



Gran-a

RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Startec

Project Samsung (GREP) Wind
 Station # 1
 Photos Taken D121, 0122, 0123
 GPS Coordinates 17T 0587854/4753842
 Descriptive Location crossing approximately 200 m South of Rt 3
@ house # 4260

Project # 161010646
 Field Staff E. Malindzak, M. Kozak
 Date 10-18-2010
 Time 12:22

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (µS/cm)
 Water Temperature (°C) Air Temperature (°C) 11°C
 Weather conditions in previous 24 hrs Sunny then cloudy, cool

Watercourse Dimensions & Morphology

Mean Watercourse Width (m) Maximum Pool Depth (cm)
 Mean Bankfull Width (m) Mean Water Depth (cm)
 % Riffle % Pool % Run % Flat

Evidence of eroding banks, Comments on bank stability channel incised d/s on adjacent property, no defined channel though there is evidence of flow

Substrate - Upstream (% cover)

 Bedrock Silt Boulder Clay Cobble
 Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

 Bedrock Silt Boulder Clay Cobble
 Muck Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
 Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
 Upstream 80%, early successional meadow
 Downstream 60%, grass/meadow w/ agriculture (corn)

Adjacent Land Use

Upstream agriculture currently fallow
 Downstream agriculture, corn & meadow

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
 Upstream none
 Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream at d/s property boundary is piles of concrete/brick
 Downstream culvert @ road crossing d/s is dry

Note any fish observations

some pooled water on property d/s, isolated as culvert is dry

Other Habitat Notes, Incidental Wildlife Observations, etc.

Dry not a water body
no aquatic veg or defined channel



Gran-aa

RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version _____

Stantec

Project: Samsung (GREP) Wind
 Station #: CL-34
 Photos Taken: 7509, 7510, 7511
 GPS Coordinates: NT 0603302 / 4750311
 Descriptive Location: South of Haldimand 200 on South Cayuga Rd.

Project #: 161010646
 Field Staff: E. Malinowski, E. Windhorst
 Date: Oct 28, 2010
 Time: 10:54
2010

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (µS/cm)
 Water Temperature (°C) Air Temperature (°C) 11°C, cloudy, windy
 Weather conditions in previous 24 hrs Sunny, warm, windy

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.20 (m) Maximum Pool Depth 0.5 (m)
 Mean Bankfull Width 1.0 (m) Mean Water Depth 0.3 (cm)
 % Riffle 80 % Pool 20 % Run % Flat

Evidence of eroding banks, Comments on bank stability none, considering recent rains and very little water in channel, this likely holds water briefly after rain and during spring snow melt.

Substrate - Upstream (% cover)

 Bedrock Silt Boulder 100 Clay Cobble
 Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

 Bedrock Silt Boulder 100 Clay Cobble
 Muck Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
 Woody Debris Boulder Other Terrestrial

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
 Upstream 90%, terrestrial grasses
 Downstream 75%, meadow gr. sp.

Adjacent Land Use

Upstream agriculture (soy)
 Downstream fallow field / meadow

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none
 Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow
 Downstream low flow

Note any fish observations none, culvert is perched ~7.5 cm @ d/s end, d/s is roadside ditch

Other Habitat Notes, Incidental Wildlife Observations, etc.



Gran-b

RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind.

Project # 161010646

Station # 2.3

Field Staff E. Malinowski, M. Kozak

Photos Taken 0134, 0135, 0136

Date 10-18-2010

GPS Coordinates 171 090472 / 4753859

Time 14:04

Descriptive Location 0.2 km south of Hwy 3, closest turbine to Kohler Road on west side

Water Quality

Dissolved Oxygen (mg/L) / pH / Conductivity (µS/cm) /

Water Temperature (°C) / Air Temperature (°C) 12°C

Weather conditions in previous 24 hrs sunny then cloudy, cool

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.5 (m) Maximum Pool Depth 15 (cm)

Mean Bankfull Width 2.5 (m) Mean Water Depth 7.5 (cm)

% Riffle 100 % Pool / % Run / % Flat /

Evidence of eroding banks, Comments on bank stability no visible flow, agricultural drain

Substrate - Upstream (% cover)

Bedrock / Silt / Boulder 50 Clay / Cobble /
50 Muck / Gravel / Marl / Sand / Detritus /

Substrate - Downstream (% cover)

Bedrock / Silt / Boulder 50 Clay / Cobble /
50 Muck / Gravel / Marl / Sand / Detritus /

In-water Cover

Cover Types Present (circle): Overhanging Vegetation / Undercut Banks / Woody Debris / Deep Pool / Boulder / Vascular Plants / Other /

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 30%, some meadow w/ winter wheat

Downstream 45%, " " " "

Adjacent Land Use

Upstream agriculture

Downstream agriculture, wood lot

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow

Downstream low flow

Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc. deer & raccoon tracks possible

~~possible water course~~ not a waterbody. Waterbody occurs to the east of turbine & corridor but not in site except near tree line. Contains water but cracking in substrate indicates was dry recently.



Gran-b

RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind.
Station # 202
Photos Taken 9 see 2.1 shots
GPS Coordinates 17T 0589811 / 4753869
Descriptive Location ~ 600 m south of Hwy 3

Project # 161010646
Field Staff E. Malindzok, M. Kozak
Date 10-18-2010
Time 13:32

Water Quality

Dissolved Oxygen (mg/L) 10.13
pH 8.45
Conductivity (uS/cm) 0
Water Temperature (C) 13.54
Air Temperature (C) 12 C
Weather conditions in previous 24 hrs Sunny then cloudy, cool

Watercourse Dimensions & Morphology

Mean Watercourse Width 10 x 15 (m)
Maximum Pool Depth unk (cm)
Mean Bankfull Width / (m)
Mean Water Depth 0.1k (cm)
% Riffle / % Pool % Run % Flat
Evidence of eroding banks, Comments on bank stability pond in corn field

Substrate - Upstream (% cover)

Bedrock Silt Boulder Clay Cobble
100 Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

Bedrock Silt Boulder 50 Clay Cobble
50 Muck Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Woody Debris Deep Pool Boulder Vascular Plants Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 10, Corn
Downstream 50, Soy

Adjacent Land Use

Upstream agriculture, corn
Downstream agriculture, soy

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Upstream none
Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow
Downstream low flow

Note any fish observations

Other Habitat Notes, Incidental Wildlife Observations, etc. deer, raccoon, dog tracks, dead opossum, shocked 280 seconds - no fish captured or observed - not a Water Body



Gran-b

RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind.

Project # 161010646

Station # 2.1

Field Staff E. Malindzak, M. Kozak

Photos Taken 0130, 0131, 0132, 0133

Date 10-18-2010

GPS Coordinates 17T 0589799 / 4753977

Time 13:09

Descriptive Location 500 m South of Hwy 3

Water Quality

Dissolved Oxygen (mg/L) /

pH / Conductivity (µS/cm) /

Water Temperature (°C) /

Air Temperature (°C) 11°C

Weather conditions in previous 24 hrs Sunny then overcast, cool

Watercourse Dimensions & Morphology

Mean Watercourse Width / (m)

Maximum Pool Depth / (cm)

Mean Bankfull Width / (m)

Mean Water Depth / (cm)

/ % Riffle / % Pool

/ % Run / % Flat

Evidence of eroding banks, Comments on bank stability linear channel through agriculture (soy, corn) fields

Substrate - Upstream (% cover)

/ Bedrock / Silt / Boulder / Clay / Cobble
/ Muck / Gravel / Marl / Sand / Detritus

Substrate - Downstream (% cover)

50 Bedrock / Silt / Boulder 50 Clay / Cobble
50 Muck / Gravel / Marl / Sand / Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Woody Debris Deep Pool Boulder Vascular Plants Other /

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 30% corn

Downstream 50% soy

Adjacent Land Use

Upstream agriculture (corn)

Downstream agriculture (soy)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow

Downstream low flow

Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc. raccoon + deer tracks

not a water body at this location, contains small (10 cm dia) puddles, likely from recent rains - not a water body



Gran-bb

RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind.

Project # 161010646

Station # 37.2

Field Staff Edward Malindzak, M. Kozak

Photos Taken _____

Date October 21 2010

GPS Coordinates 17T 0604782/4750664

Time 16:48

Descriptive Location 400m south of Haldinard Rd 20, west of Haldinard Rd. 50

Water Quality

Dissolved Oxygen (mg/L) 9.13 pH 7.72 Conductivity (µS/cm) 191

Water Temperature (°C) 9.58 Air Temperature (°C) 9°C

Weather conditions in previous 24 hrs sunny, cloudy, warm, cold, heavy rain, hail

Watercourse Dimensions & Morphology

Mean Watercourse Width 1.0 (m) Maximum Pool Depth 0.50 (cm) M

Mean Bankfull Width 4.0 (m) Mean Water Depth 0.40 (cm)

5 % Riffle 75 % Pool 10 % Run 10 % Flat

Evidence of eroding banks, Comments on bank stability Very slow moving agricultural drain, steep banks w/ signs of erosion where crop fields enter

Substrate - Upstream (% cover)

Bedrock 20 Silt _____ Boulder 80 Clay _____ Cobble _____
Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

Substrate - Downstream (% cover)

Bedrock 20 Silt _____ Boulder 80 Clay _____ Cobble _____
Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Woody Debris Deep Pool Boulder Vascular Plants Terrestrial Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 50% meadow species, corn (goldenrod, asters, canary grass)
Downstream 50% meadow species, corn

Adjacent Land Use

Upstream agriculture (corn, clover)
Downstream agriculture (corn, soy)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none
Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow
Downstream low flow

Note any fish observations none, shocked for 175 seconds @ 60 Hz / 900 V
no fish captured or observed

Other Habitat Notes, Incidental Wildlife Observations, etc. channel is dominated by terrestrial species and is likely wet only after heavy rainfall and spring run-off.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind
Station # 2.4
Photos Taken 0127, 0128, 0129
GPS Coordinates 17T 0590341 / 4754251
Descriptive Location approx. 350m south of Hwy 3, east of Decewsville Rd

Project # 161010646
Field Staff E. Malindzak, M. Kozak
Date 10-18-2010
Time 14:35

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (µS/cm)
Water Temperature (°C) Air Temperature (°C) 12°C
Weather conditions in previous 24 hrs Sunny then cloudy, cool

Watercourse Dimensions & Morphology

Mean Watercourse Width (m) Maximum Pool Depth (cm)
Mean Bankfull Width (m) Mean Water Depth (cm)
 % Riffle % Pool % Run % Flat

Evidence of eroding banks, Comments on bank stability

Substrate - Upstream (% cover)

 Bedrock Silt Boulder Clay Cobble
 Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

 Bedrock Silt Boulder Clay Cobble
 Muck Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Vascular Plants
Overhanging Vegetation Woody Debris Boulder Other winter wheat

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream
Downstream

Adjacent Land Use

Upstream agriculture, wheat
Downstream agriculture, wheat

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none
Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow
Downstream low flow

Note any fish observations none, shallow depression in field

Other Habitat Notes, Incidental Wildlife Observations, etc. not a waterbody



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version _____

Stantec

Project: Samsung (GREP) Wind Project # 161010646
 Station # CL-29 Field Staff E. Malindzak, E. Windhorst
 Photos Taken 7489, 7490, 7491 Date Oct 27, 2010
 GPS Coordinates 117 0604773/4249014 Time 15:55
 Descriptive Location On Baines Road, approx. 1 km east of South Cayuga Road

Water Quality

Dissolved Oxygen (mg/L) 5.47 pH 7.15 Conductivity (μ S/cm) 149
 Water Temperature ($^{\circ}$ C) 14.30 Air Temperature ($^{\circ}$ C) 17.0c
 Weather conditions in previous 24 hrs Cloudy, rain (heavy) Wind, warm
currently sunny & windy

Watercourse Dimensions & Morphology

Mean Watercourse Width 1.5 (m) Maximum Pool Depth 0.20 (cm)
 Mean Bankfull Width 3.5 (m) Mean Water Depth 0.07 (cm)
 % Riffle _____ % Pool _____ % Run _____ % Flat _____

Evidence of eroding banks, Comments on bank stability clearly conveys water
from woodlot and roadside drains.

Substrate - Upstream (% cover)

Bedrock _____ Silt _____ Boulder 40 Clay _____ Cobble _____
 Muck _____ Gravel _____ Marl _____ Sand 60 Detritus _____

Substrate - Downstream (% cover)

Bedrock _____ Silt _____ Boulder 20 Clay 40 Cobble _____
20 Muck _____ Gravel _____ Marl _____ Sand 60 Detritus _____

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks _____ Deep Pool _____ Vascular Plants
 _____ Woody Debris _____ Boulder _____ Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 95%, mature forest

Downstream 90%, canary grass + meadow sp.

Adjacent Land Use

Upstream woodlot

Downstream agriculture + residential

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream potential flooded veg. for spring spawners

Migratory Obstructions (seasonal, permanent)

Upstream none

Downstream none

Note any fish observations none. Did not shock due to two very friendly Golden Retrievers wanting to play in water with us.

Other Habitat Notes, Incidental Wildlife Observations, etc. Frogs



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREP) Wind.

Project # 161010646

Station # 2.5

Field Staff E. Malindzak, M. Kozub

Photos Taken # 0124, 0125, 0126

Date 10-18 2010

GPS Coordinates 17T 0590217/4754642

Time 14:55

Descriptive Location ~ 200 m from SW 3, far west of site.

Water Quality

Dissolved Oxygen (mg/L)

pH

Conductivity (μ S/cm)

Water Temperature ($^{\circ}$ C)

Air Temperature ($^{\circ}$ C) 12 $^{\circ}$ C

Weather conditions in previous 24 hrs Sunny than cloudy, cool

Watercourse Dimensions & Morphology

Mean Watercourse Width (m)

Maximum Pool Depth (cm)

Mean Bankfull Width (m)

Mean Water Depth (cm)

 % Riffle

 % Pool

 % Run

 % Flat

Evidence of eroding banks, Comments on bank stability no banks

Substrate - Upstream (% cover)

 Bedrock

160 Silt Soil

 Boulder

 Clay

 Cobble

 Muck

 Gravel

 Marl

 Sand

 Detritus

Substrate - Downstream (% cover)

 Bedrock

160 Silt Soil

 Boulder

 Clay

 Cobble

 Muck

 Gravel

 Marl

 Sand

 Detritus

In-water Cover

Cover Types Present (circle):

 Overhanging Vegetation

 Undercut Banks

 Woody Debris

 Deep Pool

 Boulder

 Vascular Plants

 Other wheat

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 0%, wheat

Downstream 0%, wheat

Adjacent Land Use

Upstream agriculture, wheat

Downstream agriculture, wheat

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow

Downstream low flow

Note any fish observations intermittent, recently dry

Other Habitat Notes, Incidental Wildlife Observations, etc. not a waterbody



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version

Stantec

Project Samsung (GREP) Wind
Station # CL-26
Photos Taken 7476, 747
GPS Coordinates 47.501111, -106.05646
Descriptive Location reach between Haldiman 20 and Haldiman Rd.

Project # 161010646
Field Staff E. Malindzak, E. Windhorst
Date Oct. 27, 2010
Time 13:17

Water Quality 7.84 pH 8.03
Dissolved Oxygen (mg/L) 9.36 Conductivity (uS/cm) 294
Water Temperature (C) 14.13 Air Temperature (C) 16.8
Weather conditions in previous 24 hrs cloudy, heavy rain, windy, currently sunny w/ high winds

Watercourse Dimensions & Morphology
Mean Watercourse Width 2.00 (m) Maximum Pool Depth 0.90 (cm)
Mean Bankfull Width 7.0 (m) Mean Water Depth 0.40 (cm)
% Riffle % Pool % Run % Flat
Evidence of eroding banks, Comments on bank stability largely roadside drain at this location, though flows across private lands u/s + D/S.

Substrate - Upstream (% cover)
Bedrock Silt Boulder 100 Clay Cobble
Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)
Bedrock Silt Boulder 100 Clay Cobble
Muck Gravel Marl Sand Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks, Deep Pool, Vascular Plants, Overhanging Vegetation, Woody Debris, Boulder, Other

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 60% meadow sp, mature trees
Downstream 60% meadow sp, mature trees

Adjacent Land Use
Upstream agriculture
Downstream agriculture

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
Upstream potential for small area of floodplains, eg. for spring spawners
Downstream
Migratory Obstructions (seasonal, permanent)
Upstream none
Downstream none

Note any fish observations Fished b/e Haldiman 20 and Haldiman Road for 287 seconds @ 60 Hz / 500V. Captured (1) green sunfish, Central mudminnow (1), 6 Common shiner

Other Habitat Notes, Incidental Wildlife Observations, etc. watercourse overflowing bank/high water mark, much higher than yesterday. Signs of significantly higher flows overnight, Flashy system



Stantec Consulting Ltd - Electrofishing Record and Catch Results

Project Number 161010648 Station Number CL-26
 Project Name Samsung (GREP) Wind Pass No. (if applicable) 1
 Project manager Rob Nadolny Date (yyyymmdd): 20101027
 Descriptive Location _____
 UTM coordinates 0605646 easting 4750111 northing zone 17T

Fishing Method (circle one): Backpack Boat _____ Unit Model/Make SR-12
 Sampling Method (circle one): even habitat _____ transect _____ spot _____

Effort (Electrofishing Seconds): 287 Number of Netters: 1 Number of Anodes: 1

Settings
 Frequency (Hz) 60 Voltage (volts) 500 Current (Amps) _____ Power (Watts) _____

Station Information

Length of Stream Surveyed (m) 45 m
 Station Characteristics:
 Width (m): Range 1.5-3.0 Average: 2.0
 Depth (m): Range 0.3-0.9 Average: 0.40

Water Clarity/Colour: cloudy, Brown Water Velocity if Measured (m/s): _____
 Temperature (°C) 14.13 Conductivity (uS/cm) 294
 pH 8.03 Dissolved Oxygen (mg/L) 7.84

Catch Data

Species	Number of Fish	Species	Number of Fish
<u>Green sunfish</u>	<u>(1)</u>		
<u>Central mud minnow</u>	<u>(1)</u>		
<u>Common shiner</u>	<u>(6)</u>		

Fish Measurements on Separate Sheet? YN
 Field Staff: E. Malindzok Notes By: _____
E. Malindzok
 (Station Diagram on Back)



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind.
Station # 35.0
Photos Taken 7559, 7560, 7561, 7562
GPS Coordinates 17T 0607024/4751038
Descriptive Location Approx 400m north of Kaldimand Rd 20, 1 km West of Aiken's Rd.

Project # 161010646
Field Staff Edward Malindzak, J. Koch
Date October 22 2010
Time 13:36

Water Quality

Dissolved Oxygen (mg/L) 9.16 pH 7.16 Conductivity (uS/cm) 387
Water Temperature (C) 9.21 Air Temperature (C) 6
Weather conditions in previous 24 hrs

Watercourse Dimensions & Morphology

Mean Watercourse Width 2.5 (m) Maximum Pool Depth 0.50 (cm)
Mean Bankfull Width 4.5 (m) Mean Water Depth 0.30 (cm)
10% Riffle 40% Pool 25% Run 25% Flat

Evidence of eroding banks, Comments on bank stability twin culverts under "road".
Appears water backs up behind road & flows over (erosion on D/S side)

Substrate - Upstream (% cover)

Bedrock Silt Boulder 100 Clay Cobble
Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

Bedrock Silt Boulder 100 Clay Cobble
Muck Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Woody Debris Deep Pool Boulder Vascular Plants Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 90% Canary grass, one mature tree
Downstream 80% cattails, canary grass, mature forest

Adjacent Land Use

Upstream agriculture (crop, pasture)
Downstream agriculture (crop)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream potential pike spawning, if inundation duration is long enough
Downstream

Migratory Obstructions (seasonal, permanent)

Upstream none
Downstream none

Note any fish observations (1) shad, (9) cyprinids (juvenile), shocked for 127 seconds at 60 Hz / 500V. Vegetation very dense away from twin culverts

Other Habitat Notes, Incidental Wildlife Observations, etc.

Owner stated water breaches access road in spring of last few years. Water levels drop 1-2 days later. WATER BODY

Project Number 161010646

Station Number 35.0

Date (yyyymmdd): 20101022

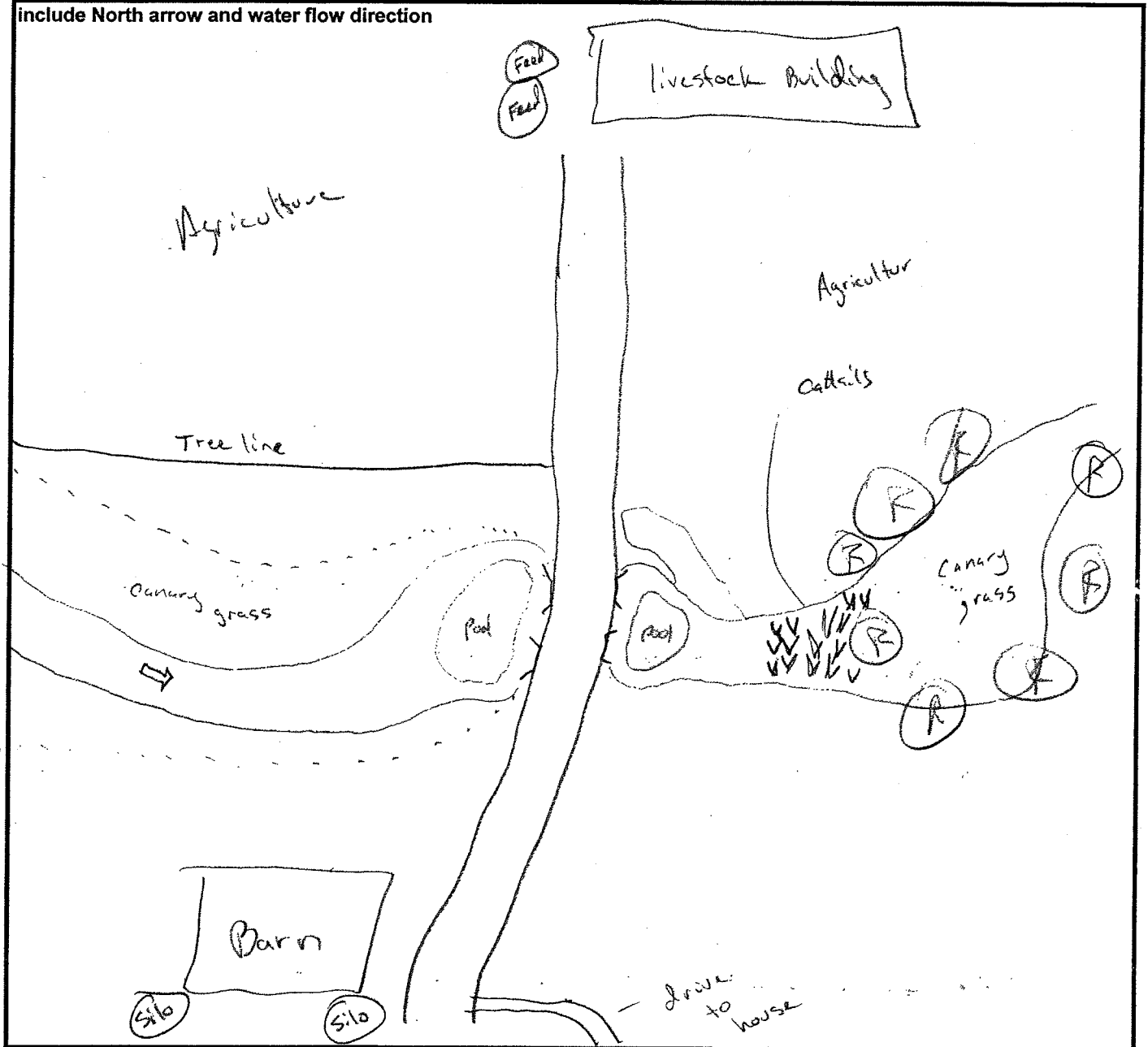
Pass No. (if applicable) 1

Waterbody Name UNK

Field Staff: E. Melindzek

J. Koch

include North arrow and water flow direction



NOTES:

debris is very high on grass. Landowner states system is
flashy, especially in past few years

Quality Control: This form is complete & legible . QA/QC by: (signature) M. Pomeroy



Stantec

Stantec Consulting Ltd - Electrofishing Record and Catch Results

Project Number 161010646 Station Number 35.0
 Project Name Samsung (GREP) Wind Pass No. (if applicable) 1
 Project manager Rob Nadolny Date (yyyymmdd): 20101022
 Descriptive Location _____

UTM coordinates 1T 0607024 easting 4751038 northing zone _____

Fishing Method (circle one): ~~Backpack~~ Boat Unit Model/Make SR-12
 Sampling Method (circle one): ~~even~~ habitat transect spot

Effort (Electrofishing Seconds): 127 Number of Netters: 1 Number of Anodes: 1

Settings

Frequency (Hz) 60 Voltage (volts) 500 Current (Amps) _____ Power (Watts) _____

Station Information

Length of Stream Surveyed (m) 50m

Station Characteristics: Width (m): Range 2-6 m Average: 2.5
 Depth (m): Range 0.2-0.5 Average: 0.30

Water Clarity/Colour: brown/cloudy Water Velocity if Measured (m/s): _____
 Temperature (°C) 9.21 Conductivity (uS/cm) 387
 pH 7.76 Dissolved Oxygen (mg/L) 9.16

Catch Data

Species	Number of Fish	Species	Number of Fish
<u>Alosa sp.</u>	<u>1</u>		
<u>Cyprinid</u>	<u>9 captured / juvenile</u>		
	<u>11 observed</u>		

Fish Measurements on Separate Sheet? Y / N
 Field Staff: E. Malindzuk Notes By: _____
J. Koch (Station Diagram on Back)



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind.

Project # 161010646

Station # 35.1

Field Staff Edward Malindzak,

Photos Taken 7562, 7563, 7564

Date October 22 2010

GPS Coordinates 17T 0607044 | 4751261

Time 14:50

Descriptive Location Approx 650 m north of Haldimand Rd 20, 1 km west of Aikens Rd

Water Quality

Dissolved Oxygen (mg/L) 6.91 pH 7.50 Conductivity (µS/cm) 392

Water Temperature (°C) 8.31 Air Temperature (°C) 8°C

Weather conditions in previous 24 hrs Sunny, cloudy, cold, warm, windy, hail, heavy rain.

Watercourse Dimensions & Morphology

Mean Watercourse Width 2.5 (m) Maximum Pool Depth >1.0 (cm)

Mean Bankfull Width 5 (m) Mean Water Depth unk (cm)

0 % Riffle 80 % Pool 20 % Run 0 % Flat

Evidence of eroding banks, Comments on bank stability undercut banks & erosion at old dam site. Hard to determine location of channel w/ abundant water.

