

C43

AECOM

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Field Crew: CB, TS

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 2236 & 2237 Turbine # GDS ~~C42A~~
 Date: Sep 28/11 Start time: 8:30 End Time: 9:10 (GE20)

Weather Conditions:

Cloudy, 12°C

Field Notes By:

CB

Site Location

East of Cedar Swamp, North of Kirkton

UTM Co-ordinates

Easting: 9445752 Northing: 4795067 Description: East end of site - by stream
 Easting: Northing: Description:
 Easting: Northing: Description:
 Easting: Northing: Description:

Surrounding Landuse/Pollution Sources

Residential ☐ Meadow ☐
 Agriculture ☒ Wetland ☐
 Forest ☒ Livestock ☐

Other:

Type of Watercourse

Intermittent ☐ Channelized ☒
 Permanent ☒ Natural Channel ☒
 Ephemeral ☐

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

- ephemeral channels noted feeding into main watercourse

In-Situ Water Quality

WT (°C): 9 AT (°C): 13
 pH: / Cond (s/cm): /
 Water Clarity: Clear ☐ Turbid ☒

Ground Water Indicators

Watercress ☐ Bank Seepage ☐
 Iron Staining ☐ None ☒
 Bubbling ☐ Other ☐

Notes: w/g meter not available

Stream Morphology

Site Length (m): ~100m

Bank Stability:

Channel Dimensions

Mean Wetted Width (m): 2.2 Mean Bankfull Width (m): 4m
 Mean Wetted Depth (m): 0.3 Mean Bankfull Depth (m): 1m

	Stable	Slightly unstable	Moderately unstable	Unstable
Left Bank	☐	☒	☐	☐
Right Bank	☐	☐	☒	☐

Flow Description: - right bank had major erosion on one of the meander bends
- moderate flow

Notes:

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Stream Morphology (continued)

Substrate (< = >)

Bo - Boulder
Co - Cobble
Gr - Gravel
Sa - Sand
Si - Silt
Cl - Clay
MK - Muck
DT - Detritus
Other

Description

sa, si, cl > gr > co

Morphological Structure (%)

Pool	Riffle	Run	Flat
25	15	60	

Notes:

pool stretched for long periods
→ max depth in pool ~ 0.60 m

Habitat

Instream Cover (%) 40

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
	30	5	50	/	15	

*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

Canopy Cover (% closed cover):

100-90%

☐

30-1%

☐

90-60%

☒

0%

☐

60-30%

☐

Types of Cover (% cover)

Trees

90

Shrubs

10

Grasses

Herbaceous

Man-made structures

Other

Notes:

Obstructions to Fish Passage

No Obstructions

☒

Man-Made

☐

Natural

☐

Description:

Drainage Features within Study Area

Observations of Land Topography within 120 m buffer area:

-slightly rolling

Terrestrial features Present

Yes

No

Terrestrial Recon Form Filled out

Yes

No

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(GE20)

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Other General Comments Regarding the Study Area:

- water turbid; hard to see aquatic life
- Southern portion of Stream previously surveyed for turbine.

Photo log

Picture #	Description	Picture #	Description
112	Overall Site		
113	Ephemeral Pool #1		
114	" " #2		
115	Stream channel		
116	meandering stream channel		
117	Stream Pool		
118	Stream channel		
119	Riffles		
120	Stream channel		
121	Bank erosion		
122	Stream run		

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Watercourse Sketch

Study Area:

Jericho

Goshen

Bluewater Land Parcel#

2236/2237

Turbine #

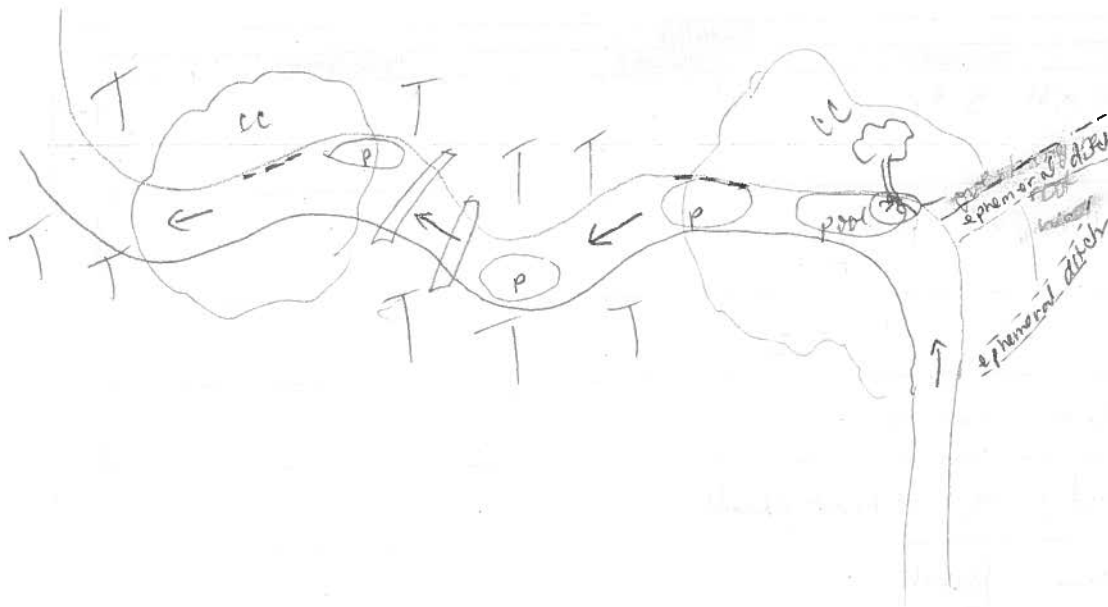
GOS-142A

N

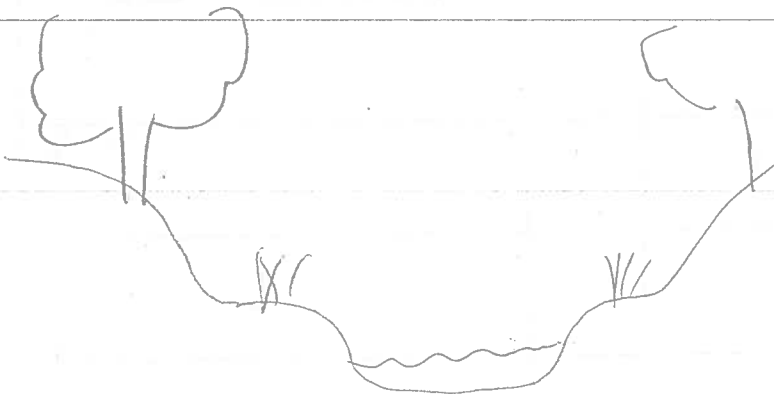
T = tree
P = pool

LEGEND

10d depth (cm)	10d depth (cm)
6w width	6w width
Riffle	Riffle
Run/Glide	Run/Glide
Pool	Pool
Island/Bar	Island/Bar
Fine Substrate	Fine Substrate
Gravel Substrate	Gravel Substrate
o o o o Cobble/Boulder	o o o o Cobble/Boulder
• • • Debris	• • • Debris
CT Cattail	CT Cattail
SV/FV Submerg/Floater Veg	SV/FV Submerg/Floater Veg
EV Emergent	EV Emergent
W Watercress	W Watercress
Fe Iron Staining	Fe Iron Staining
Eroded Bank	Eroded Bank
xxx Riprap / Other Stabilization	xxx Riprap / Other Stabilization
— Instream Log/Tree	— Instream Log/Tree
*** Dam/Weir	*** Dam/Weir
⊙ Riparian Tree	⊙ Riparian Tree
↳ Seep/Spring	↳ Seep/Spring
— Undercut Bank	— Undercut Bank
— Barrier to Fish Movement	— Barrier to Fish Movement
-S- Seasonal Barrier	-S- Seasonal Barrier
-x-x- Fence line	-x-x- Fence line
└ Culvert	└ Culvert



Horizontal View of Channel



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Field Crew: CB, TS

General Information

Study Area: Jericho Goshep Bluewater Land Parcel# 2236 Turbine # ~~SMN19~~ (C43)
 Date: July 27/11 Start time: 10:50 End Time: 11:40

Weather Conditions:

Sunny, 23°C

Field Notes By:

CB

Site Location

Kirkton + Shipka Ln.

UTM Co-ordinates

17T
 Easting: 0445879 Northing: 4794979 Description: north end.
 Easting: 0446025 Northing: 4794834 Description: South end.
 Easting: Northing: Description:
 Easting: Northing: Description:

Surrounding Landuse/Pollution Sources

Residential ☐ Meadow ☐
 Agriculture ☒ Wetland ☐
 Forest ☒ Livestock ☐

Other:

Type of Watercourse

Intermittent ☐ Channelized ☐
 Permanent ☒ Natural Channel ☒
 Ephemeral ☐

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

In-Situ Water Quality

WT (°C): 8.7 AT (°C): 23°
 pH: 8.19 Cond (µs/cm): 0.95
 Water Clarity: Clear ☒ Turbid ☐

Ground Water Indicators

Watercress ☐ Bank Seepage ☐
 Iron Staining ☐ None ☒
 Bubbling ☐ Other ☐

none noted

Notes:

Stream Morphology

Site Length (m): entire site.

Bank Stability:

Channel Dimensions

Mean Wetted Width (m): 2 Mean Bankfull Width (m): 3 m
 Mean Wetted Depth (m): 0.20 Mean Bankfull Depth (m): 0.50

	Stable	Slightly unstable	Moderately unstable	Unstable
Left Bank	☐	☒	☐	☐
Right Bank	☐	☒	☐	☐

Flow Description:

slow flow

Notes:

no tile drain inputs noted

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Stream Morphology (continued)**Substrate (<=>)**

Bo - Boulder
Co - Cobble
Gr - Gravel
Sa - Sand
Si - Silt
Cl - Clay
MK - Muck
DT - Detritus
Other

Description

cl, si >> gr, co > Bo

Morphological Structure (%)

Pool	Riffle	Run	Flat
10	10		80

Notes:

riffles only in forest area
(North side)

Habitat**Instream Cover (%)** 50

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
	50	15	15	/	20	

*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

Canopy Cover (% closed cover):

100-90%

☐

30-1%

☐

90-60%

☒

0%

☐

60-30%

☐**Types of Cover (% cover)**

Trees

50

Shrubs

10

Man-made structures

Grasses

25

Herbaceous

25

Other

Notes:**Obstructions to Fish Passage**

No Obstructions ☒
Natural ☐

Man-Made

☐**Description:****Drainage Features within Study Area****Observations of Land Topography within 120 m buffer area:****Terrestrial features Present**Yes ☒No ☐**Terrestrial Recon Form Filled out**Yes ☐No ☒

- forest may be ELL's

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Other General Comments Regarding the Study Area:

- fish observed. (minnows)
- wood frog, green frog

Photo log

Picture #	Description	Picture #	Description
1	start of site looking up/s North		
2	looking down/s.		
3	eg of riffle.		
4	flats		
5	- looking N side of culvert		
6	looking S side of culvert		
7	on S side of road.		
8	looking down/s		
9	looking up/s		
10	end of site		

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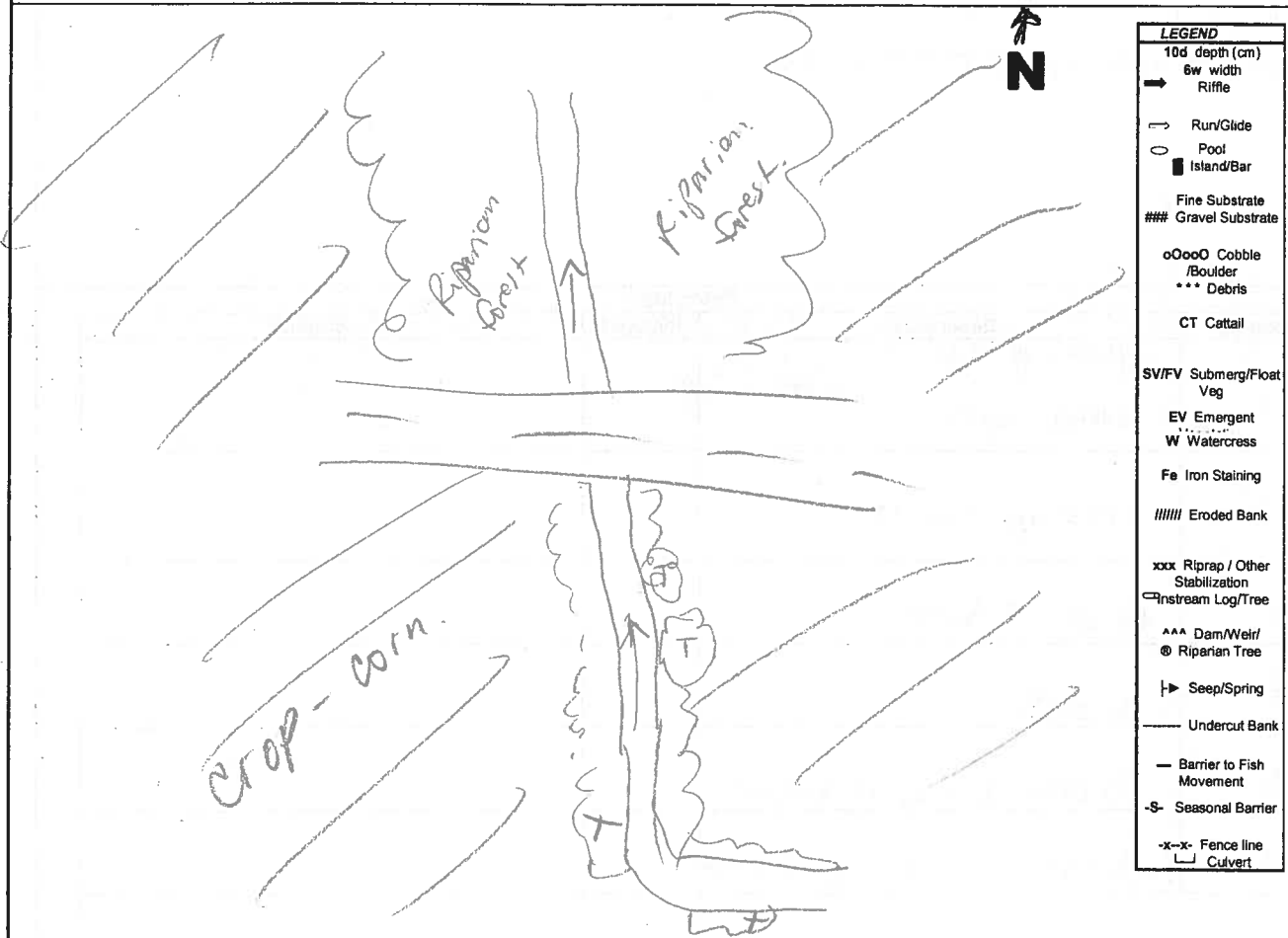
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July 27/11

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Watercourse Sketch

(C43)

Study Area: Jericho Goshen Bluewater Land Parcel# 2236 Turbine # SM119

Horizontal View of Channel



AECOM		Page 1 of 4	
		Field Crew: <u>CB, PS</u>	
General Information			
Study Area:	Jericho <u>Goshen</u> Bluewater	Land Parcel#	<u>1504</u>
Date:	<u>July 27/11</u>	Start time:	<u>11:40</u>
		Turbine #	<u>GE22</u> <u>C48</u>
		End Time:	<u>12:20</u>
Weather Conditions:		Field Notes By:	
<u>Sunny, 27°C</u>		<u>CB</u>	
Site Location			
<u>Kirkton Rd. - between Shipka + Blacklash Ln.</u>			
UTM Co-ordinates			
Easting:	<u>0448179</u>	Northing:	<u>4794779</u>
		Description:	<u>north end.</u>
Easting:	<u>0446279</u>	Northing:	<u>4794577</u>
		Description:	<u>South end.</u>
Easting:		Northing:	
		Description:	
Easting:		Northing:	
		Description:	
Surrounding Landuse/Pollution Sources		Type of Watercourse	
Residential ☐	Meadow ☐	Intermittent ☐	Channelized ☒
Agriculture ☒	Wetland ☐	Permanent ☒	Natural Channel ☒
Forest ☐	Livestock ☐	Ephemeral ☐	
Other:			
Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)			
<u>- no wells or gullies noted but very overgrown</u>			
In-Situ Water Quality		Ground Water Indicators	
WT (°C):	<u>20.3</u>	AT (°C):	<u>27</u>
pH:	<u>8.47</u>	Cond (µs/cm):	<u>0.97</u>
Water Clarity:	Clear ☐	Turbid ☒	
		Watercress ☒	Bank Seepage ☐
		Iron Staining ☐	None ☐
		Bubbling ☐	Other ☐
Notes:			
Stream Morphology			
Site Length (m):		Bank Stability:	
<u>entire reach</u>			
Channel Dimensions			
Mean Wetted Width (m):	<u>1.2</u>	Mean Bankfull Width (m):	<u>1.7</u>
Mean Wetted Depth (m):	<u>0.15</u>	Mean Bankfull Depth (m):	<u>0.5</u>
		Stable	Slightly unstable
		Moderately unstable	Unstable
Left Bank		☒	☐
Right Bank		☒	☐
Flow Description:			
<u>very low flow</u>			
Notes:			
<u>no gullies</u>			

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Stream Morphology (continued)

Substrate (<=>)

Description

Bo - Boulder
Co - Cobble
Gr - Gravel
Sa - Sand
Si - Silt
Cl - Clay
MK - Muck
DT - Detritus
Other

cl, si >> gr, sa > cob > Bo

Morphological Structure (%)

Pool	Riffle	Run	Flat
10	5	5	80

Notes:

Habitat

Instream Cover (%) 60

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
	20	10	10	10	50	-

*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

grasses

Canopy Cover (% closed cover):

100-90%

☐

30-1%

☐

90-60%

☒

0%

☐

60-30%

☐

Types of Cover (% cover)

Trees

25

Shrubs

Man-made structures

Grasses

65

Herbaceous

10

Other

Notes:

stream almost completely covered by grasses on banks

Obstructions to Fish Passage

No Obstructions

☒

Man-Made

☐

Natural

☐

Description:

Drainage Features within Study Area

Observations of Land Topography within 120 m buffer area:

none noted.

