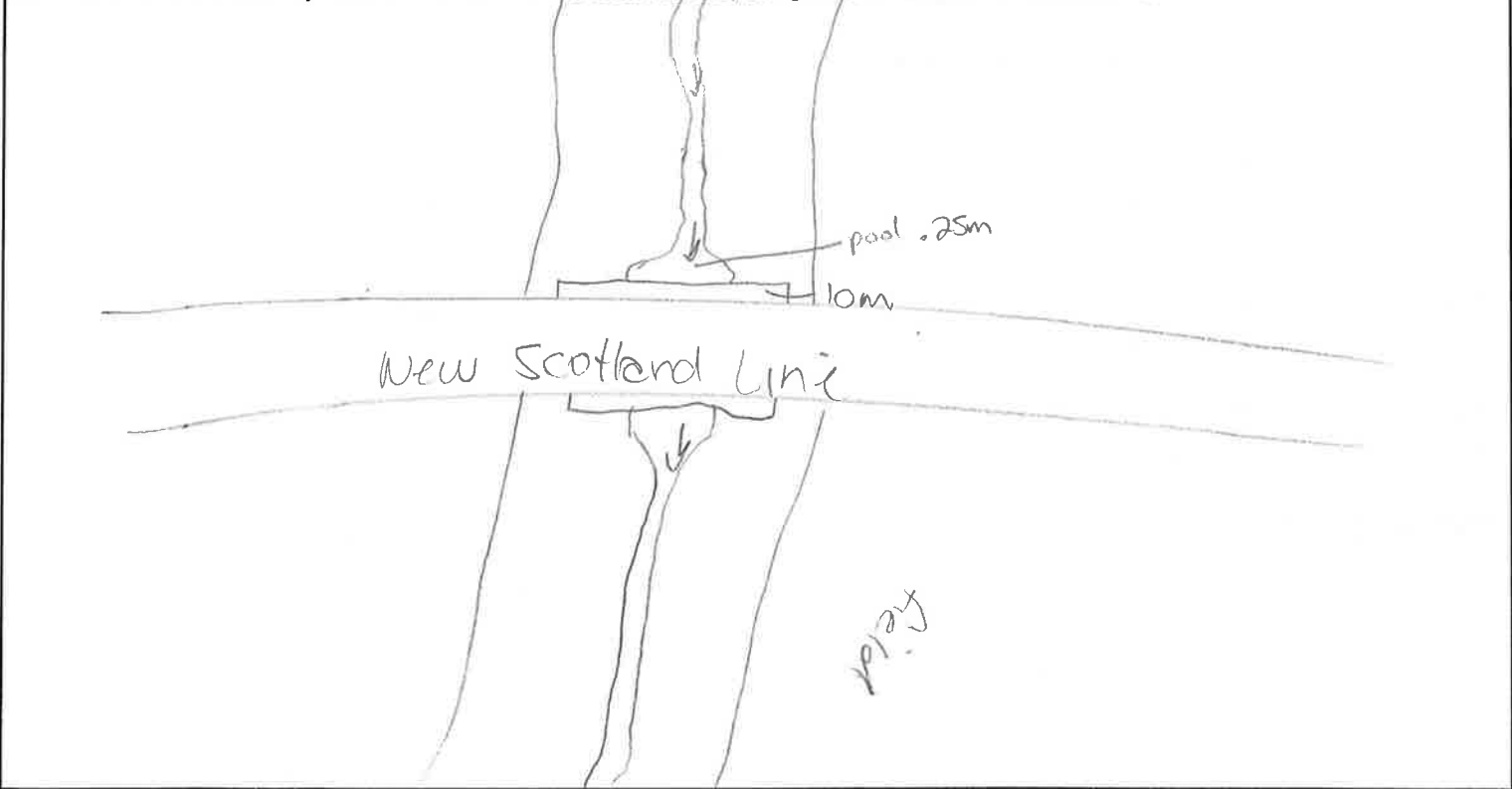
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 14	D.O. (ppm):	pH:	Visible Characteristics/Other Parameters: murky
Air Temp. (°C): 19	D.O. (%):	TDS (ppm):	
Time Taken: 1200	Conductivity (µs/cm):		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-204	u/s view		
100-205	d/s view		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- fish/frogs seen
- good flow
- bankfull ~4m



PROJECT (Number & Name): 1184 B - South Kent	
Field Staff: Steve B. Christy H.	
Station: AHY-082	Site Location:
Waterbody: McKay Drain	GPS Datum: NAD83 Easting: 425522
Drainage System: Sandean Bay - Lake Erie	Zone: 17T Northing: 4689426
Location in System:	Municipality:
Appr. Reach Length (m): 50m	Lot & Concession:
Survey Date: 10-Nov-11	Weather Conditions:
Time Started: 1130	Wind: 4 Cloud Cover (%): 70%
Time Finished: 1150	Precipitation: None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: • Herbaceous Plants (ie Goldenrod, Aster, Milkweed) • Red Osier Dogwood • Willow Sp. • Black Locust
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: see above
	Vegetation Density (HML): M
Canopy	Type: None Quality and % shade: Poor - 0%
Land Use	Agricultural Fields on North & South sides of Talbot Trail.
Other Notes	(groundwater, soils, pools, vegetation, etc.) • No indication of groundwater input. • Fields tile drain outlet into McKay Drain

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.30 - 2.0	Gradient (H/M/L): L
Bank Height (range (m)): 1.0 - 3.0	Meander/Straight: Straight
Bank Slope (degrees from surface of water): 95° - 100°	Bank Stability: Poor
Bank Vegetation Type: Herbaceous Plants, Grasses	Bank Veg. Density (H/M/L): M

CHANNEL SUBSTRATE %

Clay: 40	Gravel: 5	Boulder: -	Muck: -
Silt: 30	Pebble: -	Bedrock: -	Detritus: -
Sand: 15	Cobble: 10	Marl: -	Other: -

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: -	Boulder/Rock: -
Riffles: -	Woody Debris: -	Cobble: -
Backwater: -	Vegetation: ✓	Other: -

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
Emergent	Grasses, variety of sp.	Moderately Abundant

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

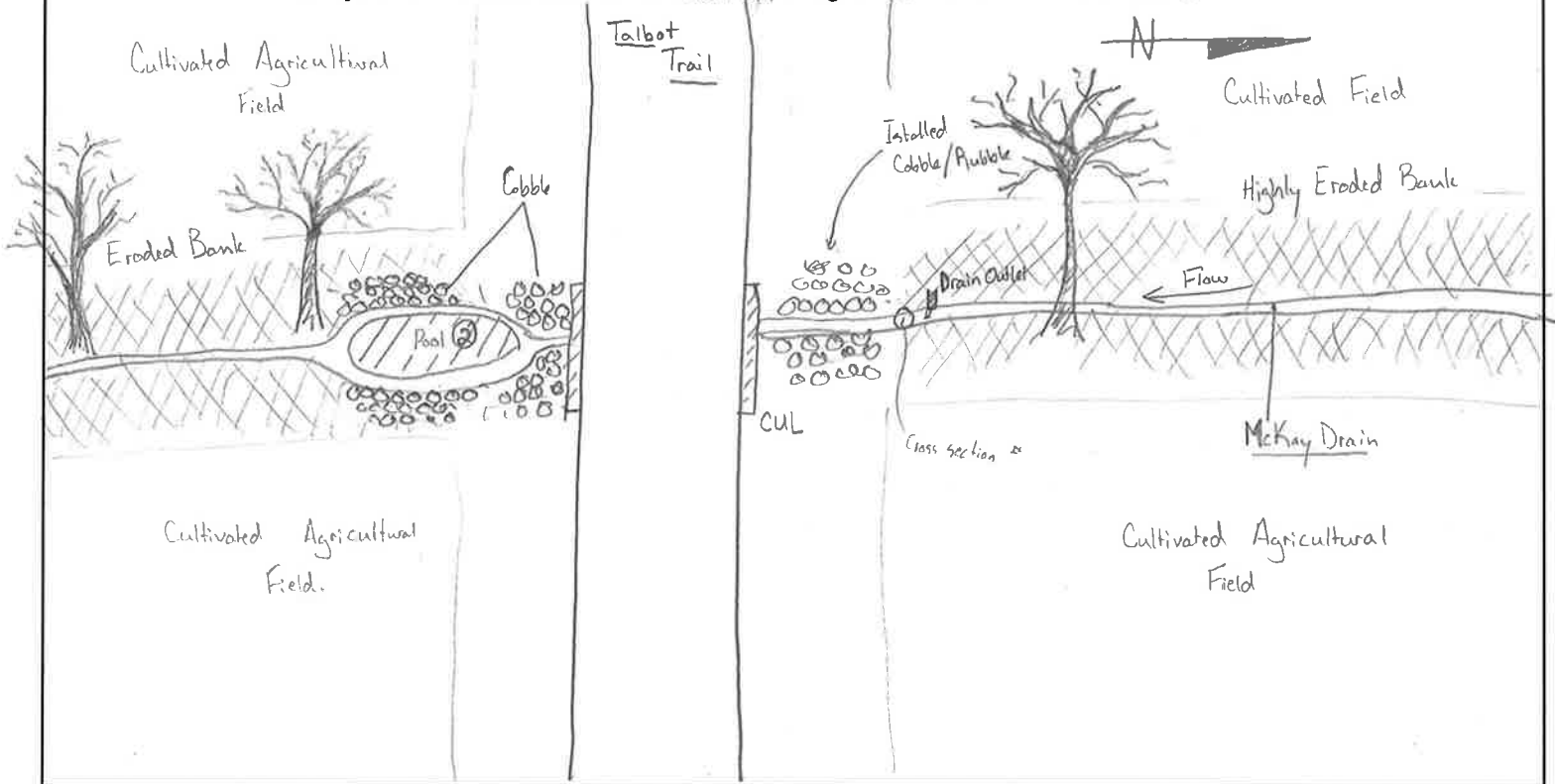
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	0.35	0.30cm	Hydraulic Hood - 15mm
2	2.00	Unable to measure (>50cm max.)	H.H. - Dam
3			
4			
5			