Substrate - Upstream (% cover)

Bedrock 0 Silt 0 Boulder 100 Clay 0 Cobble 0
Muck 0 Gravel 0 Marl 0 Sand 0 Detritus 0

Substrate - Downstream (% cover)

Bedrock 0 Silt 0 Boulder 100 Clay 0 Cobble 0
Muck 0 Gravel 0 Marl 0 Sand 0 Detritus 0

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 90%, canopy grass & mature forest

Downstream 85%, " " " "

Adjacent Land Use

Upstream agriculture

Downstream agriculture

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream no potential pike spawning if area remains inundated

Downstream long enough,

Migratory Obstructions (seasonal, permanent)

Upstream low flow

Downstream low flow

Note any fish observations none. Did not fish as maps indicate Mussel SPA may occur in this area erroneous.

Other Habitat Notes, Incidental Wildlife Observations, etc. old pond dam behind livestock building, could not see bottom due to cloudy water. Sudden drop off, not sure of depth. Long (100m) flooded veg pool occurs @ and below old dam structure

WATER BODY
M. Pomeroy



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind.

Project # 161010646

Station # CL1.1 & CL1.2

Field Staff E. Malindzak, E. Windhorst

Photos Taken 0043, 0044, 0045, 0046,

Date Oct 24 2010

GPS Coordinates 17 0591324 / 14754548

Time 8:22

Descriptive Location Kohler Road, approx 600m south of Hwy 3

Water Quality

Dissolved Oxygen (mg/L) /

pH /

Conductivity (µS/cm) /

Water Temperature (°C) /

Air Temperature (°C) 10°C

Weather conditions in previous 24 hrs /

Watercourse Dimensions & Morphology

Mean Watercourse Width / (m)

Maximum Pool Depth / (cm)

Mean Bankfull Width / (m)

Mean Water Depth / (cm)

/ % Riffle

/ % Pool

/ % Run

/ % Flat

Evidence of eroding banks, Comments on bank stability little or no water, no defined channel

Substrate - Upstream (% cover)

/ Bedrock

/ Silt

/ Boulder

100

/ Clay

/ Cobble

/ Muck

/ Gravel

/ Marl

/ Sand

/ Detritus

Substrate - Downstream (% cover)

/ Bedrock

/ Silt

/ Boulder

100

/ Clay

/ Cobble

/ Muck

/ Gravel

/ Marl

/ Sand

/ Detritus

In-water Cover

Cover Types Present (circle):

Overhanging Vegetation

Undercut Banks

Woody Debris

Deep Pool

Boulder

Vascular Plants

Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 10%, very little veg

Downstream 10% " " "

Adjacent Land Use

Upstream agriculture

Downstream agriculture

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream lack of channel / flow

Downstream "

Note any fish observations none, ephemeral, various flows during spring and after heavy rain. Took GPS @ 2nd from Hwy 3

Other Habitat Notes, Incidental Wildlife Observations, etc. /



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREF) Wind.

Project # 161010646

Station # 36.0

Field Staff Edward Malindzak,

Photos Taken 75166, 7567,

Date October 22 2010

GPS Coordinates IT 0607085/4749948

Time 15:23

Descriptive Location 1/2 mi 600m South of Maldinard Rd 20, 1 km West of Aikens Rd.

Water Quality

Dissolved Oxygen (mg/L) 12.13 pH 8.09 Conductivity (µS/cm) 152

Water Temperature (°C) 10.60 Air Temperature (°C) 1

Weather conditions in previous 24 hrs Sunny, cloudy, warm, cool, windy, heavy rain, hail

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.50 (m) Maximum Pool Depth _____ (cm)

Mean Bankfull Width 4.0 (m) Mean Water Depth 10 (cm)

% Riffle 50 % Pool 50 % Run _____ % Flat _____

Evidence of eroding banks, Comments on bank stability low laying area collecting run-off from surrounding agriculture fields

Substrate - Upstream (% cover)

Bedrock _____ Silt _____ Boulder 100 Clay _____ Cobble _____
Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

Substrate - Downstream (% cover)

Bedrock _____ Silt _____ Boulder 100 Clay _____ Cobble _____
Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks _____ Deep Pool _____ Vascular Plants
Woody Debris _____ Boulder _____ Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 80% meadow + canary grass
Downstream 80% meadow + canary grass

Adjacent Land Use

Upstream agriculture
Downstream agriculture

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Upstream possible pike spawning if low lying area remains
Downstream inundated long enough

Migratory Obstructions (seasonal, permanent)

Upstream low flow
Downstream low flow

Note any fish observations none, likely only contains water during periods of high run-off

Other Habitat Notes, Incidental Wildlife Observations, etc. deer tracks
WATER BODY



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind

Project # 161010646

Station # 34.3

Field Staff Edward Malindzak, J Koch

Photos Taken 7558

Date October 22 2010

GPS Coordinates 171 0606265/4750048

Time 12:49

Descriptive Location 250m south of Haldimand'20, 600m east of Townline Road. Haia-Dunn

Water Quality

Dissolved Oxygen (mg/L) / pH / Conductivity (µS/cm) /

Water Temperature (°C) / Air Temperature (°C) 7°C

Weather conditions in previous 24 hrs Sunny, cloudy, warm, cold, heavy rain, hail wind

Watercourse Dimensions & Morphology

Mean Watercourse Width / (m) Maximum Pool Depth / (cm)

Mean Bankfull Width / (m) Mean Water Depth / (cm)

/ % Riffle / % Pool / % Run / % Flat

Evidence of eroding banks, Comments on bank stability no water

Substrate - Upstream (% cover)

/ Bedrock / Silt / Boulder / Clay / Cobble
/ Muck / Gravel / Marl / Sand / Detritus

Substrate - Downstream (% cover)

/ Bedrock / Silt / Boulder / Clay / Cobble
/ Muck / Gravel / Marl / Sand / Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Vascular Plants
Overhanging Vegetation Woody Debris Boulder Other /

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream willow + canary grass

Downstream /

Adjacent Land Use

Upstream agriculture

Downstream /

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream /

Migratory Obstructions (seasonal, permanent)

Upstream lack of water

Downstream /

Note any fish observations patch of canary grass + a willow on top of a rise. no water or evidence of standing/flowing water

Other Habitat Notes, Incidental Wildlife Observations, etc. /



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version L

Stantec

Project Samsung (GREP) Wind.

Project # 161010646

Station # 34.2

Field Staff Edward Malindzak, J. Koch

Photos Taken 7553, 7554, 7555, 7556, 7557

Date October 22 2010

GPS Coordinates IT 0006446/4749013

Time 12:00

Descriptive Location 600m south of Haldimand Rd 20, 600m east of Townline Road Hald-Dunn.

Water Quality

Dissolved Oxygen (mg/L) 8.42

pH 7.99

Conductivity (µS/cm) 133

Water Temperature (°C) 8.80

Air Temperature (°C) 7°C

Weather conditions in previous 24 hrs sunny, cloudy, heavy rain, hail, windy, cold, warm

Watercourse Dimensions & Morphology

Mean Watercourse Width (m)

Maximum Pool Depth (cm)

Mean Bankfull Width (m)

Mean Water Depth (cm)

 % Riffle 100 % Pool

 % Run % Flat

Evidence of eroding banks, Comments on bank stability Large pools formed by farm machinery. D/S channel is braided w/ no defined channel (canary grass) U/S large low laying area also w/ canary grass (40m x 100m)

Substrate - Upstream (% cover)

<u> </u> Bedrock	<u> </u> Silt	<u> </u> Boulder	<u> </u> Clay	<u> </u> Cobble
<u> </u> Muck	<u> </u> Gravel	<u> </u> Marl	<u> </u> Sand	<u> </u> Detritus

Substrate - Downstream (% cover)

<u> </u> Bedrock	<u> </u> Silt	<u> </u> Boulder	<u>100</u> Clay	<u> </u> Cobble
<u> </u> Muck	<u> </u> Gravel	<u> </u> Marl	<u> </u> Sand	<u> </u> Detritus

In-water Cover

Cover Types Present (circle):
 Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
 Woody Debris Boulder Other Canary grass

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream
Downstream 100% canary grass

Adjacent Land Use

Upstream agriculture (corn, soy)
Downstream agriculture (soy)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none
Downstream potential pike spawning in canary grass

Migratory Obstructions (seasonal, permanent)

Upstream low flow
Downstream low flow, agriculture operations

Note any fish observations none, lots of standing water, likely due to heavy rains last 2 nights.

Other Habitat Notes, Incidental Wildlife Observations, etc. wetted area w/ canary grass is large (~20m x 75m). Several small "channels" drain crops, with minimal amounts of water & planted through w/crops. Will not hold water and are typically dry.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version L

Stantec

Project Samsung (GREP) Wind
Station # CL 2.0
Photos Taken 0039, 0040, 0042
GPS Coordinates 059 1474 / 475 4881 17T
Descriptive Location Kohler Road, 1.2 km south of Hwy 3

Project # 161010646
Field Staff Edward Malindzak, E. Winchorst
Date October 23 2010
Time 8:40

Water Quality

Dissolved Oxygen (mg/L) 5.61 pH 7.35 Conductivity (µS/cm) 255
Water Temperature (°C) 10.07 Air Temperature (°C) 10°C
Weather conditions in previous 24 hrs cloudy, no rain, windy

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.15 (m) Maximum Pool Depth 0.50 (cm)
Mean Bankfull Width 3.0 (m) Mean Water Depth 0.15 (cm)
10 % Riffle 40 % Pool 25 % Run 25 % Flat

Evidence of eroding banks, Comments on bank stability meandering channels, cobble placed @ u/s end of culvert.

Substrate - Upstream (% cover)

Bedrock _____ Silt _____ Boulder 100 Clay _____ Cobble _____
Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

Substrate - Downstream (% cover)

Bedrock _____ Silt _____ Boulder 100 Clay _____ Cobble _____
Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks _____ Deep Pool _____ Vascular Plants
Woody Debris Boulder _____ Other canary grass

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 90%, canary grass, meadow sp.
Downstream 90%, " " Willows + shrubs further D/S

Adjacent Land Use

Upstream agriculture
Downstream agriculture (corn, pasture for horses)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Upstream vegetation potential spawning habitat if inundated long enough
Downstream " " " "

Migratory Obstructions (seasonal, permanent)

Upstream none
Downstream none

Note any fish observations none, deep pool at culvert gets much shallower and narrower, likely very little water under normal conditions

Other Habitat Notes, Incidental Wildlife Observations, etc. Shocked for 38 seconds @ 60 Hz / 500 V with 10 fish captured or observed. Shocked u/s pool.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREF) Wind.

Project # 161010646

Station # 362

Field Staff Edward Malindzak,

Photos Taken 7569, 7570, 7571, 7572, 7573

Date October 2010

GPS Coordinates 0607124, 4749603

Time 1541

Descriptive Location 900m south of Haldimand Rd 20, 1km west of Aikens

Water Quality

Dissolved Oxygen (mg/L) 8.65 pH 7.78 Conductivity (µS/cm) 210

Water Temperature (°C) 9.78 Air Temperature (°C) 6

Weather conditions in previous 24 hrs Sunny, cloudy, warm, cool, windy, heavy rain, hail

Watercourse Dimensions & Morphology

out-flow from pond + connecting creek

Mean Watercourse Width 1.5 (m) Maximum Pool Depth 10.0 (cm)

Mean Bankfull Width 3.0 (m) Mean Water Depth 7.5 (cm)

% Riffle 100 % Pool 0 % Run 0 % Flat 0

Evidence of eroding banks, Comments on bank stability very little evidence of flow very shallow and wide.

Substrate - Upstream (% cover) Pond

Bedrock 0 Silt 0 Boulder 30 Clay 0 Cobble 0
Muck 50 Gravel 0 Marl 0 Sand 20 Detritus 0

Substrate - Downstream (% cover) outflow + connecting creek

Bedrock 0 Silt 0 Boulder 50 Clay 0 Cobble 0
Muck 0 Gravel 0 Marl 0 Sand 50 Detritus 0

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks 0 Deep Pool 0 Vascular Plants
Woody Debris 0 Boulder 0 Other 0

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream (Pond) 50%, meadow + water loving species (at woodlot) dog wood + canary grass

Downstream (Creek) 90%, Mature woodlot (Hardwoods)

Adjacent Land Use

Upstream (Pond) agriculture

Downstream (outflow + creek) woodlot (Hardwoods)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow

Downstream low flow

Note any fish observations observed Brook Stickleback in pond + Tad poles.

Other Habitat Notes, Incidental Wildlife Observations, etc. WATER BODY



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind.
Station # 36.1
Photos Taken 7568
GPS Coordinates 0601093 / 4749677
Descriptive Location 850m south of Maldinaard Road 320, 1 km west of Aikens Rd.

Project # 161010646
Field Staff Edward Malindzak,
Date October 22 2010
Time 15:34

Water Quality

Dissolved Oxygen (mg/L) / pH / Conductivity (µS/cm) /
Water Temperature (°C) / Air Temperature (°C) 8°C
Weather conditions in previous 24 hrs sunny, cloudy, cool, warm, heavy rain, hail, windy

Watercourse Dimensions & Morphology

Mean Watercourse Width 8 x 25 (m) Maximum Pool Depth unk (cm)
Mean Bankfull Width — (m) Mean Water Depth — (cm)
— % Riffle — % Pool — % Run — % Flat
Evidence of eroding banks, Comments on bank stability —

Substrate - Upstream (% cover)

/ Bedrock / Silt / Boulder / Clay / Cobble
/ Muck / Gravel / Marl / Sand / Detritus

Substrate - Downstream (% cover)

/ Bedrock / Silt / Boulder / Clay / Cobble
/ Muck / Gravel / Marl / Sand / Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
Woody Debris Boulder Other —

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 15% meadow vegetation
Downstream —

Adjacent Land Use

Upstream agriculture
Downstream —

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Upstream none
Downstream —

Migratory Obstructions (seasonal, permanent)

Upstream not connected to anything
Downstream —

Note any fish observations none. This is an isolated pond, not connected to any in/out flow

Other Habitat Notes, Incidental Wildlife Observations, etc. NOT a Water Body



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version L

Stantec

Project Samsung (GREP) Wind

Project # 161010646

Station # CL-19

Field Staff E. Malindzok, E. Windhorst

Photos Taken [0085, 0086, 0087] [744, 744Z]

Date Oct 25, 2010

GPS Coordinates 059536714750737

Time 15:27

Descriptive Location Intersection of Richert Rd and Link Rd (North east side)

Water Quality

Dissolved Oxygen (mg/L) 7.94

pH 7.79 Conductivity (µS/cm) 324

Water Temperature (°C) 14.55

Air Temperature (°C) 18°C

Weather conditions in previous 24 hrs cloudy rain wind

Watercourse Dimensions & Morphology

Mean Watercourse Width 2.5 (m)

Maximum Pool Depth 0.75 (cm)

Mean Bankfull Width 4.5 (m)

Mean Water Depth 0.50 (cm)

% Riffle 50 % Pool

50 % Run % Flat

Evidence of eroding banks, Comments on bank stability clear evidence of erosion
is a PPS of concrete box culvert.

Substrate - Upstream (% cover)

Bedrock

Silt

30 Boulder

70 Clay

Cobble

Muck

Gravel

Marl

Sand

Detritus

Substrate - Downstream (% cover)

Bedrock

Silt

Boulder

100 Clay

Cobble

Muck

Gravel

Marl

Sand

Detritus

In-water Cover

Cover Types Present (circle):

Overhanging Vegetation

Undercut Banks
Woody Debris

Deep Pool
Boulder

Vascular Plants
Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 75%, mature trees + canopy grass (trees only near culvert)

Downstream 75%, mature trees

Adjacent Land Use

Upstream agriculture

Downstream woodlot

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream culvert @ grade or higher, may be obstruction

Downstream during low flow

Note any fish observations Shocked for 221 seconds @ 60 Hz/500V. No fish captured or observed.

Other Habitat Notes, Incidental Wildlife Observations, etc. water was very turbid and plentiful.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind.
Station # CL-19.1
Photos Taken 0088, 0089, 0090
GPS Coordinates _____
Descriptive Location Approx 300m South of Link Rd on Richard Road

Project # 161010646
Field Staff E. Malindzak, E. Windhorst
Date Nov 12 2010
Time 11:29 am

Water Quality

Dissolved Oxygen (mg/L) N/A pH N/A Conductivity (µS/cm) N/A
Water Temperature (°C) N/A Air Temperature (°C) _____
Weather conditions in previous 24 hrs _____

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate - Upstream (% cover)

Bedrock 100 Silt Soil _____ Boulder _____ Clay _____ Cobble _____
Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

Substrate - Downstream (% cover)

Bedrock 100 Silt Soil _____ Boulder _____ Clay _____ Cobble _____
Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

In-water Cover

Cover Types Present (circle): _____ Undercut Banks _____ Deep Pool _____ Vascular Plants _____
Overhanging Vegetation _____ Woody Debris _____ Boulder _____ Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 10, grass, early
Downstream _____

Adjacent Land Use

Upstream agriculture (crop)
Downstream agriculture (crop)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Upstream None
Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low/no flow
Downstream low/no flow

Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc.

intermittent/ephemeral channel NOT a Water Body



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind
Station # CL-18
Photos Taken 0082, 0083, 0084
GPS Coordinates 17 0595119 / 4750011
Descriptive Location 300m west of Richard Rd on Link Rd.

Also 7438, 7439, 7440
Project # 161010640
Field Staff E. Malindzak, E. Windhorst
Date Oct. 25, 2010
Time 14:59

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (µS/cm)
Water Temperature (°C) Air Temperature (°C) 18°C
Weather conditions in previous 24 hrs Cloudy, rain, windy

Watercourse Dimensions & Morphology

Mean Watercourse Width (m) Maximum Pool Depth (cm)
Mean Bankfull Width (m) Mean Water Depth (cm)
 % Riffle % Pool % Run % Flat
Evidence of eroding banks, Comments on bank stability erosion is apparent d/s
near tree line. Cattle have unrestricted access

Substrate - Upstream (% cover)

 Bedrock Silt Boulder 100 Clay Cobble
 Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

 Bedrock Silt Boulder 100 Clay Cobble
 Muck Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
 Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 100% canary grass
Downstream 50% canary grass

Adjacent Land Use

Upstream pasture (cattle)
Downstream " "

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream potential flooded veg. for spring spawners
Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream none observed
Downstream " "

Note any fish observations none, covers water likely in spring, very little
accessible water @ time of visit.

Other Habitat Notes, Incidental Wildlife Observations, etc.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version L

Stantec

Project Samsung (GREP) Wind.
Station # CL-17
Photos Taken [0080] [7437]
GPS Coordinates 17T 0594726/4751064
Descriptive Location 600m west of Richert Rd on Link Rd

Project # 161010646
Field Staff E. Malindzel, E. Windhorst
Date Oct 25 2010
Time 14:44

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (µS/cm)
Water Temperature (°C) Air Temperature (°C) 18°C
Weather conditions in previous 24 hrs cloudy rain, wind

Watercourse Dimensions & Morphology (downstream of Road)

Mean Watercourse Width 1.5 (m) Maximum Pool Depth unk (cm)
Mean Bankfull Width 2.5 (m) Mean Water Depth ~0.20 (cm)
 % Riffle 100 % Pool % Run % Flat

Evidence of eroding banks, Comments on bank stability could not find connectivity
0/5. Some standing water in ditch, though veg too dense to check

Substrate - Upstream (% cover)

 Bedrock Silt Boulder Clay Cobble
 Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

 Bedrock Silt Boulder 100 Clay Cobble
 Muck Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
 Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream
Downstream 15%, canopy grass near road, then very little

Adjacent Land Use

Upstream
Downstream active cattle pasture

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream
Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream
Downstream none

Note any fish observations only checkable / YSI depth water was on private land w/ no access

Other Habitat Notes, Incidental Wildlife Observations, etc.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind
Station # 13.1
Photos Taken 0084, 0085, 0086, 0067, 0088
GPS Coordinates 17T 0994279/4750862
Descriptive Location 200m south of Link Rd, 900m west of Richert Rd.

Project # 161010646
Field Staff Edward Malindzak
Date October 19, 2010
Time 14:16

Water Quality

Dissolved Oxygen (mg/L) 15.4 pH 8.77 Conductivity (µS/cm) 432
Water Temperature (°C) 15.1 Air Temperature (°C) 11°C
Weather conditions in previous 24 hrs cloudy, sunny, cool, windy } pond

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.5 (m) Maximum Pool Depth 70.5m (cm)
Mean Bankfull Width 2.0 (m) Mean Water Depth 10 (cm)
% Riffle _____ % Pool 100 % Run _____ % Flat _____
Evidence of eroding banks, Comments on bank stability small stream with
entire pond (~9m diameter). Pond is man-made.

Substrate - Upstream (% cover)

Bedrock _____ Silt _____ Boulder 100 Clay _____ Cobble _____
~~100~~ Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

Substrate - Downstream (% cover)

Bedrock _____ Silt _____ Boulder 100 Clay _____ Cobble _____
Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks _____
Woody Debris _____ Deep Pool _____
Boulder _____ Vascular Plants _____
Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 90%, canary grass
Downstream 90%, canary grass

Adjacent Land Use

Upstream agriculture, equine + clover
Downstream agriculture, equine + clover

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none
Downstream potential pike spawning habitat

Migratory Obstructions (seasonal, permanent)

Upstream low flow
Downstream low flow

Note any fish observations Pond is 100% muck, no cover and no potential
critical habitat

Other Habitat Notes, Incidental Wildlife Observations, etc.

Horse farm, shocked
pond @ 60 Hz / 300V for 98 seconds, No fish captured or observed



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version _____

Stantec

Project : Samsung (GREP) Wind

Project # 161210646

Station # CL-2B

Field Staff E. Malindzuk, E. Windhorst

Photos Taken 374810, 7487, 7488

Date Oct 27, 2010

GPS Coordinates 1110608081/4750701

Time 14:50 2010

Descriptive Location 100m south of Haldiman Zol on Aikens Road @ new culvert.

Water Quality

Dissolved Oxygen (mg/L) 4.70

pH 7.52 ³⁶ Conductivity (µS/cm) 357

Water Temperature (°C) 15.93

Air Temperature (°C) 16°C

Weather conditions in previous 24 hrs Cloudy, heavy rain, warm, wind currently warm and windy.

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.30 (m)

Maximum Pool Depth 0.30 (cm) ^M

Mean Bankfull Width 2.5 (m)

Mean Water Depth 0.15 (cm)

% Riffle 100 % Pool _____

% Run _____ % Flat _____

Evidence of eroding banks, Comments on bank stability culvert appears new as straw bales are still present.

Substrate - Upstream (% cover)

Bedrock	<u>20</u>	Silt	_____	Boulder	<u>30</u>	Clay	_____	Cobble	_____
<u>50</u> Muck	_____	Gravel	_____	Marl	_____	Sand	_____	Detritus	_____

Substrate - Downstream (% cover)

Bedrock	<u>20</u>	Silt	_____	Boulder	<u>30</u>	Clay	_____	Cobble	_____
<u>50</u> Muck	_____	Gravel	_____	Marl	_____	Sand	_____	Detritus	_____

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks _____ Woody Debris _____ Deep Pool _____ Boulder _____ Vascular Plants Other Terrestrial

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 80% meadow sp.

Downstream 30% soy

Adjacent Land Use

Upstream agriculture

Downstream agriculture (soy)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream none

Downstream low flow through agriculture field

Note any fish observations none, likely little or no water most of the time, lacks connectivity to d/s.

Other Habitat Notes, Incidental Wildlife Observations, etc. tadpoles & frogs



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version _____

Stantec

Project Samsury (GREP) Wind
Station # CL-27
Photos Taken 7482 7483 7484
GPS Coordinates 170607745/4750760
Descriptive Location Haldimand Road 20, 600 m east of Aikens Rd

Project # 161010646
Field Staff E. Malindzak, E. Windhorst
Date Oct. 27, 2010
Time 14:28 2010

Water Quality

Dissolved Oxygen (mg/L) / pH / Conductivity (µS/cm) /
Water Temperature (°C) / Air Temperature (°C) 16°C
Weather conditions in previous 24 hrs cloudy, heavy rain, windy. Currently Sunny & windy

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.15 (m) Maximum Pool Depth 0.05 (cm)
Mean Bankfull Width 3.0 (m) Mean Water Depth 0.05 (cm)
% Riffle 100 % Pool _____ % Run _____ % Flat _____

Evidence of eroding banks, Comments on bank stability very little water w/ dense veg. no evidence of flow and

Substrate - Upstream (% cover)

/ Bedrock / Silt / Boulder 95 Clay 8 Cobble
/ Muck / Gravel / Marl / Sand / Detritus

Substrate - Downstream (% cover)

_____ Bedrock _____ Silt _____ Boulder 95 Clay 5 Cobble
_____ Muck _____ Gravel _____ Marl _____ Sand _____ Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks _____ Deep Pool _____
Other Woody Debris _____ Boulder _____ Vascular Plants _____
Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream dry
Downstream 95% canary grass with small area of cattails

Adjacent Land Use

Upstream early successional meadow
Downstream agriculture

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream _____
Downstream potential flood veg for spring spawners

Migratory Obstructions (seasonal, permanent)

Upstream low flow
Downstream low flow

Note any fish observations none ephemeral system contains water only after heavy rain

Other Habitat Notes, Incidental Wildlife Observations, etc. _____



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind.

Project # 161010646

Station # 13.0

Field Staff Edward Malindzak, Mo Kozak

Photos Taken 0081, 0082, 0083

Date October 19, 2010

GPS Coordinates 17T 0594076 / 4750367

Time 13:59

Descriptive Location 800m south of Link Rd., 900m west of Richert Rd.

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (µS/cm)

Water Temperature (°C) Air Temperature (°C) 10°C

Weather conditions in previous 24 hrs cloudy, sunny, cool, windy

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.75 (m) Maximum Pool Depth 10 (cm)

Mean Bankfull Width 1.5 (m) Mean Water Depth 4 (cm)

 % Riffle % Pool % Run % Flat

Evidence of eroding banks, Comments on bank stability hard to determine channel dimensions, very dense w/ canary grass

Substrate – Upstream (% cover)

 Bedrock Silt Boulder 100 Clay Cobble
 Muck Gravel Marl Sand Detritus

Substrate – Downstream (% cover)

 Bedrock Silt Boulder 100 Clay Cobble
 Muck Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
 Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 100%, canary grass

Downstream 100%, canary grass

Adjacent Land Use

Upstream agriculture, wheat, clover

Downstream agriculture, wheat

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream potential pike habitat

Downstream

Migratory Obstructions (seasonal, permanent)

Upstream low flow

Downstream low flow

Note any fish observations likely conveys significant amounts of water in spring

Other Habitat Notes, Incidental Wildlife Observations, etc. none, likely a water body. Gas well b/w 13.0 & 13.1



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREP) Wind.
Station # 37.2
Photos Taken 7592, 7593, 7594
GPS Coordinates 17T 0607599 4749032
Descriptive Location 400m north of Rainham Road, 550m west of Aikens Road

Project # 161010646
Field Staff Edward Malindzak,
Date October 22 2010
Time 17:49

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (µS/cm)
Water Temperature (°C) Air Temperature (°C)
Weather conditions in previous 24 hrs Recent heavy rain

Watercourse Dimensions & Morphology

Mean Watercourse Width 1.0 (m) Maximum Pool Depth 8 (cm)
Mean Bankfull Width 5.5 (m) Mean Water Depth 4 (cm)
20 % Riffle 60 % Pool % Run 20 % Flat

Evidence of eroding banks, Comments on bank stability recently dug drain channel flows from back of private property to isolated woody area. Channel banks are slumping and all water drains into a hole (tile?)