Terrestrial features Present

Yes

No

Terrestrial Recon Form Filled out

Yes

No

AECOM

July 27/11

GE 22

C43

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Other General Comments Regarding the Study Area:

- fish observed (minnows)
- frogs observed.
- racoon observed.

Photo log

Picture #	Description	Picture #	Description
1	up - N end of site		
2	4w/5 - North end of site.		
3	- midway		
4	- midway		
5	South end of site		
6	South end of site.		
7	pic of water cross		

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Watercourse Sketch

Study Area:

Jericho

Goshen

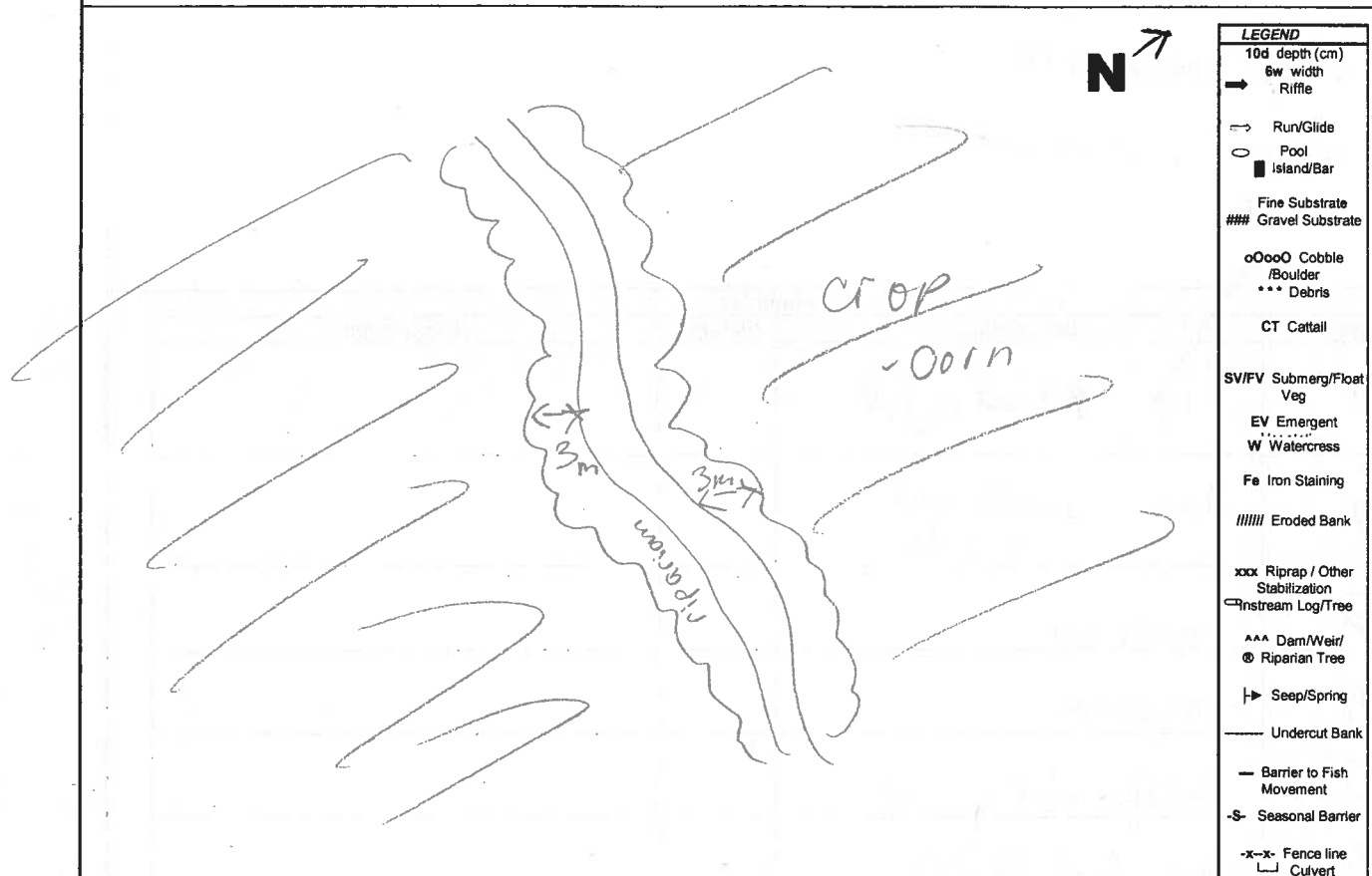
Bluewater Land Parcel#

1504

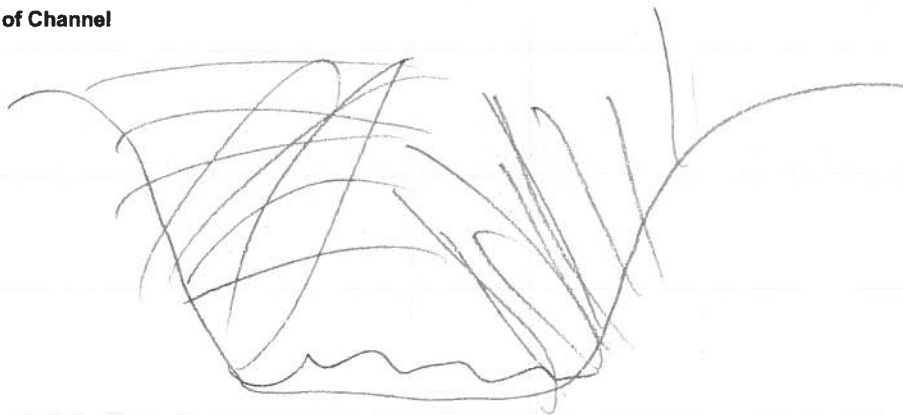
Turbine #

~~4522~~

C43



Horizontal View of Channel



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Field Crew:

CB, JP

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 654 252/1759 Turbine # G05+C44
 Date: Sept 7/11 Start time: 18:00 End Time: 18:20

Weather Conditions:

Cloudy, 15°C

Field Notes By:

CB

Site Location

Blackbush line - south of Kirkton

UTM Co-ordinates

Easting: 0447190 Northing: 4794329 Description: East Culvert
 Easting: Northing: Description:
 Easting: Northing: Description:
 Easting: Northing: Description:

Surrounding Landuse/Pollution Sources

Residential ☒ Meadow ☐
 Agriculture ☐ Wetland ☐
 Forest ☒ Livestock ☐

Type of Watercourse

Intermittent ☐ Channelized ☒
 Permanent ☒ Natural Channel ☒
 Ephemeral ☐

Other:

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

In-Situ Water Quality

WT (°C): / AT (°C): /
 pH: / Cond (s/cm): /
 Water Clarity: Clear ☐ Turbid ☒

Ground Water Indicators

Watercress ☒ Bank Seepage ☐
 Iron Staining ☐ None ☒
 Bubbling ☐ Other ☐

potentially on west side

Notes: w/g meter not available

Stream Morphology

Site Length (m): ~30m up + down / S.

Bank Stability:

Channel Dimensions

at road culverts

Mean Wetted Width (m): 2 Mean Bankfull Width (m): /
 Mean Wetted Depth (m): 0.25 Mean Bankfull Depth (m): /

	Stable	Slightly unstable	Moderately unstable	Unstable
Left Bank	☒	☐	☐	☐
Right Bank	☒	☐	☐	☐

Flow Description:

no visible flow

Notes:

banks well veg w grasses + jewelweed

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Stream Morphology (continued)

Substrate (<=>)

Bo - Boulder
Co - Cobble
Gr - Gravel
Sa - Sand
Si - Silt
Cl - Clay
MK - Muck
DT - Detritus
Other

Description

MK, Si, Cl

Morphological Structure (%)

Pool	Riffle	Run	Flat
			100

Notes:

no visible flow at roadside

Habitat

Instream Cover (%) ~ 30

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
	10			90		

*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

grasses, submergents

Canopy Cover (% closed cover):

100-90%

☐

30-1%

☐

90-60%

☐

0%

☐

60-30%

☒

Types of Cover (% cover)

Trees

60

Shrubs

20

Grasses

20

Herbaceous

Man-made structures

Other

Notes:

Obstructions to Fish Passage

No Obstructions

☒

Man-Made

☐

Natural

☐

Description:

- culverts not perched

Drainage Features within Study Area

Observations of Land Topography within 120 m buffer area:

flat

Terrestrial features Present

Yes

No

- ELC completed by JP.

Terrestrial Recon Form Filled out

Yes

No

AECOM

Sep 7/11

G05 - C44

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Other General Comments Regarding the Study Area:

Roadside Survey completed due to access.
~~(Both E + W)~~ (Both E + W)

Photo log

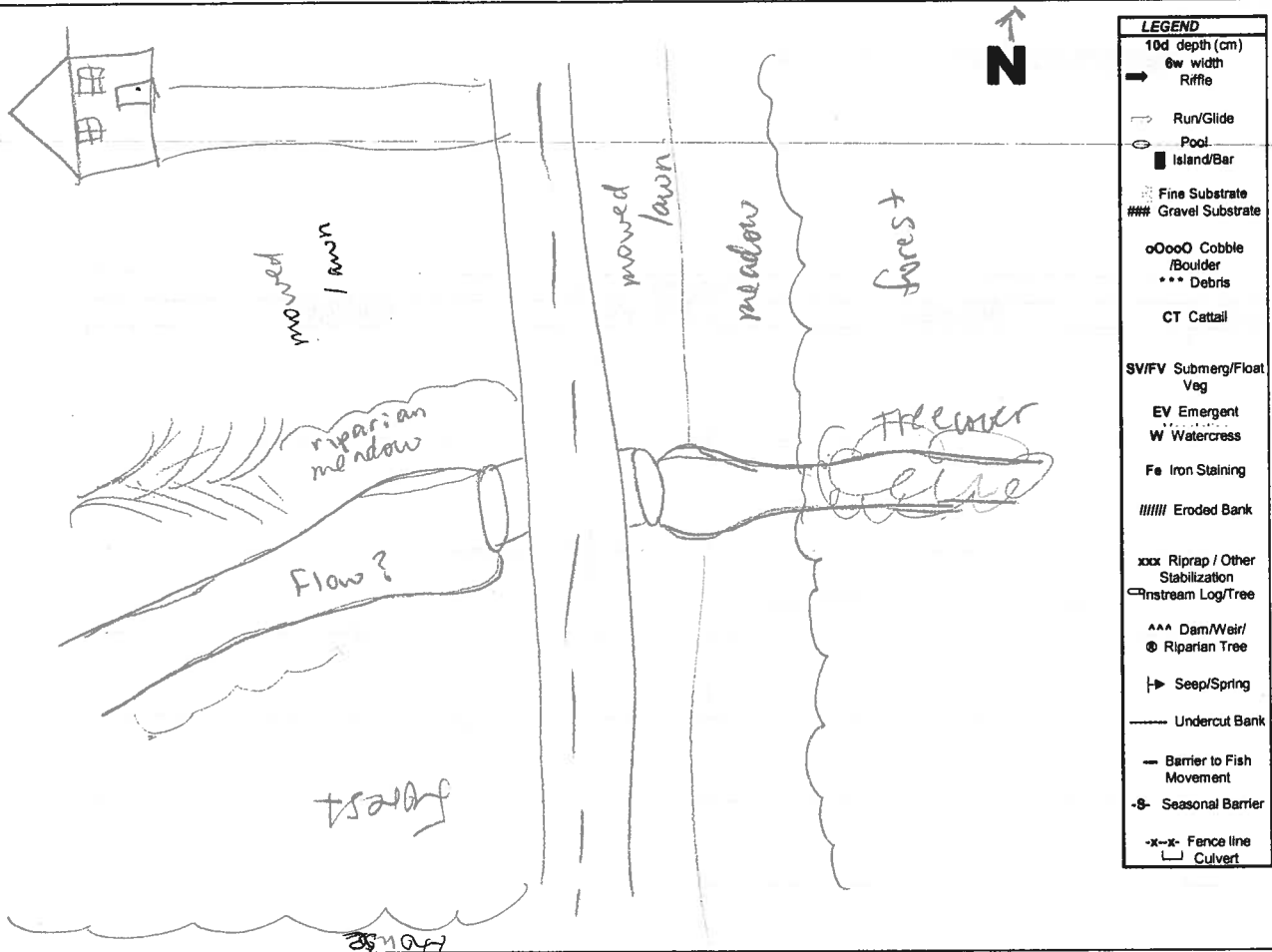
Picture #	Description	Picture #	Description
1	east side		
2	west side.		
3	watercress west side		
4	"		

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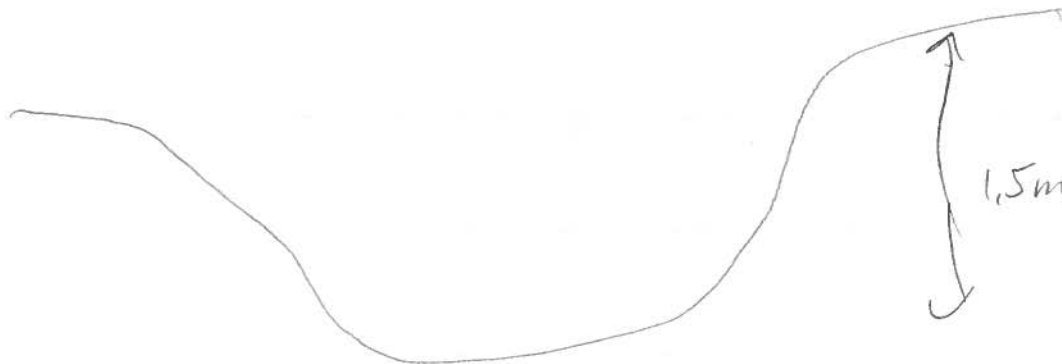
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Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 6Sp1762 / 148 Turbine # GWS-CH



Horizontal View of Channel



AECOM

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Field Crew: TS, CS

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 1498, 1499 -Turbine# C45
 Date: Dec 16/11 Start time: 15:20 End Time: 15:40

Weather Conditions:

Cloudy 1°C

Field Notes By:

CS

Site Location

Shipka Ln, north of Coediton

* Roadside by property GSH 1499

UTM Co-ordinates

Easting: 0445169 Northing: 4798849 Description: Culvert at road.

Easting: Northing: Description:

Easting: Northing: Description:

Easting: Northing: Description:

Surrounding Landuse/Pollution Sources

Residential ☐
Agriculture ☒
Forest ☐Meadow ☐
Wetland ☐
Livestock ☒-South side
pasture

Type of Watercourse

Intermittent ☐
Permanent ☒
Ephemeral ☐Channelized ☒
Natural Channel ☐

Other:

Notes: (Include any inputs into the system i.e. tile drainage, seepages, overland flow)

-tile drains noted - flowing

In-Situ Water Quality

WT (°C): /

AT (°C): /

pH: /

Cond (µS/cm): /

Water Clarity: Clear



Turbid



Ground Water Indicators

Watercress ☐Bank Seepage ☐Iron Staining ☐None ☒Bubbling ☐Other ☐

Notes: brown

Stream Morphology

Site Length (m):

Bank Stability:

Channel Dimensions

Mean Wetted
Width (m):

1.5m

Mean Bankfull Width
(m):

3m

Mean Wetted
Depth (m):

0.40

Mean Bankfull Depth
(m):

0.80

Stable

Slightly
unstableModerately
unstable

Unstable

Left Bank



Right Bank



Flow Description:

visible flow, mod levels

Notes:

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Stream Morphology (continued)

Substrate (<=>)

Bo - Boulder
Co - Cobble
Gr - Gravel
Sa - Sand
Si - Silt
Cl - Clay
MK - Muck
DT - Detritus
Other

Description

Si, Cl

Morphological Structure (%)

Pool	Riffle	Run	Flat
		100	

Notes:

light meander in channel

Habitat

Instream Cover (%)

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:

*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

→ could not access

Canopy Cover (% closed cover):

100-90% ☐ 30-1% ☒
90-60% ☐ 0% ☐
60-30% ☐

Types of Cover (% cover)

Trees 5 Shrubs _____ Man-made structures _____
Grasses 95 Herbaceous _____ Other _____

Notes:

Obstructions to Fish Passage

No Obstructions ☒ Man-Made ☐
Natural ☐

Description:

Drainage Features within Study Area

Observations of Land Topography within 120 m buffer area:

flat

Terrestrial features Present

Yes

(No)

Terrestrial Recon Form Filled out

Yes

(No)

AECOM

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Other General Comments Regarding the Study Area:

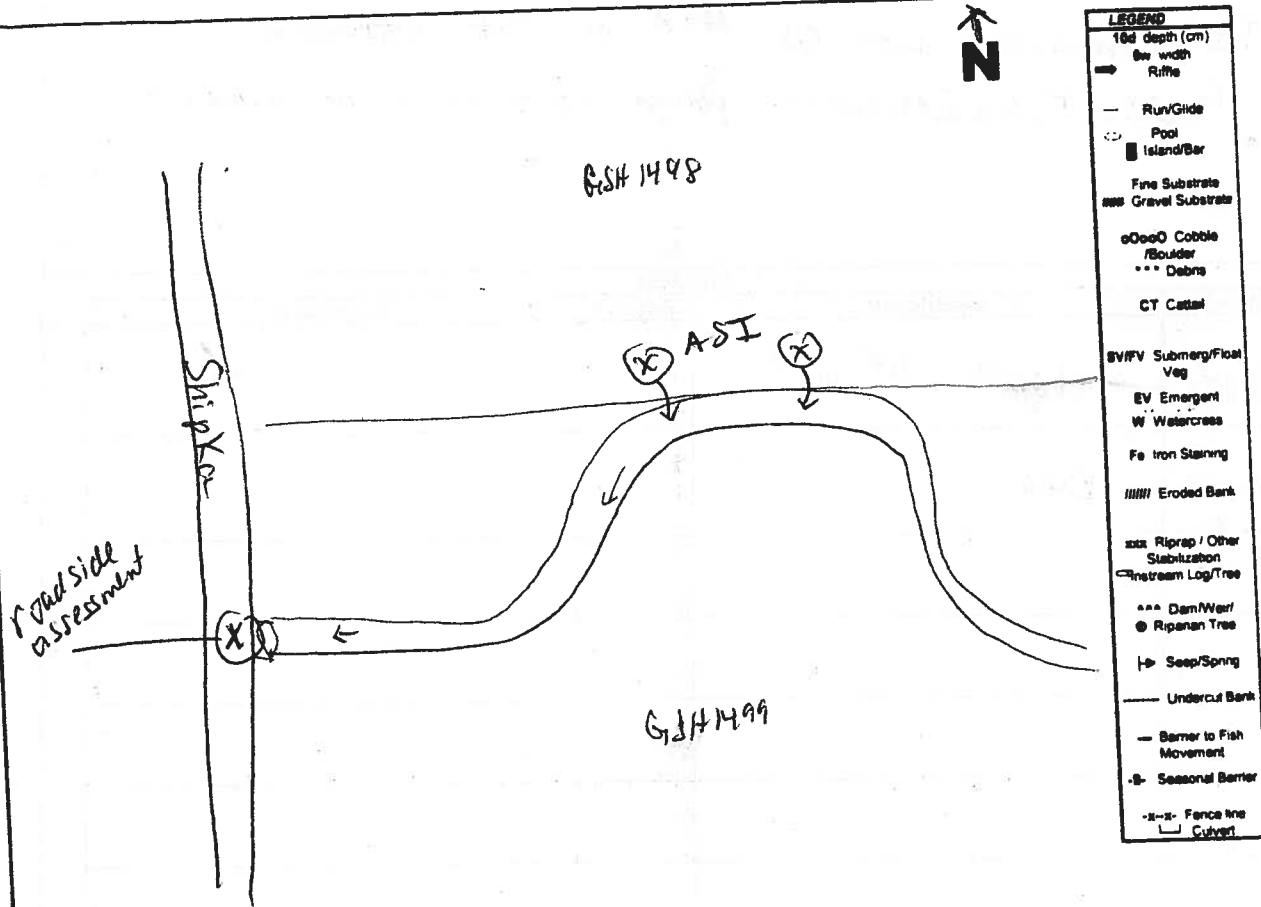
- box Culvert
- ASE Completed from GSH 1498 on C45 watercourse
↳ same characteristics found downstream at roadside.

Photo log			
Picture #	Description	Picture #	Description
142-143	West not assessed.		
144-149	East		

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Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 1489 1499 Turbine # C45



Horizontal View of Channel

AECOM		Page 1 of 4	
General Information Study Area: Jericho <u>Goshen</u> Bluewater Land Parcel# <u>1658</u> Turbine # 817 <u>C46</u> Date: <u>July 27/11</u> Start time: <u>15:30</u> End Time: <u>16:10</u>		Field Crew: <u>CB, TS</u>	
Weather Conditions: <u>Cloudy, 25°C</u>		Field Notes By: <u>CB</u>	
Site Location <u>On road 7A Park Road. Shipka + Kirkton</u>			
UTM Co-ordinates			
Easting: <u>0444388</u>		Northing: <u>4793774</u>	
Description: <u>East end</u>			
Easting: <u>0444290</u>		Northing: <u>4793815</u>	
Description: <u>West end</u>			
Easting:		Northing:	
Description:			
Easting:		Northing:	
Description:			
Surrounding Landuse/Pollution Sources Residential ☐ Meadow ☐ Agriculture ☐ Wetland ☐ Forest ☒ Livestock ☐ Other: <u>~30m N 6-5</u>		Type of Watercourse Intermittent ☐ Channelized ☐ Permanent ☒ Natural Channel ☒ Ephemeral ☐	
Notes: (Include any inputs into the system i.e. tile drainage, seepages, overland flow) <u>none noted</u>			
In-Situ Water Quality WT(°C): <u>23</u> AT(°C): <u>30</u> pH: <u>7.04</u> Cond (µs/cm): <u>0.45</u> Water Clarity: Clear ☐ Turbid ☒		Ground Water Indicators Watercress ☐ Bank Seepage ☐ Iron Staining ☐ None ☒ Bubbling ☐ Other ☐	
Notes: <u>/</u>			
Stream Morphology			
Site Length (m):		Bank Stability:	
Channel Dimensions		Stable Slightly unstable Moderately unstable Unstable	
Mean Wetted Width (m): <u>4</u>	Mean Bankfull Width (m): <u>6</u>	Left Bank	☐ ☒ ☐ ☐
Mean Wetted Depth (m): <u>0.20</u>	Mean Bankfull Depth (m): <u>0.8</u>	Right Bank	☐ ☒ ☐ ☐
Flow Description: <u>no visible flow for most of site</u>			
Notes: <u>no obvious drainage into stream</u>			

AECOM

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Stream Morphology (continued)

Substrate (< = >)

Bo - Boulder
Co - Cobble
Gr - Gravel
Sa - Sand
Si - Silt
Cl - Clay
MK - Muck
DT - Detritus
Other

Description

gr > 75a, cl > 60 > dt

Morphological Structure (%)

Pool	Riffle	Run	Flat
	1	99	

Notes:

1 mea stream confined
~2m long - riffles

Habitat

Instream Cover (%) 40

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
	80 70	5	5	/	20	

*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

Canopy Cover (% closed cover):

100-90% ☒ 30-1% ☐
90-60% ☐ 0% ☐
60-30% ☐

Types of Cover (% cover)

Trees 100 Shrubs _____
Grasses _____ Herbaceous _____
Man-made structures _____
Other _____

Notes:

tree roots creating good habitat

Obstructions to Fish Passage

No Obstructions ☒ Man-Made ☐
Natural ☐

Description:

Drainage Features within Study Area

Observations of Land Topography within 120 m buffer area:

barley flat, may have drainage
features but did not see any

Terrestrial features Present

Yes ☒ No ☐

Terrestrial Recon Form Filled out

Yes ☐ No ☒

AECOM

July 27/11

~~GETT~~

C46

Page 3 of 4

Other General Comments Regarding the Study Area:

- appears to be fish habitat ~~but now observed~~
 ↳ fish observed (minnow)

Photo log

Picture #	Description	Picture #	Description
1	East end		
2	"		
3	- river narrows then opens again - pools on either end		
4	West end dune		
5	West end dune dune		

C46

AECOM

Page 4 of 4

Watercourse Sketch

Study Area:

Jericho

Goshen

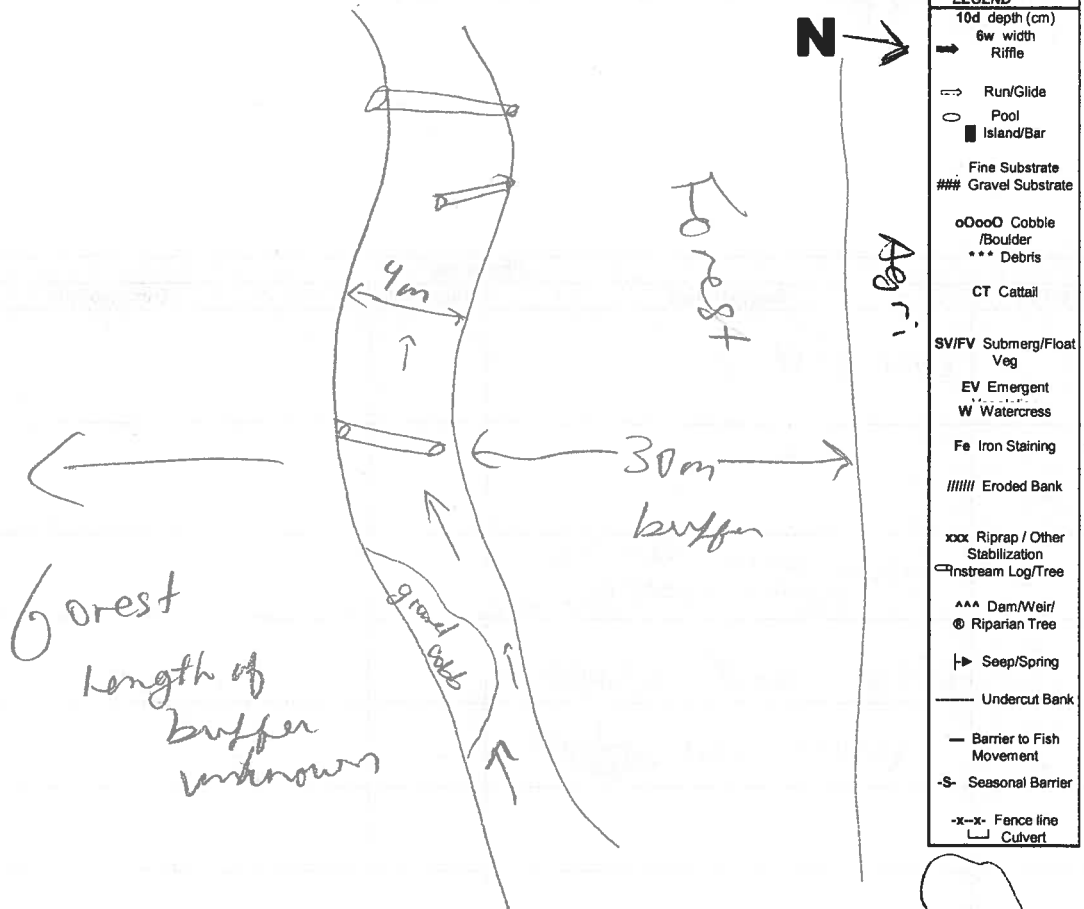
Bluewater Land Parcel#

1658

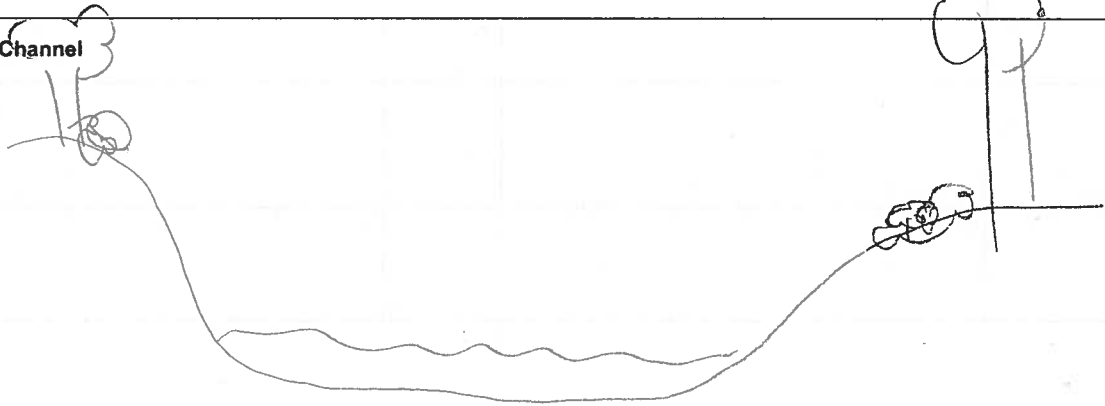
Turbine #

~~4677~~

C46



Horizontal View of Channel



AECOM

Page 1 of 4

Field Crew: CB, TS

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 1658 Turbine # GOS - C46
 Date: Sep 28/11 Start time: 9:30 End Time: 10:15

Weather Conditions:

Cloudy, 11°C

Field Notes By:

CB

Site Location

West of Cedar Swamp, South of Kirkton

UTM Co-ordinates

Easting: 0444865 Northing: 4793927 Description: ~50m west from start
 Easting: Northing: Description:
 Easting: Northing: Description:
 Easting: Northing: Description:

Surrounding Landuse/Pollution Sources

Residential ☐ Meadow ☐
 Agriculture ☒ Wetland ☐
 Forest ☐ Livestock ☐

Other:

Type of Watercourse

Intermittent ☐ Channelized ☒
 Permanent ☒ Natural Channel ☐
 Ephemeral ☐

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

- dredged drainage ditch dividing properties
- tile drain inputs noted

In-Situ Water Quality

WT (°C): 9 AT (°C): 15
 pH: 7 Cond (s/cm): ✓
 Water Clarity: Clear ☐ Turbid ☒

Ground Water Indicators

Watercress ☐ Bank Seepage ☐
 Iron Staining ☐ None ☒
 Bubbling ☐ Other ☐

Notes: w/g meter not available

Stream Morphology

Site Length (m): ~100 m

Bank Stability:

Channel Dimensions

Mean Wetted Width (m): 1.3 Mean Bankfull Width (m): 2
 Mean Wetted Depth (m): 0.4 Mean Bankfull Depth (m): 0.9

	Stable	Slightly unstable	Moderately unstable	Unstable
Left Bank	☒	☐	☐	☐
Right Bank	☒	☐	☐	☐

Flow Description:

fast flowing - esp after tile drain inputs 3 sec/2m
 banks well veg.

Notes:

- deeply channelized, not entirely veg.

AECOM

Page 2 of 4

Stream Morphology (continued)

Substrate (< = >)

Bo - Boulder
Co - Cobble
Gr - Gravel
Sa - Sand
Si - Silt
Cl - Clay
MK - Muck
DT - Detritus
Other

Description

si, cl, gr, sand > co & bo

Notes:

Morphological Structure (%)

Pool	Riffle	Run	Flat
		100	

Habitat

Instream Cover (%) 25

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other: woody debris
	10		70	20		

*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

emergent, grasses,

Canopy Cover (% closed cover):

100-90%

☐

30-1%

☒

90-60%

☐

0%

☐

60-30%

☐

Types of Cover (% cover)

Trees

Shrubs

30

Grasses

50

Herbaceous

20

Man-made structures

Other

Notes:

not many areas overgrown leaving open water

Obstructions to Fish Passage

No Obstructions

☒

Man-Made

☐

Natural

☐

Description:

Drainage Features within Study Area

Observations of Land Topography within 120 m buffer area:

- slightly rolling but no gullies observed

Terrestrial features Present

Yes

☒

Terrestrial Recon Form Filled out

Yes

☒

C46

AECOM

Sep 28/11

~~C46~~

Page 3 of 4

Other General Comments Regarding the Study Area:

- evidence of beaver in area + dam observed at mid-point

Photo log

Picture #	Description	Picture #	Description
129	overview of stream		
130	stream run		
131	" "		
132	" "		
133	thick veg. in stream channel		
134	stream channel		
135	" "		
136	" "		
137	thick veg. cover in stream channel		
138	" "		
139	Beaver Dam		

C46

AECOM

Page 4 of 4

Watercourse Sketch

Study Area:

Jericho

Goshen

Bluewater

Land Parcel#

1658

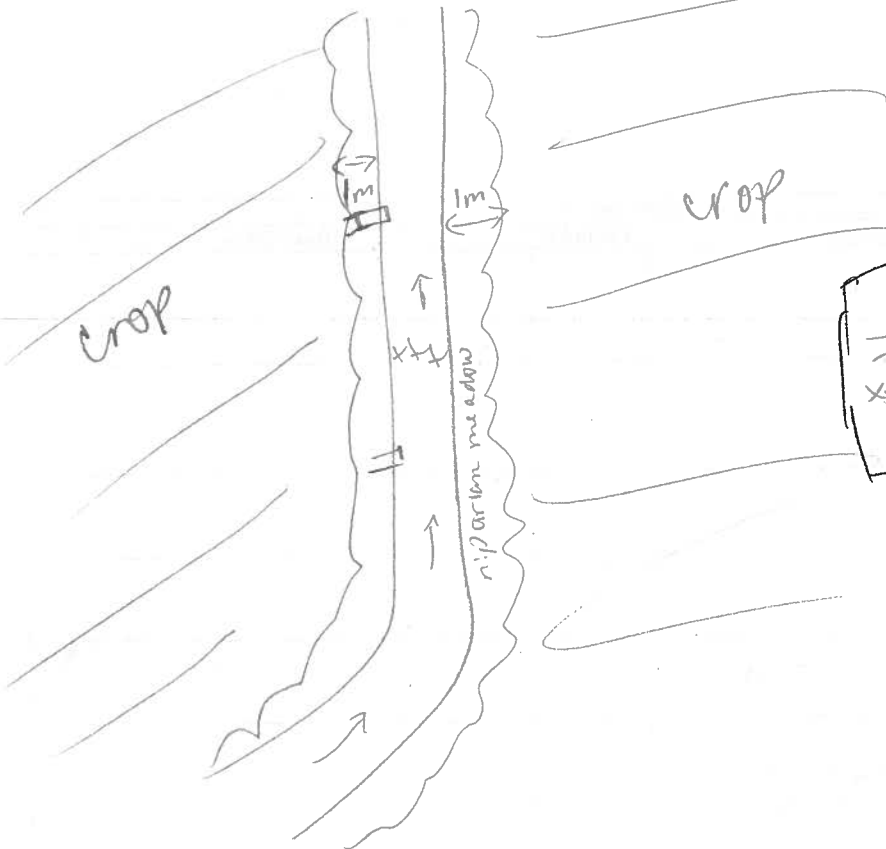
Turbine #

GOS-C46*

N →

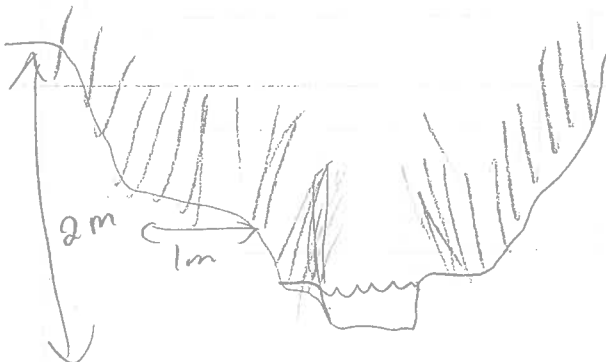
LEGEND

10d depth (cm)
6w width
Riffle
Run/Glide
Pool
Island/Bar
Fine Substrate
Gravel Substrate
Cobble/Boulder
Debris
CT Cattail
SV/FV Submerge/Float Veg
EV Emergent
W Watercress
Fe Iron Staining
Eroded Bank
Riprap / Other Stabilization
Instream Log/Tree
Dam/Weir
Riparian Tree
Seep/Spring
Undercut Bank
Barrier to Fish Movement
Seasonal Barrier
Fence line
Culvert

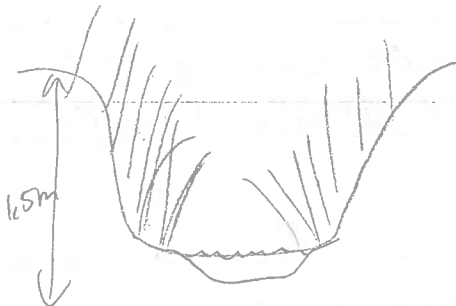


Horizontal View of Channel

West end



East end



*looking down/5

Water Bodies Assessment Field Collection Form

Page 1 of 4

AECOM

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 1605/1619/1606 Site ID: D05 C48

Date: May 11/12 Start time: 8:00 End Time: 10:17

Weather Conditions:

Sunny, 90C

Field Crew: C. Boras, J. Epp

Field Notes By: C. Boras

Site Location

Crediton Rd and Corbett Ln.