WATER QUALITY

Water Temp. (°C):	9°C	D.O. (ppm):	-	pH:	-	Visible Characteristics/Other Parameters: • Very cloudy
Air Temp. (°C):	9°C	D.O. (%):	-	TDS (ppm):	-	
Time Taken:	11:40	Conductivity (µs/cm):	-			
Location Taken:	-					

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
- 100-0367	Facing South		
- 0368	" North		
- 0369	" "		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- No fish observed.
- Tile Drain outletting into McKay Drain flowing well.



PROJECT (Number & Name): 1184 B South Kent W.F.

Field Staff: Steve B., Christy H.

Station: AHY-080

Waterbody: East Lake Drain

Drainage System: Lake Erie - Rondeau Bay

Location in System:

Appr. Reach Length (m): 50m

Survey Date: 10-Nov-11

Time Started: 1030

Time Finished: 1050

Site Location:

GPS Datum: NAD83

Easting: 425919

Zone: 17T

Northing: 4689738

Municipality:

Lot & Concession:

Weather Conditions:

Wind: 3

Precipitation: None

Cloud Cover (%): 40%

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Red Cedar, Grey Dogwood, Willow Sp. Herbaceous Plants		
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30 30+
	Vegetation Type:	Grasses, Sedge		
	Vegetation Density (HML):	L/M		
Canopy	Type:	Spruce		
	Quality and % shade:	Low 10-15%		
Land Use	Agricultural Pasture (south) Residential Lawn (North West)			
Other	(groundwater, soils, pools, vegetation, etc.)			
Notes	No visible groundwater input			

CHANNEL MORPHOLOGY

Channel Width (range (m)):	0.4 - 1.5	Gradient (H/M/L):	M
Bank Height (range (m)):	0.5 - 1.5m	Meander/Straight:	Meander
Bank Slope (degrees from surface of water):	90° - 150°	Bank Stability:	Poor
Bank Vegetation Type:	Grass, Herbaceous Plants (grasses Golden rod, Milkweed)	Bank Veg. Density (H/M/L):	L/M

CHANNEL SUBSTRATE %

Clay: 40%	Gravel: 5%	Boulder:	Muck:
Silt: 30%	Pebble:	Bedrock:	Detritus:
Sand: 25%	Cobble:	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock:
Riffles: ✓	Woody Debris:	Cobble:
Backwater:	Vegetation: ✓	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
Emergent	Scaly	Low Abundance

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

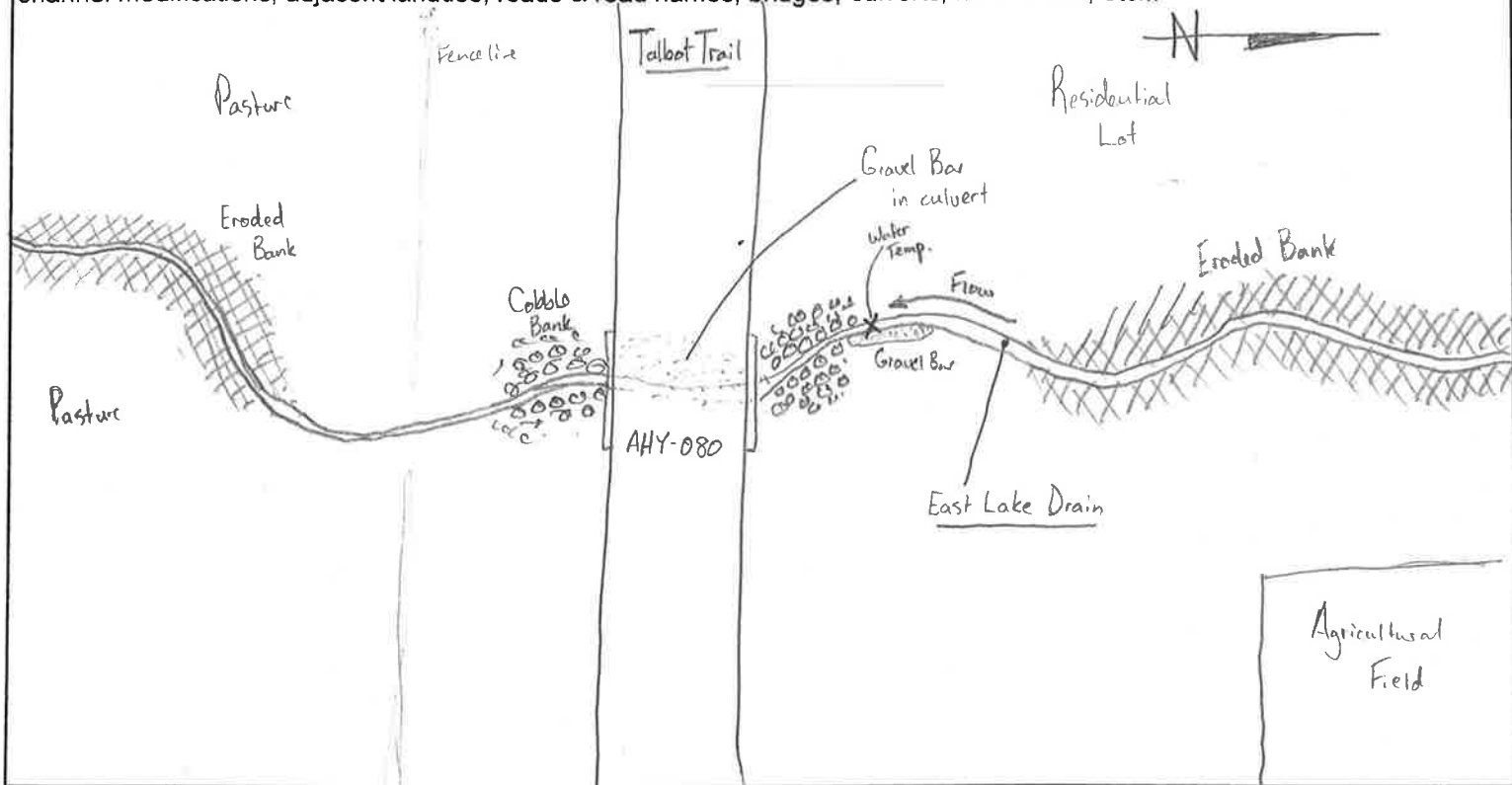
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	0.60	195mm	Hydraulic Head - 10mm
2	1.00	100	H.H. 25mm
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 7.5C	D.O. (ppm): -	pH: -	Visible Characteristics/Other Parameters: Cloudy, low visibility
Air Temp. (°C): 8°C	D.O. (%): -	TDS (ppm): -	
Time Taken: 1030	Conductivity (µs/cm):		
Location Taken: see map.			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-357	Facing South from culvert	100-0362	Sedge Sp. on North Side of culvert
358	" " " "	0363	Facing North from culvert
359	Sedge sp. on South side		
360	Facing North from culvert		
361	" " " "		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- No fish observed
- water cloudy
- Small amount of algae.



PROJECT (Number & Name): 1184 - South Kent W.F.