Substrate - Upstream (% cover)

Bedrock Silt Boulder 100 Clay Cobble
Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

Bedrock Silt Boulder Clay Cobble
Muck Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle):
Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants:
 Woody Debris Boulder Other none totally bare

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream none
Downstream

Adjacent Land Use

Upstream agriculture
Downstream

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none
Downstream

Migratory Obstructions (seasonal, permanent)

Upstream absence of connectivity
Downstream

Note any fish observations channel may allow fish to move U/S in high flows, All water flowed into a drain tile w/none moving d/s through channel

Other Habitat Notes, Incidental Wildlife Observations, etc. was not fished due to potential presence of mussels, water observed likely due to heavy rains last two nights and this channel is likely dry most of the time.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind. Project # 161010646
Station # 37.1 Field Staff Edward Malindzech
Photos Taken 7587, 7588, 7589, 7590, 7591 Date October 27 2010
GPS Coordinates N 0607580 / 4749220 Time 17:28
Descriptive Location 600m north of Rainham Rd, 550m west of Aikens Rd.

Water Quality

Dissolved Oxygen (mg/L) / pH / Conductivity (µS/cm) /
Water Temperature (°C) / Air Temperature (°C) 9°C
Weather conditions in previous 24 hrs Sunny, warm, cloudy, cool, heavy rain, hail, windy

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.30 (m) Maximum Pool Depth 0.3 (cm)
Mean Bankfull Width 3.0 (m) Mean Water Depth 0.07 (cm)
30 % Riffle 30 % Pool 20 % Run 20 % Flat

Evidence of eroding banks, Comments on bank stability evidence of erosion and high flows. west side of tree area recently cleared of mature trees

Substrate - Upstream (% cover)

/ Bedrock / Silt / Boulder / Clay / Cobble
/ Muck / Gravel / Marl / Sand / Detritus

Substrate - Downstream (% cover)

/ Bedrock / Silt / Boulder 40 Clay 30 Cobble
/ Muck 30 Gravel / Marl / Sand / Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Vascular Plants
Overhanging Vegetation Woody Debris Boulder Other floating and filamentous algae

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream channel not visible, water contribution via drain like
Downstream 40%, 5%, recently cleaned drain, no veg on south side

Adjacent Land Use

Upstream agriculture
Downstream agriculture

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Upstream none
Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow
Downstream low flow

Note any fish observations none, did not shock due to STAR insects on map and lack of water. Presence of algae and seeps at isolated wooded area suggest continuously wet, though very minimal flow

Other Habitat Notes, Incidental Wildlife Observations, etc. Very little water. seeps are covered w/ dense algae, tippy Water Body

erroneous



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind.
Station # 37.0
Photos Taken 7585, 7586
GPS Coordinates 17T 0607723/4749168
Descriptive Location 400m west of Aikens Rd, 600m north of Rainham Rd.

Project # 161010646
Field Staff Edward Malindzak,
Date October 22 2010
Time 17:17

not a Water Box

Water Quality

Dissolved Oxygen (mg/L) / pH / Conductivity (µS/cm) /
Water Temperature (°C) / Air Temperature (°C) 10°C
Weather conditions in previous 24 hrs Sunny, warm, cloudy, cool, heavy rain, hail, wind

Watercourse Dimensions & Morphology

Mean Watercourse Width / (m) Maximum Pool Depth / (cm)
Mean Bankfull Width / (m) Mean Water Depth / (cm)
/ % Riffle 100 % Pool / % Run / % Flat

Evidence of eroding banks, Comments on bank stability standing water in pocket of trees & terrestrial veg. Evidence of erosion though could not ID source of water other than surrounding lands. Assume erosion caused by drain tile

Substrate - Upstream (% cover)

/ Bedrock / Silt / Boulder 100 Clay / Cobble
/ Muck / Gravel / Marl / Sand / Detritus

Substrate - Downstream (% cover)

/ Bedrock / Silt / Boulder / Clay / Cobble
/ Muck / Gravel / Marl / Sand / Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks / Deep Pool / Vascular Plants
/ Woody Debris / Boulder / Other /

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 95% , mature fruit trees (apple?) and canary grass
Downstream /

Adjacent Land Use

Upstream agriculture (Clover and others)
Downstream /

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none
Downstream /

Migratory Obstructions (seasonal, permanent)

Upstream lack of connection. Appears to contain water in quantity
Downstream / & velocity to cause erosion. No visible inflow or
Note any fish observations none, could not define channel. out flow

Other Habitat Notes, Incidental Wildlife Observations, etc. /



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version _____

Stantec

Project # 161010646
Station # 42.3
Photos Taken 171 0609330 / 4749786
GPS Coordinates 7463, 7464
Descriptive Location 200m east of Haldimand Rd 49; 900m north of Rainham Rd

Project # Sainsbury (GREP) Wind
Field Staff E. Malindzok, E. Windberst
Date Oct 20, 2010
Time 13:33
2010

Water Quality

Dissolved Oxygen (mg/L) 2.50 pH 7.40 Conductivity (μ S/cm) 214
Water Temperature ($^{\circ}$ C) 15.08 Air Temperature ($^{\circ}$ C) 18 $^{\circ}$ C
Weather conditions in previous 24 hrs cloudy, rain, warm

Watercourse Dimensions & Morphology \rightarrow outflow

Mean Watercourse Width 0.4 (m) Maximum Pool Depth 0.30 (m)
Mean Bankfull Width 1.5 (m) Mean Water Depth 0.5 (m)
% Riffle 100 % Pool _____ % Run _____ % Flat _____

Evidence of eroding banks, Comments on bank stability pool (man-made). Very turbid.

Substrate - Upstream (% cover) Pond outflow
Bedrock _____ Silt 70 Boulder 100 Clay _____ Cobble _____
Muck 30 Gravel _____ Marl _____ Sand _____ Detritus _____

Substrate - Downstream (% cover)
Bedrock _____ Silt _____ Boulder _____ Clay _____ Cobble _____
Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

In-water Cover
Cover Types Present (circle): Overhanging Vegetation Undercut Banks _____ Deep Pool _____ Vascular Plants _____
Woody Debris _____ Boulder _____ Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Pond Upstream 15% canary grass, hardwood trees
outflow Downstream 90% hardwood forest

Adjacent Land Use
Pond Upstream agriculture, woodlot
outflow Downstream woodlot

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Upstream none
Downstream none

Migratory Obstructions (seasonal, permanent)
Pond Upstream lack of connection connectivity limited
outflow Downstream low flow

Note any fish observations pond and outflow channel. Pond is ~15x20 m, depth exceeds 1.0 m. Shocked pond for 382 seconds @ 60 Hz/600V. Captured Greensunfish (6/09), Central mudminnow (6), Fathead minnow (4).

Other Habitat Notes, Incidental Wildlife Observations, etc. two turtles, deer & raccoon tracks. Shocked pond only



Stantec

Stantec Consulting Ltd - Electrofishing Record and Catch Results

Project Number 161010646 Station Number 423
 Project Name Samsung (GREP) Wind Pass No. (if applicable) 1
 Project manager Rob Madolny Date (yyyymmdd): 20101026
 Descriptive Location _____

UTM coordinates 0608330 easting 4749786 northing zone 17T

Fishing Method (circle one): Backpack Boat _____ Unit Model/Make SR-12
 Sampling Method (circle one): even habitat _____ transect _____ spot _____

Effort (Electrofishing Seconds): 382 Number of Netters: 1 Number of Anodes: 1

Settings
 Frequency (Hz) 60 Voltage (volts) 600 Current (Amps) _____ Power (Watts) _____

Station Information
 Length of Stream Surveyed (m) 25 shoreline of pond. Could not shock channel due to dense vegetation
 Station Characteristics: Width (m): Range 15x20 Average: 0.40
 Depth (m): Range >1.0 Average: 0.40 > pond

Water Clarity/Colour: turbid Water Velocity if Measured (m/s): _____
 Temperature (°C) 15.08 Conductivity (uS/cm) 214
 pH 7.40 Dissolved Oxygen (mg/L) 2.50

Catch Data

Species	Number of Fish	Species	Number of Fish
Green sunfish	6 YOY		
Central mudminnow	6		
Fathead minnow	4		

Fish Measurements on Separate Sheet? Y/N _____
 Field Staff: E. Malindzgh Notes By: _____
E. Windhorst (Station Diagram on Back)



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version _____

Stantec

Project # 161010649
Station # 42.2
Photos Taken 2746, 7462
GPS Coordinates 17T 0608626/4749830
Descriptive Location 750m east of Aikens Rd.

Project # Samsung (GREP) Wind
Field Staff E. Malindzak, E. Winhurst
Date Oct 26, 2010
Time 13:16
5-2-010
1900m north of Rainham Rd.

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (µS/cm)
Water Temperature (°C) Air Temperature (°C) 18°
Weather conditions in previous 24 hrs windy, warm, rain, cloudy

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.75 (m) Maximum Pool Depth 0.20 (cm)
Mean Bankfull Width 1.5 (m) Mean Water Depth 0.15 (cm)
% Riffle % Pool 100 % Run % Flat

Evidence of eroding banks, Comments on bank stability shows evidence of erosion
Stream originates in field and flows into wood lot

Substrate - Upstream (% cover)

in field
Bedrock Silt Boulder 100 Clay 90 Cobble
Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

wood lot
Bedrock Silt Boulder Clay Cobble
Muck Gravel Marl Sand Detritus 100
leaves

In-water Cover

Cover Types Present (circle):
Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
 Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 0% wheat
Downstream 80% mature trees

Adjacent Land Use

Upstream agriculture
Downstream wood lot

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Upstream none
Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow
Downstream low flow

Note any fish observations NONE

Other Habitat Notes, Incidental Wildlife Observations, etc. _____



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version

Stantec

Project Station # 42.0 Photos Taken 7451, 7452, 7453 GPS Coordinates 17T 060529 / 4149737 Descriptive Location 450m east of Aikens Rd, 900m north of Rainham Rd.

Project # Samsung (GREP) Wind Field Staff E. Malinzech, E. Windhorst Date Oct 26, 2010 Time 11:35

Water Quality

Dissolved Oxygen (mg/L) 6.52 pH 7.78 Conductivity (uS/cm) 267 Water Temperature (C) 14.14 Air Temperature (C) 17C Weather conditions in previous 24 hrs cloudy, rain, windy + warm

Pond

Watercourse Dimensions & Morphology

Mean Watercourse Width (m) Maximum Pool Depth 71.0 (cm) Mean Bankfull Width (m) Mean Water Depth 0.5 @ bank (cm) % Riffle % Pool % Run % Flat

Pond

Evidence of eroding banks, Comments on bank stability irregularly shaped man-made pond w/ several inputs and NO outflow

Substrate - Upstream (% cover)

Bedrock 30 Muck Silt Gravel Boulder Marl 70 Clay Sand Cobble Detritus

Substrate - Downstream (% cover)

Bedrock Muck Silt Gravel Boulder Marl Clay Sand Cobble Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Woody Debris Deep Pool Boulder Vascular Plants Other canary grass + terrestrial meadow sp.

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional) Upstream 30%, mature trees, dog woods, canary grass Downstream

Adjacent Land Use

Upstream agriculture, woodlot Downstream

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings) Upstream none, isolated pond w/ contribution from several field Downstream run-off "channels"

Migratory Obstructions (seasonal, permanent)

Upstream lack of connection, permanent Downstream

Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc. Inflow channel and man-made pond are not on map. Channel was 0.4 m wide + 0.35 m deep, on average. Pond likely retains water year round. Channel has dense grass. WATER BODY



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREG) Wind
Station # 42.1
Photos Taken 7454 → 7460
GPS Coordinates 17T 060964 / 4749687
Descriptive Location _____

Project # 161010646
Field Staff E. Malindzak, E. Winkelhorst
Date Oct. 20 2010
Time 12:31

Water Quality

Dissolved Oxygen (mg/L) 1.60 pH 7.05 Conductivity (µS/cm) 266
Water Temperature (°C) 14.21 Air Temperature (°C) 17.0
Weather conditions in previous 24 hrs cloudy, rain, wind, warm

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m) Maximum Pool Depth 40 (cm)
Mean Bankfull Width _____ (m) Mean Water Depth 0.50 (cm)
_____ % Riffle 100 % Pool _____ % Run _____ % Flat

Evidence of eroding banks, Comments on bank stability This is a low spot that collects water from four directions, no outflow. Inflow comes from adjacent fields, and woodlot.

Substrate - Upstream (% cover)

Bedrock _____ Silt _____ Boulder 20 Clay _____ Cobble _____
30 Muck _____ Gravel _____ Marl _____ Sand 50 Detritus _____

Substrate - Downstream (% cover)

Bedrock _____ Silt _____ Boulder _____ Clay _____ Cobble _____
30 Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks _____ Deep Pool _____ Vascular Plants
Woody Debris _____ Boulder _____ Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 80%, Cattails, meadow sp., Willow, canary grass, duck weed
Downstream _____

Adjacent Land Use

Upstream agriculture
Downstream _____

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Upstream none
Downstream _____

Migratory Obstructions (seasonal, permanent)

Upstream lack of connection in any direction
Downstream _____

Note any fish observations This low spot is partially (at least) man-made. Large cattail area in centre. Fished large cattail area and largest inflow.

Other Habitat Notes, Incidental Wildlife Observations, etc. none



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version

Stantec

Project: Samsung (GREP) Wind
Station # CL-24
Photos Taken 7472, 7473
GPS Coordinates 17T 0608193/4748170
Descriptive Location culvert on Aikens (Haldeman Rd. 49), 600m South of Rainham Rd.

Project # 161010046
Field Staff E. Melindzak, E. Windhorst
Date 10 Oct 27, 2010
Time 11:06 AM

Water Quality

Dissolved Oxygen (mg/L) 7.23 pH 7.41 Conductivity (µS/cm) 792
Water Temperature (°C) 13.18 Air Temperature (°C) _____
Weather conditions in previous 24 hrs cloudy, rain (heavy), windy, warm

Watercourse Dimensions & Morphology @ road culvert

Mean Watercourse Width 0.40 (m) Maximum Pool Depth 0.80 (cm)
Mean Bankfull Width 2.5 (m) Mean Water Depth 0.30 (cm)
% Riffle _____ % Pool _____ % Run _____ % Flat _____

Evidence of eroding banks, Comments on bank stability contribution is mostly from roadside drains, however a small channel flows from adjacent agriculture field

Substrate - Upstream (% cover)

Bedrock _____ Silt _____ Boulder 100 Clay _____ Cobble _____
Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

Substrate - Downstream (% cover)

Bedrock _____ Silt _____ Boulder 100 Clay _____ Cobble _____
Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks _____ Deep Pool _____ Vascular Plants
Woody Debris Boulder _____ Other flooded terrestrial veg.

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 65% meadow veg + corn
Downstream 85% canary grass + meadow sp.

Adjacent Land Use

Upstream agriculture (corn, clover)
Downstream agriculture (soy, clover)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none
Downstream potential for flooded veg. for spring spawners

Migratory Obstructions (seasonal, permanent)

Upstream low flow
Downstream low flow

Note any fish observations 8 central mudminnow @ culvert on both sides of road. Shocked for 56 seconds @ 60 Hz / 600 V.

Other Habitat Notes, Incidental Wildlife Observations, etc. Frogs. This is likely holding water due to recent rains, though water likely stays around culvert year-round.



Stantec

Stantec Consulting Ltd - Electrofishing Record and Catch Results

Project Number 161010646 Station Number CL-24
 Project Name Samsung (GREP) Wind Pass No. (if applicable) 1
 Project manager Rob Nadolney Date (yyyymmdd): 20101027
 Descriptive Location _____
 UTM coordinates 0608193 easting 4748170 northing zone 17T

Fishing Method (circle one): Backpack Boat _____ Unit Model/Make SR-12
 Sampling Method (circle one): even habitat _____ transect _____ spot _____
 Effort (Electrofishing Seconds): 56 Number of Netters: 1 Number of Anodes: 1
 Settings
 Frequency (Hz) 60 Voltage (volts) 600 Current (Amps) _____ Power (Watts) _____

Station Information

Length of Stream Surveyed (m) 30 m
 Station Characteristics:
 Width (m): Range 0.30-0.45 Average: 0.40
 Depth (m): Range 0.20-0.80 Average: 0.3

Water Clarity/Colour: Cloudy Water Velocity if Measured (m/s): -
 Temperature (°C) 13.18 Conductivity (uS/cm) 792
 pH 7.41 Dissolved Oxygen (mg/L) 7.23

Catch Data

Species	Number of Fish	Species	Number of Fish
Central Mudminnow	(8)		

Fish Measurements on Separate Sheet?

Field Staff: E. Malindzuk
E. Windhorst

Notes By: _____

(Station Diagram on Back)



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version

Stantec

Project : Samsung (GREP) Wind Project # 161010646
 Station # CL-23 Field Staff E. Malindzuk E. Winthorst
 Photos Taken 7965, 7466 Date Oct. 26/2010
 GPS Coordinates 17T 060 8096 / 4750310 Time 15:29
 Descriptive Location Aikens Rd. Culvert on Aikens Rd 550m south of Haldimand Rd 20.

Water Quality

Dissolved Oxygen (mg/L) 4.90 pH 7.44 Conductivity (μ S/cm) 275
 Water Temperature ($^{\circ}$ C) 16.20 Air Temperature ($^{\circ}$ C) 19 $^{\circ}$ C
 Weather conditions in previous 24 hrs cloudy, rain, wind, warm

Watercourse Dimensions & Morphology

Mean Watercourse Width 1.5 (m) Maximum Pool Depth 0.45 (cm)
 Mean Bankfull Width 5.5 (m) Mean Water Depth 0.30 (cm)
15 % Riffle 45 % Pool 15 % Run 15 % Flat
 Evidence of eroding banks, Comments on bank stability shrub banks, exposed roots.

Substrate - Upstream (% cover)

<input checked="" type="checkbox"/> Bedrock	<input checked="" type="checkbox"/> Silt	<u>10</u> ^{at culvert} Boulder	<u>90</u> Clay	<input checked="" type="checkbox"/> Cobble
<input checked="" type="checkbox"/> Muck	<input checked="" type="checkbox"/> Gravel	<input checked="" type="checkbox"/> Marl	<input checked="" type="checkbox"/> Sand	<input checked="" type="checkbox"/> Detritus

Substrate - Downstream (% cover)

<input checked="" type="checkbox"/> Bedrock	<input checked="" type="checkbox"/> Silt	<u>10</u> Boulder	<u>60</u> Clay	<u>10</u> Cobble
<input checked="" type="checkbox"/> Muck	<u>10</u> Gravel	<input checked="" type="checkbox"/> Marl	<u>10</u> Sand	<input checked="" type="checkbox"/> Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Woody Debris Deep Pool Boulder Vascular Plants Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 50% grasses & mature trees

Downstream 70% Mature trees

Adjacent Land Use

Upstream woodlot, agriculture

Downstream woodlot agriculture

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream flooded veg for spring spawners

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream none

Downstream none

Note any fish observations

Other Habitat Notes, Incidental Wildlife Observations, etc. water is high, above high water and above or at bank full



Stantec

Stantec Consulting Ltd - Electrofishing Record and Catch Results

Project Number 161010646 Station Number CL-23
 Project Name Samsung (GREP) Wind Pass No. (if applicable) 1
 Project manager Rob Nadolny Date (yyyymmdd): 2010026
 Descriptive Location Aikens Road, south of Haldimand 20

UTM coordinates 0608098 easting 4750310 northing zone 17T

Fishing Method (circle one): Backpack Boat Unit Model/Make SR-12
 Sampling Method (circle one): even habitat transect spot

Effort (Electrofishing Seconds): 187 Number of Netters: 1 Number of Anodes: 1

Settings
 Frequency (Hz) 60 Voltage (volts) 600 Current (Amps) Power (Watts)

Station Information

Length of Stream Surveyed (m) 30 m
 Station Characteristics:
 Width (m): Range 1.0 - 2.5 Average: 1.5
 Depth (m): Range 0.25 - 0.45 Average: 0.36

Water Clarity/Colour: cloudy Water Velocity if Measured (m/s): —
 Temperature (°C) 16.20 Conductivity (uS/cm) 275
 pH 7.44 Dissolved Oxygen (mg/L) 4.80

Catch Data

Species	Number of Fish	Species	Number of Fish
Central Mudminnow	(3)		
Common Shiner	(9) + 6 observed		
Green Sunfish	(2) young/juvenile		

Fish Measurements on Separate Sheet? Y/N

Field Staff: E. Malindzak
E. Windhorst

Notes By: _____



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREG) Wind

Project # 161010646

Station # 15.0

Field Staff Edward Malindzak

Photos Taken 0078, 0079, 0080

Date October 19, 2010

GPS Coordinates 17T 0598605/4750564

Time 17:14

Descriptive Location 750m south of Sutor Rd

Meadows Rd, 450m east of

Water Quality

Dissolved Oxygen (mg/L)

pH Conductivity (µS/cm)

Water Temperature (°C)

Air Temperature (°C) 14°C

Weather conditions in previous 24 hrs cloudy, sunny, windy cool

Watercourse Dimensions & Morphology

Mean Watercourse Width (m)

Maximum Pool Depth (cm)

Mean Bankfull Width (m)

Mean Water Depth (cm)

 % Riffle % Pool

 % Run % Flat

Evidence of eroding banks, Comments on bank stability dry w/intermittent pools, grade is steep, likely contains flowing water briefly in spring and after significant rain

Substrate - Upstream (% cover)

<u> </u> Bedrock	<u> </u> Silt	<u> </u> Boulder	<u>100</u> Clay	<u> </u> Cobble
<u> </u> Muck	<u> </u> Gravel	<u> </u> Marl	<u> </u> Sand	<u> </u> Detritus

Substrate - Downstream (% cover)

<u> </u> Bedrock	<u> </u> Silt	<u> </u> Boulder	<u>100</u> Clay	<u> </u> Cobble
<u> </u> Muck	<u> </u> Gravel	<u> </u> Marl	<u> </u> Sand	<u> </u> Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
 Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 85%, meadow & mature trees, then soy

Downstream 85%, meadow species & canary grass

Adjacent Land Use

Upstream agriculture, meadow & mature trees soy

Downstream agriculture, soy

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream

Downstream gradient/velocity, low flow

Note any fish observations none, contains defined channel, ~30cm wide D/S (~100m D/S). U/S shows erosion at culvert, deeply incised 2m wide, and 1m deep.

Other Habitat Notes, Incidental Wildlife Observations, etc. clearly conveys water but likely functions as indirect habitat due to grade. Small pick-up truck blocking our exit.

829-2WB GMC Sonoma - Red



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREP) Wind.

Project # 161010646

Station # 184

Field Staff Edward Malindzak,

Photos Taken 4

Date October 20 2010

GPS Coordinates 0600147, 4750068 (17T)

Time 14:06

Descriptive Location 400m north of Haldimand Rd 20, 600 m west of Yaremy Rd.

Water Quality

Dissolved Oxygen (mg/L) 4.62

pH 7.66 Conductivity (µS/cm) 138

Water Temperature (°C) 9.75

Air Temperature (°C) 9°C

Weather conditions in previous 24 hrs _____

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.20 (m)

Maximum Pool Depth 0.16 (cm)

Mean Bankfull Width ∞ (m)

Mean Water Depth 0.20 (cm)

% Riffle 100 % Pool _____

% Run _____

% Flat _____

Evidence of eroding banks, Comments on bank stability pool created by placing material for field access, pool has drain tile outflow

Substrate - Upstream (% cover)

Bedrock _____

Silt _____

Boulder 30

Clay _____

Cobble _____

20 Muck _____

Gravel _____

Marl _____

Sand _____

Detritus _____

Substrate - Downstream (% cover)

Bedrock _____

Silt _____

Boulder _____

Clay _____

Cobble _____

Muck _____

Gravel _____

Marl _____

Sand _____

Detritus _____

Drug

In-water Cover

Cover Types Present (circle):

Overhanging Vegetation _____

Undercut Banks _____

Woody Debris _____

Deep Pool _____

Boulder _____

Vascular Plants

Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 75% mature forest

Downstream 0% agriculture (harvested)

Adjacent Land Use

Upstream wood lot

Downstream agriculture

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream rubble pile placed in watercourse to allow

Downstream farm machinery to pass, permanent

Note any fish observations central mudminnow (3) in pool @ 6512/300V

Other Habitat Notes, Incidental Wildlife Observations, etc. Frogs in tire cuts and pool



Stantec

Stantec Consulting Ltd - Electrofishing Record and Catch Results

Project Number 161010646 Station Number 18.4
 Project Name Samsung (GREP) Wind Pass No. (if applicable) 1
 Project manager Rob Madolney Date (yyyymmdd): 20101020
 Descriptive Location _____

UTM coordinates 0600147 easting 4750068 northing zone 17T

Fishing Method (circle one): Backpack Boat _____ Unit Model/Make SR-12
 Sampling Method (circle one): even habitat _____ transect _____ spot _____

Effort (Electrofishing Seconds): 27 Number of Netters: 1 Number of Anodes: 1

Settings
 Frequency (Hz) 30 Voltage (volts) 500 Current (Amps) _____ Power (Watts) _____

Station Information

Length of Stream Surveyed (m) 10 m (entire pool)
 Station Characteristics: Width (m): Range _____ Average: _____
 Depth (m): Range _____ Average: _____

Water Clarity/Colour: brown Water Velocity if Measured (m/s): —
 Temperature (°C) 9.75 Conductivity (uS/cm) 138
 pH 7.66 Dissolved Oxygen (mg/L) 4.62

Catch Data

Species	Number of Fish	Species	Number of Fish
Central Mudminnow	3		

Fish Measurements on Separate Sheet? Y/N
 Field Staff: E. Malindzak Notes By: _____
M. Korzak _____
 (Station Diagram on Back)



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREP) Wind
Station # 18.3
Photos Taken DDTI
GPS Coordinates IT 0600324 / 4750207
Descriptive Location 300m west of Yaremy Rd, 600m north of Haldimand Rd 20.