Roadside Survey for GSH 1606

UTM Co-ordinates (continue on page 3 if necessary)

Easting: 443142 Northing: 4792186 Description: D05 start

Easting: 444098 Northing: 4792502 Description: D05 end

Easting: 443135 Northing: 4792437 Description: D05 GSH1606

Easting: Northing: Description:

Surrounding Landuse

Residential ☐ Meadow ☐
Agriculture ☒ Wetland ☐
Forest ☐ Livestock ☐
Other ☐

Description: crop fields, wheat planted, old corn field

Type of Watercourse

Intermittent ☐ Channelized ☒
Permanent ☒ Natural Channel ☐
Ephemeral ☐

Description: North branch west of Corbett is naturalizing but everything roadside is just channelized

Notes: (Include any inputs into the system i.e. tile drainage, seepages, overland flow)

tile drain inputs - flowing → providing flow to stream

Is any portion of the water body underground or not as mapped? Y/N

If Yes describe:

GPS Coordinate Easting -

Northing -

Description -

Description of Land Topography Surrounding Water Body (rolling hills, sloping towards water body)

flat

In-Situ Water Quality

WT (°C): 9.5 AT (°C): 12°C
pH: / Cond (s/cm): /
D.O. (mg/L) /
Water Clarity: Clear ☒ Turbid ☐

Water Colour: n/a

Notes: w/g meter not working

Ground Water and Seepage Indicators

Watercress ☐ Bank Seepage ☐
Iron Staining ☐ None ☐
Bubbling ☐ Speedwell ☒
Other ☐

Details:

found in first stretch (north branch) only - not roadside

Water Bodies Assessment Field Collection Form

Stream Morphology																				
Site Length (m): 700m				Bank Stability:																
Channel Dimensions				<table border="1" style="width: 100%; text-align: center;"> <tr> <th></th> <th>Stable</th> <th>Slightly unstable</th> <th>Moderately unstable</th> <th>Unstable</th> </tr> <tr> <td>Left Bank</td> <td>☐</td> <td>☒</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Right Bank</td> <td>☐</td> <td>☒</td> <td>☐</td> <td>☐</td> </tr> </table>			Stable	Slightly unstable	Moderately unstable	Unstable	Left Bank	☐	☒	☐	☐	Right Bank	☐	☒	☐	☐
	Stable	Slightly unstable	Moderately unstable	Unstable																
Left Bank	☐	☒	☐	☐																
Right Bank	☐	☒	☐	☐																
Mean Wetted Width (m): 0.60	Mean Wetted Depth (m): 0.20	Description: Slumping + erosion mostly occurring in North branch. Little erosion, some slumping roadside																		
Mean Bankfull Width (m): 1	Mean Bankfull Depth (m): 0.5																			
Mean Top of Bank Width (m): 3	Mean Top of Bank Depth (m): 2.5																			
Flow Description: (high or low flow conditions, stagnant, etc)																				
moderate flow North Branch, slow to stagnant in roadside																				
Habitat																				
Substrate (<=>)		Morphological Structure (%)																		
Bo - Boulder	Description	Pool	Riffle	Run	Flat															
Co - Cobble	North Branch:	20	5	15	0															
Gr - Gravel	clay packed bottom w/ gr, co, sa, si, dt				65															
Sa - Sand	Roadside:				95															
Si - Silt	dt, mk > si, cl > gr, sa	Notes: slight meandering in North branch																		
Cl - Clay		No meandering roadside																		
MK - Muck																				
DT - Detritus																				
Instream Cover (%) N.B = 80 R = 95																				
Other	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	None															
20		10	20	30																
40		2	3	50																
					Undercut Banks															
					Average Depth: 0.10 m															
					(% Cover) 5 North branch															
Note: Low = 0 - 30%; Moderate = 30 - 75%; High = 75 - 100%																				
*Aquatic Vegetation Species Present (algae, submergent, emergent etc.)																				
NB = algae & attached + filamentous > grasses > LT																				
R = grasses > algae > LT / phrag																				
Canopy Cover (% closed cover):		Types of Cover (% cover)																		
100-90%	☐	30-1%	☒	Trees	10															
90-60%	☐	0%	☐	Shrubs	5															
60-30%	☐			Grasses	80															
		Man-made structures																		
		Herbaceous																		
		Other																		
Note: Low = 0 - 30%; Moderate = 30 - 60%; High = 60 - 100%																				
Notes: (vegetation species, types of structures)																				
Spiraea, elm, red cedar, black locust, hawthorn																				
Riparian Vegetation																				
Width of riparian vegetation: NB > 1.5m - grasses R > South < 0.5m grasses																				
Description of vegetation community surrounding 30 m from watercourse: West 1.5m - grasses																				
agri crop fields																				
Obstructions to Fish Passage																				
No Obstructions	☒	Man-Made	☐	Natural	☐															
				Low Flow Barrier	☐															
Description of Barrier:																				
Height of Barrier (m)																				
GPS Coordinates:																				

Water Bodies Assessment Field Collection Form

AECOM

Date: May 11/12

Land Parcel/Site ID: 1605/1620/1606 ^{DOS} C48 Page 3 of 4

Other General Comments Regarding the Study Area:

the beginning section of study area (North Branch) was slightly meandering and has ripples and pools. there was slumping + erosion occurring throughout. instream cover high (mix of cobbles + algae) but canopy cover low. As we moved up to the roadside section the watercourse was straight and had more grass, algae and debris in the channel. Substrate more stony + debris, canopy cover low.

^{DOS} GSH 1606 - Roadside → Channel comes down through forest runs along roadside 10m then heads back into forest. Channel has water (could not see flow, and is ~0.5m width) all it cattail choked, and grasses growing throughout. Looks like shallow water < 20cm

Photo log			
Picture #	Description	Picture #	Description
1a	Sheet		
1b	Convergence overview	35-42	Road adjacent
2	Looking east	43	Bend towards forest
3	Looking west		
4	East channel overview		
5	West channel overview		
6-7	North channel overview		
8-10	↓		
11-14	North channel to road overview		
15-21	Roadside - west of Corbett		
22-32	Roadside - East of Corbett		
33	↓ - bend north		
34	after bend north		

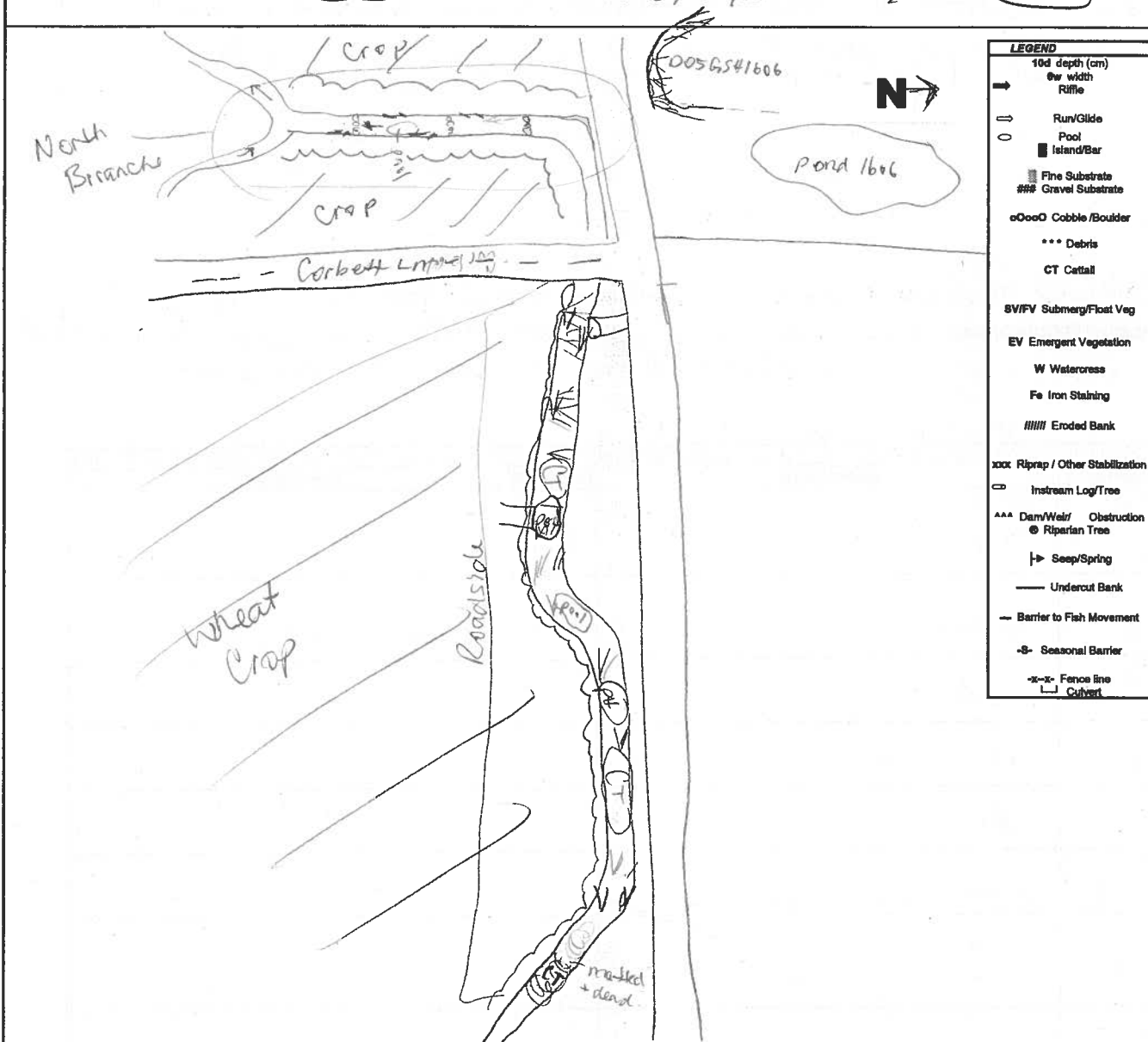
Water Bodies Assessment Field Collection Form

AECOM

Page 4 of 4

Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 1605/1619/1606 Site ID D05 C48



Horizontal View of Channel



Initial QA/QC By: L. Bentley

Date: May 16, 2012

Technical QA/QC By: Stutken

Date: May 30/12

AECOM

Field Crew:

SA, Bgn

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 1619 Turbine # ~~618~~ 18 C48
 Date: July 14/2011 Start time: 11:00 End Time: 11:08

Weather Conditions: Sunny ~28°C
very windy

Field Notes By:

SA

Site Location

South side of Crediton Line

UTM Co-ordinates

Easting: 443779 Northing: 4792309 Description: Goshen 18

Easting: Northing: Description:

Easting: Northing: Description:

Easting: Northing: Description:

Surrounding Landuse/Pollution Sources

Residential ☐ Meadow ☐
 Agriculture ☒ Wetland ☐
 Forest ☐ Livestock ☐

Other:

Type of Watercourse

Intermittent ☒ Channelized ☒
 Permanent ☐ Natural Channel ☐
 Ephemeral ☐

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

roadside ditch to chocked channel cat tails & reeds

In-Situ Water Quality

WT (°C): AT (°C):
 pH: Cond (s/cm):
 Water Clarity: Clear ☐ Turbid ☐

Ground Water Indicators

Watercress ☐ Bank Seepage ☐
 Iron Staining ☐ None ☒
 Bubbling ☐ Other ☐

Notes:

Stream Morphology

Site Length (m):

Bank Stability:

Channel Dimensions

Mean Wetted Width (m): Mean Bankfull Width (m):
 Mean Wetted Depth (m): Mean Bankfull Depth (m):

	Stable	Slightly unstable	Moderately unstable	Unstable
Left Bank	☒	☐	☐	☐
Right Bank	☒	☐	☐	☐

Flow Description:

dry roadside ditch

Notes:

AECOM

Page 2 of 4

Stream Morphology (continued)

Substrate (< = >)

Bo - Boulder
Co - Cobble
Gr - Gravel
Sa - Sand
Si - Silt
Cl - Clay
MK - Muck
DT - Detritus
Other

Description

Sa = Si

Morphological Structure (%)

Pool	Riffle	Run	Flat

Notes:

none

Habitat

Instream Cover (%)

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
				95%		

*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

Cattails

Canopy Cover (% closed cover):

100-90% ☐ 30-1% ☒
90-60% ☐ 0% ☐
60-30% ☐

Types of Cover (% cover)

Trees _____ Shurbs _____ Man-made structures _____
Grasses _____ Herbaceous _____ Other _____

Notes:

Cattails

Obstructions to Fish Passage

No Obstructions ☐ Man-Made ☐
Natural ☐

Description:

none observed
low flow

Drainage Features within Study Area

Observations of Land Topography within 120 m buffer area:

flow into roadside
ditch

Terrestrial features Present

Yes No

Terrestrial Recon Form Filled out

Yes No

AECOM

Page 3 of 4

Other General Comments Regarding the Study Area:

Cattail choked roadside ditch

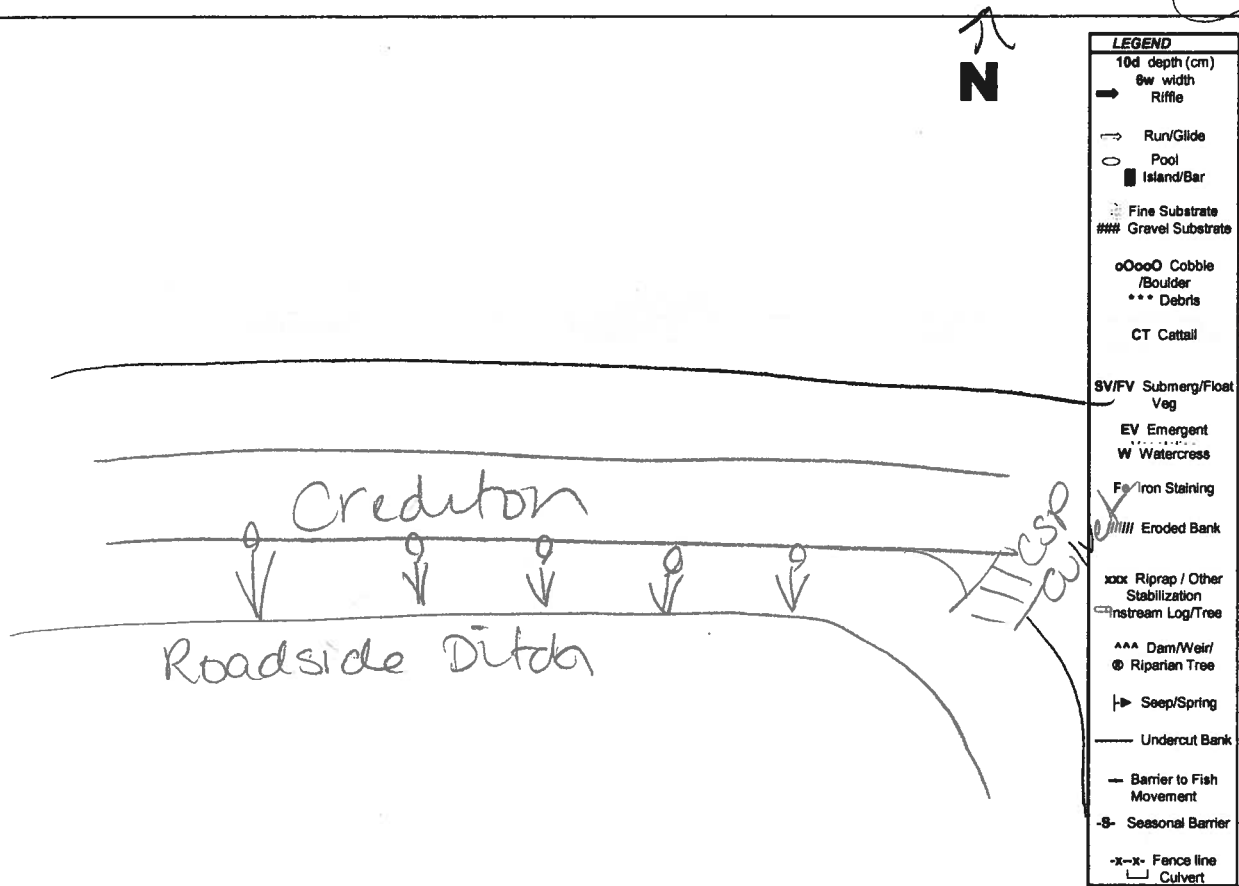
Photolog			
Picture #	Description	Picture #	Description
26	facing v/s		
27	View of dry channel		
28	facing d/s		
29	overview		
30	facing v/s		
31	facing d/s		
32	View from culvert dry channel		

AECOM

Page 4 of 4

Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 1619 Turbine # ~~57E18~~ (C48)



Horizontal View of Channel

C48

Page 1 of 4

AECOM

Field Crew: CB, TS

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 65H1640 Turbine # 049 ~~and 050~~
 Date: Sept 28/11 Start time: 12:45 End Time: 13:25

Weather Conditions:

Sunny 17°C

Field Notes By:

CB

Site Location

Just south of Crediton Rd btwn Corbett & Shipta
 * watercourse buried where we had property access → observations made from property edge.