Field Staff: Steve B, Christy H

Station: AHY-086 **Site Location:**

Waterbody: Neve Drain **GPS Datum:** NAD83 **Easting:** 423614

Drainage System: Rondeau Bay - Lake Erie **Zone:** 17T **Northing:** 4688069

Location in System: **Municipality:**

Appr. Reach Length (m): 50 **Lot & Concession:**

Survey Date: 10-Nov-11 **Weather Conditions:**

Time Started: 1430 **Wind:** 4 **Cloud Cover (%):** 80%

Time Finished: 1445 **Precipitation:** None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Mixed coniferous/deciduous, Herbaceous plants, medium-sized shrubs
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: see above.
	Vegetation Density (HML):
Canopy	Type: Coniferous/Deciduous Quality and % shade: Moderate-Good - 75%
Land Use	Agricultural Land - NW & NE Residential - South
Other Notes	(groundwater, soils, pools, vegetation, etc.) No groundwater indicators

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.0 - 4.0	Gradient (H/M/L): L/M
Bank Height (range (m)): 0.4 - 1.0	Meander/Straight: Meander
Bank Slope (degrees from surface of water): 160°	Bank Stability: Fair
Bank Vegetation Type: see valley	Bank Veg. Density (H/M/L): M

CHANNEL SUBSTRATE %

Clay: 10	Gravel: 20	Boulder: 20	Muck: -
Silt: 5	Pebble: -	Bedrock: -	Detritus: 5
Sand: 10	Cobble: 30	Marl: -	Other: -

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓	Boulder/Rock: ✓
Riffles: ✓	Woody Debris: ✓	Cobble: ✓
Backwater: -	Vegetation: ✓ (Bank grasses)	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
Sub.	Algae	Low

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

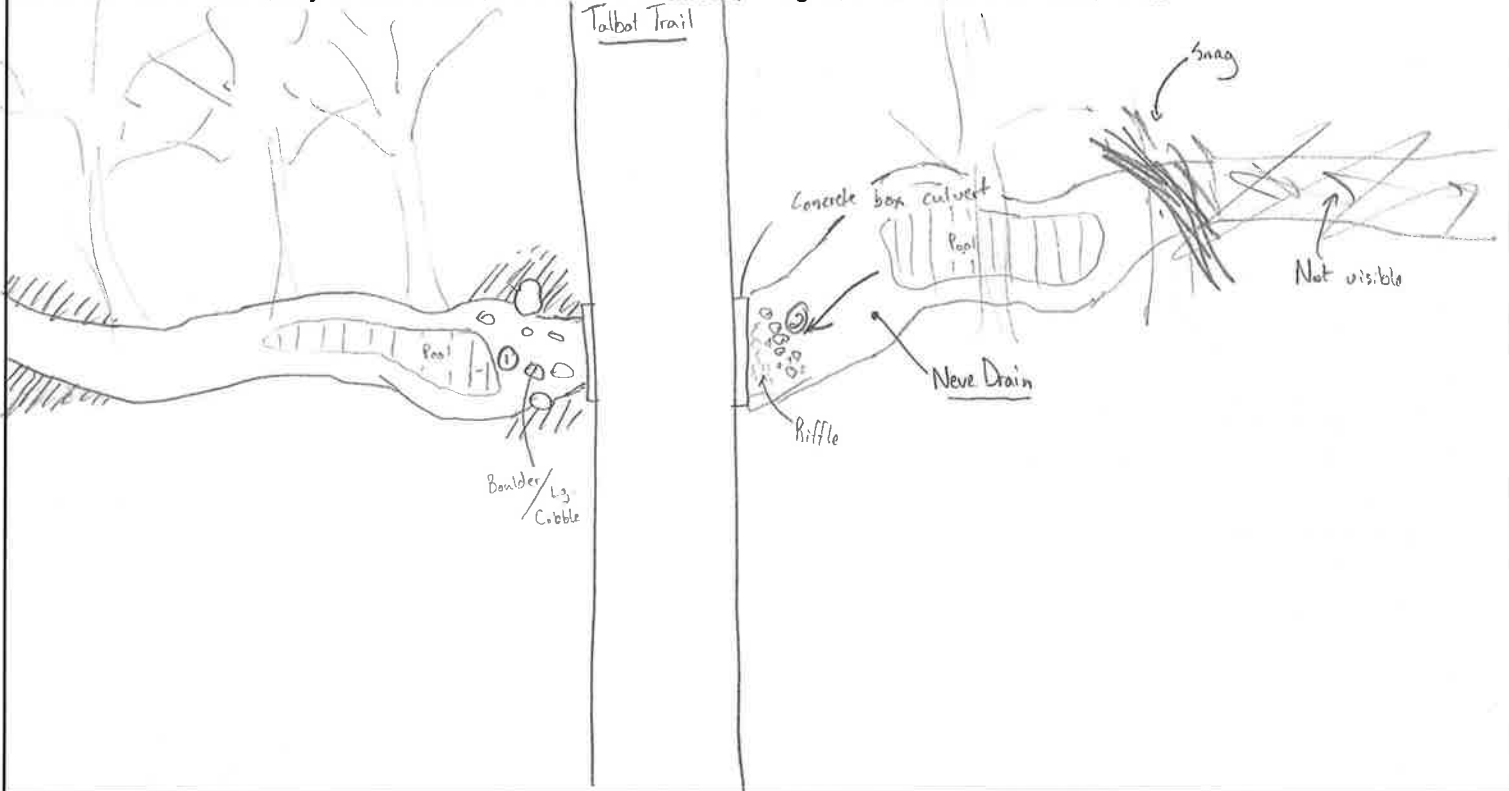
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	3.3 (widest)	33 cm	Hydraulic Head 15cm
2	2.5	20 cm	H.H. - 5
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 8.5°C	D.O. (ppm): -	pH: -	Visible Characteristics/Other Parameters:
Air Temp. (°C): 8°C	D.O. (%): -	TDS (ppm): -	
Time Taken: 1430	Conductivity (µs/cm): -		
Location Taken: see map			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-0378	Facing South from Talbot Trail		
0379	" South " " "		
0380	" North " " "		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

• Evidence of fish in culvert (rises)



PROJECT (Number & Name): 1184 - South Kent

Field Staff: Steve B. Christy H.

Station: AHY-087 **Site Location:**

Waterbody: Archie Campbell Drain **GPS Datum:** NAD83 **Easting:** 423074

Drainage System: Rondeau Bay - Lake Erie **Zone:** 17T **Northing:** 4687702

Location in System: **Municipality:**

Appr. Reach Length (m): 60-70m **Lot & Concession:**

Survey Date: 10 Nov 11 **Weather Conditions:**

Time Started: 1445 **Wind:** 4 **Cloud Cover (%):** 60%

Time Finished: 1510 **Precipitation:** None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: South: Grass - E Ag Field - W North: Mixed coniferous/deciduous forest
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type:
	Vegetation Density (HML):
Canopy	Type: South - None North - Con./Dec. Forest Quality and % shade: South: Poor / 0% North: Good / 95%
Land Use	South - Ag. Fields North - Residential Lot; Mature Forest
Other Notes	(groundwater, soils, pools, vegetation, etc.) Watercress present on south of Talbot Trail

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 2.5	Gradient (H/M/L): L/M
Bank Height (range (m)): 0 - 0.5	Meander/Straight: Meander
Bank Slope (degrees from surface of water): 170°	Bank Stability: Moderate
Bank Vegetation Type:	Bank Veg. Density (H/M/L): M/H

CHANNEL SUBSTRATE %

Clay: 40	Gravel: 10	Boulder:	Muck:
Silt:	Pebble:	Bedrock:	Detritus: 10
Sand: 5	Cobble: 35	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks:	Boulder/Rock:
Riffles: ✓	Woody Debris: ✓	Cobble: ✓
Backwater:	Vegetation: ✓	Other:

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
Floating Emergence	Watercress Grasses, Phragmites	Moderate Abundance

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

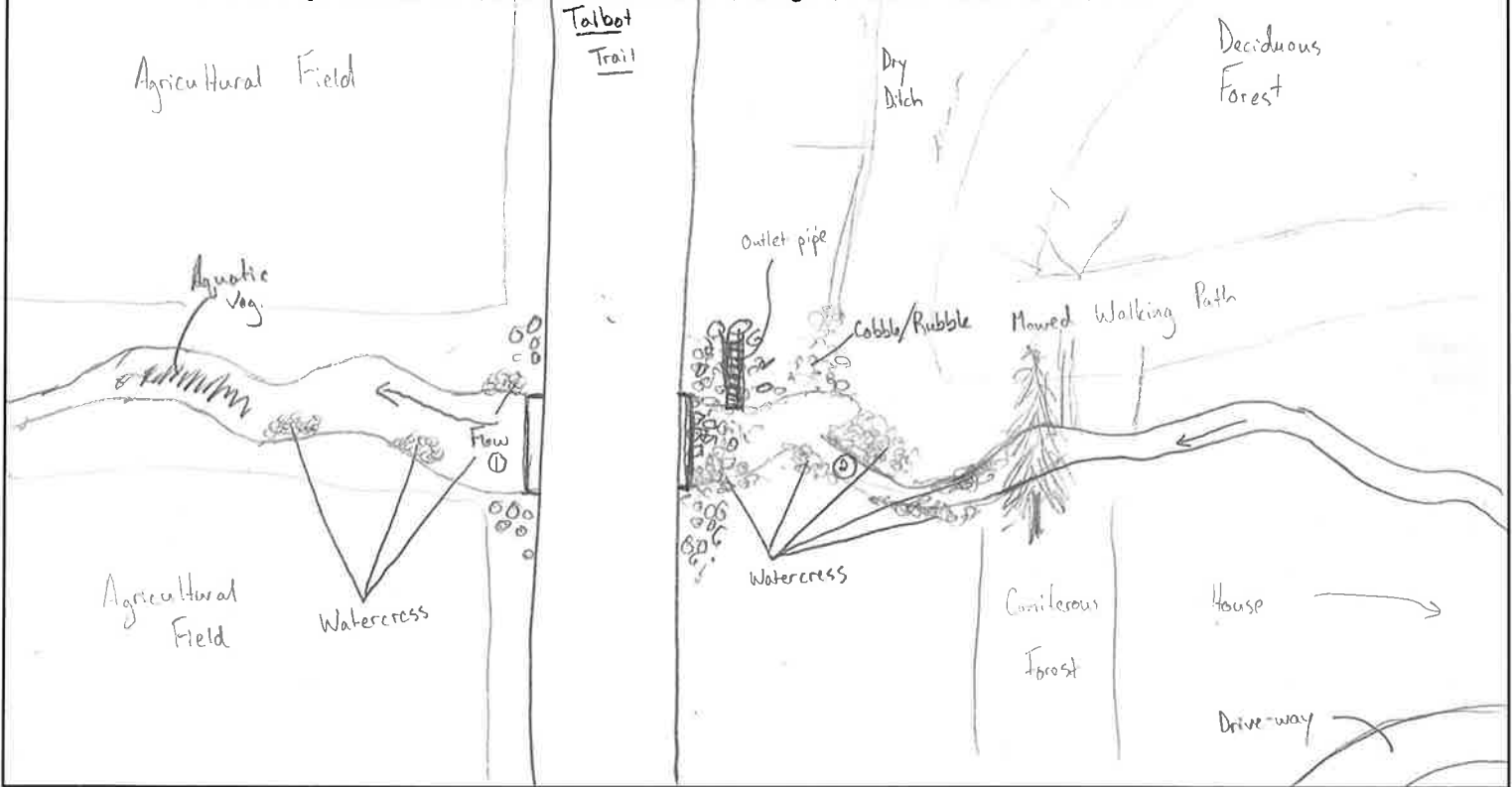
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	2.3	Max. 27cm	Hydraulic Head - 4mm
2	1.3	14cm	H.H. - 9mm
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 9°C	D.O. (ppm): -	pH: -	Visible Characteristics/Other Parameters: Much clearer than all previous watercourses
Air Temp. (°C): 8°C	D.O. (%): -	TDS (ppm): -	
Time Taken: 1450	Conductivity (µs/cm): -		
Location Taken: see map			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-0381	Facing South from Talbot Trail		
0382	Watercress South of Talbot Trail		
0383	Facing North		
0384	..		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