Project # 161010646
Field Staff Edward Malindzak, M. Kozak
Date October 20 2010
Time 13:19

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (µS/cm)
Water Temperature (°C) Air Temperature (°C) 10.0
Weather conditions in previous 24 hrs Sunny, windy, cool

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.75 (m) Maximum Pool Depth 4cm (cm)
Mean Bankfull Width 0.75 (m) Mean Water Depth 3cm (cm)
 % Riffle 100 % Pool % Run % Flat
Evidence of eroding banks, Comments on bank stability minor sign of erosion

Substrate - Upstream (% cover)

50 Bedrock Silt Boulder 50 Clay Cobble
50 Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

 Bedrock Silt Boulder Clay Cobble
 Muck Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Vascular Plants
Overhanging Vegetation Woody Debris Boulder Other soy

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 25% soy
Downstream

Adjacent Land Use

Upstream Agriculture
Downstream Agriculture

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Upstream none
Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow
Downstream low flow

Note any fish observations none, some algae & moss in/near water in minor amounts. Appears to drain adjacent field & wetland (B.2)

Other Habitat Notes, Incidental Wildlife Observations, etc. canine, racoon, and deer tracks.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREP) Wind.
Station # 18.2
Photos Taken 3
GPS Coordinates 0000169, 4950219
Descriptive Location 650m north of Maldimand Rd 20, 550m west of Yaremy Rd

Project # 161010646
Field Staff Edward Malindza K, M. Kozak
Date October 20 2010
Time 13:27

Water Quality
Dissolved Oxygen (mg/L) 10.04 pH 7.75 Conductivity (µS/cm) 291
Water Temperature (°C) 14.00 Air Temperature (°C) 10°C
Weather conditions in previous 24 hrs rain, cloud, cool

Watercourse Dimensions & Morphology
Mean Watercourse Width / (m) Maximum Pool Depth 70.75 (cm)
Mean Bankfull Width / (m) Mean Water Depth 0.5 (cm)
/ % Riffle 100 % Pool / % Run / % Flat
Evidence of eroding banks, Comments on bank stability /

Substrate - Upstream (% cover)
Bedrock / Silt / Boulder 30 Clay / Cobble /
50 Muck / Gravel / Marl / Sand 20 Detritus 50

Substrate - Downstream (% cover)
Bedrock / Silt / Boulder / Clay / Cobble /
/ Muck / Gravel / Marl / Sand / Detritus /

In-water Cover
Cover Types Present (circle): Overhanging Vegetation Undercut Banks / Deep Pool / Vascular Plants
Woody Debris Boulder / Other cattails
milkail
duckweed

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 30%, cattails and canary grass
Downstream /

Adjacent Land Use
Upstream Agriculture (clover)
Downstream /

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
Upstream none
Downstream /

Migratory Obstructions (seasonal, permanent)
Upstream low no connection except during periods of high overland flow
Downstream /

Note any fish observations Shocked for 210 seconds. Captured 17 Central Mudminnow and observed many more. Did not observe any other species

Other Habitat Notes, Incidental Wildlife Observations, etc. Field mouse/Vole
Wetland areas appear to convey water overland. No channel and contains terrestrial vegetation (likely very seasonal)



Stantec

Stantec Consulting Ltd - Electrofishing Record and Catch Results

Project Number 161010646 Station Number 18.2
 Project Name Samsung (GREP) Wind Pass No. (if applicable) 1
 Project manager Rob Nadolny Date (yyyymmdd): 20101020
 Descriptive Location _____

UTM coordinates 0600169 easting 4750219 northing zone 17T

Fishing Method (circle one): Backpack Boat Unit Model/Make SR-12
 Sampling Method (circle one): even habitat transect spot

Effort (Electrofishing Seconds): 218 Number of Netters: 1 Number of Anodes: 1

Settings

Frequency (Hz) 60 Voltage (volts) 500 Current (Amps) _____ Power (Watts) _____

Station Information

Length of Stream Surveyed (m) 30 m of in-water shockin
 Station Characteristics: Width (m): Range 50 x 70 Average: —
 Depth (m): Range 0.25 - 20.75 Average: 0.5

Water Clarity/Colour: Fairly Clear Water Velocity if Measured (m/s): —
 Temperature (°C) 14.00 Conductivity (uS/cm) 291
 pH 7.75 Dissolved Oxygen (mg/L) 10.04

Catch Data

Species	Number of Fish	Species	Number of Fish
Central Mudminnow	17		

Fish Measurements on Separate Sheet? Y/N

Field Staff: E. Malindzak
M. Kozak

Notes By: _____
 (Station Diagram on Back)



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind.

Project # 161010646

Station # 18.1

Field Staff Edward Malindzak,

Photos Taken 3

Date October 20 2010

GPS Coordinates 17T 0600099/4750462

Time 12:44

Descriptive Location 700m north of Haldimand Rd 20, 500m west of Jeremy Rd.

Water Quality

Dissolved Oxygen (mg/L) 2.06 pH 7.59 Conductivity (µS/cm) 62

Water Temperature (°C) 12.76 Air Temperature (°C) _____

Weather conditions in previous 24 hrs Cool, rain

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m) Maximum Pool Depth 0.30 (cm)

Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)

_____% Riffle 100 % Pool _____ % Run _____ % Flat

Evidence of eroding banks, Comments on bank stability wetted area east of 18.0

Substrate - Upstream (% cover)

_____ Bedrock	_____ Silt	_____ Boulder	_____ Clay	_____ Cobble
<u>100</u> Muck	_____ Gravel	_____ Marl	_____ Sand	_____ Detritus

Substrate - Downstream (% cover)

_____ Bedrock	_____ Silt	_____ Boulder	_____ Clay	_____ Cobble
_____ Muck	_____ Gravel	_____ Marl	_____ Sand	_____ Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Woody Debris Deep Pool Boulder Vascular Plants Other

cattails
duckweed

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 30 shrubs & small trees

Downstream _____

Adjacent Land Use

Upstream agriculture, woodlot

Downstream _____

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream no connection

Downstream _____

Note any fish observations Shocked for 140 sec. @ 500V/60 Hz. No fish captured or observed.

Other Habitat Notes, Incidental Wildlife Observations, etc. water from here may contribute to water @ 18.0, no visible connection. Frog frogs

and an leeches are abundant. See map for notes on wetted areas.



Stantec Consulting Ltd - Electrofishing Record and Catch Results

Project Number 161010646 Station Number 18.1
 Project Name Samsung (GRED) Wind Pass No. (if applicable) 1
 Project manager Rob Nadding Date (yyyymmdd): 20101020
 Descriptive Location _____

UTM coordinates 0600099 easting 4750462 northing _____ zone 17T

Fishing Method (circle one): ~~Backpack~~ Boat Unit Model/Make SR-12
 Sampling Method (circle one): even habitat transect spot

Effort (Electrofishing Seconds): 140 Number of Netters: 1 Number of Anodes: 1

Settings

Frequency (Hz) 60 Voltage (volts) 300 Current (Amps) _____ Power (Watts) _____

Station Information

Length of Stream Surveyed (m) pond/wetland
 Station Characteristics: Width (m): Range ~~0.5-0.50~~ Average: ~~0.30~~
 Depth (m): Range 0.05-0.50 Average: 0.30

Water Clarity/Colour: muck, visibility nil Water Velocity if Measured (m/s): _____
 Temperature (°C) 12.76 Conductivity (uS/cm) 62
 pH 7.59 Dissolved Oxygen (mg/L) 2.06

Catch Data

Species	Number of Fish	Species	Number of Fish
No fish captured or observed			

Fish Measurements on Separate Sheet? Y

Field Staff: E. Malindrah
M. Kozak

Notes By: _____
 (Station Diagram on Back)



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREP) Wind.
Station # 13.0
Photos Taken 4
GPS Coordinates 17T 0600091/4750442
Descriptive Location 700m north of Haldimand Rd 20, 500m west of Yaremy Rd

Project # 161010646
Field Staff Edward Malindzak, Mikozak
Date October 20 2010
Time 12:38

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (μ S/cm)
Water Temperature ($^{\circ}$ C) Air Temperature ($^{\circ}$ C) 8 $^{\circ}$ C
Weather conditions in previous 24 hrs Sunny, Windy, Cool

Watercourse Dimensions & Morphology

Mean Watercourse Width (m) Maximum Pool Depth 5 (cm)
Mean Bankfull Width (m) Mean Water Depth 5 (cm)
 % Riffle 100 % Pool % Run % Flat

Evidence of eroding banks, Comments on bank stability a wet spot in the middle of a clover field, has un-harvested crops, no aquatic species

Substrate - Upstream (% cover)

 Bedrock Silt Boulder 100 Clay Cobble
 Muck Gravel Marl 50 Sand Detritus

Substrate - Downstream (% cover)

 Bedrock Silt Boulder Clay Cobble
 Muck Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Vascular Plants - Terrestrial
 Overhanging Vegetation Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 40% unharvested crop
Downstream

Adjacent Land Use

Upstream agriculture
Downstream

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Upstream none
Downstream
Migratory Obstructions (seasonal, permanent)
Upstream not connected
Downstream

Note any fish observations none, a wetted area occurs ~ 75 m north of this location, contains cattails (dense) w/very little standing water

Other Habitat Notes, Incidental Wildlife Observations, etc. Too shallow to shock



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Channel Not present - no photos

Project Samsung (GREP) Wind

Project # 161010646

Station # A.0

Field Staff Edward Malindzak, M. Korak

Photos Taken 1

Date October 20 2010

GPS Coordinates 0559723, 4748562

Time 15:02

Descriptive Location 900m east of Sutor Rd, 750m south of Haldimand

Road 20

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (µS/cm)

Water Temperature (°C) Air Temperature (°C) 10°C

Weather conditions in previous 24 hrs Sunny, cool, windy

Watercourse Dimensions & Morphology

Mean Watercourse Width (m) Maximum Pool Depth (cm)

Mean Bankfull Width (m) Mean Water Depth (cm)

 % Riffle % Pool % Run % Flat

Evidence of eroding banks, Comments on bank stability no evidence of channel,
flowing water, or overland flow.

Substrate - Upstream (% cover)

 Bedrock Silt Boulder Clay Cobble
 Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

 Bedrock Silt Boulder Clay Cobble
 Muck Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle):
Overhanging Vegetation Undercut Banks Woody Debris Deep Pool Boulder Vascular Plants Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream

Downstream

Adjacent Land Use

Upstream

Downstream

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream

Downstream

Migratory Obstructions (seasonal, permanent)

Upstream

Downstream

Note any fish observations

Other Habitat Notes, Incidental Wildlife Observations, etc. this is featureless

terrain, no evidence of water courses. Not fish habitat, waterbodies
is an agriculture field w/ soy.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 2

Stantec

Project Samsung (GREP) Project # 161010646
Station # CL 370 Field Staff M. Pomeroy, D. Williams
Photos Taken 0039, 0040, 0041, 0042 Date Nov 8 2010
GPS Coordinates 0601858 4750170 Time 10:56am 2010
Descriptive Location approx 1km west of Haldimand Rd 50 on Haldimand Rd 20

Water Quality

Dissolved Oxygen (mg/L) 10.20 pH 7.39 Conductivity (µS/cm) 650
Water Temperature (°C) 3.60 Air Temperature (°C) _____
Weather conditions in previous 24 hrs cool, clear

Watercourse Dimensions & Morphology

Mean Watercourse Width 1.5 (m) Maximum Pool Depth 0.75 (m)
Mean Bankfull Width 2.0 (m) Mean Water Depth 0.30 (m)
_____% Riffle _____% Pool 100 % Run _____% Flat

Evidence of eroding banks, Comments on bank stability undercut banks, heavily vegetated

Substrate - Upstream (% cover)

____Bedrock 80 Silt _____ Boulder 20 Clay _____ Cobble
____Muck _____ Gravel _____ Marl _____ Sand _____ Detritus

Substrate - Downstream (% cover)

____Bedrock 80 Silt _____ Boulder 20 Clay _____ Cobble
____Muck _____ Gravel _____ Marl _____ Sand _____ Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Woody Debris Deep Pool Boulder Vascular Plants Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 20%, grass, early

Downstream 20%, grass, early

Adjacent Land Use

Upstream meadow, ag field

Downstream meadow, ag field

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream none

Downstream none

Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc. algae



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version L

Stantec

Project Samsung (GREP) Wind.

Project # 161010646

not a Water Body

Station # 11.0

Field Staff Edward Malindzak, M. Kozak

Photos Taken 7616, 7617, 7618, 7619, 7620

Date October 19 2010

GPS Coordinates 17T 0594103 / 4749463

Time 12:47

Descriptive Location ~ 200 m north of Haldiman Road 20, near intersection w/ conc. S, Field map G

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (µS/cm)

Water Temperature (°C) Air Temperature (°C) 10°C

Weather conditions in previous 24 hrs cloudy, sunny, cool, windy

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.40 (m) Maximum Pool Depth 30 (cm)

Mean Bankfull Width 0.40 (m) Mean Water Depth 5 (cm)

 % Riffle 100 % Pool % Run % Flat

Evidence of eroding banks, Comments on bank stability "channel" meanders through Soy field

Substrate - Upstream (% cover)

<u> </u> Bedrock	<u>10</u> Silt	<u> </u> Boulder	<u>90</u> Clay	<u> </u> Cobble
<u> </u> Muck	<u> </u> Gravel	<u> </u> Marl	<u> </u> Sand	<u> </u> Detritus

Substrate - Downstream (% cover)

<u> </u> Bedrock	<u>10</u> Silt	<u> </u> Boulder	<u>90</u> Clay	<u> </u> Cobble
<u> </u> Muck	<u> </u> Gravel	<u> </u> Marl	<u> </u> Sand	<u> </u> Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
 Woody Debris Boulder Other algae

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 50% Soy

Downstream 30% Soy

Adjacent Land Use

Upstream agriculture

Downstream agriculture

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream perched culvert, low flow

Downstream "

Note any fish observations none, this is only pools around culvert intermittent flow, likely in spring and high precip.

Other Habitat Notes, Incidental Wildlife Observations, etc. mouse, frog



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version L

Stantec

Project Samsung (GREP) Wind.

Project # 161010646

Station # 17.0

Field Staff Edward Malindek, Mikozak

Photos Taken 0068, 0069, 0070

Date October 20 2010

GPS Coordinates 17T 0661638/4751212

Time 9:44 am

Descriptive Location 600m South of Yaremy Rd.

1.4 km east of Meadows Rd.

Water Quality

Dissolved Oxygen (mg/L) 7.34

pH 7.78 Conductivity (µS/cm) 316

Water Temperature (°C) 7.55

Air Temperature (°C) _____

Weather conditions in previous 24 hrs _____

Watercourse Dimensions & Morphology

Mean Watercourse Width 1.0 (m)

Maximum Pool Depth 0.75 (cm)

Mean Bankfull Width 7 (m)

Mean Water Depth 0.075 (cm)

20 % Riffle 40 % Pool

20 % Run 20 % Flat

Evidence of eroding banks, Comments on bank stability Bankfull depth 1.5-2m conveys large volume of water in spring (supported by anecdotal info)

Substrate - Upstream (% cover)

Bedrock	<u>10</u> Silt	<u>5</u> Boulder	<u>35</u> Clay	<u>20</u> Cobble
Muck	<u>25</u> Gravel	Marl	Sand	<u>5</u> Detritus

Substrate - Downstream (% cover)

Bedrock	<u>10</u> Silt	<u>5</u> Boulder	<u>35</u> Clay	<u>20</u> Cobble
Muck	<u>25</u> Gravel	Marl	Sand	<u>5</u> Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Woody Debris Deep Pool Boulder Vascular Plants: _____ Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 65%, mature forest (red oak, maple, wild cherry, Beech)
Downstream 65%, mature forest " " " "

Adjacent Land Use

Upstream wood lot
Downstream wood lot

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Upstream gravel deposits
Downstream gravel deposits

Migratory Obstructions (seasonal, permanent)
Upstream low flow
Downstream low flow

Note any fish observations local homeowner says all watercourses at this site are heavily flooded in spring, lasting a few days. land owner also states pike are common in spring.

Other Habitat Notes, Incidental Wildlife Observations, etc. _____



Stantec

Stantec Consulting Ltd - Electrofishing Record and Catch Results

Project Number 161010646 Station Number 17.0
 Project Name Samsung (GREP) Wind Pass No. (if applicable) 1
 Project manager Rob Wodolny Date (yyyymmdd): 20101020
 Descriptive Location _____

UTM coordinates 17T 0601680 / eastings 4751212 northing zone _____

Fishing Method (circle one): Backpack Boat Unit Model/Make _____
 Sampling Method (circle one): even habitat transect spot

Effort (Electrofishing Seconds): 212 Number of Netters: 1 Number of Anodes: 1

Settings

Frequency (Hz) 60 Voltage (volts) 500 Current (Amps) _____ Power (Watts) _____

Station Information

Length of Stream Surveyed (m) ~100 m
 Station Characteristics: Width (m): Range 0.75 - 0.5 Average: 1.0
 Depth (m): Range 0.10 - 0.50 Average: 0.20

Water Clarity/Colour: clear Water Velocity if Measured (m/s): _____
 Temperature (°C) _____ Conductivity (uS/cm) _____
 pH _____ Dissolved Oxygen (mg/L) _____

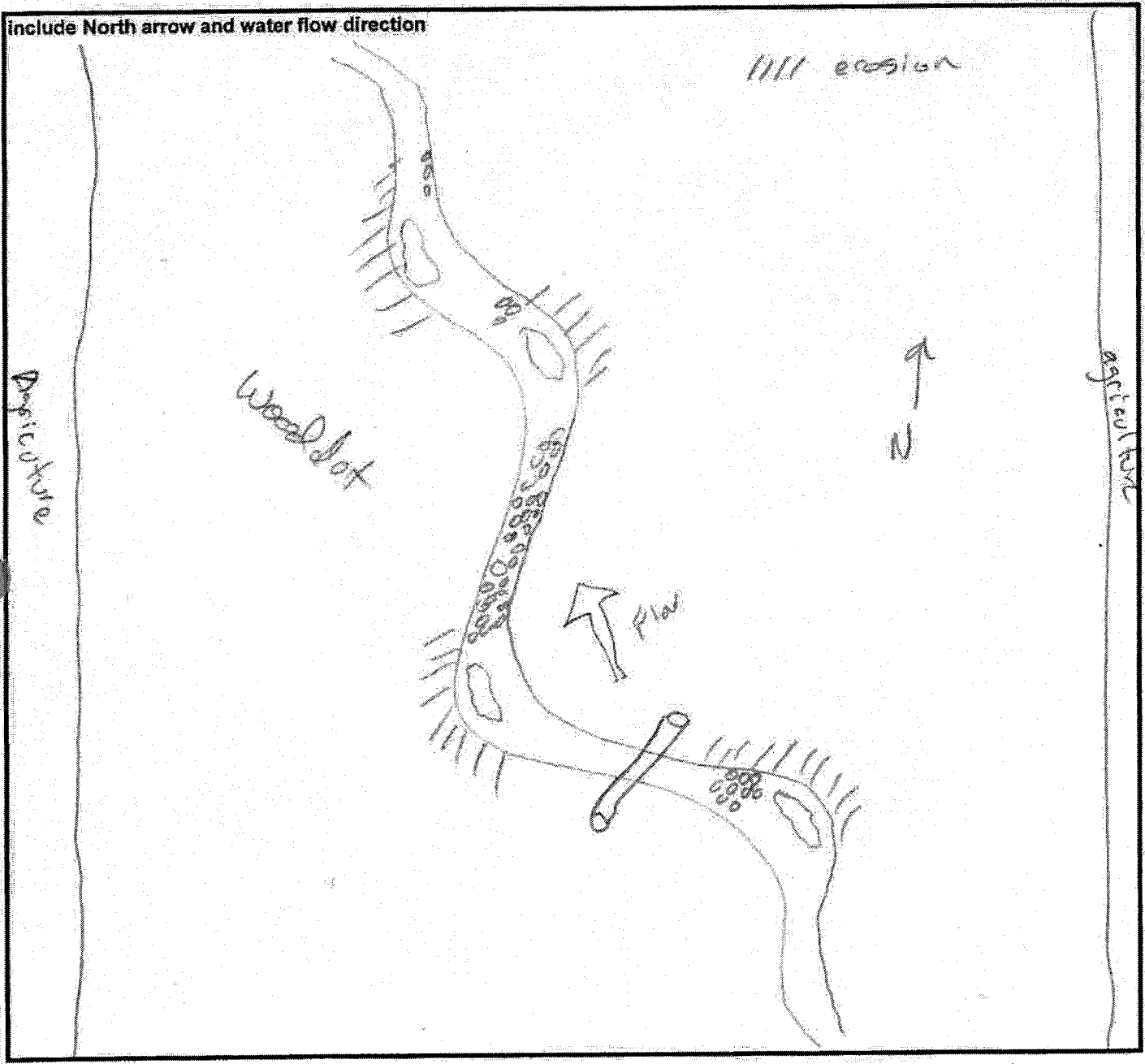
Catch Data

Species	Number of Fish	Species	Number of Fish
Centrarchid	9		
Common Shiner	5		

Fish Measurements on Separate Sheet? Y N
 Field Staff: E. Malikdzab Notes By: _____
M. Kozak
 (Station Diagram on Back)

Project Number 1610046
Date (yyyymmdd): 20101020
Waterbody Name unk

Station Number 17.0
Pass No. (if applicable) 1
Field Staff: E. Malachuk, M. Kozak



NOTES:

nice natural system w/meanders, too erosion is very
common Anecdotal info indicates historically helol pike
In water the visibility was complicated by layer of
recently fallen leaves

Quality Control: This form is complete (X) & legible (X). QA/QC by: (signature) Mark Kozak



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREP) Wind.
Station # 17.1
Photos Taken 0065, 0066, 0067
GPS Coordinates 17T 0601792/4751648
Descriptive Location 300m south of Meadows Rd, 1.3 km east of Yaremy Rd

Project # 161010646
Field Staff Edward Malindzak,
Date October 20 2010
Time 11:10

Water Quality

Dissolved Oxygen (mg/L) / pH / Conductivity (µS/cm) /
Water Temperature (°C) / Air Temperature (°C) 7°C
Weather conditions in previous 24 hrs Sunny, cool, windy

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.6 (m) Maximum Pool Depth / (cm)
Mean Bankfull Width undefined (m) Mean Water Depth / (cm)
% Riffle / % Pool / % Run / % Flat /
Evidence of eroding banks, Comments on bank stability this was dry but muddy

Substrate - Upstream (% cover)

100%
Bedrock / Silt / Boulder 100 Clay/mud / Cobble /
Muck / Gravel / Marl / Sand / Detritus /

Substrate - Downstream (% cover)

Bedrock / Silt / Boulder 100 Clay/mud / Cobble /
Muck / Gravel / Marl / Sand / Detritus /

In-water Cover

Cover Types Present (circle): Undercut Banks / Deep Pool / Vascular Plants /
Overhanging Vegetation / Woody Debris / Boulder / Other none

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 50% , soy, mature
Downstream 50% , soy, mature

Adjacent Land Use

Upstream agriculture, soy
Downstream agriculture, soy

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none
Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow
Downstream low flow

Note any fish observations clearly conveys water, likely over a short period of time, not fish habitat (no contribution d/s)

Other Habitat Notes, Incidental Wildlife Observations, etc. many many deer tracks & racoon



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREP) Wind

Project # 161010646

Station # 17.2

Field Staff Edward Malindzak, Mark Kozak

Photos Taken 0062, 0063, 0064

Date October 20 2010

GPS Coordinates 17° 06' 14.2" N / 77° 47' 51.85" W

Time 11:24

Descriptive Location 20 m south of meadow road, where water course crosses road

Water Quality

Dissolved Oxygen (mg/L) 10.93 pH 8.08 Conductivity (µS/cm) 211
Water Temperature (°C) 9.60 Air Temperature (°C) 7°C
Weather conditions in previous 24 hrs sunny, cool, windy

Watercourse Dimensions & Morphology

Mean Watercourse Width 1.0 (m) Maximum Pool Depth 0.40 (cm)
Mean Bankfull Width 3.5 (m) Mean Water Depth 0.25 (cm)
0 % Riffle 90 % Pool 10 % Run 0 % Flat

Evidence of eroding banks, Comments on bank stability Densely vegetated, could only check at field access culvert.

Substrate - Upstream (% cover)

Bedrock 0 Silt 0 Boulder 30 Clay 0 Cobble 0
70 Muck Gravel 0 Marl 0 Sand 0 Detritus 0

Substrate - Downstream (% cover)

Bedrock 0 Silt 0 Boulder 30 Clay 0 Cobble 0
70 Muck Gravel 0 Marl 0 Sand 0 Detritus 0

In-water Cover

Cover Types Present (circle):
Overhanging Vegetation Undercut Banks Deep Pool 0 Vascular Plants
Woody Debris Boulder 0 Other cattails, canary grass

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 95% cattails, canary grass, meadow species, willow
Downstream 95% " " " "

Adjacent Land Use

Upstream agriculture (soy)
Downstream agriculture (soy)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Upstream in stream veg potential for pike
Downstream " " " "

Migratory Obstructions (seasonal, permanent)

Upstream low flow possibly
Downstream " " " "

Note any fish observations 2 common shiner, 3 Central mudminnow

Other Habitat Notes, Incidental Wildlife Observations, etc. _____



Stantec

Stantec Consulting Ltd - Electrofishing Record and Catch Results

Project Number 161010646 Station Number 17.2
 Project Name Samsung (GREP) - Wind Pass No. (if applicable) 1
 Project manager Rob Wadlow Date (yyyymmdd): 20101020
 Descriptive Location _____
 UTM coordinates 0601742/4751857 easting _____ northing zone 17T

Fishing Method (circle one): Backpack Boat _____ Unit Model/Make _____
 Sampling Method (circle one): even habitat _____ transect _____ spot _____

Effort (Electrofishing Seconds): 97 Number of Netters: 1 Number of Anodes: 1

Settings
 Frequency (Hz) 60 Voltage (volts) 500 Current (Amps) _____ Power (Watts) _____

Station Information
 Length of Stream Surveyed (m) 30 m
 Station Characteristics: Width (m): Range 0.80-1.40 Average: 1.0
 Depth (m): Range 0.20-0.40 Average: 0.25

Water Clarity/Colour: Clear Water Velocity if Measured (m/s): —
 Temperature (°C) 9.6 Conductivity (uS/cm) 211
 pH 8.08 Dissolved Oxygen (mg/L) 10.93

Catch Data

Species	Number of Fish	Species	Number of Fish
Central Mud minnow	2		
Common Shiner	3		

Fish Measurements on Separate Sheet? Y/N _____
 Field Staff: E. Malinzech Notes By: [initials]
M Kozak ~~(Station Diagram on Back)~~



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind.

Project # 161010646

Station # 33.1

Field Staff Edward Malindzak, J. Koch

Photos Taken 0095, 0096, 0097

Date October 22 2010

GPS Coordinates UMIT 06 02 48.4748, 95.7

Time 9:51

Descriptive Location 1.2 km east of Haldinard Rd 50, 1.4 km southeast Haldinard Rd 20

Water Quality - too shallow

Dissolved Oxygen (mg/L) / pH / Conductivity (µS/cm) /

Water Temperature (°C) / Air Temperature (°C) 70C

Weather conditions in previous 24 hrs Sunny, cloudy, cold, warm, heavy rain, hail

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.15 (m) Maximum Pool Depth 15 (cm)

Mean Bankfull Width 2m-∞ (m) Mean Water Depth 5 (cm)

/ % Riffle 40 % Pool 30 % Run 30 % Flat

Evidence of eroding banks, Comments on bank stability this drains flooded agriculture field ups. Channel shows it conveys water but lacks any in-stream features. Likely contains water in spring and after heavy rain (like past 2 nights).