UTM Co-ordinates

Easting: 0444329 Northing: 4792446 Description: @ stream @ forest edge
 Easting: Northing: Description:
 Easting: Northing: Description:
 Easting: Northing: Description:

Surrounding Landuse/Pollution Sources

Residential ☐ Meadow ☐
 Agriculture ☒ Wetland ☐
 Forest ☒ Livestock ☐

Other:

Type of Watercourse

Intermittent ☐ Channelized ☒
 Permanent ☒ Natural Channel ☐
 Ephemeral ☐

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

- Could not investigate

In-Situ Water Quality

WT (°C): AT (°C):
 pH: Cond (s/cm):
 Water Clarity: Clear ☒ Turbid ☒

Ground Water Indicators

Watercress ☐ Bank Seepage ☐
 Iron Staining ☐ None ☒
 Bubbling ☐ Other ☐

Notes:

sl. turbid.

Stream Morphology

Site Length (m): 20m

Bank Stability:

Channel Dimensions

Mean Wetted Width (m): 2m Mean Bankfull Width (m): 4
 Mean Wetted Depth (m): 0.2 Mean Bankfull Depth (m): 0.8

	Stable	Slightly unstable	Moderately unstable	Unstable
Left Bank	☐	☒	☐	☐
Right Bank	☐	☒	☐	☐

Flow Description:

Notes:

AECOM

Page 2 of 4

Stream Morphology (continued)

Substrate (<=>)

Bo - Boulder
Co - Cobble
Gr - Gravel
Sa - Sand
Si - Silt
Cl - Clay
MK - Muck
DT - Detritus
Other

Description

coarse silt, u.sand

Morphological Structure (%)

Pool	Riffle	Run	Flat
		100	

Notes:

Habitat

Instream Cover (%)

40

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
	10	10	80			

*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

Canopy Cover (% closed cover):

100-90%



30-1%



90-60%



0%



60-30%



Types of Cover (% cover)

Trees

100

Shrubs

Man-made structures

Grasses

Herbaceous

Other

Notes:

Obstructions to Fish Passage

No Obstructions



Man-Made



Natural



Description:

perched culvert

Drainage Features within Study Area

Observations of Land Topography within 120 m buffer area:

✓ flat

Terrestrial features Present

Yes

No

→ not on accessible property though

Terrestrial Recon Form Filled out

Yes

No

Sep 28/11

C48

AECOM

Gas C49, ~~C48~~

Page 3 of 4

Other General Comments Regarding the Study Area:

- watercourse buried under corn crop i.e. ~~substantiation~~ ^{aquatic survey}
 was not completed for site to access
 ↳ walked into crop ~30m and did not see stream
 resurface.

Photo log

Picture #	Description	Picture #	Description
165	overall View of Feature		
166	Tilt drainage		
167	Perched culvert		
168	Downstream View		
170	looking up to disappearing stream		
171	" "		
172	" "		

C49

C48

AECOM

Page 4 of 4

Watercourse Sketch

Study Area:

Jericho

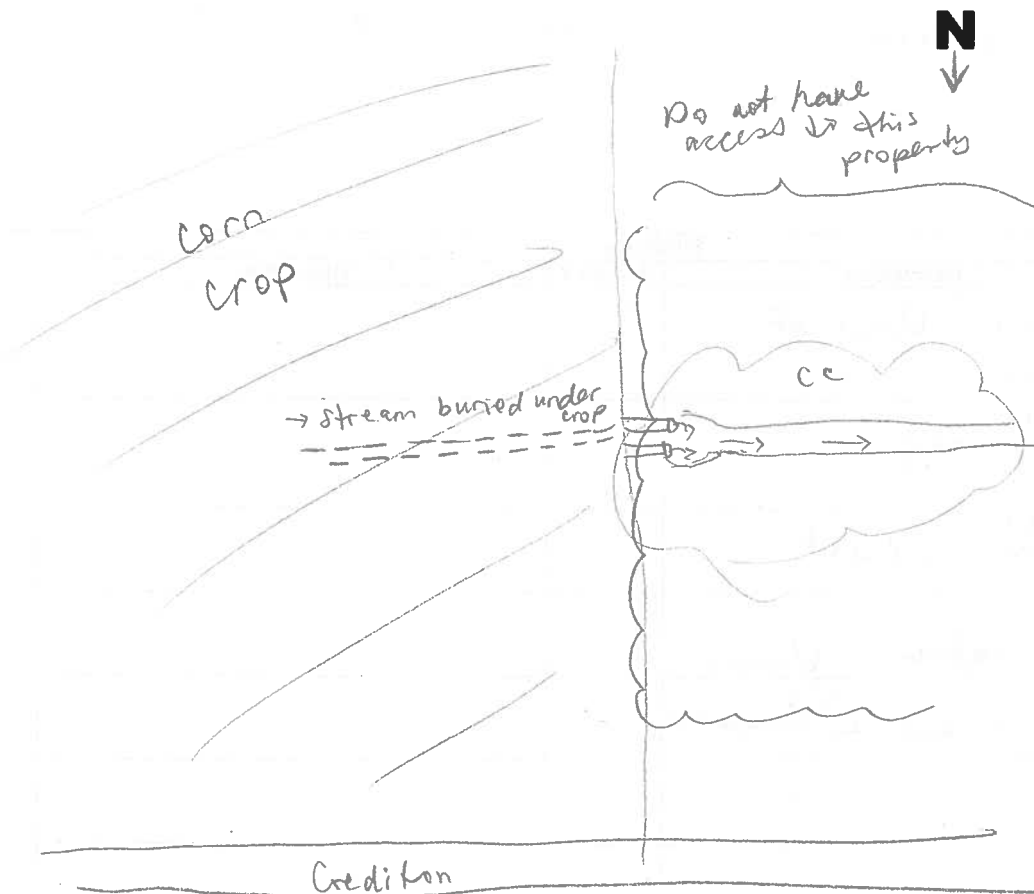
Goshen

Bluewater Land Parcel#

1640

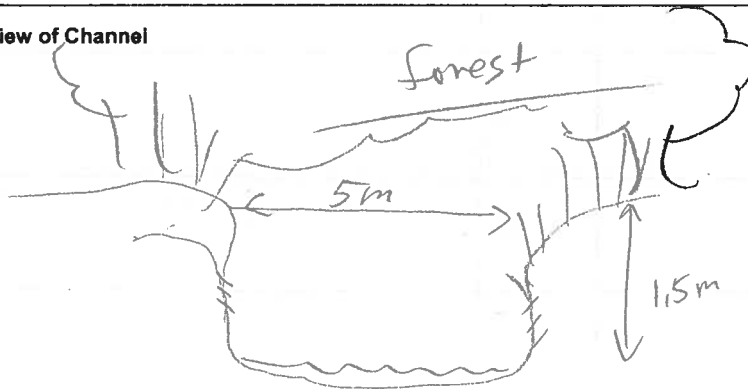
Turbine #

~~497~~ ~~50~~



LEGEND	
10d depth (cm)	
6w width	
Riffle	
Run/Glide	
Pool	
Island/Bar	
Fine Substrate	
Gravel Substrate	###
Cobble	o o o o
Boulder	
Debris	***
CT Cattail	
SV/FV Submerg/Float Veg	
EV Emergent	
W Watercress	
Fe Iron Staining	
Eroded Bank	
Riprap / Other Stabilization	xxx
Instream Log/Tree	—
Dam/Weir	***
Riparian Tree	⊗
Seep/Spring	↳
Undercut Bank	—
Barrier to Fish Movement	—
Seasonal Barrier	-S-
Fence line	-x-x-
Culvert	□

Horizontal View of Channel



AECOM

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 1744 Site ID: D36 D42
 Date: Apr 26/12 Start time: 10:25 End Time: 10:45
 Weather Conditions: overcast, ~10°C Field Crew: S. Aiken, S. Lohnes
 Field Notes By: SA

Site Location

west Blackbush line - back of farm field along north property line
ASA on GSH 1745

UTM Co-ordinates (continue on page 3 if necessary)

Easting: 0446804 Northing: 4793573 Description: Current crossing
 Easting: Northing: Description:
 Easting: Northing: Description:
 Easting: Northing: Description:

Surrounding Land Use

Type of Watercourse

Residential ☐ Meadow ☐
 Agriculture ☒ Wetland ☐
 Forest ☐ Livestock ☐
 Other ☐
 Description: crops on either side
 Intermittent ☐ Channelized ☒
 Permanent ☒ Natural Channel ☐
 Ephemeral ☐
 Description: straightened channel, starting to naturalize

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

Is any portion of the water body underground or not as mapped? Y N
 If Yes describe:

GPS Coordinate: Easting - Northing - Description -

Description of Land Topography Surrounding Water Body (rolling hills, sloping towards water body)

relatively flat

In-Situ Water Quality

Ground Water and Seepage Indicators

WT (°C): 9.28 AT (°C): 10°C
 pH: 8.12 Cond (µs/cm): 598
 D.O. (mg/L): 12.30
 Water Clarity: Clear ☒ Turbid ☐

Watercress ☒ Bank Seepage ☐
 Iron Staining ☐ None ☐
 Bubbling ☐
 Other ☐

Water Colour: none

Details:

clumps of watercress

Notes: farmer drives through creek may cause turbidity issues, potential for equipment leaks

Water Bodies Assessment Field Collection Form

Stream Morphology																				
Site Length (m): 400				Bank Stability:																
Channel Dimensions				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th></th> <th>Stable</th> <th>Slightly unstable</th> <th>Moderately unstable</th> <th>Unstable</th> </tr> <tr> <td>Left Bank</td> <td>☒</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Right Bank</td> <td>☐</td> <td>☒</td> <td>☐</td> <td>☐</td> </tr> </table>			Stable	Slightly unstable	Moderately unstable	Unstable	Left Bank	☒	☐	☐	☐	Right Bank	☐	☒	☐	☐
	Stable	Slightly unstable	Moderately unstable	Unstable																
Left Bank	☒	☐	☐	☐																
Right Bank	☐	☒	☐	☐																
Mean Wetted Width (m): 1.5	Mean Wetted Depth (m): 0.21		Description: RB very steep, signs of erosion																	
Mean Bankfull Width (m): 3.0	Mean Bankfull Depth (m): 1.0																			
Mean Top of Bank Width (m): 6	Mean Top of Bank Depth (m): 2.5																			
Flow Description: (high or low flow conditions, stagnant, etc) low flow, low gradient																				
Habitat																				
Substrate (<=>)		Description		Morphological Structure (%)																
Bo - Boulder Co - Cobble Gr - Gravel Sa - Sand Si - Silt Cl - Clay MK - Muck DT - Detritus		Si > Gr > Co Clay Bottom		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Pool</th> <th>Riffle</th> <th>Run</th> <th>Flat</th> </tr> <tr> <td>10</td> <td>10</td> <td>60</td> <td>20</td> </tr> </table>		Pool	Riffle	Run	Flat	10	10	60	20							
Pool	Riffle	Run	Flat																	
10	10	60	20																	
		Notes:																		
Instream Cover (%)																				
Other	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	None															
	20		5	30																
					Undercut Banks															
					Average Depth: 0.15 (% Cover) 10															
Note: Low = 0 - 30%; Moderate = 30 - 75%; High = 75 - 100%																				
*Aquatic Vegetation Species Present (algae, submergent, emergent etc.) overhanging vegetation																				
Canopy Cover (% closed cover):			Types of Cover (% cover)																	
100-90%	☐	30-1%	☐	Trees	Shrubs 30															
90-60%	☐	0%	☐	Grasses 20	Herbaceous															
60-30%	☒				Man-made structures 2 Other															
Note: Low = 0 - 30%; Moderate = 30 - 60%; High = 60 - 100%																				
Notes: (vegetation species, types of structures) willow and alder grasses																				
attached algae along bottom and rocks																				
Riparian Vegetation																				
Width of riparian vegetation: 5m RB 75m LB																				
Description of vegetation community surrounding 30 m from watercourse: cultural meadow																				
Obstructions to Fish Passage																				
No Obstructions	☐	Man-Made	☒	Natural	☐															
				Low Flow Barrier	☒															
Description of Barrier: concrete has been dumped into stream to create crossing																				
Height of Barrier (m)		0.20 m/s + d/s		GPS Coordinates: same coordinates as crossing																
1 cm water depth																				

AECOM

Date:

Apr 26/2012

Land Parcel/Site ID:

~~D42~~
~~D26~~ 1744

Page 3 of 4

Other General Comments Regarding the Study Area:

- straightened channel starting to naturalize
- overhanging vegetation
- undercutting near bank full
- completed ASH on adjacent property

Additional UTM Coordinates:

Photo log			
Picture #	Description	Picture #	Description
115	start		
116	crossing		
117	perch d/s		
118	u/s from crossing		
119	d/s from crossing		
120	u/s		
121	Substrates		

Water Bodies Assessment Field Collection Form

AECOM

Page 4 of 4

Study Area:

Jericho

Goshen

Bluewater

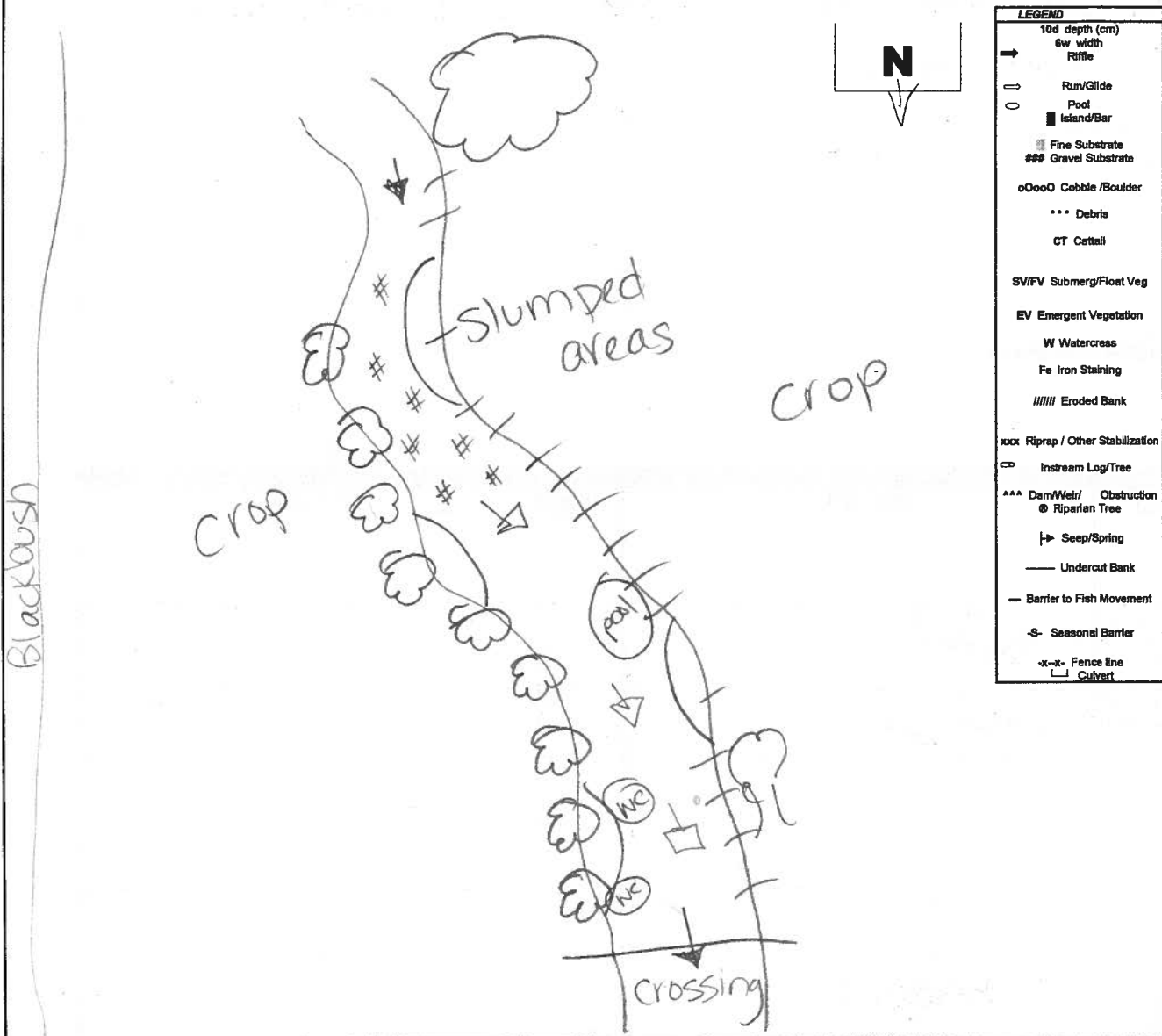
Land Parcel#

1744

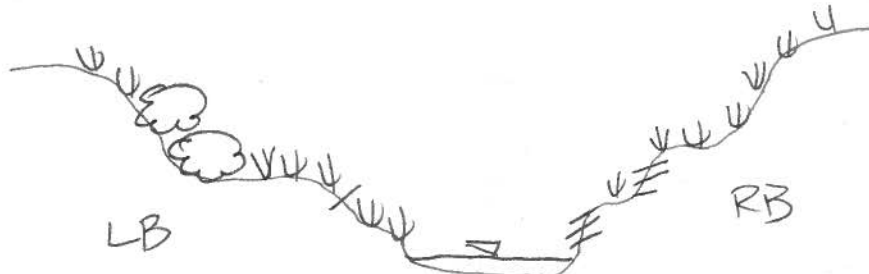
Site ID

236
B42

C52



Horizontal View of Channel



Initial QA/QC By: L. Bentley

Date: May 2, 2012

Technical QA/QC By: N.L.