- Trickle through outlet pipe
- Pumpkins & squash in drain south of Talbot Trail



PROJECT (Number & Name): 1184 - South Kent WF

Field Staff:

Station: AHY-089 **Site Location:**

Waterbody: Cumming Drain **GPS Datum:** NAD83 **Easting:** 402149

Drainage System: Rondeau Bay - Lake Erie. **Zone:** 17T **Northing:** 4687033

Location in System: **Municipality:**

Appr. Reach Length (m): 70m **Lot & Concession:**

Survey Date: 10-Nov-11 **Weather Conditions:**

Time Started: 1540 **Wind:** 4 **Cloud Cover (%):** 50

Time Finished: 1600 **Precipitation:** None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous Plants Mixed Deciduous/Coniferous Forest
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous, Grasses
	Vegetation Density (HML):
Canopy	Type: Deciduous Quality and % shade: South - Poor - 20% North - Good - 80%
Land Use	North - Pasture/Residential South - Agricultural/Residential
Other	(groundwater, soils, pools, vegetation, etc.)
Notes	Watercross

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.0 - 2.5	Gradient (H/M/L): M
Bank Height (range (m)): 0.3 - 0.7	Meander/Straight: Meander
Bank Slope (degrees from surface of water): 120° - 160°	Bank Stability: Fair
Bank Vegetation Type:	Bank Veg. Density (H/M/L): M

CHANNEL SUBSTRATE %

Clay: 25	Gravel: 20	Boulder: -	Muck: -
Silt: -	Pebble: -	Bedrock: -	Detritus: 5
Sand: 10	Cobble: 40	Marl: -	Other: -

INSTREAM HABITAT AND COVER

Pools: -	Undercut Banks: -	Boulder/Rock: -
Riffles: ✓	Woody Debris: ✓	Cobble: ✓
Backwater: -	Vegetation: ✓	Other: -

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
Emergent	Watercross	Low/Moderate

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

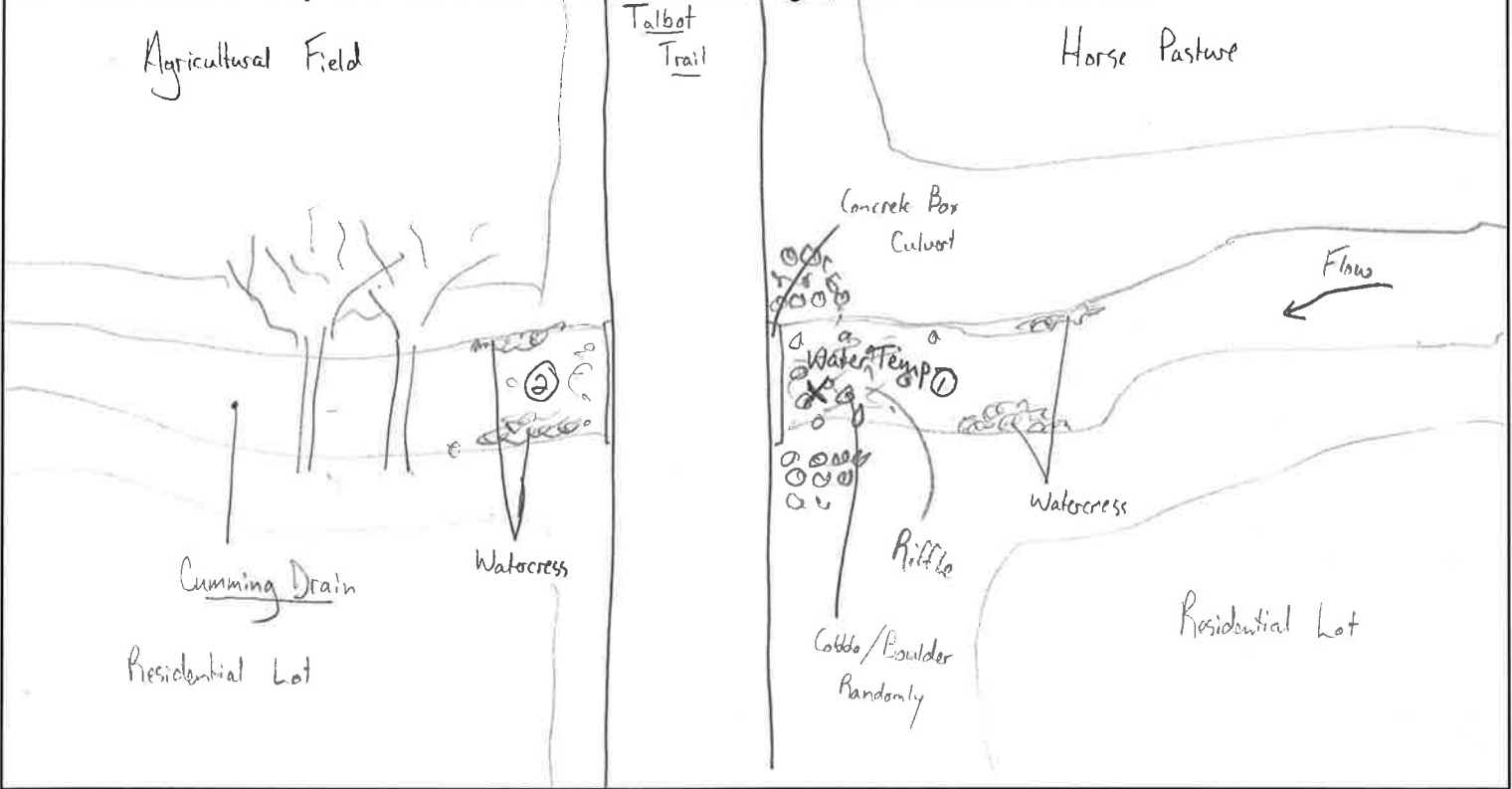
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.1	max - 15cm	Hydraulic Head - 20mm
2	2.1	23cm	7mm
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 9°C	D.O. (ppm): -	pH: -	Visible Characteristics/Other Parameters: - clear
Air Temp. (°C): 7°C	D.O. (%): -	TDS (ppm): -	
Time Taken: 1550	Conductivity (µs/cm): -		
Location Taken: see map			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-0386	facing South from Talbot Trail		
0387	" North " " "		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 1184 - South Keet WF.

Field Staff: Steve B., Christy H.