Substrate - Upstream (% cover) Tree line

Bedrock / Silt 95 Boulder 100 Clay / Cobble /
Muck / Gravel / Marl / Sand 5 Detritus /

Substrate - Downstream (% cover) agriculture field

Bedrock / Silt 95 Boulder 100 Clay / Cobble /
Muck / Gravel / Marl / Sand 5 Detritus /

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks / Deep Pool / Vascular Plants
Woody Debris Boulder / Other soy

Riparian Zone 1 in tree line

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 30% meadow species, young trees, crops (soy)

Downstream 30% crop (soy)

Adjacent Land Use

Upstream Agriculture (soy)

Downstream " "

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow

Downstream low flow

Note any fish observations Shocked for 54 seconds @ 60 Hz / 7500 V
No fish captured or observed.

Other Habitat Notes, Incidental Wildlife Observations, etc. /



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version

Stantec

Project Samsung (GREP) Wind Project # 161010646
 Station # CL-35 Field Staff E. Malindzak, E. Windhorst
 Photos Taken 7512, 7513, 7514, 7515 Date Oct. 28, 2010
 GPS Coordinates 17+ 0603572/4749533 Time 11:09 AM
 Descriptive Location b/t Bains Road & Haldiman 20 on South Cuyaga Rd.

Water Quality

Dissolved Oxygen (mg/L) 10.42 pH 7.61 Conductivity (μ S/cm) 220
 Water Temperature ($^{\circ}$ C) 10.65 Air Temperature ($^{\circ}$ C) 11.0
 Weather conditions in previous 24 hrs Sunny, cool

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.40 (m) Maximum Pool Depth 1.5 (m)
 Mean Bankfull Width 3.0 (m) Mean Water Depth 0.05 (cm)
 % Riffle 90 % Pool 10 % Run _____ % Flat _____

Evidence of eroding banks, Comments on bank stability very deep pool at culvert outflow, clear overhanging banks and slumping visible

Substrate - Upstream (% cover)

Bedrock _____ Silt _____ Boulder 100 Clay _____ Cobble _____
 Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

Substrate - Downstream (% cover)

Bedrock _____ Silt _____ Boulder 100 Clay _____ Cobble _____
 Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants _____
Woody Debris Boulder Other terrestrial veg.

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 60%, grasses & soy
 Downstream 70%, meadow sp, grasses (minor)

Adjacent Land Use

Upstream agriculture (soy)
 Downstream agriculture (soy)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none
 Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream perched culvert
 Downstream low flow

Note any fish observations shocked for 30 seconds @ plunge pool for @ 60 Hz and 700V. Captured (1) bluntnose minnow and 3 fathead minnows

Other Habitat Notes, Incidental Wildlife Observations, etc. _____



Stantec

Stantec Consulting Ltd - Electrofishing Record and Catch Results

Project Number 161010646 Station Number CL-35
 Project Name Samsung (GREP) Wind. Pass No. (if applicable) 1
 Project manager Rob Nadolny Date (yyyymmdd): 20101028
 Descriptive Location _____

UTM coordinates 0603592 easting 4749533 northing zone 17T

Fishing Method (circle one): Backpack Boat _____ Unit Model/Make SR-12
 Sampling Method (circle one): even habitat _____ transect _____ spot _____

Effort (Electrofishing Seconds): 38 Number of Netters: 1 Number of Anodes: 1

Settings
 Frequency (Hz) 60 Voltage (volts) 700 Current (Amps) _____ Power (Watts) _____

Station Information
 Length of Stream Surveyed (m) 3 x 3 m pool
 Station Characteristics:
 Width (m): Range _____ Average: _____
 Depth (m): Range max 1.5 m Average: _____

Water Clarity/Colour: cloudy Water Velocity if Measured (m/s): _____
 Temperature (°C) 10.65 Conductivity (uS/cm) 220
 pH 7.61 Dissolved Oxygen (mg/L) 10.42

Catch Data

Species	Number of Fish	Species	Number of Fish
<u>Bluntnose minnow</u>	<u>(1)</u>		
<u>fathead minnow</u>	<u>(33)</u>		

Fish Measurements on Separate Sheet? Yes
 Field Staff: E. Malindzute Notes By: _____
E. Windhorst (Station Diagram on Back)



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind. Station # 30.8 Photos Taken 7578, 7579, 7580 GPS Coordinates 17T 063844 474931S Descriptive Location 160m east of South Cayuga Rd, 600m north of Bains Rd.

Project # 161010646 Field Staff Edward Malindzak Date October 21 2010 Time 15:08

Water Quality

Dissolved Oxygen (mg/L) 9.08 pH 8.27 Conductivity (µS/cm) 317 Water Temperature (°C) 11.35 Air Temperature (°C) Weather conditions in previous 24 hrs Sunny, windy, warm, cold, heavy rain, hail (variable)

Watercourse Dimensions & Morphology

Mean Watercourse Width 10m dia (m) Maximum Pool Depth 70.5m (cm) Mean Bankfull Width (m) Mean Water Depth (cm) % Riffle 100 % Pool % Run % Flat

Evidence of eroding banks, Comments on bank stability man-made pond in middle of agriculture field (soy) outlet is standpipe, no inlet.

Substrate - Upstream (% cover)

Bedrock Silt Boulder 40 Clay Cobble Muck Gravel Marl Sand 60 Detritus

Substrate - Downstream (% cover)

Bedrock Silt Boulder Clay Cobble Muck Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Woody Debris Deep Pool Boulder Vascular Plants Other moss, floating algae, filamentous algae, coontail (?)

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional) Upstream 30%, willow Downstream

Adjacent Land Use

Upstream Agriculture (soy) Downstream

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings) Upstream none Downstream

Migratory Obstructions (seasonal, permanent)

Upstream no connectivity, isolated pond Downstream

Note any fish observations none, lots

Other Habitat Notes, Incidental Wildlife Observations, etc. lots of tadpoles



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREP) Wind.

Project # 161010646

Station # CL-6

Field Staff E. Melindzuk, E. Windhorst

Photos Taken 0056, 0057, 0060

Date Oct 23, 2010

GPS Coordinates IT 0910057/4952690

Time 10:03

Descriptive Location Irish Line, 500m east of Little Rd

Water Quality

Dissolved Oxygen (mg/L) 7.72 pH 7.61 Conductivity (µS/cm) 35.1

Water Temperature (°C) 11.54 Air Temperature (°C)

Weather conditions in previous 24 hrs cloudy, rain

Watercourse Dimensions & Morphology → could not see → no access

Mean Watercourse Width (m) Maximum Pool Depth 25 (cm)

Mean Bankfull Width (m) Mean Water Depth unk (cm)

 % Riffle % Pool % Run % Flat

Evidence of eroding banks, Comments on bank stability it is roadside ditch, d/s a pool @ culvert outlet and into dense veg.

Substrate - Upstream (% cover)

<u> </u> Bedrock	<u> </u> Silt	<u> </u> Boulder	<u>40</u> Clay	<u>100</u> Cobble
<u> </u> Muck	<u> </u> Gravel	<u> </u> Marl	<u>100</u> Sand	<u> </u> Detritus

Substrate - Downstream (% cover)

<u> </u> Bedrock	<u> </u> Silt	<u> </u> Boulder	<u>90</u> Clay	<u>10</u> Cobble
<u> </u> Muck	<u> </u> Gravel	<u> </u> Marl	<u> </u> Sand	<u> </u> Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 80% meadow + hardwood

Downstream 100% meadow + crops (corn)

Adjacent Land Use

Upstream agriculture

Downstream agriculture

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow

Downstream " "

Note any fish observations none, fished pool @ outlet for 25 seconds @ 60 Hz / 500V with no fish captured or observed.

Other Habitat Notes, Incidental Wildlife Observations, etc. contains little water and is likely dry except after rain and in spring.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREP) Wind.

Project # 161010646

Station # 9.3

Field Staff E. Malindzak, M. Korak

Photos Taken 0104, 0105, 0106

Date 10-19-2010

GPS Coordinates 17T 0590951/14752750

Time 11:41

Descriptive Location South of Irish Line (~200m), #101 Km West of Kohler Rd

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (µS/cm)

Water Temperature (°C) Air Temperature (°C) 9°C

Weather conditions in previous 24 hrs sunny, cloudy, cool

Watercourse Dimensions & Morphology

Mean Watercourse Width 1.0 (m) Maximum Pool Depth 30 20 (cm)

Mean Bankfull Width 2.0 (m) Mean Water Depth 15 (cm)

 % Riffle 100 % Pool % Run % Flat

Evidence of eroding banks, Comments on bank stability maintained linear drain

Substrate – Upstream (% cover)

<u> </u> Bedrock	<u>10</u> Silt	<u> </u> Boulder	<u>90</u> Clay	<u> </u> Cobble
<u> </u> Muck	<u> </u> Gravel	<u> </u> Marl	<u> </u> Sand	<u> </u> Detritus

Substrate – Downstream (% cover)

<u> </u> Bedrock	<u>10</u> Silt	<u> </u> Boulder	<u>90</u> Clay	<u> </u> Cobble
<u> </u> Muck	<u> </u> Gravel	<u> </u> Marl	<u> </u> Sand	<u> </u> Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants

 Woody Debris Boulder Other filamentous algae

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 20, Soy

Downstream 20, Soy

Adjacent Land Use

Upstream agriculture, soy

Downstream agriculture, soy

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow, possible difficulties from recently constructed pond.

Downstream low flow

Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1
not a Water Body

Stantec

Project Samsung (GREP) Wind.
Station # 9.1
Photos Taken 012, 013, 014
GPS Coordinates 17T 0590789 / 4752719
Descriptive Location 200m south of Irish line,

Project # 161010646
Field Staff E. Malindzuk, M. Kozak
Date 10-19-2010
Time 11:18
1.3 km west of Kohler Rd.

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (µS/cm)
Water Temperature (°C) Air Temperature (°C)
Weather conditions in previous 24 hrs cool, sunny

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.50 (m) Maximum Pool Depth 36 (cm)
Mean Bankfull Width 3.0 (m) Mean Water Depth 10 (cm)
 % Riffle 60 % Pool 40 % Run % Flat
Evidence of eroding banks, Comments on bank stability none

Substrate - Upstream (% cover)

 Bedrock 20 Silt Boulder 50 Clay Cobble
 Muck 30 Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

 Bedrock 20 Silt Boulder 50 Clay Cobble
 Muck 30 Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle):
Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
 Woody Debris Boulder Other watercress?

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 5% , manicured lawn
Downstream 40% , Soy (mature)

Adjacent Land Use

Upstream Residential
Downstream agriculture

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Upstream possible watercress checked, NOT WC
Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow
Downstream low flow

Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc. breed dogs (Chows and collies), spoke w/ land owner and daughter

Field Notes Authored by E. Malindzuk

Field Notes QA/QCed by Mark Pomeroy



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREG) Wind.

Project # 161010646

Station # B.1

Field Staff E. Malindzak, M. Korzak

Photos Taken 115, 116, 117

Date 10-19-2010

GPS Coordinates 17T 059039N 475260W

Time 10:52

Descriptive Location Watercourse that crosses driveway and will be crossed by access rd. Approximately 100 m south of Irish line.

Water Quality

Dissolved Oxygen (mg/L) 10.40

pH 7.64 Conductivity ($\mu\text{S}/\text{cm}$) 747

Water Temperature ($^{\circ}\text{C}$) 9.2

Air Temperature ($^{\circ}\text{C}$) 9

Weather conditions in previous 24 hrs overcast, no precip

Watercourse Dimensions & Morphology

Mean Watercourse Width 1.5 (m)

Maximum Pool Depth 30 (cm)

Mean Bankfull Width 4.5 (m)

Mean Water Depth 10 (cm)

 % Riffle

 % Pool

 % Run

 % Flat

Evidence of eroding banks, Comments on bank stability Fairly linear w/ grass and meadow species buffer.

Substrate - Upstream (% cover)

 Bedrock

 Silt

 Boulder

100 Clay

 Cobble

 Muck

 Gravel

 Marl

 Sand

 Detritus

Substrate - Downstream (% cover)

 Bedrock

 Silt

No access
 Boulder

 Clay

 Cobble

 Muck

 Gravel

 Marl

 Sand

 Detritus

In-water Cover

Cover Types Present (circle):

Overhanging Vegetation

Undercut Banks

Woody Debris

Deep Pool

Boulder

Vascular Plants

Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 75%

Downstream no access + 60% meadow species

Adjacent Land Use

Upstream agriculture (soy)

Downstream agriculture

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow

Downstream low flow

Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc. Electrofished for 179 seconds
no fish captured or observed @ 60 Hz and 300 V

Field Notes Authored by E. Malindzak

Field Notes QA/QCed by M. Korzak

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RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind Project # 161010646
 Station # 5.0 Field Staff E. Malindzak, M. Kozak
 Photos Taken 128419, 120 Date 10-19-2010
 GPS Coordinates 17T0590590/4752142 Time 10:26
 Descriptive Location 750 m south of Irish Line, 1.7 km west of Kohler Rd

Water Quality

Dissolved Oxygen (mg/L) 11.5 pH 7.44 Conductivity (µS/cm) 620
 Water Temperature (°C) 9.1 Air Temperature (°C) 9
 Weather conditions in previous 24 hrs overcast, no precip

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.5 (m) Maximum Pool Depth _____ (cm)
 Mean Bankfull Width 3.0 (m) Mean Water Depth 10 (cm)
 _____ % Riffle _____ % Pool _____ % Run _____ % Flat
 Evidence of eroding banks, Comments on bank stability largely linear channel
w/ farm machinery driving through

Substrate - Upstream (% cover)

Bedrock	<u>10</u>	Silt	_____	Boulder	<u>80</u>	Clay	_____	Cobble	_____
Muck	<u>10</u>	Gravel	_____	Marl	_____	Sand	_____	Detritus	_____

Substrate - Downstream (% cover)

Bedrock	_____	Silt	_____	Boulder	_____	Clay	_____	Cobble	_____
Muck	_____	Gravel	_____	Marl	_____	Sand	_____	Detritus	_____

No access

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks _____
 Woody Debris _____ Deep Pool _____
 Boulder _____ Vascular Plants _____
 Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
 Upstream 50% meadow species + canopy grass
 Downstream 30% canopy grass + crops

Adjacent Land Use

Upstream agriculture (clover and formerly soy)
 Downstream agriculture (unk)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none
 Downstream none observed, no access

Migratory Obstructions (seasonal, permanent)

Upstream low flow
 Downstream low flow

Note any fish observations instream veg include aquatic plants + filamentous algae

Other Habitat Notes, Incidental Wildlife Observations, etc. no fish captured or observed. Electrofished @ 60 Hz / 300 V for 127 sec.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREG) Wind Project # 161010646
 Station # CL-7.0 Field Staff E. Malindzak
 Photos Taken 0062, 0063, 0064 Date Oct 23 2010
 GPS Coordinates TT 0592117/4752773 Time 10:45
 Descriptive Location Kohler Road, 600m south of Irish Line

Water Quality

Dissolved Oxygen (mg/L) 8.25 pH 7.31 Conductivity (µS/cm) 601
 Water Temperature (°C) 10.52 Air Temperature (°C) 13°C
 Weather conditions in previous 24 hrs cloudy

Watercourse Dimensions & Morphology

Mean Watercourse Width 1.0 (m) Maximum Pool Depth 0.25 (cm)
 Mean Bankfull Width 5.5 (m) Mean Water Depth 0.15 (cm)
0 % Riffle 25 % Pool 30 % Run 15 % Flat

Evidence of eroding banks, Comments on bank stability evidence of erosion in undercut banks. Open bottom box culvert

Substrate - Upstream (% cover) dense veg. prevents further observations @ culvert

Bedrock 0 Silt 0 Boulder 0 Clay 100 Cobble 0
 Muck 0 Gravel 0 Marl 0 Sand 0 Detritus 0

Substrate - Downstream (% cover)

Bedrock 0 Silt 0 Boulder 25 Clay 0 Cobble 30
 Muck 0 Gravel 20 Marl 0 Sand 10 Detritus 15

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
Woody Debris Bedder Other vertical

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 90% canary grass
 Downstream 80% mature forest

Adjacent Land Use

Upstream wet low lying areas
 Downstream wood lot w/ adjacent agriculture field

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream springtime flooded veg.
 Downstream coarse substrates

Migratory Obstructions (seasonal, permanent)

Upstream none observed
 Downstream " "

Note any fish observations none, fished for 27 seconds @ culvert outlet @ 60 Hz / 500V. No fish captured or observed.

Other Habitat Notes, Incidental Wildlife Observations, etc.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind.

Project # 161010646

Station # 6.0

Field Staff E. Malindzak, M. Korzak

Photos Taken 0107, 0108, 0109

Date 10-19-2010

GPS Coordinates 0591268, 4752151

Time 8:30

Descriptive Location Gps taken at field access culvert. 900m south of Irish Line, 1.1 km west of Kohler Rd.

Water Quality

Dissolved Oxygen (mg/L) 8.09 pH 7.71 Conductivity (µS/cm) 514

Water Temperature (°C) 7.83 Air Temperature (°C) 7°C

Weather conditions in previous 24 hrs cloudy, sunny

Watercourse Dimensions & Morphology

Mean Watercourse Width 1 (m) Maximum Pool Depth 0.40 m (cm)

Mean Bankfull Width 3.5 (m) Mean Water Depth 0.15 m (cm)

0 % Riffle 100 % Pool 0 % Run 0 % Flat

Evidence of eroding banks, Comments on bank stability Fairly linear w/ some meander. no evidence of flowing water, though deeper pools occur at ends of culvert.

Substrate - Upstream (% cover)

Bedrock	<u>10</u>	Silt	<u>0</u>	Boulder	<u>90</u>	Clay	<u>0</u>	Cobble	<u>0</u>
Muck	<u>0</u>	Gravel	<u>0</u>	Marl	<u>0</u>	Sand	<u>0</u>	Detritus	<u>0</u>

Substrate - Downstream (% cover)

Bedrock	<u>10</u>	Silt	<u>0</u>	Boulder	<u>90</u>	Clay	<u>0</u>	Cobble	<u>0</u>
<u>10</u> Muck	<u>0</u>	Gravel	<u>0</u>	Marl	<u>0</u>	Sand	<u>0</u>	Detritus	<u>0</u>

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Woody Debris Deep Pool Boulder Vascular Plants Other filamentous algae

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 50%, sedges & grasses

Downstream 50%, sedges & grasses

Adjacent Land Use

Upstream agriculture (corn)

Downstream agriculture (soy)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow

Downstream low flow / 40 ft

Note any fish observations ~ 30 m d/s of culvert, channel becomes wide and shallow. with aquatic veg + algae. Tracks of turkey, deer, raccoon, canine

Other Habitat Notes, Incidental Wildlife Observations, etc. Shocked @ 60 Hz / 300 V

no fish captured or observed, small trib joins about 100 m d/s.

Flows through ag. field w/ no defined channel. (likely intermittent)

Main channel is likely permanent



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version L

Stantec

Project Samsung (GREP) Wind.
Station # 90 CL-10
Photos Taken 0068, 0069, 0070
GPS Coordinates 059 2354 / 475 1999
Descriptive Location Kohler Rd, 700 m north of Link Rd.

Project # 161010646
Field Staff E. Malindzech, E. Windhorst
Date Oct 23 2010
Time 15.01

Water Quality

Dissolved Oxygen (mg/L) 9.41 pH 7.84 Conductivity (μ S/cm) 623
Water Temperature ($^{\circ}$ C) 13.81 Air Temperature ($^{\circ}$ C) 14.0
Weather conditions in previous 24 hrs cloudy and rain

Watercourse Dimensions & Morphology

Mean Watercourse Width 1.75 (m) Maximum Pool Depth 1.5 (m)
Mean Bankfull Width 3.0 (m) Mean Water Depth 0.75 (cm)
% Riffle 70 % Pool 30 % Run 0 % Flat 0

Evidence of eroding banks, Comments on bank stability undercut banks, carrys large amount of water.

Substrate - Upstream (% cover)

Bedrock 0 Silt 0 Boulder 60 Clay 10 Cobble 0
Muck 0 Gravel 30 Marl 0 Sand 0 Detritus 0

Substrate - Downstream (% cover)

Bedrock 0 Silt 0 Boulder 50 Clay 5 Cobble 0
Muck 0 Gravel 35 Marl 0 Sand 0 Detritus 0

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Vascular Plants 0
Overhanging Vegetation Woody Debris Boulder Other 0

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 40% mature trees + canary grass

Downstream 60% canary grass

Adjacent Land Use

Upstream wood lot + residential

Downstream agriculture (soy, sheep pasture)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream flooded grasses may be important in spring

Downstream " " " " " "

Migratory Obstructions (seasonal, permanent)

Upstream none

Downstream none

Note any fish observations

This is likely permanent. Shocked for 127 seconds @ 60 Hz / 300 V. Caught 19 Green Sunfish and 5 Fathead minnow

Other Habitat Notes, Incidental Wildlife Observations, etc.



Stantec

Stantec Consulting Ltd - Electrofishing Record and Catch Results

Project Number 161010046 Station Number CL-90
 Project Name Samsung (GREN) Wind Pass No. (if applicable) 1
 Project manager Rob Wadolney Date (yyyymmdd): 20101023
 Descriptive Location _____

UTM coordinates 0592354 easting 4751999 northing zone 17T

Fishing Method (circle one): Backpack Boat _____ Unit Model/Make SR-12
 Sampling Method (circle one): even habitat _____ transect _____ spot _____

Effort (Electrofishing Seconds): 127 Number of Netters: 1 Number of Anodes: 1

Settings

Frequency (Hz) 60 Voltage (volts) 500 Current (Amps) _____ Power (Watts) _____

Station Information

Length of Stream Surveyed (m) 25m

Station Characteristics: Width (m): Range 0.75-2.5 Average: 1.75
 Depth (m): Range 0.30-1.5 Average: 0.75

Water Clarity/Colour: Brown/turbid Water Velocity if Measured (m/s): _____
 Temperature (°C) 13.81 Conductivity (uS/cm) 623
 pH 7.84 Dissolved Oxygen (mg/L) 9.41

Catch Data

Species	Number of Fish	Species	Number of Fish
Green sunfish	19		
Fathead minnow	5		

Fish Measurements on Separate Sheet? Y/N

Field Staff: E. Melindzech
E. Windhorst

Notes By: _____
 (Station Diagram on Back)



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREP) Wind
Station # CL-10
Photos Taken 0671, 0672, 0673
GPS Coordinates NT 0592430/4751837
Descriptive Location Kohler Rd, 500m north of Link Rd

Project # 161010646
Field Staff E. Malindza, E. Windhorst
Date Oct. 24th 2010
Time 9:11

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (µS/cm)
Water Temperature (°C) Air Temperature (°C) 14.2
Weather conditions in previous 24 hrs cloudy, rain, breezy

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.50 (m) Maximum Pool Depth 0.50 m (cm)
Mean Bankfull Width 2.5 (m) Mean Water Depth 0.05 m (cm)
20 % Riffle 30 % Pool 30 % Run 20 % Flat

Evidence of eroding banks, Comments on bank stability abundant signs of erosion
1/3 @ culvert and immediately d/s.

Substrate - Upstream (% cover)

 Bedrock Silt Boulder 100 Clay Cobble
 Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

 Bedrock Silt Boulder 40 Clay 30 Cobble
 Muck 30 Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 30%, soy, canopy grass @ culvert
Downstream 80%, canopy grass, mature trees

Adjacent Land Use

Upstream agriculture (soy)
Downstream woodlot, residential (mowed lawn)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none
Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream water appears to flow around/under culvert, low flow
Downstream low flow

Note any fish observations this is a minor feature that is likely
dry most of the time. Contains water due to rain last 4 days

Other Habitat Notes, Incidental Wildlife Observations, etc. Did not shock because
only pool deep enough appears to be on private property (no access)



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version L

Stantec

Project Samsung (GREP) Wind
Station # CL-12
Photos Taken 2, 0074, 0075, 0076
GPS Coordinates 17T 092492/14751598
Descriptive Location 26 Kahler Rd, 200m north of Link Rd

Project # 161010646
Field Staff E. Malindzak, E. Windhorst
Date Oct. 24 2010
Time 9:31 am

Water Quality

Dissolved Oxygen (mg/L) 6.96 pH 7.70 Conductivity (μ S/cm) 743
Water Temperature ($^{\circ}$ C) 13.10 Air Temperature ($^{\circ}$ C) _____
Weather conditions in previous 24 hrs cloudy, warm rain, windy

Watercourse Dimensions & Morphology

Mean Watercourse Width unk (m) Maximum Pool Depth 0.6 m (cm)
Mean Bankfull Width 3.0 - 15.0 (m) Mean Water Depth 0.2 m (cm)
% Riffle 90 % Pool 10 % Run _____ % Flat _____

Evidence of eroding banks, Comments on bank stability no clearly defined channel in road row. appears more defined s/s & D/S, though visibility obscured by dense veg. Water likely due to rain last four days.

Substrate - Upstream (% cover)

Bedrock _____ Silt _____ Boulder 100 Clay _____ Cobble _____
Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

Substrate - Downstream (% cover)

Bedrock _____ Silt _____ Boulder 100 Clay _____ Cobble _____
Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks _____ Woody Debris _____ Deep Pool Vascular Plants
Boulder _____ Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 90% Canopy grass
Downstream 90% " "

Adjacent Land Use

Upstream agriculture (soy), residential
Downstream agriculture, residential

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream low none
Downstream large low laying area w/ abundant grasses for spring spawners

Migratory Obstructions (seasonal, permanent)

Upstream low flow
Downstream low flow

Note any fish observations Shuckled for 177 seconds (s/s & D/S) @ 60 Hz/300 caught (1) green sunfish (2) common shiner

Other Habitat Notes, Incidental Wildlife Observations, etc. cattails @ both ends of culvert suggest culvert wet significant amount of time. Turbidity and amount of water made ID'ing channel characteristics difficult.