Date: 8th May 2012

AECOM

Page 1 of 4

Field Crew: CB, TS

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 1743 Turbine # [C002] C52
 Date: Dec 16/11 Start time: 11:55 End Time: 12:35

Weather Conditions:

Cloudy 1°C

Field Notes By:

CB

Site Location

Blackbush Ln, North of Crutchen* Roadside Survey
West ~~side~~ side

UTM Co-ordinates

Easting: 9447330 Northing: 4793314 Description: Culvert
 Easting: Northing: Description:
 Easting: Northing: Description:
 Easting: Northing: Description:

Surrounding Landuse/Pollution Sources

Residential ☒ Meadow ☐
 Agriculture ☒ Wetland ☐
 Forest ☐ Livestock ☐

Intermittent ☐ Channelized ☒
 Permanent ☒ Natural Channel ☐
 Ephemeral ☐

Other:

↳ appears to be naturalizing

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

In-Situ Water Quality

WT (°C): / AT (°C): /
 pH: / Cond (s/cm): /
 Water Clarity: Clear ☐ Turbid ☐

Ground Water Indicators

Watercress ☐ Bank Seepage ☐
 Iron Staining ☐ None ☒
 Bubbling ☐ Other ☐

Notes:

wg meter not working

Stream Morphology

Site Length (m): 50m

Bank Stability:

Channel Dimensions

Channel Dimensions	Stable	Slightly unstable	Moderately unstable	Unstable
Mean Wetted Width (m): <u>2.6</u>	Mean Bankfull Width (m): <u>3.3</u>	Left Bank ☐	☒	☐
Mean Wetted Depth (m): <u>n/a</u>	Mean Bankfull Depth (m): <u>n/a</u>	Right Bank ☒	☐	☐

Flow Description:

mod flow, mod levels

Notes:

-> large pool at culvert area little visible flow but downstream flowing

AECOM

Page 2 of 4

Stream Morphology (continued)

Substrate (< = >)

Bo - Boulder
Co - Cobble
Gr - Gravel
Sa - Sand
Si - Silt
Cl - Clay
MK - Muck
DT - Detritus
Other

Description

n/a

Morphological Structure (%)

Pool	Riffle	Run	Flat
	15	85	

Notes:

slight meander

Habitat

Instream Cover (%)

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:

*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

→ some cobble observed but no access + water too turbid to see through

Canopy Cover (% closed cover):

100-90%

☐

30-1%

☐

90-80%

☐

0%

☐

60-30%

☒

Types of Cover (% cover)

Trees

50

Shrubs

Man-made structures

Grasses

50

Herbaceous

Other

Notes:

Obstructions to Fish Passage

No Obstructions

☒

Man-Made

☐

Natural

☐

Description:

Drainage Features within Study Area

Observations of Land Topography within 120 m buffer area:

flat

Terrestrial features Present

Yes

No

Terrestrial Recon Form Filled out

Yes

No

C52

AECOM

Page 3 of 4

Other General Comments Regarding the Study Area:

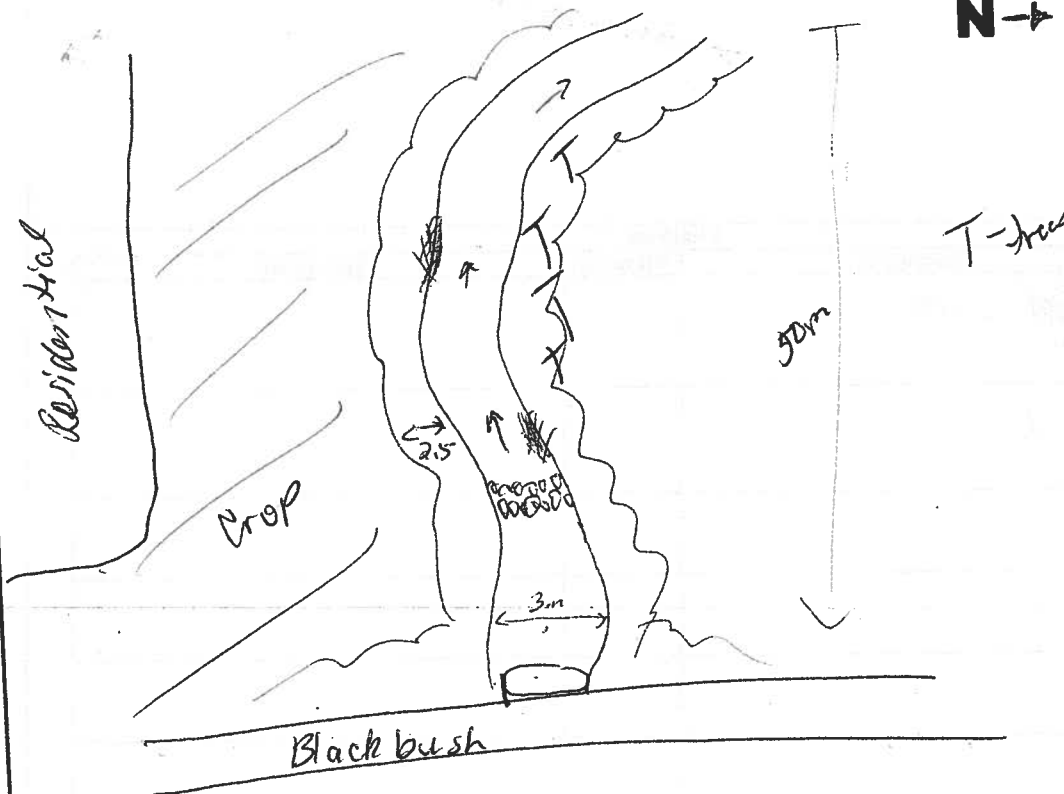
Photo log

Picture #	Description	Picture #	Description
114	East side		
↓	West		
117	↓		

AECOM

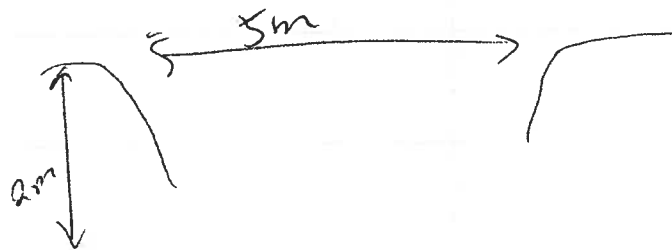
Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 1743 Turbine # E2027 C52



LEGEND	
100 depth (cm)	
Bar width	
Rifle	
Run/Glide	
Pool	
Island/Bar	
Fine Substrate	
Gravel Substrate	
Cobble	
Boulder	
Debris	
CT Catfall	
SV/FV Submerg/Float Veg	
EV Emergent	
W Watercress	
Fe Iron Staining	
HHH Eroded Bank	
xxx Riprap / Other Stabilization	
stream Log/Tree	
*** Dam/Wall	
● Riparian Tree	
↳ Seep/Spring	
Undercut Bank	
Barrier to Fish Movement	
Seasonal Barrier	
Fence line	
Culvert	

Horizontal View of Channel



AECOM

Page 1 of 4

Field Crew: CB, TS

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 1078 Turbine # GOS-C52
 Date: Sep 28 / 11 Start time: 11:10 End Time: 11:50

Weather Conditions:

Sunny, 17°C

Field Notes By:

CB

Site Location

On Blackbush Ln, north of Crediton → only access to East side of Road *

UTM Co-ordinates

Easting: 0447339 Northing: 4793322 Description: @ road culvert
 Easting: Northing: Description:
 Easting: Northing: Description:
 Easting: Northing: Description:

Surrounding Landuse/Pollution Sources

Residential ☐ Meadow ☐
 Agriculture ☒ Wetland ☐
 Forest ☐ Livestock ☐

Other:

Type of Watercourse

Intermittent ☐ Channelized ☒
 Permanent ☒ Natural Channel ☒
 Ephemeral ☐

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

- gullies by bridge

In-Situ Water Quality

WT (°C): 11 AT (°C): 17
 pH: Cond (s/cm):
 Water Clarity: Clear ☐ Turbid ☒

Ground Water Indicators

Watercress ☒ Bank Seepage ☐
 Iron Staining ☐ None ☐
 Bubbling ☐ Other ☐

Notes: Could not see into

- found in clumps throughout

Stream Morphology

Site Length (m): ~100m

Bank Stability:

Channel Dimensions

Mean Wetted Width (m): 3 Mean Bankfull Width (m): 5
 Mean Wetted Depth (m): 0.45 Mean Bankfull Depth (m): 1m

	Stable	Slightly unstable	Moderately unstable	Unstable
Left Bank	☐	☒	☐	☐
Right Bank	☐	☒	☐	☐

Flow Description:

minor erosion + slumping

Notes:

moderate flow

AECOM

Page 2 of 4

Stream Morphology (continued)

Substrate (< = >)

Bo - Boulder
Co - Cobble
Gr - Gravel
Sa - Sand
Si - Silt
Cl - Clay
MK - Muck
DT - Detritus
Other

Description

si, sa } gr >> co, bo

Notes:

Morphological Structure (%)

Pool	Riffle	Run	Flat
		100	

Instream Cover (%) 35

Habitat

→ difficult to see into stream to observe substrate

↓
may be an underestimation

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
	50			50		

*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

grasses.

Canopy Cover (% closed cover):

100-90% ☐ 30-1% ☐
90-60% ☐ 0% ☐
60-30% ☒

Types of Cover (% cover)

Trees 30 Shrubs 40
Grasses 10 Herbaceous 20
Man-made structures _____
Other _____

Notes:

Obstructions to Fish Passage

No Obstructions ☒ Man-Made ☐
Natural ☐

Description:

Drainage Features within Study Area

Observations of Land Topography within 120 m buffer area:

-flat

Terrestrial features Present

Yes ☐ No ☐

Terrestrial Recon Form Filled out

Yes ☐ No ☐

AECOM

Sep 28/11

GOS (C52)

Page 3 of 4

Other General Comments Regarding the Study Area:

- Water v. turbid - difficult to survey aquatic community
- West side of watercourse appears to be the same as the east side. More trees, ~~but same channel dimensions~~ and slightly more confined channel (from what was visible from road)

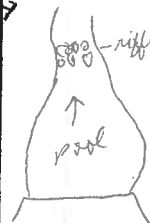
~~scribbles~~

Photo log

Picture #	Description	Picture #	Description
153	Stream riparian looking west	164	Stream channel
154	Stream riparian looking east		
155	Recon. Site		
156	Stream Pool		
157	looking east		
158	View of Box culvert		
159	looking downstream		
160	Stream channel		
161	Water cress		
162	" "		
163	Upstream		

AECOM

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Watercourse Sketch

Study Area:

Jericho

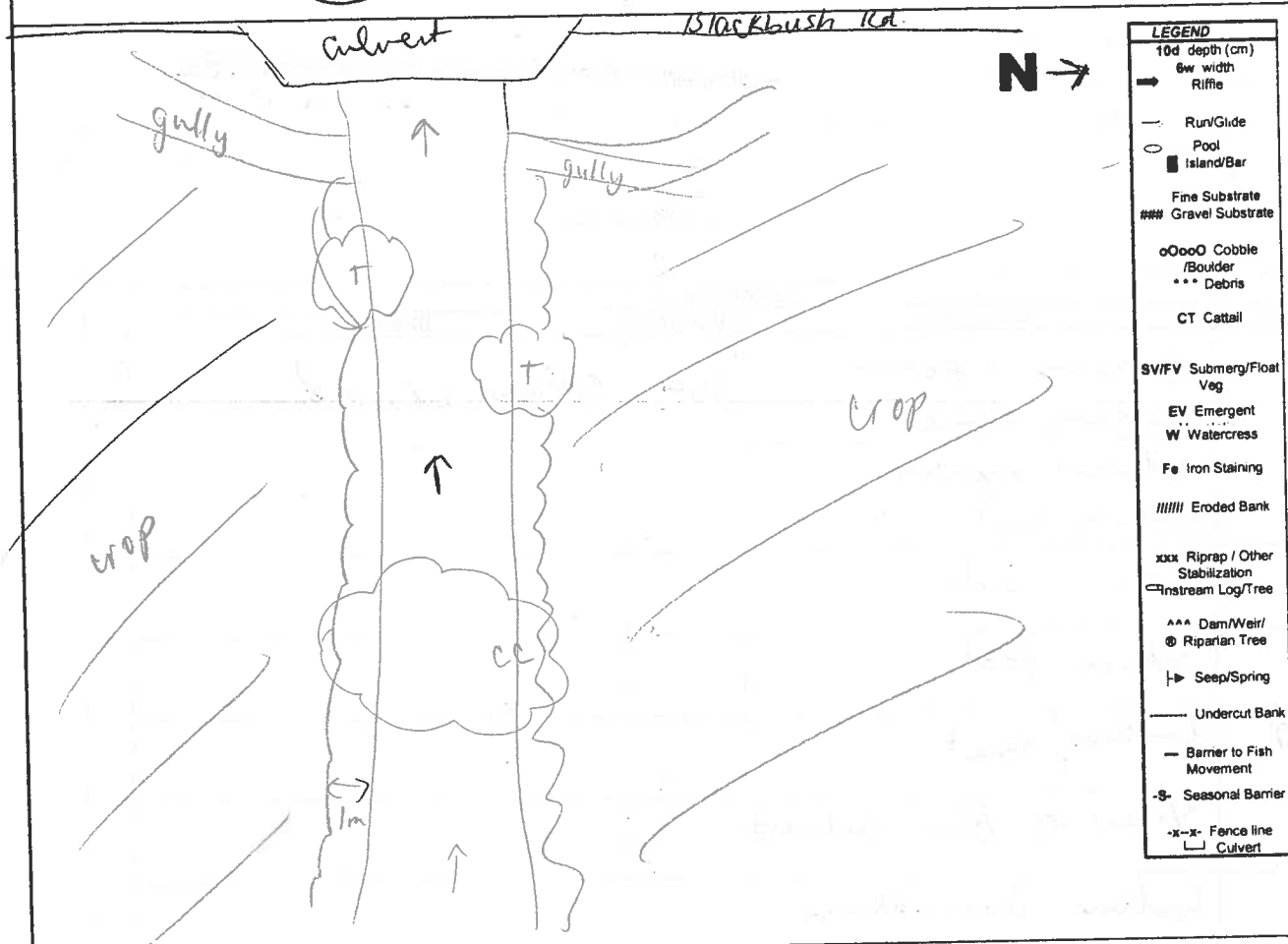
Goshen

Bluewater

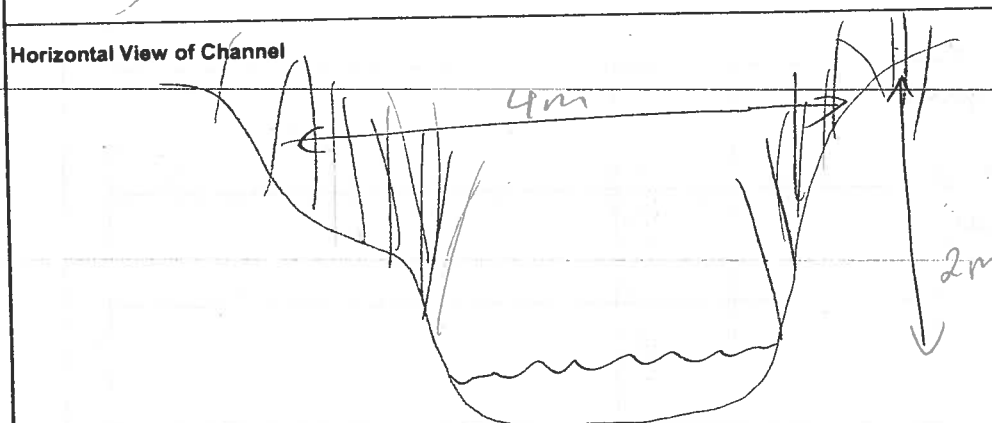
Land Parcel# 1078

Turbine #

GOS-C52



Horizontal View of Channel



C52

Page 1 of 4

AECOM

Field Crew:

CB, JP

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 1078 Turbine # ~~645-153~~
 Date: Sep 8/11 Start time: 11:00 End Time: 12:00

Weather Conditions:

Cloudy, 15°C

Field Notes By:

CB

Site Location

Creditor Rd. - east of Black Bush line.