Station: AHY-090 **Site Location:**

Waterbody: McArthur East Drain **GPS Datum:** NAD83 **Easting:** 421517

Drainage System: Rondeau Bay - Lake Erie **Zone:** 17T **Northing:** 4686575

Location in System: **Municipality:**

Appr. Reach Length (m): 50m **Lot & Concession:**

Survey Date: 10-Nov-11 **Weather Conditions:**

Time Started: 1610 **Wind:** 2 **Cloud Cover (%):** 50

Time Finished: 1635 **Precipitation:** None

ADJACENT LANDS

Valley	Slope:	Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)	
	Extent of Natural Vegetation (m)	0-10	10 to 20	20 to 30	30+
	Vegetation Type:	Coniferous/Deciduous Herbaceous Plants	South	North	
Riparian Zone	Flood Plain - extent of frequent flood (m):	0-10	10 to 20	20 to 30	30+
	Vegetation Type:				
	Vegetation Density (HML):				
Canopy	Type: Deciduous Forest	Quality and % shade: South - Poor - 20% North - Good - 80%			
Land Use	South - Agricultural Fields North - Residential lot				
Other Notes	(groundwater, soils, pools, vegetation, etc.) Some watercress present				

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.6 - 1.4	Gradient (H/M/L): L/M
Bank Height (range (m)): 0.3 - 0.8	Meander/Straight: Meander
Bank Slope (degrees from surface of water): 13°	Bank Stability: Fair
Bank Vegetation Type: Herbaceous Plants	Bank Veg. Density (H/M/L): M

CHANNEL SUBSTRATE %

Clay: 20	Gravel: 30	Boulder: -	Muck: -
Silt: -	Pebble: -	Bedrock: -	Detritus: 20
Sand: 10	Cobble: 20	Marl: -	Other: -

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: -	Boulder/Rock: -
Riffles: ✓	Woody Debris: ✓	Cobble: ✓
Backwater: -	Vegetation: ✓	Other: -

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
Emergent	Watercress, Grasses	Low

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

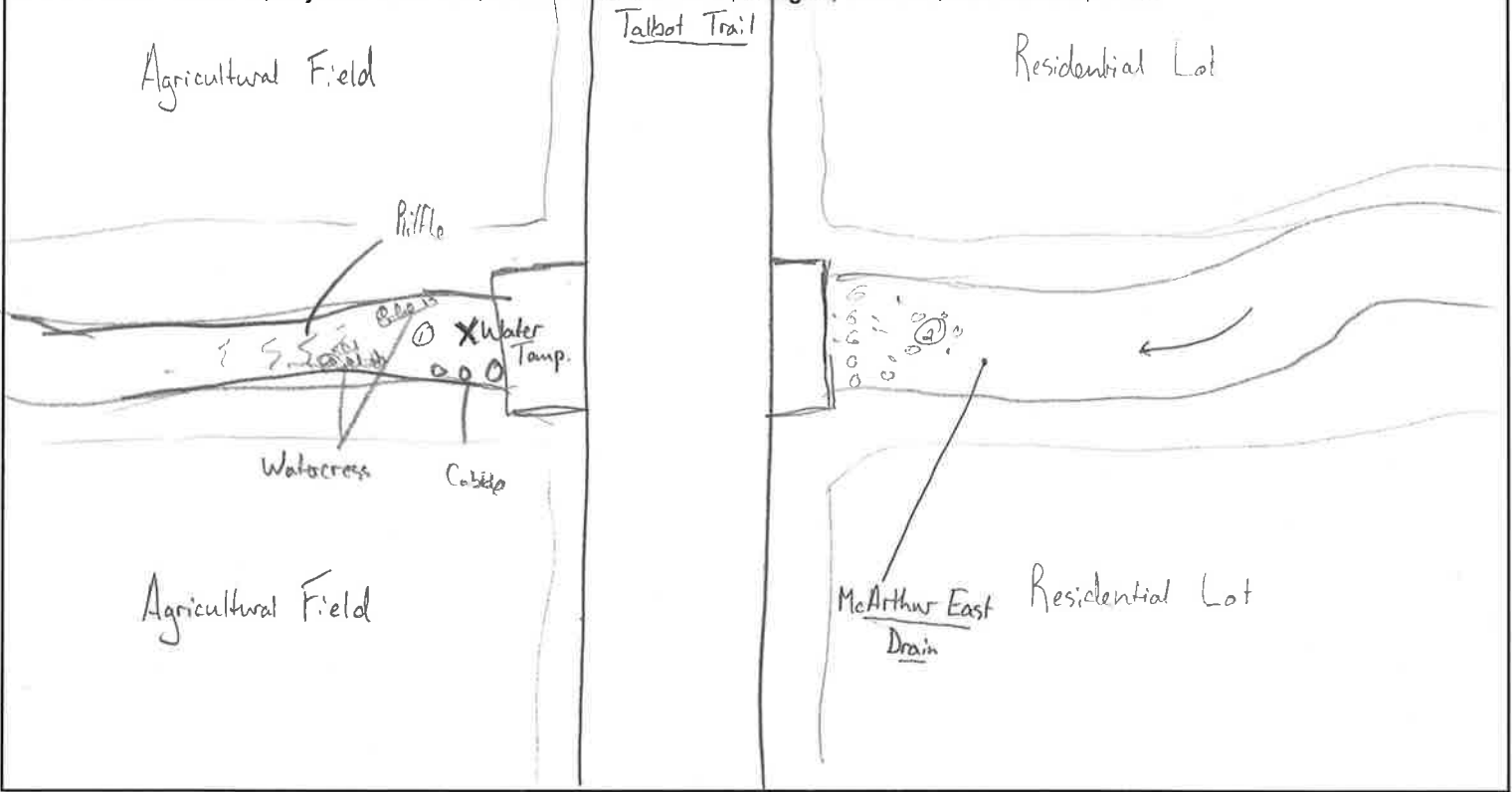
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.0	Max. 40cm	Hydraulic Head: ~15mm
2	1.3	18cm	15mm
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 9°C	D.O. (ppm): -	pH: -	Visible Characteristics/Other Parameters:
Air Temp. (°C): 7°C	D.O. (%): -	TDS (ppm): -	
Time Taken: 1610	Conductivity (µs/cm): -		
Location Taken: see map			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-0388	Facing South from Talbot Trail		
0389	North " "		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:



PROJECT (Number & Name): 11848 - South Kent W.F.

Field Staff: Steve B, Christy H.

Station: AHY-091 **Site Location:**

Waterbody: Nelles Extension Drain **GPS Datum:** NAD83 **Easting:** 420601

Drainage System: Rondeau Bay, Lake Erie **Zone:** 17T **Northing:** 4685930

Location in System: **Municipality:**

Appr. Reach Length (m): 80m **Lot & Concession:**

Survey Date: 10 - Nov - 11 **Weather Conditions:**

Time Started: 1635 **Wind:** 3 **Cloud Cover (%):** 20%

Time Finished: 1655 **Precipitation:** None

ADJACENT LANDS

Valley	Slope: Gentle (< 5°) Moderate (5 - 15°) Steep (> 15°)
	Extent of Natural Vegetation (m) 0-10 10 to 20 20 to 30 30+
	Vegetation Type: • Deciduous Trees • Herbaceous Plants
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10 10 to 20 20 to 30 30+
	Vegetation Type: Herbaceous Plants
	Vegetation Density (HML): M
Canopy	Type: Deciduous Forest Quality and % shade: Poor - Fair ~25%
Land Use	• Residential Lots • Agriculture
Other Notes	(groundwater, soils, pools, vegetation, etc.) • Watercross present

CHANNEL MORPHOLOGY

Channel Width (range (m)): 1.0 - 2.5	Gradient (H/M/L): M
Bank Height (range (m)): 0.2 - 0.5	Meander/Straight: Meander
Bank Slope (degrees from surface of water): 120°	Bank Stability: Fair
Bank Vegetation Type: Herbaceous Plants & small shrubs	Bank Veg. Density (H/M/L): M

CHANNEL SUBSTRATE %

Clay: 25	Gravel: 40	Boulder: -	Muck: -
Silt: 5	Pebble: -	Bedrock: -	Detritus: 15
Sand: 10	Cobble: 5	Marl: -	Other: -

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: -	Boulder/Rock: -
Riffles: ✓	Woody Debris: ✓	Cobble: ✓
Backwater:	Vegetation: ✓	Other: -

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
Emergent	Watercross, Grasses	Low

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWJ Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