Stantec

Stantec Consulting Ltd - Electrofishing Record and Catch Results

Project Number 161610646 Station Number CL-12
 Project Name Samsung (GREP) Wind Pass No. (if applicable) ()
 Project manager Rob NeDohy Date (yyyymmdd): 20101024 25
 Descriptive Location _____
 UTM coordinates 0592492 easting 4751598 northing _____ zone 11T

Fishing Method (circle one): Backpack Boat _____ Unit Model/Make SR-12
 Sampling Method (circle one): even habitat _____ transect _____ spot _____
 Effort (Electrofishing Seconds): 197 Number of Netters: 1 Number of Anodes: 1
 Settings
 Frequency (Hz) 60 Voltage (volts) 500 Current (Amps) _____ Power (Watts) _____

Station Information
 Length of Stream Surveyed (m) 20 m
 Station Characteristics: Width (m): Range 0.75 - 3.0 Average: unk
 Depth (m): Range 0.17 - 0.6 Average: 0.20

Water Clarity/Colour: brown, very turbid Water Velocity if Measured (m/s): _____
 Temperature (°C) 13.0 Conductivity (µS/cm) 743
 pH 7.70 Dissolved Oxygen (mg/L) 6.96

Catch Data

Species	Number of Fish	Species	Number of Fish
Green Sunfish	(1)		
Common Shiner	(2)		

Fish Measurements on Separate Sheet? Y/N _____
 Field Staff: E. Malinski
E. Wilshurst
 Notes By: _____
 (Station Diagram on Back)



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREP) Wind.
Station # CL-9
Photos Taken 0065, 0066, 0067
GPS Coordinates ITT 0592243/4952314
Descriptive Location Kohler Rd, 1.1 Km South of Irish Line

Project # 161010646
Field Staff E. Malindock, E. Wind host
Date Oct 23, 2010
Time 11:18

Water Quality

Dissolved Oxygen (mg/L) 9.41 pH 7.92 Conductivity (µS/cm) 531
Water Temperature (°C) 11.54 Air Temperature (°C) 13.0
Weather conditions in previous 24 hrs Cloudy, rain

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.40 (m) Maximum Pool Depth 0.60 (cm)
Mean Bankfull Width 3.0 (m) Mean Water Depth 0.30 (cm)
% Riffle _____ % Pool _____ % Run _____ % Flat _____

Evidence of eroding banks, Comments on bank stability armoring w/ riprap + gabion basket u/s + d/s. Box culvert (open Bottom)

Substrate - Upstream (% cover)

Bedrock _____ Silt 10 Boulder _____ Clay 90 Cobble _____
Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

Substrate - Downstream (% cover)

Bedrock _____ Silt _____ Boulder 10 Clay 85 Cobble 5
Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks _____ Deep Pool _____ Vascular Plants
Woody Debris _____ Boulder _____ Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 70%, canary grass, meadow sp
Downstream 70%, canary grass, willow, shrub

Adjacent Land Use

Upstream agriculture outside of tree line
Downstream woodlot w/ low lying area, residential

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream canary grass for spring spawners
Downstream _____

Migratory Obstructions (seasonal, permanent)

Upstream none
Downstream none

Note any fish observations

E-fished for 162 seconds @ 60 Hz/500V. Captured (1) largemouth chub, (1) central mudminnow, (1) Fathead minnow

Other Habitat Notes, Incidental Wildlife Observations, etc. culvert is open bottom

10 Fished u/s as provided longer reach. Canary grass dense in-stream both u/s + d/s



Stantec

Stantec Consulting Ltd - Electrofishing Record and Catch Results

Project Number 161010646 Station Number CL-8
 Project Name Samsung (GREP) Wind Pass No. (if applicable) 1
 Project manager Rob Madolny Date (yyyymmdd): 20101023
 Descriptive Location Kohler Road

UTM coordinates 0592243 easting 4752344 northing zone 17T

Fishing Method (circle one): Backpack Boat _____ Unit Model/Make SR-12
 Sampling Method (circle one): even habitat _____ transect _____ spot _____

Effort (Electrofishing Seconds): 162 Number of Netters: 1 Number of Anodes: 1

Settings
 Frequency (Hz) 60 Voltage (volts) 500 Current (Amps) _____ Power (Watts) _____
300

Station Information

Length of Stream Surveyed (m) 25 m

Station Characteristics: Width (m): Range 0.2 - 1.5 Average: 0.4
 Depth (m): Range 0.2 - 0.80 Average: 0.3

Water Clarity/Colour: Clear Water Velocity if Measured (m/s): _____
 Temperature (°C) 11.54 Conductivity (uS/cm) 531
 pH 7.92 Dissolved Oxygen (mg/L) 9.41

Catch Data

Species	Number of Fish	Species	Number of Fish
Green <u>Creek Chub</u>	<u>(1)</u>		
	<u>Fathead minnow</u>		
	<u>(1)</u>		
	<u>Central mudminnow</u>		
	<u>(1)</u>		

Fish Measurements on Separate Sheet? Y/N
 Field Staff: E. Malinovich Notes By: _____
E. Winghorst
 (Station Diagram on Back)



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version L

Stantec

Project Samsung (GREP) Wind.
Station # CL-3.0
Photos Taken 0047, 0048, 0049.
GPS Coordinates 17T 0591340/4753126
Descriptive Location Kohler Rd

Project # 161010646
Field Staff Edward Malindzak,
Date October 23 2010
Time 9:05
Irish Line, 600 m west of

Water Quality

Dissolved Oxygen (mg/L) / pH / Conductivity (μ S/cm) /
Water Temperature ($^{\circ}$ C) / Air Temperature ($^{\circ}$ C) 12^oC
Weather conditions in previous 24 hrs cloudy, rain

Watercourse Dimensions & Morphology

Mean Watercourse Width / (m) Maximum Pool Depth / (cm)
Mean Bankfull Width / (m) Mean Water Depth / (cm)
/ % Riffle / % Pool / % Run / % Flat

Evidence of eroding banks, Comments on bank stability no defined channel, drains tree lot u/s, and into pasture. Very little water

Substrate - Upstream (% cover)

grass + forest floor
Bedrock / Silt / Boulder / Clay / Cobble /
Muck / Gravel / Marl / Sand / Detritus /

Substrate - Downstream (% cover)

Bedrock / Silt / Boulder / Clay 100 Cobble culvert outflow
Muck / Gravel / Marl / Sand / Detritus /

In-water Cover

Cover Types Present (circle): NO
Overhanging Vegetation Undercut Banks Woody Debris Deep Pool Vascular Plants
Boulder Other terrestrial

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 95%, woodlot + Residential
Downstream 0%, pasture grasses

Adjacent Land Use

Upstream woodlots, Residential
Downstream Pasture + Residential

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Upstream none
Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow, lack of channel
Downstream " " " "

Note any fish observations none, not enough water to support fish

Other Habitat Notes, Incidental Wildlife Observations, etc. /



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREP) Wind

Project # 161010646

Station # CL-40

Field Staff Edward Malindzak, E. Windhorst

Photos Taken 20059, 0051, 0052

Date October 23 2010

GPS Coordinates 0591078/4753025

Time 9:29

Descriptive Location Irish line, 900 m west of Kohler Rd

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (μ S/cm)

Water Temperature ($^{\circ}$ C) Air Temperature ($^{\circ}$ C) 13 $^{\circ}$ C

Weather conditions in previous 24 hrs cloudy, rain

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.05 (m) Maximum Pool Depth 3.5 (cm)

Mean Bankfull Width 1.0 (m) Mean Water Depth 3 (cm)

20 % Riffle 40 % Pool 10 % Run 30 % Flat

Evidence of eroding banks, Comments on bank stability very little water, likely only wet due to last night's rain.

Substrate - Upstream (% cover)

 Bedrock Silt Boulder 100 Clay Cobble
 Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

 Bedrock Silt Boulder 100 Clay Cobble
 Muck Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
 Woody Debris Boulder Other Terrestrial Veg.

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 95% forest

Downstream 40% soy crop

Adjacent Land Use

Upstream woodlot

Downstream agriculture (crop)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow

Downstream " "

Note any fish observations none, too shallow to shock and get water quality very likely dry most times except after rain & during spring

Other Habitat Notes, Incidental Wildlife Observations, etc.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREF) Wind
Station # C-5
Photos Taken 0053, 0054, 0055
GPS Coordinates 17T 059084N / 475295E
Descriptive Location Inish line, 1.1 Km west of Kohler Rd

Project # 161010646
Field Staff Edward Malindzak
Date October 23 2010
Time 7:47

Water Quality

Dissolved Oxygen (mg/L) / pH / Conductivity (µS/cm) /
Water Temperature (°C) / Air Temperature (°C) 12°C
Weather conditions in previous 24 hrs cloudy rain

Watercourse Dimensions & Morphology

Mean Watercourse Width / (m) Maximum Pool Depth / (cm)
Mean Bankfull Width / (m) Mean Water Depth / (cm)
% Riffle / % Pool / % Run / % Flat /

Evidence of eroding banks, Comments on bank stability no water u/s. Most flow
D/S coming from roadside ditch. No evidence of channel u/s except
roadside ditches

Substrate - Upstream (% cover)

Bedrock / Silt / Boulder / Clay / Cobble /
Muck / Gravel / Marl / Sand / Detritus /

Substrate - Downstream (% cover) - immediately D/S of culvert

Bedrock / Silt / Boulder / Clay 100 Cobble @ culvert outflow
Muck / Gravel / Marl / Sand / Detritus /

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks / Deep Pool / Vascular Plants
Woody Debris Boulder / Other Terrestrial

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 90%, wetland & common roadside sp.
Downstream 100%, grasses & clover

Adjacent Land Use

Upstream agriculture
Downstream agriculture

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none
Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow
Downstream low flow

Note any fish observations none, small pool of water D/S @ culvert. Could not
see channel d/s. likely only contains water due to recent rains

Other Habitat Notes, Incidental Wildlife Observations, etc. D/S - channel flows through
clover field, not planted through w/clover



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1
not a Water Bed

Stantec

Project Samsung (GREP) Wind

Project # 161010646

Station # 9.2

Field Staff E. Malindzok, Markozak

Photos Taken 0101, 0102, 0103

Date 10-19-2010

GPS Coordinates N 0590869 / 4752936

Time 11:30

Descriptive Location ~ 20 m south of Irish Line, 1.1 km west of Kohler Rd

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (μ S/cm)
Water Temperature ($^{\circ}$ C) Air Temperature ($^{\circ}$ C) 9.0C
Weather conditions in previous 24 hrs cloudy, sunny, cool

Watercourse Dimensions & Morphology

Mean Watercourse Width (m) Maximum Pool Depth (cm)
Mean Bankfull Width (m) Mean Water Depth (cm)
 % Riffle 100 % Pool % Run % Flat

Evidence of eroding banks, Comments on bank stability drain through clover field likely only conveys water in spring and during high precip.

Substrate - Upstream (% cover)

 Bedrock Silt Boulder 100 Clay Cobble
 Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

 Bedrock Silt Boulder 100 Clay Cobble
 Muck Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Vascular Plants
Overhanging Vegetation Woody Debris Boulder Other Terrestrial plants

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 40%, grasses + terrestrial species
Downstream

Adjacent Land Use

Upstream agriculture
Downstream agriculture

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Upstream none
Downstream none
Migratory Obstructions (seasonal, permanent)
Upstream low flow
Downstream low flow
Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc.

Field Notes Authored by E. Malindzok

Field Notes QA/QCed by Markozak



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREG) Wind

Project # 161010646

Station # 6.1

Field Staff E. Malindzak, M. Korak

Photos Taken 0116, 0111

Date 10-19-2010

GPS Coordinates 0591319 / 4751529 (17T)

Time 9:17

Descriptive Location soy field 600m north of Linz Rd, 1.2 km west of Kohler Rd.

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (μ S/cm)

Water Temperature ($^{\circ}$ C) Air Temperature ($^{\circ}$ C) 8 $^{\circ}$ C

Weather conditions in previous 24 hrs cloudy, sunny - cool

Watercourse Dimensions & Morphology

Mean Watercourse Width (m) Maximum Pool Depth (cm)

Mean Bankfull Width (m) Mean Water Depth (cm)

 % Riffle 100 % Pool % Run % Flat

Evidence of eroding banks, Comments on bank stability a low spot in soy field. Likely conveys water in periods of high precip/runoff. One small area likely remains wet but does not hold water. based on veg. present.

Substrate - Upstream (% cover)

 Bedrock Silt Boulder Clay Cobble
 Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

 Bedrock Silt Boulder Clay Cobble
 Muck Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Vascular Plants
Overhanging Vegetation Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 25%, soy mature

Downstream 25%, mature soy

Adjacent Land Use

Upstream agriculture, soy

Downstream agriculture, soy

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow

Downstream low flow

Note any fish observations none, saw deer + turkey tracks

Other Habitat Notes, Incidental Wildlife Observations, etc. a woodlot occurs to the east. "channel" flows into woodlot. Heard a very poor mallard imitation by a duck hunter to the NW



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREP) Wind

Project # 161010646

Station # 28.1

Field Staff Edward Malindzak

Photos Taken 7575, 7576, 7577

Date October 21 2010

GPS Coordinates 17T 0604900/4747027

Time 12:56

Descriptive Location 700m south of Rainham Rd, 600m east of South Cayuga Rd

Water Quality

Dissolved Oxygen (mg/L) /

pH /

Conductivity (μ S/cm) /

Water Temperature ($^{\circ}$ C) /

Air Temperature ($^{\circ}$ C) 9 $^{\circ}$ C

Weather conditions in previous 24 hrs Sunny, warm, windy, heavy rain

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.10 (m)

Maximum Pool Depth 0.05 (cm)

Mean Bankfull Width 1.0 (m)

Mean Water Depth 0.02 (cm)

25 % Riffle

25 % Pool

25 % Run

25 % Flat

Evidence of eroding banks, Comments on bank stability small patch of erosion in middle of agriculture field. likely contains water due to heavy rains last night.

Substrate - Upstream (% cover)

spot in field

Bedrock /

20 Silt

Boulder /

80 Clay

Cobble /

Muck /

Gravel /

Marl /

Sand /

Detritus /

Substrate - Downstream (% cover)

Bedrock /

Silt /

Boulder /

Clay /

Cobble /

Muck /

Gravel /

Marl /

Sand /

Detritus /

In-water Cover

Cover Types Present (circle):

Overhanging Vegetation /

Undercut Banks /

Woody Debris /

Deep Pool /

Boulder /

Vascular Plants /

Other None

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream None

Downstream /

Adjacent Land Use

Upstream agriculture

Downstream /

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none, agriculture planted through it for >100m in all directions

Downstream /

Migratory Obstructions (seasonal, permanent)

Upstream low flow

Downstream /

Note any fish observations none, site was confluence of two agriculture drains no veg or source of contribution of nutrients, etc. downstream

Other Habitat Notes, Incidental Wildlife Observations, etc. Likely contains water due to heavy rains last night and



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind.
 Station # 28.0
 Photos Taken 7574
 GPS Coordinates 171 001872 / 4746843
 Descriptive Location 800m south of Rainham Rd, 500m east of South Cayuga Rd.

Project # 161010646
 Field Staff Edward Malindzak
 Date October 21 2010
 Time 12:34

Water Quality
 Dissolved Oxygen (mg/L) / pH / Conductivity (µS/cm) /
 Water Temperature (°C) / Air Temperature (°C) 8°C
 Weather conditions in previous 24 hrs Sunny, windy, warm, heavy rain

Watercourse Dimensions & Morphology
 Mean Watercourse Width 20 x 30 (m) Maximum Pool Depth 30 x 40 (cm)
 Mean Bankfull Width / (m) Mean Water Depth / (cm)
/ % Riffle 100 % Pool / % Run / % Flat

Evidence of eroding banks, Comments on bank stability no outflow, water from adjacent woodlot flows to this man-made pond, likely only in spring

Substrate - Upstream (% cover) - pond
 Bedrock / Silt / Boulder 50 Clay / Cobble /
 Muck 50 Gravel / Marl / Sand / Detritus /

Substrate - Downstream (% cover)
 Bedrock / Silt / Boulder / Clay / Cobble /
 Muck / Gravel / Marl / Sand / Detritus /

In-water Cover
 Cover Types Present (circle): Overhanging Vegetation Undercut Banks / Deep Pool / Vascular Plants
Woody Debris Boulder / Other cattails
mature forest

Riparian Zone
 Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
 Upstream 30, cattails & mature forest
 Downstream /

Adjacent Land Use
 Upstream agriculture, woodlot
 Downstream /

Fish Habitat Potential
 Critical Habitat (spawning or nursery areas, groundwater upwellings)
 Upstream none
 Downstream /
 Migratory Obstructions (seasonal, permanent)
 Upstream lack of connectivity
 Downstream /

Note any fish observations we determined man-made pond due to un-characteristic mound of soil inside tree line and buried root flare on larger trees

Other Habitat Notes, Incidental Wildlife Observations, etc. likely constructed many years ago. Covered Root Flare tree includes Red Oak ~14" DBH. Newer trees @ 11" DBH growing on top of mound.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version _____

Stantec

Project Samsung (GREP) Wind Project # 161010646
 Station # CL-25 Field Staff E. Malindzak, E. Windhorst
 Photos Taken 7174, 7475 Date Oct 27, 2010
 GPS Coordinates 17° 06'05.740"/47°47'6.13 Time 13:00
 Descriptive Location 450m South of Rainham Road on Haldun Road.

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (µS/cm)
 Water Temperature (°C) Air Temperature (°C) 16°
 Weather conditions in previous 24 hrs Heavy rain, cloudy, windy, warm. Currently sunny & windy

Watercourse Dimensions & Morphology

Mean Watercourse Width (m) Maximum Pool Depth (cm)
 Mean Bankfull Width (m) Mean Water Depth (cm)
 % Riffle % Pool % Run % Flat
 Evidence of eroding banks, Comments on bank stability place where roadside drains flow d/s across agriculture field

Substrate - Upstream (% cover)

Bedrock Silt Boulder Clay Cobble
 Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

Bedrock Silt Boulder Clay Cobble
 Muck Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Vascular Plants
 Overhanging Vegetation Woody Debris Boulder Other Terrestrial

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
 Upstream 80%, meadow sp.
 Downstream 70%, meadow sp.

Adjacent Land Use

Upstream agriculture (clover)
 Downstream agriculture (clover)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
 Upstream none
 Downstream none
 Migratory Obstructions (seasonal, permanent)
 Upstream lack of channel and connectivity
 Downstream " " " "

Note any fish observations none, a small amount of water was located in the roadside ditch but none in field.

Other Habitat Notes, Incidental Wildlife Observations, etc. _____



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREP) Wind.

Project # 161010646

Station # 38.2

Field Staff Edward Malindzak, J. Koch

Photos Taken 7518, 7519, 7520

Date October 23 2010

GPS Coordinates 17 0606066 / 4747037

Time 10:57

Descriptive Location 300m east of Hald Dunn Townline, 1.2km south of Rainham Rd.

Water Quality

Dissolved Oxygen (mg/L) 7.40

pH 7.69 Conductivity (μ S/cm) 341

Water Temperature ($^{\circ}$ C) 9.69

Air Temperature ($^{\circ}$ C) 12.0

Weather conditions in previous 24 hrs sunny, cool, cloudy, warm, brief rain

Watercourse Dimensions & Morphology

Mean Watercourse Width 1.25 (m)

Maximum Pool Depth 0.50 (m)

Mean Bankfull Width 4 (m)

Mean Water Depth 0.25 (cm)

15 % Riffle 60 % Pool

10 % Run 15 % Flat

Evidence of eroding banks, Comments on bank stability deeply undercut banks (>1.5m)
4 evidence of slumping and channel movement. (clearly conveys large quantities of water from all tribs within our study area, some banks exceed 2 m high)

Substrate - Upstream (% cover)

Bedrock	Silt	Boulder	25	Clay	25	Cobble
Muck	25	Marl		Sand	25	Detritus

Substrate - Downstream (% cover)

Bedrock	Silt	Boulder	25	Clay	25	Cobble
Muck	25	Marl		Sand	25	Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Woody Debris Deep Pool Boulder Vascular Plants Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 80% Mature forest (hardwoods)

Downstream 80% " " " "

Adjacent Land Use

Upstream woodlot, agriculture further upstream, trail for motorized vehicles

Downstream " " " "

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream gravel and cobble is limiting in tribs to this creek

Downstream _____

Migratory Obstructions (seasonal, permanent)

Upstream none observed

Downstream " " " "

Note any fish observations none, shocked for 187 seconds @ 60 Hz / 500 V
no fish captured or observed.

Other Habitat Notes, Incidental Wildlife Observations, etc. white tailed deer, frog

Channel shows ample evidence of movement, old channels are very evident. Shows stream water is currently slow moving.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 1

Stantec

Project Samsung (GREG) Wind.
Station # 38.0
Photos Taken 7539, 7540, 7541
GPS Coordinates 17° 06' 05.4" / 47° 47' 17.8"
Descriptive Location 300m east of Hald Dunn Townline, 1km south of Rainham Rd

Project # 161010646
Field Staff Edward Malindzak,
Date October 23 2010
Time 9:39

Water Quality

Dissolved Oxygen (mg/L) 9.32 pH 7.68 Conductivity (µS/cm) 860
Water Temperature (°C) 8.68 Air Temperature (°C) 12°C
Weather conditions in previous 24 hrs _____

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.60 (m) Maximum Pool Depth 0.40 (cm)
Mean Bankfull Width 5.0 (m) Mean Water Depth 0.20 (cm)
20 % Riffle 40 % Pool 20 % Run 20 % Flat

Evidence of eroding banks, Comments on bank stability undercut banks, two agricultural drains w/riparian cover (meadow sp.) converge here. Hard to see channel features with dense vegetation

Substrate - Upstream (% cover) of confluence of two small drains
Bedrock _____ Silt _____ Boulder 50 Clay 50 Cobble _____
Muck _____ Gravel _____ Marl _____ Sand 10 Detritus _____

Substrate - Downstream (% cover)
Bedrock _____ Silt _____ Boulder 50 Clay 40 Cobble _____
Muck _____ Gravel _____ Marl _____ Sand 10 Detritus _____

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Vascular Plants
Overhanging Vegetation Woody Debris Boulder Other turbidity

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 95%, meadow + canary grass
Downstream 80%, wood lot (mature)

Adjacent Land Use

Upstream agriculture
Downstream wood lot

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Upstream potential spawning habitat in veg. flooded in spring
Downstream " " " " " "

Migratory Obstructions (seasonal, permanent)

Upstream low flow
Downstream low flow

Note any fish observations none, channel contains meanders & actual banks w/ undercuts & dangling roots/veg. Possible most water is from recent rains

Other Habitat Notes, Incidental Wildlife Observations, etc. deer scat,
though veg suggest soil remains moist.
shocked for 170 sec. @ 60 Hz / 500 V not fish captured or observed.
water very turbid.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind
Station # 38.1
Photos Taken 7521, 7522, 7523, 7524, 7525
GPS Coordinates 17T 0600311/4747105
Descriptive Location conduit under recreational vehicle trail (ATV, snowmobile) 300m east of Hald Dunn Townline Rd

Project # 161010646
Field Staff Edward Malindzak, J. Koch
Date October 23 2010
Time 10:33

Rainham Rd.

Water Quality

Dissolved Oxygen (mg/L) 5.69 pH 8.09 Conductivity (µS/cm) 277
Water Temperature (°C) 10.07 Air Temperature (°C) 12.0
Weather conditions in previous 24 hrs sunny, cool, warm, cloudy

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.80 (m) Maximum Pool Depth 25 (cm)
Mean Bankfull Width 2 (m) Mean Water Depth 7 (cm)
0 % Riffle 100 % Pool 0 % Run 0 % Flat

Evidence of eroding banks, Comments on bank stability clearly conveys flow, likely seasonal. Some evidence of erosion. Several very small tribs. flow into channel w/in 30m of this location. Tribs are very minor and drain woodlot

Substrate - Upstream (% cover)

Bedrock 0 Silt 0 Boulder 20 Clay 0 Cobble 0
Muck 0 Gravel 0 Marl 0 Sand 80 Detritus 0

Substrate - Downstream (% cover)

Bedrock 0 Silt 0 Boulder 0 Clay 0 Cobble 0
Muck 0 Gravel 0 Marl 0 Sand 20 Detritus 80

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks 0 Deep Pool 0 Vascular Plants 0
Woody Debris 0 Boulder 0 Other 0

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 80%, mature woodlot (hardwoods)
Downstream 80%, mature woodlot (hardwoods)

Adjacent Land Use

Upstream woodlot
Downstream woodlot

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Upstream none
Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow
Downstream low flow

Note any fish observations surrounding terrain suggest this area does not flood extensively and rarely

Other Habitat Notes, Incidental Wildlife Observations, etc. Shocked site for 78 secs. @ 60Hz/300V. No fish captured or observed. Numerous frogs. Shook deeper pool (0.40 m) further d/s for 18 seconds, with same results.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind.
 Station # 39.0
 Photos Taken 7530
 GPS Coordinates _____
 Descriptive Location 600m north of Lakeshore Rd, 700m east of Hald Dunn Townline Rd.

Project # 161010646
 Field Staff E. Malindzak, J. Kock
 Date Oct. 23 2010
 Time 11:17 am

Water Quality

Dissolved Oxygen (mg/L) / pH / Conductivity (µS/cm) /
 Water Temperature (°C) _____ Air Temperature (°C) 12°C
 Weather conditions in previous 24 hrs Sunny, cool, warm, cloudy, windy

Watercourse Dimensions & Morphology

Mean Watercourse Width 25x35 (m) Maximum Pool Depth unk. (cm)
 Mean Bankfull Width - (m) Mean Water Depth unk. (cm)
 % Riffle _____ % Pool 100 % Run _____ % Flat _____

Evidence of eroding banks, Comments on bank stability This is an isolated pond, and likely naturally made.

Substrate – Upstream (% cover) did not collect.
 Bedrock _____ Silt _____ Boulder _____ Clay _____ Cobble _____
 Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

Substrate – Downstream (% cover)
 Bedrock _____ Silt _____ Boulder _____ Clay _____ Cobble _____
 Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

In-water Cover

Cover Types Present (circle):
 Overhanging Vegetation _____ Undercut Banks _____ Deep Pool _____ Vascular Plants _____
 Woody Debris _____ Boulder _____ Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
 Upstream /
 Downstream /

Adjacent Land Use

Upstream /
 Downstream /

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
 Upstream _____
 Downstream _____
 Migratory Obstructions (seasonal, permanent)
 Upstream _____
 Downstream _____

Note any fish observations did not shock or enter. Large amounts of refuse has been deposited in pond. Also an overpowering odour of decomposing

Other Habitat Notes, Incidental Wildlife Observations, etc. did not sample fresh. is present.
due to safety concerns (see above) active boring
NOT a Water Body pile.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind.

Project # 161010646

Station # 39.2

Field Staff E. Malindzuk, J. Kugel

Photos Taken 7531, 7532, 7533

Date Oct 23 2010

GPS Coordinates 17T 0606630/4746752

Time 12:07

Descriptive Location 850m east of Hald Dunn Townline Rd, 1600m north of Lakeshore Rd

Water Quality

Dissolved Oxygen (mg/L) 10.38 pH 8.31 Conductivity (µS/cm) 286

Water Temperature (°C) 13.16 Air Temperature (°C) 15°C

Weather conditions in previous 24 hrs Sunny, warm, cloudy, cool, windy, rain

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.30 (m) Maximum Pool Depth 0.30 (cm)

Mean Bankfull Width 3.5 (m) Mean Water Depth 0.02 (cm)

% Riffle % Pool % Run % Flat

Evidence of eroding banks, Comments on bank stability recently cleaned drain b/e culvert & woodlot. Not cleaned b/t culvert & Road. Channel across agriculture field (east & west) has not been cleaned either.

Substrate - Upstream (% cover)

Bedrock 30 Silt 70 Boulder Clay Cobble
Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

Bedrock 30 Silt 70 Boulder Clay Cobble
Muck Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 75%, meadow sp. & canopy grass
Downstream

Adjacent Land Use

Upstream agriculture
Downstream

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none
Downstream

Migratory Obstructions (seasonal, permanent)

Upstream low flow
Downstream

Note any fish observations none, minor amounts of water, likely due to recent rains. Shocked drain for ~50m @ 60Hz/500V. No fish captured or observed.