UTM Co-ordinates

Easting: 4793171 Northing: 4793171 Description: Creditor Rd adjacent
 Easting: Northing: Description:
 Easting: Northing: Description:
 Easting: Northing: Description:

Surrounding Landuse/Pollution Sources

Residential ☐ Meadow ☐
 Agriculture ☒ Wetland ☐
 Forest ☐ Livestock ☐

Type of Watercourse

Intermittent ☐ Channelized ☒
 Permanent ☒ Natural Channel ☒
 Ephemeral ☐

Other:

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

no inputs noted however adjacent farmland probably drains into it.

In-Situ Water Quality

WT (°C): / AT (°C): /
 pH: / Cond (s/cm): /
 Water Clarity: Clear ☒ Turbid ☐

Ground Water Indicators

Watercress ☒ Bank Seepage ☐
 Iron Staining ☐ None ☐
 Bubbling ☐ Other ☐

Notes: w/g meter not available.

Stream Morphology

Site Length (m): ~ 350m

Bank Stability:

Channel Dimensions				Bank Stability:					
	A	B		A	B	Stable	Slightly unstable	Moderately unstable	Unstable
Mean Wetted Width (m):	1.2	2	Mean Bankfull Width (m):	2	3.5	☐	☒	☐	☐
Mean Wetted Depth (m):	0.10	0.20	Mean Bankfull Depth (m):	0.3	0.5	☐	☒	☐	☐

Flow Description:

slow flow

Notes:

AECOM

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Stream Morphology (continued)

Substrate (<=>)

Bo - Boulder
Co - Cobble
Gr - Gravel
Sa - Sand
Si - Silt
Cl - Clay
MK - Muck
DT - Detritus
Other

Description

A B
Si, Sa > Gr > Co > Bo
Si, Sa > Gr > Co > Bo

Notes:

Morphological Structure (%)

Pool		Riffle		Run		Flat	
A	B	A	B	A	B	A	B
10	15	10	5	40	30	40	50

30

Habitat

Instream Cover (%)

A = 50 B = 50

None		Woody Debris		Boulders		Cobble		Aquatic Vegetation*		Undercut Bank		Other:	
A	B	A	B	A	B	A	B	A	B	A	B	A	B
		10	30	10	5	50	40	10	20	20	5		

*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

algae, emergent, grasses.

Canopy Cover (% closed cover):

100-90%

☐

30-1%

☐

90-60%

☒

0%

☐

60-30%

☐

Types of Cover (% cover)

Trees

20

Shrubs

60

Man-made structures

Grasses

10

Herbaceous

Other

Notes:

Obstructions to Fish Passage

No Obstructions

☒

Man-Made

☐

Natural

☐

Description:

Drainage Features within Study Area

Observations of Land Topography within 120 m buffer area:

flat - agri fields adjacent

Terrestrial features Present

Yes

No

Terrestrial Recon Form Filled out

Yes

No

C52

AECOM

Sept 8/11

GDS C53

Page 3 of 4

Other General Comments Regarding the Study Area:

- It appears that the channel was dredged + channelized however has now started to naturalize in meandering process causing pools, riffles etc.

Photo log

Picture #	Description	Picture #	Description
1	Crediton Rd - Substrate A	12	"
2	Crediton Rd Crediton Rd - stream overview A	13	Stream overview B
3	Site overview A	14	Watercress B
4	Substrate - algae - spotted fish A	15	Substrate B
5	erosion + reeds in stream A	16	Stream overview B
6	emergent plant A	17	Site overview B
7	overview A	18	Stream overview B
8	in stream A	19	" B
9	" A	20	" B
10	fish habitat A	21	"
		22	"
11	T-intersection blwn A+B	23	"
		24	"

25 Site overview B

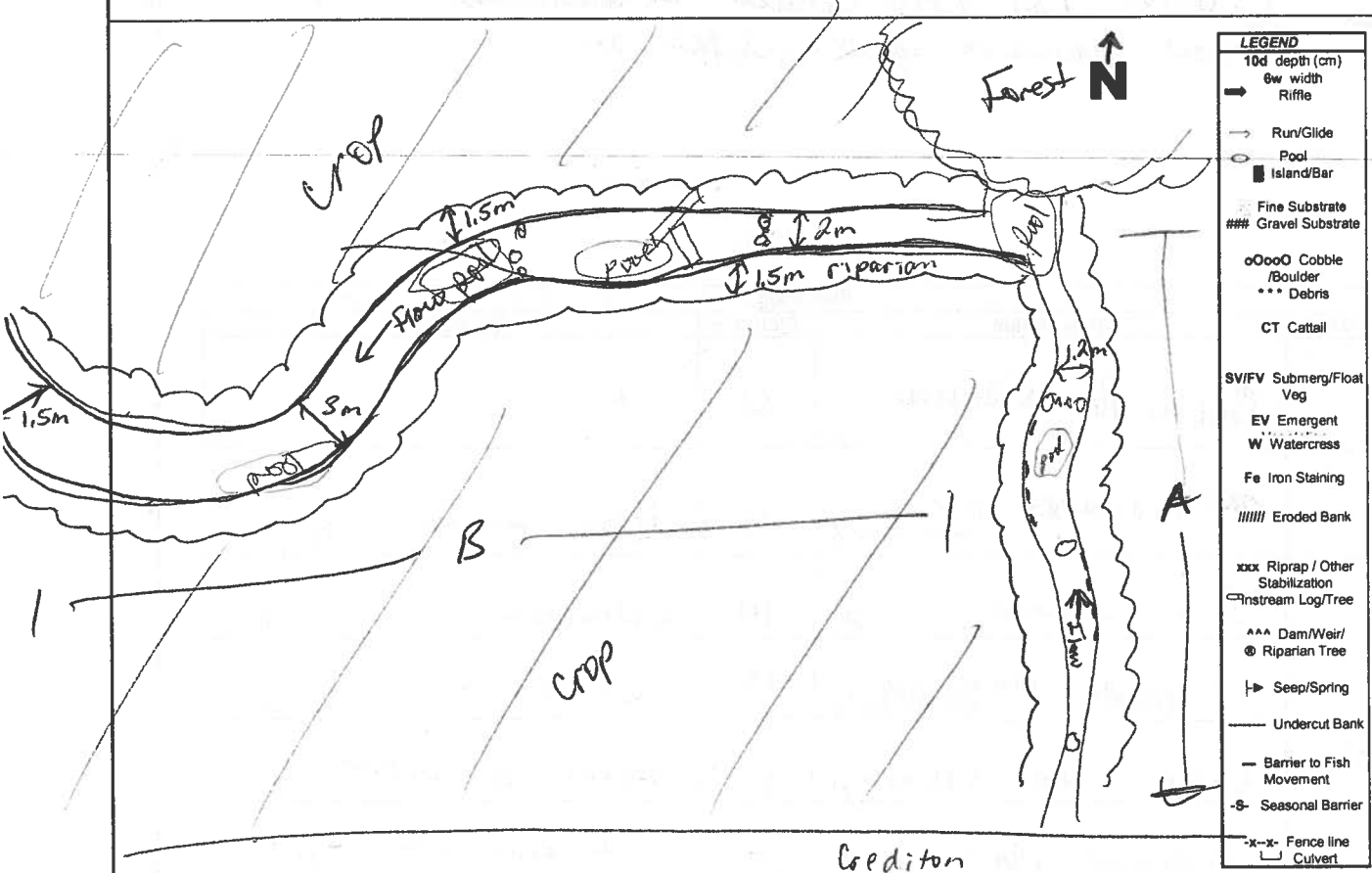
26 Stream overview B

C52

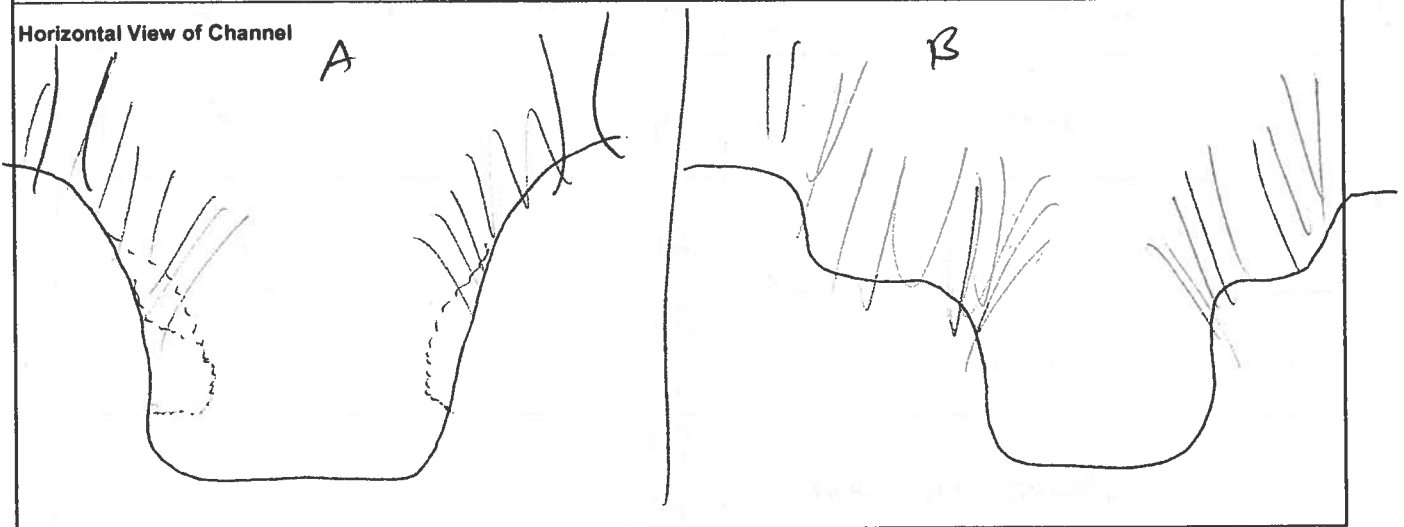
AECOM

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Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 1078Turbine # GAS-C53

Horizontal View of Channel



AECOM

Page 1 of 4

Field Crew:

CB, TS

General Information

Study Area: Jericho

Goshen

Bluewater

Land Parcel# 2161

Turbine#

C56

Date: Dec 16 / 11

Start time: 9:00

End Time: 9:40

Weather Conditions:

Cloudy, 1°C

Field Notes By:

CB

Site Location

Crediton Ln, west of Babylon

UTM Co-ordinates

Easting: 0452872

Northing: 4793439

Description: at stream

Easting:

Northing:

Description:

Easting:

Northing:

Description:

Easting:

Northing:

Description:

Surrounding Landuse/Pollution Sources

Residential

☐

Meadow

☐

Agriculture

☒

Wetland

☐

Forest

☐

Livestock

☐

Other:

Type of Watercourse

Intermittent

☐

Channelized

☒

Permanent

☒

Natural Channel

☐

Ephemeral

☐

Notes: (Include any inputs into the system i.e. tile drainage, seepages, overland flow)

-tile drain input noted

In-Situ Water Quality

WT (°C):

AT (°C):

pH:

Cond (s/cm):

Water Clarity:

Clear

☐

Turbid

☒

Ground Water Indicators

Watercress

☐

Bank Seepage

☐

Iron Staining

☐

None

☒

Bubbling

☐

Other

☐

Notes: Wg meter not working

Stream Morphology

Site Length (m):

Bank Stability:

Channel Dimensions

Mean Wetted Width (m):

2

Mean Bankfull Width (m):

2.5

Mean Wetted Depth (m):

0.5

Mean Bankfull Depth (m):

0.8

Stable

Slightly unstable

Moderately unstable

Unstable

Left Bank

☒☐☐☐

Right Bank

☒☐☐☐

Flow Description:

mod flow, levels high

Notes:

No A

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Page 2 of 4

Stream Morphology (continued)

Substrate (<=>)

Bo - Boulder
Co - Cobble
Gr - Gravel
Sa - Sand
Si - Silt
Cl - Clay
MK - Muck
DT - Detritus
Other

Description

Si, Cl > Gr

Morphological Structure (%)

Pool	Riffle	Run	Flat
		100	

Notes:

high flow

Habitat

Instream Cover (%)

30

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
				100		

*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

emergent grasses

Canopy Cover (% closed cover):

100-90%

☐

30-1%

☒

90-80%

☐

0%

☐

60-30%

☐

Types of Cover (% cover)

Trees

Shrubs

Man-made structures

Grasses

Herbaceous

Other

100

Notes:

Obstructions to Fish Passage

No Obstructions

☒

Man-Made

☐

Natural

☐

Description:

Drainage Features within Study Area

Observations of Land Topography within 120 m buffer area:

- flat

Terrestrial features Present

Yes

No

Terrestrial Recon Form Filled out

Yes

No

C56

AECOM

Page 3 of 4

Other General Comments Regarding the Study Area:

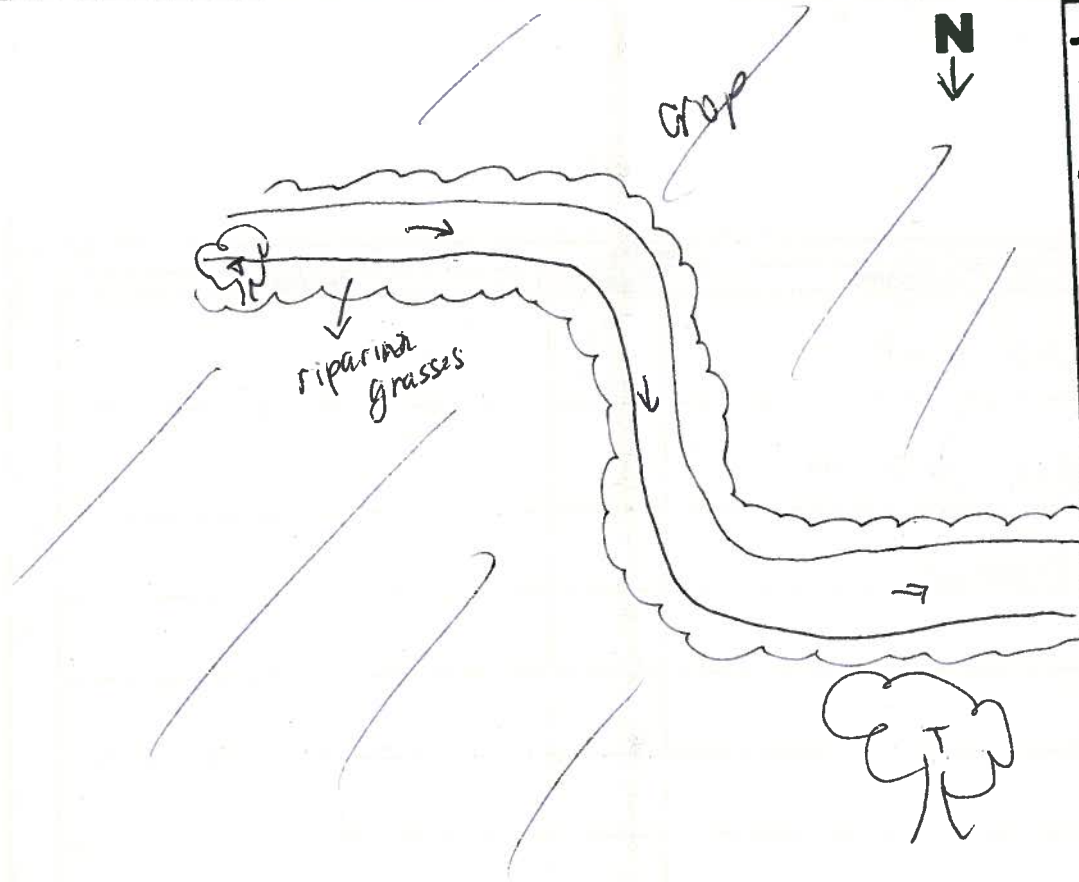
- Channelized uniform stream → same for 100m up + down s of site investigation

Photo log			
Picture #	Description	Picture #	Description
86	West of site entrance		
87	Site overview		
↓ 95	Channel		

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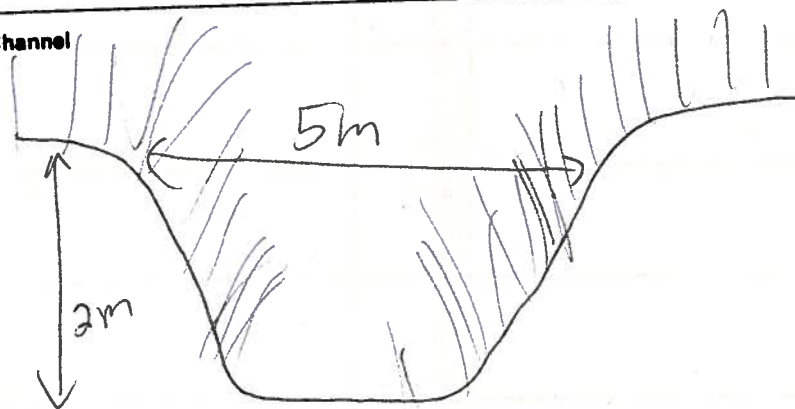
Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 2161 Turbine # C56



LEGEND	
10d depth (cm)	
6w width	
Rifle	
Run/Glide	
Pool	
Island/Bar	
Fine Substrate	
Gravel Substrate	
Cobble/Boulder	
Debris	
CT Catail	
SV/FV Submerge/Float Veg	
EV Emergent	
W Watercress	
Fe Iron Staining	
Eroded Bank	
Riprap / Other Stabilization	
Instream Log/Tree	
Dam/Wall	
Riparian Tree	
Seep/Spring	
Undercut Bank	
Barrier to Fish Movement	
Seasonal Barrier	
Fence line	
Culvert	

Horizontal View of Channel



AECOM

Field Crew:

CB, AS

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 1767 Turbine # GOS-~~605~~ (61)
 Date: Oct 6/11 Start time: 12:15 End Time: 12:45

Weather Conditions:

Sunny, 18°C

Field Notes By:

CB

Site Location

on Blackbush Ln.