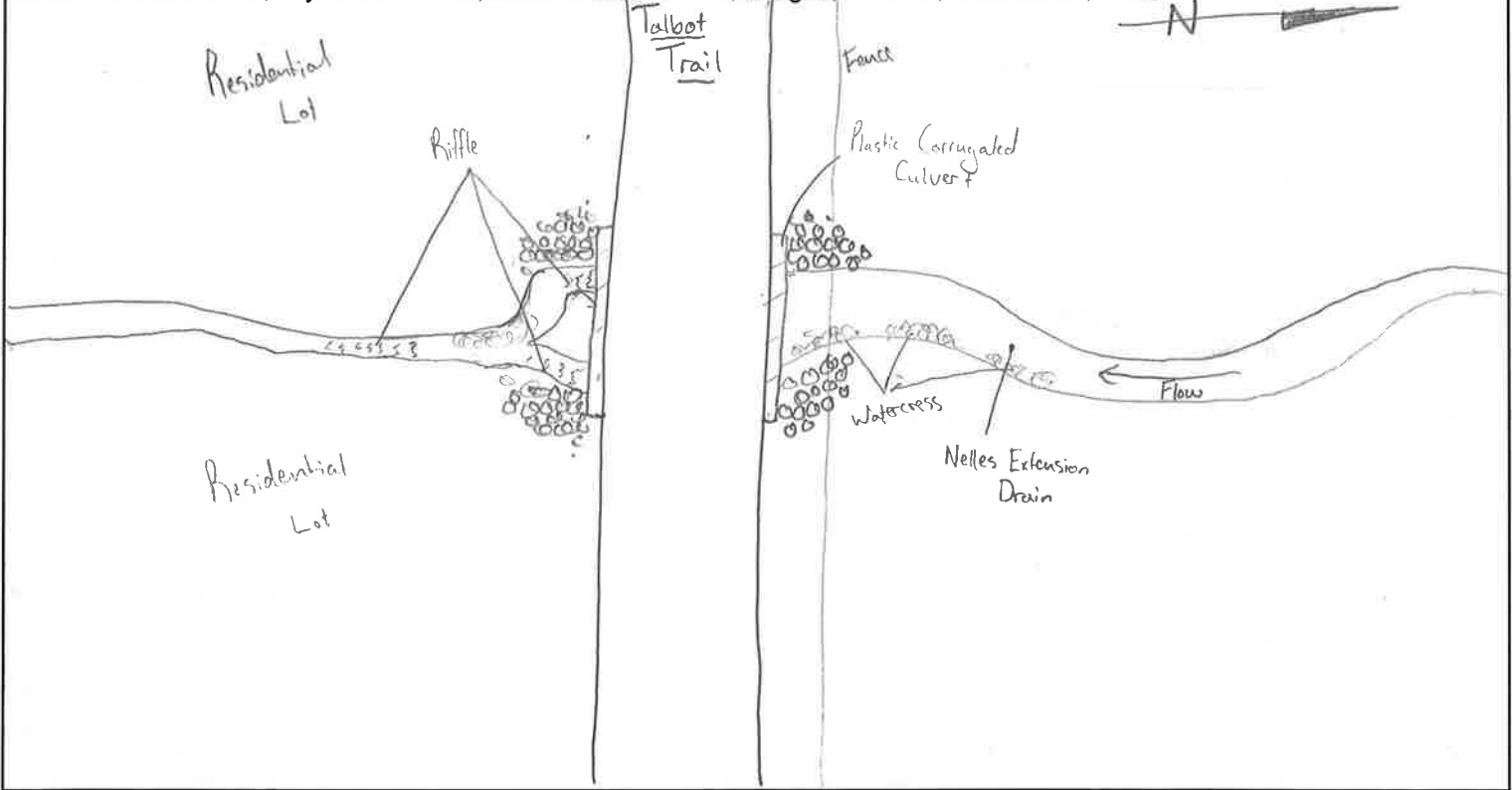
Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1	1.15	max. 12cm	Hydraulic Head: 15mm
2	2.3	28cm	H.H. ~3mm
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 9°C	D.O. (ppm): -	pH: -	Visible Characteristics/Other Parameters: Water clear
Air Temp. (°C): 7°C	D.O. (%): -	TDS (ppm): -	
Time Taken: 1630	Conductivity (µs/cm): -		
Location Taken: see map			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...



PHOTOS TAKEN

Photo #	Description	Photo #	Description
100-0390	Facing South from Talbot Trail		
0391	" North " " "		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

p. 3 of 35

AHY002 17T 0383811
4673878

Normal Davis Drain (P1a2H3/WBARS8) @ Davidson Rd

photo 100-019 - v/s view along Gore Rd
100-020 - @ confluence with SWE drain (culvert)

100-021 - d/s of culvert (drain)

- drainage ditch - lots of flow due to rain,

all tile drains flowing, water murky

- channel w/ grass, cattails + phragmites

- quick flow through culvert - 4.5m culvert.

- water temp 14°C

AHY-008 17T 0383780
4678175

- straight phragmites lined waterway/ditch between agricultural fields 1.0m wide.

- flowing due to rain - usually dry

- water temp 14°C

- flows under rd through .5m round

plastic culvert into Normal Davis drain

- photos 100-022 ↳ permanent (P1b-D1)

↳ v/s view of phragmites

100-023 - v/s Normal Davis Drain

100-024 - d/s Normal D. D. @ confluence

p. 1 of 25

11842 South Kent Aquatics
G. Haevegh

Oct 4/11

dir: 10° @ 1010 Precip: 0 - rained in
wind: 1-2 CC: 0 last 2 hrs

AHY001 17T 0382956
46714752

Harold Walker Drain (P083-D3)

- ditch on both sides of Hornet Line

- south side - standing water, corridor lined w/

grasses, cattails - bank veg - grass, herbs

- no defined channel

- north side - no water, grass + aster lined

photos - 100-001 - facing west (v/s) towards unrented rd

south side 100-002 - facing east (d/s)

north side 100-003 - facing west 100-007 - towards

side 100-004 - facing east 100-008 - towards

- grassed ditch - closer towards coastworth rd.

AHY002 17T 0382986
4674785

full assessment

Burgess Drain West Branch (P083-D3)/P083-H1

photos: 100-005 - d/s view

100-006 - v/s view

AHY003 17T 0383214
4675217

full assessment - Burgess Drain East Branch

photos: 100-009 - v/s view (P083-H5)
100-010 - d/s view (P083-D1)



AP1141W/PI1141D1

AH1009 (P03511/W08E2) 17T 03886433

- full assessment McLeod Drain

- photos of Graham Drain

- photos 025 - 028

AH1010 17T 0388581 4678534

- unknown meeting with E. branch of Graham Drain

- unknown runs perp to middle line

- Graham D on South side of rd.

- photo 100-029 - south view v/s of drain

o straight, grassed, 2m nat veg, pockets of water

100-030 + 100-031 - v/s + d/s Graham Drain

- water/flow present. grass in channel, 3-4m veg.

- water temp 15°C.

AH1011 (P124-D1) 17T 0390075
4679617

- east side of Valhalla Rd - drainage ditch

- water/flow present due to rain

- 7m nat veg, rip, 4-5m, bank height 2-2.5m,

grass in channel, goldenrod, aster, herbs

- photo 100-32 - v/s view

100-33 - d/s view

AH1014 17T 0383087
4675359

- grassed ditch along west side of Coatsworth Rd. - cabling

- photos 100-011 - South view

100-012 - north view

AH1005 17T 0382586
4677245

- south side of Gore Rd.

- south middle road drain (P080-D1/W8-G4)

- photos 100-013 - v/s view

100-014 - d/s view

- water present no flow - tile drains

- grassed channel - phragmites, goldenrod, cottonails

- water temp 15°C - flow present further d/s

post King + Whittle Rd.

AH1006 17T 0383486 4677690

- King + Whittle Drain (P080-D1/W8-A89)

+ South Middle Rd Drain @ intersection

- flow present water murky - due to rain

- depth - v. 50m deep

- channel - 5-2.5m bank 2-3m

- veg - g-rd, aster, grasses, herbs

- photo 100-015 - v/s view of SHR drain - west

100-016 - d/s view OS SHR drain - east from

100-017 - v/s view of K+W drain - west from

100-018 - d/s view / confluence

1184a South Cent Aquatics P. 7 of 25

G MacVeigh

✓ AHY019

17T 039 3463
46833811

- full assessment - 3 drains - 90v #7 - channel - unknown 'g'
- photos 100-54 to 100-57

✓ AHY020 (10071-04)

17T 039 3235
4681539

- grassed ditch parallel to Cooper Rd
- beside saga field
- water present - standing - 16°C
- ~~water~~ - 25m channel veg corridor 6m
- photo 100-58 - facing N
- 100-59 - facing S

✓ AHY021

17T 039 2859
4681738

- full assessment - 60v Drain #1 - see photos for drain
- photos 100-60 - parallel to rd @ AHY019
- 100-61 -

✓ AHY022

17T 039 3322
4682142

- Lewis Drain (w.b.u.b)
- full assessment
- photos 100-62 - u/s view
- 100-63 - d/s view



P. 5 of 25

AHY012 104-D1

17T 038 9896
4679796

- grassed
- water present from recent rain
- no defined channel
- photos 100-034 - d/s view
- 100-035 - u/s view

✓ AHY013 (114-D2)

17T 038 7867
4680988

- 114-D2 @ Ross Worry Drain (18A)
- Ross Worry Drain - perp to Gleason
- full assessment
- unknown Drain - parallel to Gleason
- grassed road ditch
- photos 100-36 - 100-39

✓ AHY014 (114-D2)

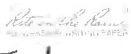
17T 038 8337
4681390

- 1072-11 Jessop Drain (w.b.wy/18A)
- unknown 114-D2
- full assessment
- photos 100-40 - 100-43

✓ AHY015

17T 038 8897
4681839

- cattails/phragmites - 2m wide, corridor - 8-10m w/e
- no defined channel, no water present
- parallel to railway (R18F3)
- photos 100-44 - d/s view 100-45 - u/s view



✓ AHY023 17T 0393948
4682362

- Mancell Drain?