Other Habitat Notes, Incidental Wildlife Observations, etc. Channel bottom is uneven creating isolated puddles of water. Water is very turbid. Photos @ culvert on Lakeshore Road (photo # 7515). Very little flow and very minor channel feature through ag. field. At lake eric photo # 7376. No wet connection to lake.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind.

Project # 161010646

Station # 41.0

Field Staff E. Malinduch, J. Koch

Photos Taken 7534, 7535, 7536, 7537

Date Oct 23 2010

GPS Coordinates 0601213/4746546 W

Time 13:08

Descriptive Location 675m west of Haldimand Rd 49, 1.8km south of Rainham Rd

Water Quality

Dissolved Oxygen (mg/L) 6.26

pH 7.54 Conductivity (µS/cm) 391

Water Temperature (°C) 12.46

Air Temperature (°C) 14°C

Weather conditions in previous 24 hrs sunny, cloudy, sunny, warm, cool, rain showers wind.

Watercourse Dimensions & Morphology

Mean Watercourse Width 1.0 (m)

Maximum Pool Depth 0.20 (cm)

Mean Bankfull Width 2.5 (m)

Mean Water Depth 0.05 (cm)

% Riffle _____ % Pool _____

% Run _____ % Flat _____

Evidence of eroding banks, Comments on bank stability could not visualize substrate/channel characteristics due to vegetation + turbidity signs of erosion in woodlot.

Substrate - Upstream (% cover)

Bedrock	Silt	Boulder	100	Clay	Cobble
Muck	Gravel	Marl		Sand	Detritus

Substrate - Downstream (% cover)

Bedrock	Silt	Boulder	100	Clay	Cobble
Muck	Gravel	Marl		Sand	Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
 Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream woodlot 80%, mature forest (hardwoods)

Downstream 99%, canopy grass, low growing trees (crowsapple)

Adjacent Land Use

Upstream wood lot

Downstream agriculture

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream potential spawning if remains wet long enough

Migratory Obstructions (seasonal, permanent)

Upstream power lines

Downstream poached culvert at Lake Erie

Note any fish observations lacks direct contact to Lake Erie, likely even during high flows.

Other Habitat Notes, Incidental Wildlife Observations, etc. photo of d/s where meets Lake Erie # 7577. Photo of culvert @ Lakeshore photo # 7578 (looking u/s)



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 2

Stantec

Project Samsung
 Station # CL 39
 Photos Taken 0046, 0047, 0048, 0049
 GPS Coordinates 0602533 4745053
 Descriptive Location approx 200m North of Lake Erie on Haldimand Rd 30

Project # 161010646
 Field Staff M. Pomeroy, D. Williams
 Date Nov 8 2010
 Time 1130am 2010

Water Quality

Dissolved Oxygen (mg/L) POOLED @ culvert, no H₂O in channel.
 pH _____ Conductivity (μS/cm) _____
 Water Temperature (°C) _____ Air Temperature (°C) _____
 Weather conditions in previous 24 hrs _____

Watercourse Dimensions & Morphology DRY

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
 Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat

Evidence of eroding banks, Comments on bank stability _____

Substrate - Upstream (% cover)

_____ Bedrock 100 Silt (Soil) _____ Boulder _____ Clay _____ Cobble
_____ Muck _____ Gravel _____ Marl _____ Sand _____ Detritus

Substrate - Downstream (% cover)

_____ Bedrock 100 Silt (Soil) _____ Boulder _____ Clay _____ Cobble
_____ Muck _____ Gravel _____ Marl _____ Sand _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Vascular Plants
 Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 100% grass, early

Downstream 100% grass, early

Adjacent Land Use

Upstream ag field (corn)

Downstream ag field (hay)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low/no flow

Downstream low/no flow

Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc. grassy swale with cattails and diffuse channel



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind
Station # 27.0
Photos Taken 7597, 7598
GPS Coordinates IT 002559/4746019
Descriptive Location 375m east of Haldimand Rd 510, 800m South of Rainham Rd.

Project # 161010646
Field Staff Edward Malindzak, M. Kozak
Date October 21 2010
Time 11:01 am

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (µS/cm)
Water Temperature (°C) Air Temperature (°C) 8°C
Weather conditions in previous 24 hrs Sunny, warm, windy, Heavy rain

Watercourse Dimensions & Morphology

Mean Watercourse Width (m) Maximum Pool Depth 10 (cm) not in ATV ruts
Mean Bankfull Width (m) Mean Water Depth 7 (cm)
 % Riffle 100 % Pool % Run % Flat

Evidence of eroding banks, Comments on bank stability evidence of erosion @ wet area "pond" outflow, flows ~70m then ends. Pools of standing water occur throughout wood lot but are not visibly connected. Likely only connected in spring

Substrate - Upstream (% cover)

30 Bedrock Silt Boulder 50 Clay Cobble
 Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

20 Bedrock Silt Boulder 20 Clay Cobble
 Muck Gravel Marl Sand 60 Detritus (leaves)

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
 Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream
Downstream 90% mature forest

Adjacent Land Use

Upstream
Downstream wood lot

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream
Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream
Downstream lack of channel, not visibly connected to anything

Note any fish observations D/S is below wet area "pond". Pond is flooded area possibly wet most of the time, though lacks appropriate veg. Standing water is likely due to heavy rains last night

Other Habitat Notes, Incidental Wildlife Observations, etc. nest network of ATV tracks through woodlot. Hummocky grass tufts common.



Stantec

RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

CATTLE IN FIELD is not able to access to re-photograph

Layout, Version 1

Project Samsung (GREP) Wind

Project # 161010646

Station # 7.0

Field Staff E. Malindzalk, M. Kozak

Photos Taken #

Date 10-19-2010

GPS Coordinates 17T 0588591/4752824

Time 9:50

Descriptive Location at man-made pond - 675m north of Irish Line, 750m west of Deceusville Rd.

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (µS/cm)

Water Temperature (°C) Air Temperature (°C) 8°C

Weather conditions in previous 24 hrs Cloudy, sunny, cool

Watercourse Dimensions & Morphology

Mean Watercourse Width (m) Maximum Pool Depth 70.4 m (cm)

Mean Bankfull Width (m) Mean Water Depth 1/2 (cm)

% Riffle 100 % Pool % Run % Flat

Evidence of eroding banks, Comments on bank stability Cattle watering hole. Pond is man made and does not appear connected to anything

Substrate - Upstream (% cover)

Bedrock Silt Boulder 100 Clay Cobble
Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

Bedrock Silt Boulder 100 Clay Cobble
Muck Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Vascular Plants
Overhanging Vegetation Woody Debris Boulder Other Hoof prints

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 0% agriculture -> active pasture

Downstream 0% " " "

Adjacent Land Use

Upstream cattle pasture

Downstream

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow, no connectivity

Downstream low flow, no connectivity

Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc. man made pond for watering cattle, this is not fish habitat, is not connected to any channel and does not contribute anything @/5



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

N
(on-site)

Stantec

Project Samsung Project # 161010624
 Station # 4 Field Staff M. Pomeroy, J. Keene
 Photos Taken 3 (6263, 6264, 6265) Date July 7, 2010
 GPS Coordinates 595781 4749638 ^{5m acc.} Time 5:26 pm
 Descriptive Location on Meadows Rd immediately NE of junction with Mt Olive Rd.

Water Quality

N/A

Dissolved Oxygen (mg/L) / pH / Conductivity (µS/cm) /
 Water Temperature (°C) / Air Temperature (°C) 31
 Weather conditions in previous 24 hrs dry, hot

Watercourse Dimensions & Morphology

D/S only

Mean Watercourse Width 1.1 (m) Maximum Pool Depth _____ (cm)
 Mean Bankfull Width 1.8 (m) Mean Water Depth 10 (cm)
 _____ % Riffle _____ % Pool _____ % Run _____ % Flat
 Evidence of eroding banks, Comments on bank stability _____

Substrate - Upstream (% cover)

N/A

_____ Bedrock _____ Silt _____ Boulder _____ Clay _____ Cobble
 _____ Muck _____ Gravel _____ Marl _____ Sand _____ Detritus

Substrate - Downstream (% cover)

_____ Bedrock _____ Silt _____ Boulder _____ Clay _____ Cobble
 _____ Muck _____ Gravel _____ Marl _____ Sand _____ Detritus

In-water Cover

N/A

Cover Types Present (circle): _____ Undercut Banks _____ Deep Pool _____ Vascular Plants
 Overhanging Vegetation _____ Woody Debris _____ Boulder _____ Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
 Upstream 0% meadow, early
 Downstream 20% grass, early
 Adjacent Land Use
 Upstream fallow field
 Downstream fallow field

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
 Upstream none
 Downstream none
 Migratory Obstructions (seasonal, permanent)
 Upstream no flow / low flow
 Downstream no flow / low flow
 Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc. no channel definition. Grassed swale, not a water body



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

N

Stantec

Project Samsung Solar Project # 161010624
 Station # 3 Field Staff M. Pomeroy, J. Koone
 Photos Taken 4 (6259, 6260, 6261, 6262) Date July 7, 2010
 GPS Coordinates 595898 4749892 Time 5:11 pm
 Descriptive Location On Meadows Rd, NE of farm buildings on east side of road

Water Quality

N/A

Dissolved Oxygen (mg/L) pH Conductivity (µS/cm)
 Water Temperature (°C) Air Temperature (°C) 31°C
 Weather conditions in previous 24 hrs hot, dry

Watercourse Dimensions & Morphology

N/A

Mean Watercourse Width (m) Maximum Pool Depth (cm)
 Mean Bankfull Width 0.40 (m) Mean Water Depth (cm)
 % Riffle % Pool % Run % Flat
 Evidence of eroding banks, Comments on bank stability

Substrate - Upstream (% cover)

N/A

 Bedrock Silt Boulder Clay Cobble
 Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

 Bedrock Silt Boulder Clay Cobble
 Muck Gravel Marl Sand Detritus

In-water Cover

N/A

Cover Types Present (circle): Undercut Banks Deep Pool Vascular Plants
 Overhanging Vegetation Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
 Upstream 0%, meadow, early
 Downstream 0%, meadow, N/A
 Adjacent Land Use
 Upstream fallow field
 Downstream hay field, pasture

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
 Upstream none
 Downstream none
 Migratory Obstructions (seasonal, permanent)
 Upstream no flow
 Downstream no flow
 Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc. Black swallowtail observed
GPS @ origin 596306 4749965 5m acc.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Stantec

5461, 5462, 5463
also

Project Samsung solar Project # 161010624
 Station # 2 Field Staff M. Pomeroy, J. Leone
 Photos Taken 4 (6255, 6256, 6257, 6258) Date Jul 7, 2010, Aug 25, 2010
 GPS Coordinates 597107 4749432 com. acc. Time 4:47 pm
 Descriptive Location Middle channel north of Haldimand County Road 20 on Wilson Road.

Aug 25 2010

Water Quality

Dissolved Oxygen (mg/L) 8.00 pH 7.26 Conductivity (µS/cm) 264
 Water Temperature (°C) 29.34 Air Temperature (°C) 28°C (for Aug 25, 2010)
 Weather conditions in previous 24 hrs hot, dry

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.2 (m) Maximum Pool Depth N/A (cm)
 Mean Bankfull Width 0.5 (m) Mean Water Depth 0.05 (cm)
 % Riffle _____ % Pool _____ % Run 100 % Flat

Evidence of eroding banks, Comments on bank stability highly erodible banks, evidence of recent erosion (no veg on 295° banks, fines in channel)

Aug 25 2010

Substrate - Upstream (% cover)

Bedrock 60 Silt _____ Boulder 40 Clay _____ Cobble _____
 Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

Substrate - Downstream (% cover)

Bedrock _____ Silt _____ Boulder _____ Clay _____ Cobble _____
 Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

N/A

In-water Cover

Cover Types Present (circle): Undercut Banks _____ Deep Pool _____ Vascular Plants _____
 Overhanging Vegetation _____ Woody Debris _____ Boulder _____ Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 0%, meadow, early
 Downstream 0%, meadow, early

Adjacent Land Use

Upstream fallow field
 Downstream soybean field (South), fallow field (North)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none
 Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow
 Downstream low flow

Note any fish observations none

16 Belostomatids in channel

Other Habitat Notes, Incidental Wildlife Observations, etc.

dry, ill-defined channel
water body: (July 7, 2010) (W/S) { 2 reaches of wet, water body
Monarch butterfly noted (not Viceroy) } 1 reach of grassed swale, NOT water body
 End of 1st reach of Water Body: 0597299 4749460 > b/w is NOT a Water Body
 End of 2nd reach of Water Body: 0597574 4749338



POND SOLAR

RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind

Project # 161010646⁶²⁴

Station # 4.0

Field Staff E. Malindzak, M. Korak

Photos Taken 2

Date 10-18-2010

GPS Coordinates 17T 0596738/4749283

Time 17:21

Descriptive Location east of Wilson Rd, immediately south of woodlot edge

Water Quality

Dissolved Oxygen (mg/L) / pH / Conductivity (µS/cm) /

Water Temperature (°C) / Air Temperature (°C) /

Weather conditions in previous 24 hrs warm, sunny

Watercourse Dimensions & Morphology

Mean Watercourse Width 20x30 (m) Maximum Pool Depth unk (cm)

Mean Bankfull Width unk (m) Mean Water Depth unk (cm)

unk % Riffle unk % Pool unk % Run unk % Flat

Evidence of eroding banks, Comments on bank stability unk

Substrate - Upstream (% cover)

<u>75</u> Bedrock	<u>unk</u> Silt	<u>unk</u> Boulder	<u>25</u> Clay	<u>unk</u> Cobble
<u>unk</u> Muck	<u>unk</u> Gravel	<u>unk</u> Marl	<u>unk</u> Sand	<u>unk</u> Detritus

Substrate - Downstream (% cover)

<u>/</u> Bedrock	<u>/</u> Silt	<u>/</u> Boulder	<u>/</u> Clay	<u>/</u> Cobble
<u>/</u> Muck	<u>/</u> Gravel	<u>/</u> Marl	<u>/</u> Sand	<u>/</u> Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Woody Debris Deep Pool Vascular Plants Boulder Other duckweed & cattails

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 50% forest / 50% meadow

Downstream unk

Adjacent Land Use

Upstream 50% agriculture / 50% woodlot

Downstream unk

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream agricultural crops, low flow

Downstream unk

Note any fish observations none, pond with abundant duckweed and cattails in-water,

Other Habitat Notes, Incidental Wildlife Observations, etc. heard deer in forest

tweeting birds (song birds), duck blind present



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Stantec

Project Samsung Solar Project # 161610624
 Station # 1 Field Staff M. Pomeroy, J. Keene
 Photos Taken 3 (6252, 6253, 6254) Date July 7, 2010
 GPS Coordinates 597144 4749324 Time 4:31pm
 Descriptive Location Southernmost channel on Wilson Rd, north of
Haldimand County Rd 20.

N/A

Water Quality

Dissolved Oxygen (mg/L) / pH / Conductivity (µS/cm) /
 Water Temperature (°C) / Air Temperature (°C) 32.5°C
 Weather conditions in previous 24 hrs hot, dry

Watercourse Dimensions & Morphology

Mean Watercourse Width Ø (m) Maximum Pool Depth Ø (cm)
 Mean Bankfull Width 1.5 (m) Mean Water Depth Ø (cm)
 % Riffle _____ % Pool _____ % Run _____ % Flat _____
 Evidence of eroding banks, Comments on bank stability bank hgt: 30-40cm



Substrate – Upstream (% cover)

Bedrock 100 Silt Soil _____ Boulder _____ Clay _____ Coble _____
 Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

Substrate – Downstream (% cover)

Bedrock 100 Silt Soil _____ Boulder _____ Clay _____ Coble _____
 Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

N/A

In-water Cover

Cover Types Present (circle): Undercut Banks _____ Deep Pool _____ Vascular Plants _____
 Overhanging Vegetation _____ Woody Debris _____ Boulder _____ Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
 Upstream 0% , none , N/A
 Downstream 0% , none , N/A

Adjacent Land Use

Upstream Fallow field
 Downstream soybean field

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
 Upstream none
 Downstream none
 Migratory Obstructions (seasonal, permanent)
 Upstream absence of flow
 Downstream absence of flow
 Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc.

Dry, well defined channel. Not a water body



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung Project # 161010624
 Station # Solar pond (site 17a) Field Staff R. Dibbley, M. Pomeroy
 Photos Taken 5464 (D/S) 5465 (U/S) 5466 (sub) Date Aug 25, 2010
 GPS Coordinates IT 0597301E 4749504N Time 14:05, 2010
 Descriptive Location east of Wilson Rd. between Holdman Rd 20 + Meadows Rd. south of Woodlot (low edge) Approx 150m E of Wilson Rd.

6 m accuracy

Water Quality

Dissolved Oxygen (mg/L) 10.26 pH 8.01 Conductivity ($\mu\text{S}/\text{cm}$) 200
 Water Temperature ($^{\circ}\text{C}$) 26.1 Air Temperature ($^{\circ}\text{C}$) _____
 Weather conditions in previous 24 hrs Sunny, cloud

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.50 (m) ^{low flow} Maximum Pool Depth _____ (cm) *will check when we fish*
 Mean Bankfull Width 0.50 (m) ^{inflow channel} Mean Water Depth _____ (cm)
 % Riffle _____ % Pool _____ % Run _____ % Flat _____
 Evidence of eroding banks, Comments on bank stability Bank well vegetated, stable

Substrate - Upstream (% cover)

Bedrock _____ Silt 50 Boulder 25 Clay _____ Cobble _____
 Muck 5 Gravel _____ Marl _____ Sand _____ Detritus 20

Substrate - Downstream (% cover)

Bedrock _____ Silt 50 Boulder _____ Clay 25 Cobble _____
 Muck 5 Gravel _____ Marl _____ Sand _____ Detritus 20

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Vascular Plants
 Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
 Upstream 5%, grass/goldenrod, mature
 Downstream 5%, grass/goldenrod, early
 Adjacent Land Use
 Upstream woodlot
 Downstream meadow sp., bean field

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
 Upstream none
 Downstream none
 Migratory Obstructions (seasonal, permanent)
 Upstream none
 Downstream none
 Note any fish observations ripples on surface likely caused by fish, fish jumped

Other Habitat Notes, Incidental Wildlife Observations, etc. Catbird heard.
1/2, on-line pond just south of woodlot



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung Solar Project # 161010624
 Station # 17b Field Staff M. Pomeroy R. Dibley
 Photos Taken 5467 Date Aug 25, 2010
 GPS Coordinates 0597202 4749701 Time 300 pm, 2010
 Descriptive Location upstream channel from pond (17a)

Water Quality

Dissolved Oxygen (mg/L) 10.30 pH 7.94 Conductivity (µS/cm) 207
 Water Temperature (°C) 20.3 Air Temperature (°C) /
 Weather conditions in previous 24 hrs hot, sunny, no precip.

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.4 (m) Maximum Pool Depth 10 (cm)
 Mean Bankfull Width 1 (m) Mean Water Depth 10 (cm)
 % Riffle _____ % Pool _____ % Run 100 % Flat _____
 Evidence of eroding banks, Comments on bank stability none

Substrate - Upstream (% cover)

Bedrock 40 Silt _____ Boulder 60 Clay _____ Cobble _____
 Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

Substrate - Downstream (% cover)

Bedrock 40 Silt _____ Boulder _____ Clay 60 Cobble _____
 Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Woody Debris Deep Pool _____
 Boulder _____ Vascular Plants Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
 Upstream 50, meadow sp., mix (50% early, 50% mature)
 Downstream 50, meadow sp., mix (50% early, 50% mature)

Adjacent Land Use

Upstream meadow, woodlot
 Downstream meadow, woodlot

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
 Upstream Cyprinid habitat
 Downstream Cyprinid habitat
 Migratory Obstructions (seasonal, permanent)
 Upstream low flow
 Downstream low flow
 Note any fish observations cyprinid observed.

Other Habitat Notes, Incidental Wildlife Observations, etc. GPS of seep 059 7156 474 9692
Site is water body observed sporadically. Hard pan clay



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

N
(on site)

Stantec

@ culvert -

Project Samsung Solar Project # 161010024
 Station # 5 Field Staff M. Pomeroy, J. Keane
 Photos Taken 5 (6266, 6267, 6268, 6269) Date July 7, 2010 (@ culvert)
 GPS Coordinates 596343 4748316 Time 5:43 pm (July 7) 2:18 pm (July 8)
 Descriptive Location On Haldimand County Rd 20 immediately east of Indian Line

July 8, 2010
(GPS trace)

Water Quality

in pool @ culvert

Dissolved Oxygen (mg/L) 7.26 pH 8.42 Conductivity (µS/cm) 2883
 Water Temperature (°C) 25.9 Air Temperature (°C) 32.5
 Weather conditions in previous 24 hrs not dry

Watercourse Dimensions & Morphology

D/S only

Mean Watercourse Width / (m) Maximum Pool Depth / (cm)
 Mean Bankfull Width 0.7 (m) Mean Water Depth / (cm)
 % Riffle _____ % Pool _____ % Run _____ % Flat _____
 Evidence of eroding banks, Comments on bank stability _____

Substrate - Upstream (% cover)

N/A

Bedrock _____ Silt _____ Boulder _____ Clay _____ Cobble _____
 Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

Substrate - Downstream (% cover)

Bedrock _____ Silt _____ Boulder _____ Clay _____ Cobble _____
 Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

In-water Cover

D/S only

Cover Types Present (circle):
 Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
 Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream None
 Downstream off site

Adjacent Land Use

Upstream fallow field, (corn + soybean)
 Downstream off site

Fish Habitat Potential

N/A

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none
 Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream no flow / low flow
 Downstream no flow / low flow

Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc. GPS @ NE branch inception

upstream moderate to ill definition
branches

596496
4748826
4 m.u.c.

Field Notes Authored by M. Pomeroy

Field Notes QA/QCed by Mark Pomeroy Page 8 of 16



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

N
(on-site)

Stantec

@ culvert

Project Samsung Solar Project # 161010624
 Station # 6 Field Staff M. Pomeroy, J. Keene
 Photos Taken 5 (6266, 6267, 6268, 6269) Date July 7, 2016 (@ culvert)
 GPS Coordinates 596343 4748316 Time 5:43pm (July 7) 2:18pm (July 8)
 Descriptive Location On Haldimand County Rd 20 immediately east of Indian Line

July 8, 2016
(Upstream)

in pool @ culvert

Water Quality

Dissolved Oxygen (mg/L) 7.26 pH 8.42 Conductivity ($\mu\text{S}/\text{cm}$) 2883
 Water Temperature ($^{\circ}\text{C}$) 25.9 Air Temperature ($^{\circ}\text{C}$) 32.5
 Weather conditions in previous 24 hrs not dry

DIS only

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
 Mean Bankfull Width 0.7 (m) @ culvert Mean Water Depth _____ (cm)
 _____ % Riffle _____ % Pool _____ % Run _____ % Flat
 Evidence of eroding banks, Comments on bank stability _____

N/A

Substrate - Upstream (% cover)

_____ Bedrock _____ Silt _____ Boulder _____ Clay _____ Cobble
 _____ Muck _____ Gravel _____ Marl _____ Sand _____ Detritus

Substrate - Downstream (% cover)

_____ Bedrock _____ Silt _____ Boulder _____ Clay _____ Cobble
 _____ Muck _____ Gravel _____ Marl _____ Sand _____ Detritus

DIS only

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
 _____ Woody Debris _____ Boulder _____ Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream None
 Downstream off site

Adjacent Land Use

Upstream fallow field, (corn + soybean)
 Downstream off site

N/A

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none
 Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream no flow / low flow
 Downstream no flow / low flow

Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc. GPS @ NE branch inception

upstream area moderate to ill definition.
branches

596496
474826
4 m.s.c.

Field Notes Authored by M. Pomeroy

Field Notes QA/QCed by M. Pomeroy

Page 9 of 16



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT



Stantec

Project Samsung Solar Project # 161010624
 Station # 13 Field Staff M. Pomeroy, J. Keene
 Photos Taken 3 (6301, 6302, 6303) Date July 8, 2010
 GPS Coordinates 597354 4747822 ^{10m} _{acc.} Time 4:52pm
 Descriptive Location north of Indian Line (approx 300m), west of Wilson Rd.
west of forest edge

Water Quality

N/A Dissolved Oxygen (mg/L) / pH / Conductivity (µS/cm) /
 Water Temperature (°C) / Air Temperature (°C) 33
 Weather conditions in previous 24 hrs hot, dry

Watercourse Dimensions & Morphology

N/A Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
 Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
 _____ % Riffle _____ % Pool _____ % Run _____ % Flat
 Evidence of eroding banks, Comments on bank stability _____

Substrate - Upstream (% cover)

N/A _____ Bedrock _____ Silt _____ Boulder _____ Clay _____ Cobble
 _____ Muck _____ Gravel _____ Marl _____ Sand _____ Detritus

Substrate - Downstream (% cover)

_____ Bedrock _____ Silt _____ Boulder _____ Clay _____ Cobble
 _____ Muck _____ Gravel _____ Marl _____ Sand _____ Detritus

In-water Cover

N/A Cover Types Present (circle): Undercut Banks Deep Pool Vascular Plants
 Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
 Upstream 100, grass, early
 Downstream 100, grass, early
 Adjacent Land Use
 Upstream meadow
 Downstream meadow

Fish Habitat Potential

N/A Critical Habitat (spawning or nursery areas, groundwater upwellings)
 Upstream _____
 Downstream _____
 Migratory Obstructions (seasonal, permanent)
 Upstream _____
 Downstream _____
 Note any fish observations _____

Other Habitat Notes, Incidental Wildlife Observations, etc. dry, diffuse channel
& ill-defined



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

N

Stantec

Project Samsung Solar Project # 161010624
 Station # 14 Field Staff M. Pomeroy, J. Leane
 Photos Taken 3 (6304, 6305, 6306) Date July 8, 2010
 GPS Coordinates 597 475 4747877 ^{8m acc} Time _____
 Descriptive Location north of Indian Line (approx 300m), west of Wilson Rd
In forest

Water Quality

N/A

Dissolved Oxygen (mg/L) / pH / Conductivity (μ S/cm) /
 Water Temperature ($^{\circ}$ C) / Air Temperature ($^{\circ}$ C) 33
 Weather conditions in previous 24 hrs hot, sunny

Watercourse Dimensions & Morphology

N/A *

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
 Mean Bankfull Width 1 (m) Mean Water Depth _____ (cm)
 _____ % Riffle _____ % Pool _____ % Run _____ % Flat
 Evidence of eroding banks, Comments on bank stability _____

Substrate - Upstream (% cover)

N/A

_____ Bedrock _____ Silt _____ Boulder _____ Clay _____ Cobble
 _____ Muck _____ Gravel _____ Marl _____ Sand _____ Detritus

Substrate - Downstream (% cover)

_____ Bedrock _____ Silt _____ Boulder _____ Clay _____ Cobble
 _____ Muck _____ Gravel _____ Marl _____ Sand _____ Detritus

In-water Cover

N/A

Cover Types Present (circle): _____ Undercut Banks _____ Deep Pool _____ Vascular Plants
 Overhanging Vegetation _____ Woody Debris _____ Boulder _____ Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 90, trees, mature
 Downstream 90, trees, mature

Adjacent Land Use

Upstream woodlot
 Downstream woodlot

Fish Habitat Potential

N/A

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream _____
 Downstream _____

Migratory Obstructions (seasonal, permanent)

Upstream _____
 Downstream _____

Note any fish observations _____

Other Habitat Notes, Incidental Wildlife Observations, etc. dense poison ivy



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

4

Stantec

Project Samsung Solar Project # 161010624
 Station # 15 Field Staff M. Pomeroy, J. Keone
 Photos Taken 3 (6307, 6308, 6309) Date July 8, 2010
 GPS Coordinates 597550 4747789^{10m acc} Time 5:10 pm
 Descriptive Location West of Wilson Rd, Southerly channel

Water Quality

N/A Dissolved Oxygen (mg/L) / pH / Conductivity (µS/cm) /
 Water Temperature (°C) / Air Temperature (°C) 31
 Weather conditions in previous 24 hrs hot, dry

Watercourse Dimensions & Morphology

N/A Mean Watercourse Width / (m) Maximum Pool Depth / (cm)
 Mean Bankfull Width diffuse (m) Mean Water Depth / (cm)
 % Riffle / % Pool / % Run / % Flat /
 Evidence of eroding banks, Comments on bank stability /

Substrate - Upstream (% cover)

N/A / Bedrock / Silt / Boulder / Clay / Cobble
/ Muck / Gravel / Marl / Sand / Detritus

Substrate - Downstream (% cover)

/ Bedrock / Silt / Boulder / Clay / Cobble
/ Muck / Gravel / Marl / Sand / Detritus

In-water Cover

N/A Cover Types Present (circle): / Undercut Banks / Deep Pool / Vascular Plants
/ Overhanging Vegetation / Woody Debris / Boulder / Other /

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 60, grass, mature
 Downstream 60, grass, mature

Adjacent Land Use

Upstream woodlot
 Downstream woodlot

Fish Habitat Potential

N/A Critical Habitat (spawning or nursery areas, groundwater upwellings)
 Upstream /
 Downstream /
 Migratory Obstructions (seasonal, permanent)
 Upstream /
 Downstream /
 Note any fish observations /

Other Habitat Notes, Incidental Wildlife Observations, etc.