- parallel to Merlin Rd - NE side

- David Reiter Drain not present - sage field

- Mancell - nat corridor 8m, veg - grass, herbs

goldenrod

- water murky - flow due to rain wt - 14°

- water channel 1-1.5m wide, - 25m deep

photos 100-64H - none exist David Drain

100-65 - v/s view Mancell

100-66 - d/s view Mancell

✓ AHY024

- 3 drains

- full assessment

- photos 100-067 - 100-071

17T 0394703
4682438

✓ AHY025

- full assessment - unknown drain

- photos 072 - 072

- unknown drain/ditches

17T 0397208
4682310

✓ AHY016

Sinclair Drain - perp to Gleason - photo 100-46-45

Plak-02 - parallel to Gleason - photo 100-46-d/s - west view
100-49 - east view

✓ Sinclair - veg corridor - 6-8m

grassed lined channel - cattails present

bank veg good w/ g. rod, herbs, shrubs, herbs

water present in flows due to rain

- straight no meander - parallel to Sloan Rd.

- wt - 14°C - channel - .5-.75m.

✓ AHY017

- P127-01 parallel to Gleason (south side)

- road ditch - corridor 6m, veg banks g. rod + aster, herbs

- water present/flows due to rain

- grass/herb lined - dicy in summer

photos 100-50 - v/s view wt - 16°C

100-51 - d/s view

✓ AHY018

- full assessment - Gov. #1 Drain

- photos 100-52, 100-53

- big watercourse

17T 0392035
4684570

AHY031 cont'd -water present in roadside ditch/drain

-water murky, 14°C @ 10:40, slow flow - no real defined channel - grass/herbs in channel banks 4-6m

photo - 100-099 - view of drain between ag. fields
100-100 - g/s view of ditch parallel to rd
100-101 - d/s view of ditch parallel to rd

AHY032 17T 0399854
4682158

-non existent tile drain - through field

-ditches parallel to road grass lined - no defined

photo 100-102 - ^{soya}soybean field channel
100-103 - south side of 10th line facing west
100-104 - " " facing east

AHY033 17T 0400861
4683369

-full assessment - ~~Carter Drain~~ ^{unknown drain} Carter Drain (Carter Pass, east)

-photos of ditches parallel to road
photos 100-105 to 100-110

AHY034 17T 0401548
4683724

-full assessment Carter Drain

-info on SE ditch on Map on field form
-photos 100-111 to 100-114



1184a South Kent Aquatics
G. Waverlygn
Soat 11

Air: 10 @ 915
wind: 1
precip: 0

AHY036 17T 0402635
4688397

-permanent watercourse non-existent - soya field
Lskell Drain Bench

-grassed road ditch on N + S side of ~~field~~ 8th line

photos 100-78 - view south - no watercourse
100-79 - ~~east~~ ^{east} view on south side of " rd
100-80 - ~~east~~ ^{west} view " " rd
100-81 - ~~east~~ ^{east} view on N side of road
100-82 - west view " "

AHY037 17T 0401920
4687754

-full assessment - Waddick Drain - perp to road
-grassed manured ditches parallel to road

photos 100-83 + 100-84

AHY038 17T 0401919
4687125

-Rhodes Tile Drain - non existent soya field
-parallel to road - grassed ditches
photo 100-85 - Rhodes Tile Drain N view from 8th line
photo 100-86 + 87 - west + east view - ditch



AH1035

17T 0402120
4684244

- Government Drain Pk65-D3

WB-S field form-

photos - 100-116 - d/s view
100-115 - u/s view

AH1036

17T 0403259
4685248

- full assessment - Doyle Drain (WB-RK30,

~~PK65-D1~~ PK94-D5

WB-a)

- grass lined

photos 100-117 + 100-118

AH1037

17T 0403700
4685642

- Vail drain @ 10th line (WB-RK29/WB-RK29)

PK61-D1

- 0-10 riparian zone - grass, willow sp, shrubs, goldenrod
high density - good shade 60-70%

- box culvert 6m wide, straight channel

banks highly vegetated in grass, herbs

channel - 1-3m wide, av. 45 depth, 14°C

substrates gravel, silt, sand, muck

no aquatic veg

photos 100-119 - u/s view Vail Drain

100-120 - d/s view Vail Drain

ditches run parallel to road - highly vegetated

AH1029

17T 0398223
4681190

- ~~drain~~ drain on NE side of road
has standing water - photo 100-088

• natural corridor 7-8m wide, veg - cedar, maple, oak, goldenrod, grass, herbs - good shade 80%
• no flow, water temp - 14°C

• channel ~ 5-1m wide, pools present, murky
parallel to wellwood grassed ditches,
culvert under road to drain to drain

photo 100-089 - east side of road ^{pool of water @} _{culvert}

100-090 - east side of road facing S ^{factory N-15h toward 9th line}

100-091 - west side of Rd facing N

100-092 - east side of road facing S

AH1030

17T 0398722
4681173

- full assessment

- ditch along ^{the} south east side of road

substantial - notes on map part of form - dry in summer

- photos 100-093 - 098

AH1031

17T 0398921
4681342

- drainage ditch perp to south side of 10th line
between farm fields

- not corridor 10m - sumac, g.rod, maple, elm, ash,

- covered - shade 80% - emptying into ditch parallel
to 10th line (see notes on AH1030 form)

p. 15 of 28

AHNO44 17T 0410/45 4689343

- drainage ditch through fields

- straight, lined in cattails, dry, ← perp to lagoon

- goldenrod, aster, corridor 6-8m wide

- ditches parallel to road dry - lined in grass

- no deep wind channels ^{↳ pockets of water}

photo 100-138 - d/s view of ditch perp to rd

100-139 - South side parallel to rd toward Horton

100-140 - " " toward Cudde

100-141 - North side " " toward Horton

100-142 - South side " " toward Cudde

AHNO45 2 + 10 ^{drainage ditch} 17T 0411/24 4690923

CLN-DA/CA-H4

- Lucas Drain (WB-R214/P046A)

- Drain parallel to road (WB ARESA)

- full assessment of Lucas

- drain parallel to road discussed on map

photos 100-N3 to 100-146

AHNO46 17T 0413/28 4692312

Morrison Drain (WB-P2A/B)

- drainage ditch through farm fields

- nat corridor 10-12m wide - goldenrod, cattails,

aster, herbs, grass, ^{↳ smaller on d/s side}

p. 13 of 25

AHNO38 17T 0406/32 4689388

R096D1 - Ferguson/Laurie Drain (WB-F)

- Full assessment

photos 100-121 to 100-124

AHNO39 17T 0406/30 4690315

Gregory Drain R055-D1/R054H1

WB-07/WB-E/WB-ARE54

- viewed at 2 spots - assessed @ 9th line

- WT 140C, flowing, murky

- ^{root} corn dor 12-14m wide, goldenrod, grass, herbs

- shrubs - line bank (heavily vegetated)

- straight, no aquatic veg, substrates sand, muck,

- silt, gravel, debris

- channel 1-2.5m wide, bank height 5-6m,

- av. depth .95-.5m - pools, small snails

photos 100-125 - d/s view from 9th line

100-126 - d/s view from 9th line

17T 0407/21 100-127 - d/s view from Charing Cross

4690157 100-128 - d/s view " "

AHNO40 17T 0408/42 4688588

- grassed ditch parallel to Charing Xing

- photos 100-129 - towards 10th line

100-130 - towards 11th line

AHY046 cont'd
17T 041330f
41693341
5.75m

- channel lined w cattails pockets of water
- bank height 4m, stable, slopes 45°
- culvert under rd 3m wide w/ 15
- substrates mud, terrestrial veg, cattails, sand, silt.
- most likely dry in summer conditions
- grassed drainage paths along road parallel
- photo 100-147 - v/s view
- 100-148 - d/s view

AHY047
17T 0414063
41694666

- Kneebone Drain - full assessment
- photos 100-149 + 100-150
- no flow

AHY048
17T 0414106
41694977

- Cyprus Hufferman Drain (w/ E-TN), PO33-D1
- straight channelized ditch/drain lined w cattails pockets of water
- corridor 10-12m veg - grass, goldenrod, aster, herbs
- bank stable herbs/grasses high veg density
- agricultural land use, peat murky water
- channel .25-.25m wide, bank height 2-3m, slope 45-80°
- substrate - mud, detritus, sand, silt
- photos 100-151 - v/s view
- 100-152 - d/s view

instream habitat by cattails + pocket of water

AHY041
17T 0408498
41698130

- parallel to 11th line - roadside ditches
- no defined channels - water present on south side
- photo 100-131 - towards CharingXing
- 100-132 - toward Bloomfield

AHY042
17T 0407629
41691051

- roadside ditch parallel to Gagner Line
- grass lined - no defined channel
- photo 100-133 - towards Charing Crossing
- 100-134 - facing east from " 40m Gagner rd

AHY043
17T 0408138
41690715

- drainage through agricultural fields
- cattail/fragmite lined - no defined channel - also runs parallel to road
- bank height 2-3m, nat. corridor width 10m
- pockets of water present - no flow
- photo - 100-135 - facing v/s (NE) perp to rd
- 100-136 - facing toward S Gagner parallel to "
- 100-137 - facing toward " Horton "