Field Notes Authored by M. Pomeroy

Field Notes QA/QCed by Mark Pomeroy



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

Project Samsung (GREP) Wind.
Station # 14.0
Photos Taken 4
GPS Coordinates 17T 0597076 / 4747938
Descriptive Location Approximately 300 m northeast of Bains Rd., west of Wilson Rd.

Project # 161010646
Field Staff Edward Malindzak,
Date October 19, 2010
Time 15:53

Water Quality

Dissolved Oxygen (mg/L) 9.15 pH 7.25 Conductivity (µS/cm) 411
Water Temperature (°C) 12.9 Air Temperature (°C) _____
Weather conditions in previous 24 hrs warm, windy

Watercourse Dimensions & Morphology

Mean Watercourse Width 20 (m) Maximum Pool Depth 30 (cm)
Mean Bankfull Width 15.0 (m) Mean Water Depth 15 (cm)
% Riffle 100 % Pool _____ % Run _____ % Flat _____
Evidence of eroding banks, Comments on bank stability very dense vegetation
channel characteristics un-clear

Substrate - Upstream (% cover)

Bedrock 20 Silt _____ Boulder 30 Clay _____ Cobble _____
Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

Substrate - Downstream (% cover)

Bedrock 20 Silt _____ Boulder 30 Clay _____ Cobble _____
Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks _____ Deep Pool _____
Vascular Plants Woody Debris _____ Boulder _____ Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Upstream 99% canary grass & willows
Downstream 99% canary grass & willows

Adjacent Land Use

Upstream Agriculture (horse pasture & crop)
Downstream " " " "

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream potential pike spawning area in grasses, Home owner
Downstream indicates channel floods regularly but water

Migratory Obstructions (seasonal, permanent)

Upstream low flow
Downstream low flow

Note any fish observations One fathead minnow captured @ 60 Hz + 300v

Other Habitat Notes, Incidental Wildlife Observations, etc. NONE



Stantec

Stantec Consulting Ltd - Electrofishing Record and Catch Results

Project Number 161010624 Station Number 14.0
 Project Name Samsung (GREP) Wind Pass No. (if applicable) 1 of 1
 Project manager Rob Nadolny Date (yyyymmdd): 2010.october.19
 Descriptive Location _____

UTM coordinates 17T 0597076 easting 4747938 northing zone 17T

Fishing Method (circle one): Backpack Boat _____ Unit Model/Make SR Model 12
 Sampling Method (circle one): even habitat _____ transect _____ spot _____

Effort (Electrofishing Seconds): 167 Number of Netters: 1 Number of Anodes: 1

Settings
 Frequency (Hz) 60 Voltage (volts) 300 Current (Amps) _____ Power (Watts) _____

Station Information
 Length of Stream Surveyed (m) ~40
 Station Characteristics: Width (m): Range 1-3.5 Average: 2.0
 Depth (m): Range 10-30 Average: 15

Water Clarity/Colour: clear Water Velocity if Measured (m/s): 0
 Temperature (°C) 12.9 Conductivity (uS/cm) 411
 pH 7.25 Dissolved Oxygen (mg/L) 9.15

Catch Data

Species	Number of Fish	Species	Number of Fish
FTAD	1 (Fathead)		

Fish Measurements on Separate Sheet? Y/N
 Field Staff: E. Malindzak Notes By: [Signature]
M. Korzak (Station Diagram on Back)



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Y

Stantec

Project Samsung solar Project # 161010624
 Station # 12 Field Staff M. Pomeroy, J. Keane
 Photos Taken 5 (6291, 6292, 6293, 6294, 6295) Date July 8, 2010
 GPS Coordinates 598255 4747950 (US east limit) 5m acc. Time 10:50 am
 Descriptive Location east of Indian Line, NW of Junction of Bains Rd and Indian line

Water Quality

N/A Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
 Water Temperature (°C) _____ Air Temperature (°C) 29.5
 Weather conditions in previous 24 hrs hot, dry

Watercourse Dimensions & Morphology

N/A Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
 * Mean Bankfull Width 0.5-1 (m) Mean Water Depth _____ (cm)
 _____ % Riffle _____ % Pool _____ % Run _____ % Flat
 Evidence of eroding banks, Comments on bank stability _____

Substrate - Upstream (% cover)

N/A * Bedrock _____ Silt _____ Boulder _____ Clay _____ Coble
 _____ Muck _____ Gravel _____ Marl _____ Sand _____ Detritus

Substrate - Downstream (% cover)

_____ Bedrock _____ Silt _____ Boulder _____ Clay _____ Coble
 _____ Muck _____ Gravel _____ Marl _____ Sand _____ Detritus

In-water Cover

N/A Cover Types Present (circle): Undercut Banks Deep Pool Vascular Plants
 Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
 Upstream 70, grass, early
 Downstream 70, grass, early
 Adjacent Land Use
 Upstream fallow corn field, soybean
 Downstream soybean, fallow corn

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
 Upstream possible pike spawning (assess downstream connectivity)
 Downstream possible pike spawning (assess downstream connectivity)
 Migratory Obstructions (seasonal, permanent)
 Upstream _____
 Downstream _____
 Note any fish observations _____

Other Habitat Notes, Incidental Wildlife Observations, etc. GPS of ^{confluence} FANE + NW channel 598178
braided, well-defined channel throughout 474 7796
bedrock prevalent in downstream (150m long) Sm. acc.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

N

Stantec

Project Samung Solar Project # 161010624
 Station # 10 Field Staff M. Pomeroy, J. Keene
 Photos Taken 3 (6285, 6286, 6287) Date July 8, 2010
 GPS Coordinates 600326 4746711 ^{4 air} Time 9:35 am
 Descriptive Location on western edge of property north of Hwy 3, south of Bains Rd

Water Quality

N/A

Dissolved Oxygen (mg/L) ✓ pH ✓ Conductivity (µS/cm) ✓
 Water Temperature (°C) ✓ Air Temperature (°C) 29.5
 Weather conditions in previous 24 hrs hot, windy

Watercourse Dimensions & Morphology

N/A

Mean Watercourse Width (m) Maximum Pool Depth (cm)
 Mean Bankfull Width 0.50 (m) Mean Water Depth (cm)
 % Riffle % Pool % Run % Flat
 Evidence of eroding banks, Comments on bank stability

Substrate - Upstream (% cover)

N/A

 Bedrock Silt Boulder Clay Cobble
 Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

N/A

 Bedrock Silt Boulder Clay Cobble
 Muck Gravel Marl Sand Detritus

In-water Cover

N/A

Cover Types Present (circle): Undercut Banks Deep Pool Vascular Plants
 Overhanging Vegetation Woody Debris Boulder Other

Riparian Zone

N/A

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
 Upstream
 Downstream
 Adjacent Land Use
 Upstream wheat field (winter)
 Downstream wheat field (winter)

Fish Habitat Potential

N/A

Critical Habitat (spawning or nursery areas, groundwater upwellings)
 Upstream
 Downstream
 Migratory Obstructions (seasonal, permanent)
 Upstream
 Downstream
 Note any fish observations

Other Habitat Notes, Incidental Wildlife Observations, etc.

well-defined channel ploughed through, definition ~~high~~ caused by spring flow



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 3

Stantec

Project Samsung Wind Project # 16010646
 Station # T10 Field Staff M. Pomeroy
 Photos Taken 0020, 0021, 0022, 0023 Date Nov 24 2010
 GPS Coordinates 0580947 4755325 Time 2:15 pm
 Descriptive Location approx 650m SE of concession #11 W-1

Water Quality
 Dissolved Oxygen (mg/L) ✓ pH ✓ Conductivity (µS/cm) ✓
 Water Temperature (°C) ✓ Air Temperature (°C) ✓
 Weather conditions in previous 24 hrs Cool

Watercourse Dimensions & Morphology
 Mean Watercourse Width 3 (m) Maximum Pool Depth 0.7 (cm)
 Mean Bankfull Width 2.5 (m) Mean Water Depth 0.5 (cm)
 % Riffle _____ % Pool _____ % Run 100 % Flat
 Evidence of eroding banks, Comments on bank stability no erosion noted

Substrate – Upstream (% cover)
 Bedrock 100 Silt _____ Boulder _____ Clay _____ Cobble _____
 Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

Substrate – Downstream (% cover)
 Bedrock 100 Silt _____ Boulder _____ Clay _____ Cobble _____
 Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

In-water Cover
 Cover Types Present (circle): Overhanging Vegetation Undercut Banks Deep Pool Vascular Plants
Woody Debris Boulder Other

Riparian Zone
 Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
 Upstream 5% grass, early
 Downstream 60% (within ROW), grass, early

Adjacent Land Use
 Upstream crop/pasture
 Downstream agr (crop)

Fish Habitat Potential
 Critical Habitat (spawning or nursery areas, groundwater upwellings)
 Upstream none
 Downstream possible pile

Migratory Obstructions (seasonal, permanent)
 Upstream low flow
 Downstream low flow

Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc. D/S - Water Body, U/S - not a
Water Body



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 1

Stantec

culvert @ road

5m alt.

Project Fam Sung Project # 161010624
 Station # T of culvert Field Staff M. Pomeroy, R. Bradley
 Photos Taken 5456, 5457, 5459, 5460 Date Aug 25
 GPS Coordinates 17T 0583328 4754716 Time 12:30pm 2010
 Descriptive Location South of Townline Rd, west of Duxbury Rd in woodlot
North of Indian Line

Water Quality

Dissolved Oxygen (mg/L) 0.79 pH 7.47 Conductivity (µS/cm) 790
 Water Temperature (°C) 18.55 Air Temperature (°C) _____
 Weather conditions in previous 24 hrs hot, no precip.

Watercourse Dimensions & Morphology

Mean Watercourse Width 1.5 (m) Maximum Pool Depth 25 (cm)
 Mean Bankfull Width 3 (m) Mean Water Depth 15 (cm)
 _____ % Riffle 100 % Pool _____ % Run _____ % Flat
 Evidence of eroding banks, Comments on bank stability none.

Substrate - Upstream (% cover)

Bedrock	<u>40</u>	Silt	_____	Boulder	<u>40</u>	Clay	_____	Cobble	_____
Muck	_____	Gravel	_____	Marl	_____	Sand	_____	Detritus	<u>20</u>

Substrate - Downstream (% cover)

Bedrock	<u>40</u>	Silt	_____	Boulder	<u>40</u>	Clay	_____	Cobble	_____
Muck	_____	Gravel	_____	Marl	_____	Sand	_____	Detritus	<u>20</u>

In-water Cover

Cover Types Present (circle):
 Overhanging Vegetation
 Undercut Banks
 Woody Debris
 Deep Pool
 Vascular Plants
 _____ Boulder _____ Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
 Upstream 70, mix (grass, trees), mature
 Downstream 70, mix (grass, trees), mature

Adjacent Land Use

Upstream woodlot
 Downstream woodlot

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
 Upstream none
 Downstream none
 Migratory Obstructions (seasonal, permanent)
 Upstream low flow
 Downstream low flow
 Note any fish observations none.

Other Habitat Notes, Incidental Wildlife Observations, etc.

duckweed observed
Water Body, intermittent flow, many large standing pools
watercourse not where mapping indicates. Re map based on GPS. Green frogs



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 3

Stantec

Project # 161010646
 Station # T8.8 Field Staff M. Pomeroy
 Photos Taken 0013, 0014 Date Nov 24 2010
 GPS Coordinates 0584382 4753703 Time 1:50 pm 2010
 Descriptive Location b/w driveways to Cayuga Motor Speedway

Water Quality

Dissolved Oxygen (mg/L) DRY pH / Conductivity (μ S/cm) /
 Water Temperature ($^{\circ}$ C) / Air Temperature ($^{\circ}$ C) /
 Weather conditions in previous 24 hrs cool

Watercourse Dimensions & Morphology

Mean Watercourse Width DRY - no channel (m) Maximum Pool Depth _____ (cm)
 Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
 _____ % Riffle _____ % Pool _____ % Run _____ % Flat
 Evidence of eroding banks, Comments on bank stability _____

Substrate - Upstream (% cover)

Bedrock 100 Silt Soil Boulder _____ Clay _____ Cobble _____
 Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

Substrate - Downstream (% cover)

Bedrock 100 Silt Soil Boulder _____ Clay _____ Cobble _____
 Muck _____ Gravel _____ Marl _____ Sand _____ Detritus _____

In-water Cover

Cover Types Present (circle):
 Overhanging Vegetation Undercut Banks Woody Debris Deep Pool Boulder Vascular Plants Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
 Upstream _____
 Downstream _____

Adjacent Land Use

Upstream lawn
 Downstream crop

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
 Upstream none
 Downstream none
 Migratory Obstructions (seasonal, permanent)
 Upstream no channel
 Downstream no channel
 Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc. U/S is front lawn of race track, D/S is low damp spot in field. NOT a Water Body

Field Notes Authored by M. Pomeroy

Field Notes QA/QCed by M. Pomeroy



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 3

Stantec

Project 161010646 Station # T7 Photos Taken 0584735 47535375 GPS Coordinates 0040, 0014, 0012 Descriptive Location approx 600m NW of Nelles Corners on Haldimand Rd 20 Project # Samsung Wind Field Staff M. Pomeroy Date Nov 24 2010 Time 1:40pm 2010

Water Quality Dissolved Oxygen (mg/L) Too shallow to sample pH Conductivity (µS/cm) Water Temperature (°C) Air Temperature (°C) Weather conditions in previous 24 hrs Cool

Watercourse Dimensions & Morphology Mean Watercourse Width 1.5 (m) Maximum Pool Depth 0.1 (cm) Mean Bankfull Width 2.0 (m) Mean Water Depth 0.1 (cm) Evidence of eroding banks, Comments on bank stability no erosion evident

Substrate - Upstream (% cover) Bedrock 100 Silt Soil Boulder Clay Cobble Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover) Bedrock 100 Silt Soil Boulder Clay Cobble Muck Gravel Marl Sand Detritus

In-water Cover Cover Types Present (circle): Overhanging Vegetation Undercut Banks Woody Debris Deep Pool Boulder Vascular Plants Other

Riparian Zone Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional) Upstream 30, cattails, early Downstream 40, grass, early Adjacent Land Use Upstream agr (crop) Downstream agr (crop)

Fish Habitat Potential Critical Habitat (spawning or nursery areas, groundwater upwellings) Upstream none Downstream none Migratory Obstructions (seasonal, permanent) Upstream low / no flow Downstream low / no flow Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc. W/S is roadside ditch w cattails. DIS grassed swale. NOT a water body



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 3

Stantec

Project Samsung (GREP) Wind. Station # T6 Photos Taken 0008, 0009 GPS Coordinates 0585595 4753133 Descriptive Location approx 100m SE of Nelles Corners on Haldimand Rd 20 Project # 161010640 Field Staff M. Pomeroy Date November 24, 2010 Time 1:30 pm

Water Quality Dissolved Oxygen (mg/L) DRY pH / Conductivity (uS/cm) / Water Temperature (C) / Air Temperature (C) / Weather conditions in previous 24 hrs Cool

Watercourse Dimensions & Morphology Mean Watercourse Width (m) Maximum Pool Depth (cm) Mean Bankfull Width (m) Mean Water Depth (cm) % Riffle % Pool % Run % Flat Evidence of eroding banks, Comments on bank stability no defined bed and banks

Substrate - Upstream (% cover) Bedrock 100 silt soil Muck Gravel Boulder Marl Clay Sand Cobble Detritus

Substrate - Downstream (% cover) Bedrock 100 silt soil Muck Gravel Boulder Marl Clay Sand Cobble Detritus

In-water Cover Cover Types Present (circle): Overhanging Vegetation Undercut Banks Woody Debris Deep Pool Boulder Vascular Plants Other

Riparian Zone Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional) Upstream 0, lawn, N/A Downstream 0, lawn, N/A

Adjacent Land Use Upstream residential Downstream residential

Fish Habitat Potential Critical Habitat (spawning or nursery areas, groundwater upwellings) Upstream none Downstream none Migratory Obstructions (seasonal, permanent) Upstream no flow Downstream no flow Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc. not a water body



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout Version 3

Stantec

Project Samsung (GREP) Wind. Station # TS Photos Taken 0605, 0606, 0607 GPS Coordinates 0586356 4752765 Descriptive Location approx. 800m SE of Nelles Corners on Haldimand Rd 20 Project # 161010646 Field Staff M. Pomeroy Date November 24 2010 Time 120 pm

Water Quality

Dissolved Oxygen (mg/L) pH Conductivity (µS/cm) Water Temperature (°C) Air Temperature (°C) Weather conditions in previous 24 hrs Cool

Watercourse Dimensions & Morphology

ISOLATED POOLS DR. OF RD. Mean Watercourse Width (m) Maximum Pool Depth 0.1 (cm) Mean Bankfull Width 1.25 (m) Mean Water Depth 0.1 (cm) Evidence of eroding banks, Comments on bank stability U/S IS Roadside Ditch, grass seed. D/S grassed swale, no erosion

Substrate - Upstream (% cover)

Bedrock 100 Silt soil Boulder Clay Cobble Muck Gravel Marl Sand Detritus

Substrate - Downstream (% cover)

Bedrock 100 Silt soil Boulder Clay Cobble Muck Gravel Marl Sand Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Vascular Plants Overhanging Vegetation Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional) Upstream 90% trees, mature Downstream 100% grass, early Adjacent Land Use Upstream woodlot, roadside ditch Downstream agr (crop, feedlot)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings) Upstream none Downstream none Migratory Obstructions (seasonal, permanent) Upstream low/no flow Downstream low/no flow Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc. not a water body. intermittent channel.



Stantec

RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout

Version 3

Project Samsung (GREP) Wind.

Project # 161010646

Station # T4

Field Staff M. Pomeroy, R. Dibbley

Photos Taken 0001, 0002, 0003, 0004

Date November 24, 2010

GPS Coordinates 58 7548 / 475 2082

Time 10:55 pm

Descriptive Location intersection of Concession Rd 8 and Haldimand Rd 20 on west side.

Water Quality

Dissolved Oxygen (mg/L) / pH / Conductivity (µS/cm)

Water Temperature (°C) / Air Temperature (°C)

Weather conditions in previous 24 hrs cool, windy

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.75 (m) Maximum Pool Depth 0.3 (cm)

Mean Bankfull Width 1.25 (m) Mean Water Depth (cm)

% Riffle / % Pool / 100 % Run / % Flat

Evidence of eroding banks, Comments on bank stability fully vegetated banks.

Substrate - Upstream (% cover)

Bedrock 100 Silt Soil / Boulder / Clay / Cobble / Muck / Gravel / Marl / Sand / Detritus

Substrate - Downstream (% cover)

Bedrock 100 Silt Soil / Boulder / Clay / Cobble / Muck / Gravel / Marl / Sand / Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks / Deep Pool / Vascular Plants / Overhanging Vegetation / Woody Debris / Boulder / Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 15% grass, early

Downstream 15% grass, early

Adjacent Land Use

Upstream residential agr (crop)

Downstream fallow field

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none

Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low/no flow

Downstream low/no flow

Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc.

intermittent Water Body in roadside ditch d/s of Haldimand 20. U/S of Haldimand 20, NOT a Water Body



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout
Version 3

Stantec

Project Samsung (GREG) Wind. Project # 161010646
 Station # 11 Field Staff M. Pomeroy, R. Dibley
 Photos Taken 0001, 0002 (UIS), 0003, 0004, 0005 Date November 22, 2010
 GPS Coordinates 0591134 4750507 (UIS) Time 2:15 pm
 Descriptive Location on Haldimand rd west of

Water Quality

Dissolved Oxygen (mg/L) 8.58 pH 8.03 Conductivity ($\mu\text{S}/\text{cm}$) 468
 Water Temperature ($^{\circ}\text{C}$) 10.07 Air Temperature ($^{\circ}\text{C}$) 11 $^{\circ}\text{C}$
 Weather conditions in previous 24 hrs Warm, rain

Watercourse Dimensions & Morphology

Mean Watercourse Width 1.25 (m) Maximum Pool Depth 0.4 (cm)
 Mean Bankfull Width 1.5 (m) Mean Water Depth 0.4 (cm)
 % Riffle _____ % Pool 100 % Run _____ % Flat _____
 Evidence of eroding banks, Comments on bank stability undercut banks

Substrate - Upstream (% cover)

Bedrock	<u>25</u> Silt	Boulder	<u>35</u> Clay	Cobble
Muck	Gravel	Marl	<u>20</u> Sand	<u>20</u> Detritus

Substrate - Downstream (% cover)

Bedrock	<u>35</u> Silt	Boulder	<u>25</u> Clay	Cobble
Muck	Gravel	Marl	<u>15</u> Sand	<u>25</u> Detritus

In-water Cover

Cover Types Present (circle): Overhanging Vegetation Undercut Banks Woody Debris Deep Pool _____
 Boulder _____ Vascular Plants _____
 Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Upstream 25%, shrub, early
 Downstream 100%, cattail, early

Adjacent Land Use

Upstream agr. (crop)
 Downstream agr. (crop)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Upstream none
 Downstream none

Migratory Obstructions (seasonal, permanent)

Upstream low flow
 Downstream low flow

Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc. none



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Lay

Stantec

Project Samsung (GREP) Wind Project # 16101064a
 Station # T3 Field Staff M. Pomeroy, R. Bibbey
 Photos Taken 0013, 0014, 0015 (015), 0016, 0017, 0018, 0019 (019) Date November 22, 2010
 GPS Coordinates 0588 566 475 1513 Time 1:35 pm
 Descriptive Location approx 100m South of Haldimand Rd 20 on

Water Quality
 Dissolved Oxygen (mg/L) TOO SHALLOW pH _____ Conductivity (µS/cm) _____
 Water Temperature (°C) _____ Air Temperature (°C) _____
 Weather conditions in previous 24 hrs Rain, Warm

Watercourse Dimensions & Morphology No defined channel
 Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
 Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
 _____ % Riffle _____ % Pool _____ % Run _____ % Flat
 Evidence of eroding banks, Comments on bank stability _____

Substrate – Upstream (% cover)
 _____ Bedrock 100 Silt soil _____ Boulder _____ Clay _____ Cobble
 _____ Muck _____ Gravel _____ Marl _____ Sand _____ Detritus

Substrate – Downstream (% cover)
 _____ Bedrock 100 Silt soil _____ Boulder _____ Clay _____ Cobble
 _____ Muck _____ Gravel _____ Marl _____ Sand _____ Detritus

In-water Cover
 Cover Types Present (circle): Undercut Banks Deep Pool Vascular Plants 9 RAS
 Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
 Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
 Upstream 100, grass, early
 Downstream 100, grass, early
 Adjacent Land Use:
 Upstream Crop, pasture
 Downstream crop

Fish Habitat Potential
 Critical Habitat (spawning or nursery areas, groundwater upwellings)
 Upstream none
 Downstream none
 Migratory Obstructions (seasonal, permanent)
 Upstream low/no flow
 Downstream low/no flow
 Note any fish observations none

Other Habitat Notes, Incidental Wildlife Observations, etc. no watercourse crossing present water body may exist to SE approx 30m from Rd.



RAPID ASSESSMENT FORM FOR AQUATIC HABITAT

Layout

Version 3

Stantec

Project Samsung (GREP) Wind. Station # T2. Photos Taken 0007, 0008, 0009 (D/S), 0010, 0011, 0012 (D/S). Date November 22, 2010. GPS Coordinates 0588831 4751591. Time 1:30 pm. Descriptive Location on Haldimand Rd 20 approx 400m SE of Haldimand Rd 12.

Water Quality

Dissolved Oxygen (mg/L) TOO SHALLOW. Conductivity (µS/cm). Water Temperature (°C). Air Temperature (°C). Weather conditions in previous 24 hrs warm, rain.

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.4 (m). Maximum Pool Depth 0.1 (cm). Mean Bankfull Width 0.4 (m). Mean Water Depth 0.1 (cm). % Riffle. % Pool. % Run. % Flat.

Evidence of eroding banks, Comments on bank stability: Trenched, open soil, ploughed through (D/S). low lying area in farmer's field, grassed swale (D/S).

Substrate - Upstream (% cover)

Bedrock 100. Silt Soil. Boulder. Clay. Cobble. Muck. Gravel. Marl. Sand. Detritus.

Substrate - Downstream (% cover)

Bedrock 100. Silt Soil. Boulder. Clay. Cobble. Muck. Gravel. Marl. Sand. Detritus.

In-water Cover

Cover Types Present (circle): Overhanging Vegetation (D/S). Undercut Banks. Woody Debris. Deep Pool. Boulder. Vascular Plants (D/S). Other.

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional). Upstream 0%, none, N/A. Downstream 100%, grass, meadow, early.

Adjacent Land Use

Upstream crop. Downstream crop.

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings). Upstream none. Downstream none.

Migratory Obstructions (seasonal, permanent)

Upstream low/no flow. Downstream low/no flow.

Note any fish observations none.

Other Habitat Notes, Incidental Wildlife Observations, etc.