AHYOSS

17T 04199377
4691836

p. 19 of 25

- north side Campbell rd beside laneway

~~channel~~ drainage ditch McPhail Drain (WB-MH)

where it is perp to Campbell line + English Drain

McPhail Drain

• nat corridor 15-12m - shrubs, herbs, grass, poplar, elm

redosier dogwood

• under road through 1.5m round culvert

• no flow, clear water, channel .5 - 1.0m,

substrates - muck, detritus, clay, sand UT 130

• bank stable, highly vegetated, shade great 70%

• no fish observed photo 100-164 v/s view

100-165 d/s view

English Drain

- parallel to road - also see AHY054

west side grassed, bank 10m, no water

east side of McPhail - catails, goldenrod, nat corr. 10m

channel .5-1.0m

photos 100-167 - west side

100-166 - east side

AHY056

17T 04184117
4691060

Tedford Drain - beginning

- see previous info for Tedford

Gobbett Drain empties through 3m culvert

- water cross UT 120C



AHY049

17T 0415262
4693812

p. 17 of 25

- P156-D4 Tedford Drain (Wurgera/R209)

full assessment

- ditch along SE side of Road

photos 100-153 to 100-155

AHY050

17T 0416324
4691755

- ditch along the NE side of Harwich Rd

uniform entire route

- grassed, no defined channel, pockets of water

due to recent rain

channel width .5-.75 lined with catails, phragmites

- nat. corridor 5m - goldenrod, aster, shrubs

photos 100-156 - v/s view parallel to Harwich

100-157 d/s view " " NE side

AHY051

T 0416469
4691116

- grassed ditch through fields

- goldenrod, aster,

- no defined channel

- forgot photos



AH1056 cont'd

nat corridor 12.15m channel lined w cattails .3m
- slow flowing water through .5-.75m channel
- algae present

see photos for Goblett opposite side of road - same as English Dr

photos 100-168 - d/s view of Tedford from Campbell Rd

100-169 - east view goblett

AH1057 17T 0417780 4690189

- roadside ditch parallel to Horwuch - southish side
- Phragmites/cattail - dry

- nat corridor 7-10m - goldenrod

photos 100-170 - towards welch line

100-171 - towards Ridge Line

AH1058 17T 0417320 4691183

Tedford Drain @ Welch Line (P 031-0D) (see/w/189/2, full assessment)

photos 100-158 + 100-159

AH1053 17T 0417905 4692458

Tompkins Drain? (P135)

- straight channelized drainage ditch 15T-16°C

- parallel to road on SW side then through

1.0m culvert to head pump to road

- nat corridor 1.5m wide - goldenrod, herbs, aster, dogwood, grasses

- water clear

- channel .5-.75m, bank highly vegetated, grass shade 60%

- flow due to rain - agricultural land use

- lots of algae, grass in channel - cattail, burrhead

- substrate - clay/muck, gravel, pebbles habitat through veg.

photos 100-160 - d/s view no fish observed

100-161 - d/s view



AH1054 17T 0420103 4693557

English Drain? South side of road parallel to road

- roadside drain channel .5m wide - ~~parallel to road~~

- no defined channel, straight, nat corridor 4-6m

- veg - goldenrod, phragmites, cattail, herbs, grass water present

photos 100-162 - d/s view w/ 12.5 ft depth - 15m observed

100-163 - v/s view

AH11063 17T 042400
~~Unknown~~ Drain 468444

Full assessment

photos 189-191

AH11064 17T 042405
Resuming Drain 4684730

Full assessment photos 100-192 - 100-193

AH11065 17T 042456
~~Unknown~~ Drain 4685252

Full assessment photos 100-194 + 100-195

AH11066 17T 042502
~~Unknown~~ Drain 4685805

Full assessment photos 100-196 + 100-197

AH11067 17T 042532
~~Unknown~~ Drain 4686437

Through cornfield on N side of road - no water

willow sp, grass, cattails - width 8m no defined channel 1m culvert

d/s soya field - no swath - packet of water photos 100-198 - v/s view into corn field

100-199 - d/s view into soya field

1184a South Kent Agricultural Court 11
G. Harveigh
Ave: 1/6 @ 900
CC: 0
wind 1
Prep: 0

AH11058 17T 041305
4690749

White Drain @ Harveigh Rd (unmarked/unknown)

Full assessment photos: 100-173 - 100-176

AH11059 17T 0418844
4688972

Unknown drain - grass lined - no water, no defined channel

v/s side - swath through fields - 2m wide veg - grass/herbs, straight - no bank height.

d/s side overgrown w shrubs. some, pole disappears d/s - 2m box culvert under road

photo 100-177 - v/s view 100-178 - d/s view

AH11060 17T 0411941
4688315

McArthur East Drain? (unroad)

South side of Harveigh perp to road photos 100-179 + 100-180

AH1068 17T 042615A
4686810

Clendinning Drain
Full assessment photos 100-200+100-201

AH1069 17T 0426830
4687058

-tile drains -soya field v/s side (no. 14)
-swath through fields (south)
photo 100-202 - d/s view (swath)
100-203 - v/s view - fields

AH1070 17T 0427351
4687926

-Nesbit Drain (P1218/P121A)
-Full assessment photos 100-204 + 100-205

AH1071 17T 04282961
46894509

Brown Drain
Full assessment
out of forms
channel width - 1-3m
channel height - 8-4m, 30-40°
highly vegged in grass/herbs straight
Valley - 5% , 0-10m, grass, some paper
Rip. - 0-10m, willow sp, dogwood, goldenrod, sumac.
canopy - dec. trees/shrubs - grass, herbs
Land Use - agricultural
Other notes - pool below culvert d/s side
Substrates muck, silt, sand 13° WT @ 135
habitat - pools, a bog
photo 100-206 - d/s side - fish seen.
100-207 - v/s side - bank full ~ 5m

AH1066B 17T 04220102
4687671

- same drain/info as 602
photos 100-~~180~~ 181 - d/s view (towards brush)
100-182 - v/s view
lots of watercress, frog noticed
- runs parallel to Herwich - wet slow flow.

AH1061 17T 0423469
4683684

- unknown drain
- photos 100-183 to 100-185
- stagnant - lots of duckweed.

AH1062 17T 0423743
4684060

unknown drain - tiled on NW side of road
- small road side ditches parallel to New Scotland P. 100-187 + 100+188
- drain perp to New Scotland/Parallel to Wellington - P 100-186.
• phragmites, goldenrod, willow sp, grass, herbs - 10m
• no defined channel - width .75-1.0m packets of water, no flow WT- 14°C
• phragmites/cattails growing in lining
bank height 2-3m, heavily vegged

AH1063 17T 042400
~~unknown~~ Drain 468444
 Full assessment
 photos 189-191

AH1064 17T 042400
 Unknown Drain 4684730
 Full assessment photos 100-192 - 100-193

AH1065 17T 042456
 Unknown Drain 4685252
 Full assessment photos 100-194 + 100-195

AH1066 17T 042502
 Unknown Drain 4685805
 Full assessment photos 100-196 + 100-197

AH1067 17T 042572
 Unknown Drain 4686437

Hasting Drain
 - through cornfield on N side of road - no water
 * willow sp, grass, cattails - width 8m no defined channel 1m culvert
 * d/s soya field - no swath - pocket of water
 photos 100-198 - v/s view into corn field
 100-199 - d/s view into soya field

1184a South Kent Aquatics 6 out 11
 G. Harwich
 Air: 16 @ 900 wind 1
 CC: 0 Precip 0

AH1058 17T 041735
 4690749

white drain @ Harwich Rd (west side of road)
 - full assessment
 - photos: 100-173 - 100-176

AH1059 17T 041884
 4688972

- unknown drain
 - grass lined - no water, no defined channel
 - v/s side - swath through fields - 2m wide
 veg - grass/herbs, straight - no bank height.
 - d/s side overgrown w/ shrubs - some popl
 disappears d/s - 2m box culvert under road
 photo 100-177 - v/s view
 100-178 - d/s view

AH1060a 17T 041944
 4688315

McArthur East Drain? (canal)
 - south side of Harwich perp to road
 photos 100-179 + 100-180



AHND72 17T 0421956
4694350

- dry drain/ditch crosses under road through
- 5m culvert + photo 100-308
- photo 100-209 + 210 ~~100-~~ north side of road & parallel to Base Rd. - Nicholson Drain
- dry - grass in ditch - 3m wide vegged channel .5-1m - phragmites/cattail

AHND73 17T 0421080
4695312

- tile drain in corn field
- photo 100-211 - taken facing SE from Coffell Rd 17T 0421080
4695312 4695962

AHND74 17T 0422045
4698137

- tile drained - non-existent
- photos 100-212 - north view
100-213 - south view

AHND75 17T 0420496
4698833

- photo 100-214 - v/s view
- 100-215 - d/s view
- Mokoy Drain (w8-03)
- 1st corridor 10-15m. goldenrod, poplar, grass, herbs
- channel - 1-1.5m flowing, murky, 16" wt,
- bank heavily vegged, stable, 40-50% shade
- substrate: muck, sand/silt
- pools
- no fish seen