→ only East side surveyed
↳ west no access ASA

UTM Co-ordinates

Easting: 0447500 Northing: 4792250 Description: culvert @ road.
 Easting: Northing: Description:
 Easting: Northing: Description:
 Easting: Northing: Description:

Surrounding Landuse/Pollution Sources

Residential ☐ Meadow ☐
 Agriculture ☒ Wetland ☐
 Forest ☐ Livestock ☐

Type of Watercourse

Intermittent ☐ Channelized ☒
 Permanent ☒ Natural Channel ☐
 Ephemeral ☐

Other:

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

- multiple tile drain

In-Situ Water Quality

WT (°C): / AT (°C): /
 pH: / Cond (s/cm): /
 Water Clarity: Clear ☒ Turbid ☐

Ground Water Indicators

Watercress ☐ Bank Seepage ☐
 Iron Staining ☐ None ☒
 Bubbling ☐ Other ☐

Notes:

w/g meter not available

Stream Morphology

Site Length (m): ~100m

Bank Stability:

Channel Dimensions

Mean Wetted Width (m):	<u>1.3</u>	Mean Bankfull Width (m):	<u>1.5</u>
Mean Wetted Depth (m):	<u>0.15</u>	Mean Bankfull Depth (m):	<u>0.45</u>

	Stable	Slightly unstable	Moderately unstable	Unstable
Left Bank	☒	☒	☐	☐
Right Bank	☐	☒	☐	☐

Flow Description: - moderate to fast flow

Notes:

→ evidence of erosion - exposed soils

AECOM

Page 2 of 4

Stream Morphology (continued)

Substrate (< = >)

Bo - Boulder
Co - Cobble
Gr - Gravel
Sa - Sand
Si - Silt
Cl - Clay
MK - Muck
DT - Detritus
Other

Description

gr > ~~sa~~ h > si, cl
+ film of algae on rocks

Morphological Structure (%)

Pool	Riffle	Run	Flat
	15	85	

Notes:

Habitat

Instream Cover (%) 70

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other: overhanging
			50	20		30

*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

algae + emergents

Canopy Cover (% closed cover):

100-90%

☐

30-1%

☐

90-60%

☐

0%

☐

60-30%

☒

Types of Cover (% cover)

Trees

Shrubs 20

Man-made structures

Grasses 80

Herbaceous

Other

Notes:

Obstructions to Fish Passage

No Obstructions

☒

Man-Made

☐

Natural

☐

Description:

culvert not placed

Drainage Features within Study Area

Observations of Land Topography within 120 m buffer area:

- flat

Terrestrial features Present

Yes

No

Terrestrial Recon Form Filled out

Yes

No

AECOM

Page 3 of 4

Other General Comments Regarding the Study Area:

- culvert 2m
- appears to be an agricultural drain for surrounding crops
- channel on west side appears to be same dimensions

Photo log

Picture #	Description	Picture #	Description
302	looking west		
303	looking east		
304	channel - instream (E)		
305	culvert		
306	substrate		

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Watercourse Sketch

Study Area:

Jericho

Goshen

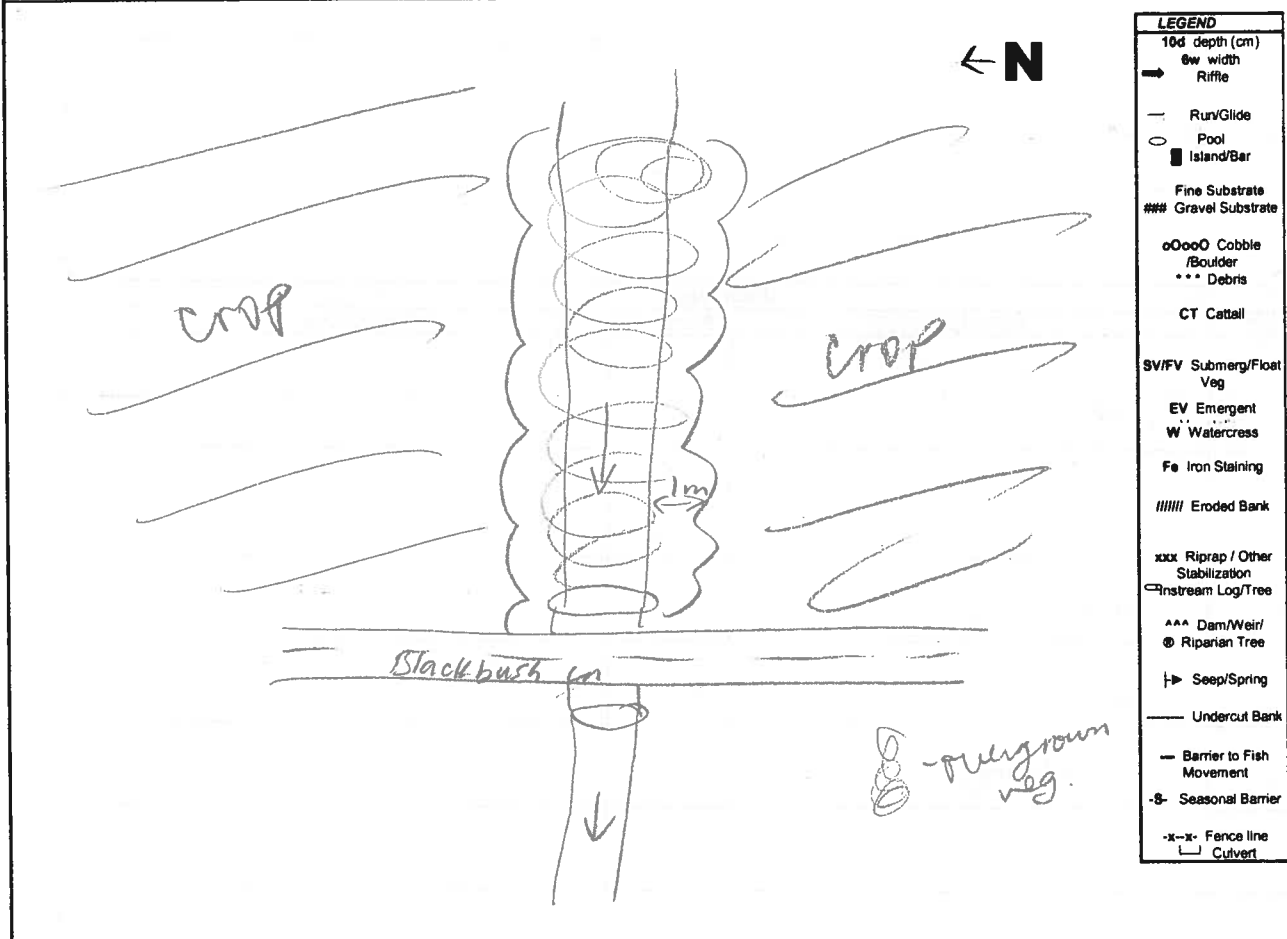
Bluewater Land Parcel#

1767

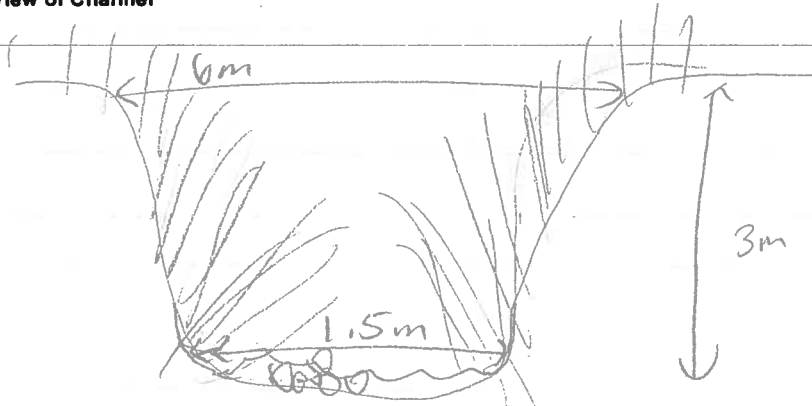
Turbine #

GRS

C61



Horizontal View of Channel



AECOM		Page 1 of 4	
		Field Crew: NL JAG	
General Information			
Study Area:	Jericho	Goshen	Bluewater Land Parcel# 1079
Date:	13/07/11	Start time:	16:00
		Turbine #	5542 C62
		End Time:	16:55
Weather Conditions: Sunny		Field Notes By: NL	
Site Location			
accessed by Shipka Rd - throu edge of wheat field			
UTM Co-ordinates			
Easting:	0445777	Northing:	4791377
		Description:	@ end of w/c
Easting:		Northing:	
		Description:	
Easting:		Northing:	
		Description:	
Surrounding Landuse/Pollution Sources		Type of Watercourse	
Residential ☐	Meadow ☐	Intermittent ☒	Channelized ☒
Agriculture ☒	Wetland ☐	Permanent ☐	Natural Channel ☐
Forest ☐	Livestock ☐	Ephemeral ☐	
Other:			
Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)			
wheat NO obvious point sources but algae indicates non-point pollution from agriculture.			
In-Situ Water Quality		Ground Water Indicators	
WT (°C):	AT (°C):	Watercress ☐	Bank Seepage ☐
pH:	Cond (s/cm):	Iron Staining ☐	None ☒
Water Clarity: Clear ☐	Turbid ☒	Bubbling ☐	Other ☐
Notes:			
Stream Morphology			
Site Length (m):		Bank Stability:	
Channel Dimensions			
Mean Wetted Width (m):	2m	Mean Bankfull Width (m):	2.5
Mean Wetted Depth (m):	10cm	Mean Bankfull Depth (m):	2m
		Stable	Slightly unstable
		Moderately unstable	Unstable
		Left Bank ☐	☒
		Right Bank ☒	☐
Flow Description: EST.			
Notes: Stagnant. No flow. Choked with algae + grasses			

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Stream Morphology (continued)

Substrate (< = >)

Bo - Boulder
Co - Cobble
Gr - Gravel
Sa - Sand
Si - Silt
Cl - Clay
MK - Muck
DT - Detritus
Other

Description

MK

estimated - choked with green algae

Morphological Structure (%)

Pool	Riffle	Run	Flat
			50

Notes:

Habitat

Instream Cover (%)

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
				100		

*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

algae

Canopy Cover (% closed cover):

100-90%

☐

30-1%

☒

90-60%

☐

0%

☐

60-30%

☐

Types of Cover (% cover)

Trees

Shrubs

Man-made structures

Grasses

50

Herbaceous

50

Other

Notes:

Obstructions to Fish Passage

No Obstructions

☒

Man-Made

☐

Natural

☒

Description:

No flow flow
watering
+ build up of algae

Drainage Features within Study Area

Observations of Land Topography within 120 m buffer area:

flat

Terrestrial features Present

Yes

No

Terrestrial Recon Form Filled out

Yes

No

C62

AECOM

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Other General Comments Regarding the Study Area:

Photolog

Picture #	Description	Picture #	Description
229	Gen Location		
230	Upstream		
231	downstream		
232	Bank + watercourse		

C62

Study Area:

Jericho

Goshen

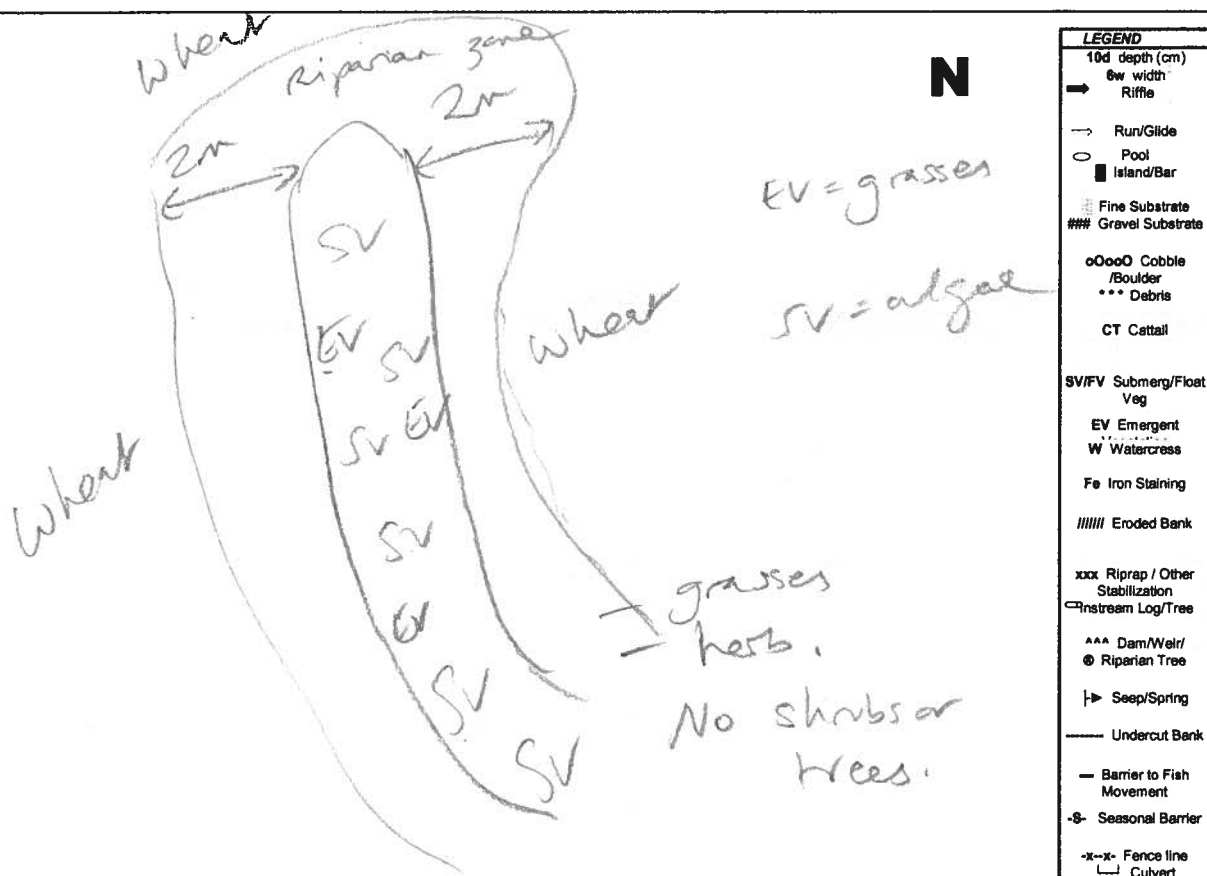
Bluewater

Land Parcel#

1079

Turbine #

~~C6112~~ (C62)



Horizontal View of Channel



AECOM

Field Crew: CB, AS

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 1079/1635/1636 Turbine # GOS-C63
 Date: Oct 6/11 Start time: 12:50 End Time: 13:35

Weather Conditions:

Sunny, 18°C

Field Notes By:

CB

Site Location

On Shipka Ln

UTM Co-ordinates

Easting: 0445499 Northing: 4791472 Description: culvert on west side of road
 Easting: Northing: Description:
 Easting: Northing: Description:
 Easting: Northing: Description:

Surrounding Landuse/Pollution Sources

Residential ☐ Meadow ☐
 Agriculture ☒ Wetland ☐
 Forest ☐ Livestock ☐

Type of Watercourse

Intermittent ☐ Channelized ☒
 Permanent ☒ Natural Channel ☐
 Ephemeral ☐

Other:

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

- inputs noted on east side

In-Situ Water Quality

WT (°C): / AT (°C): /
 pH: / Cond (s/cm): /
 Water Clarity: Clear ☒ Turbid ☐

Ground Water Indicators

Watercress ☐ Bank Seepage ☐
 Iron Staining ☐ None ☒
 Bubbling ☐ Other ☐

Notes:

Stream Morphology

Site Length (m):

Bank Stability:

Channel Dimensions				Bank Stability			
	W E		W E	Stable	Slightly unstable	Moderately unstable	Unstable
Mean Wetted Width (m):	1 1.5	Mean Bankfull Width (m):	3 2.5	Left Bank ☒	☐	☐	☐
Mean Wetted Depth (m):	0.15	Mean Bankfull Depth (m):	0.6 0.5	Right Bank ☒	☐	☐	☐

Flow Description:

↓
A-15

Notes:

- visible flow (slow - moderate)
 - one area of erosion - on west side blow out area just downs of culvert.

AECOM

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Stream Morphology (continued)

Substrate (< = >)

Bo - Boulder
Co - Cobble
Gr - Gravel
Sa - Sand
Si - Silt
Cl - Clay
MK - Muck
DT - Detritus
Other

Description

E W
mk > si, cl > gr
grasses dph
grass > mk > si, cl
>> bo, co

Notes:

Morphological Structure (%)

Pool	Riffle	Run	Flat
		50	50

Habitat

Instream Cover (%) E = 30 W = 90

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other: <u>quaking</u>
	W = 5	1	4	W = 80 E = 45		W = 15 E = 50

*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

W - grasses >>> emergents
E - emergents, algae

Canopy Cover (% closed cover):

100-90% ☐ 30-1% ☐
90-60% ☐ 0% ☐
60-30% 42E ☒ W-60

Types of Cover (% cover)

Trees W = 20 Shrubs E = 50 Man-made structures _____
Grasses E = 50 Herbaceous _____ Other _____
W = 80

Notes:

Obstructions to Fish Passage

No Obstructions ☒ Man-Made ☐
Natural ☐

Description:

Drainage Features within Study Area

Observations of Land Topography within 120 m buffer area:

- flat

Terrestrial features Present

Yes

No

Terrestrial Recon Form Filled out

Yes

No

AECOM

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Other General Comments Regarding the Study Area:

- watercourse slightly different on either side of road
- landuse/crop diff on either side
- frogs observed on east side.

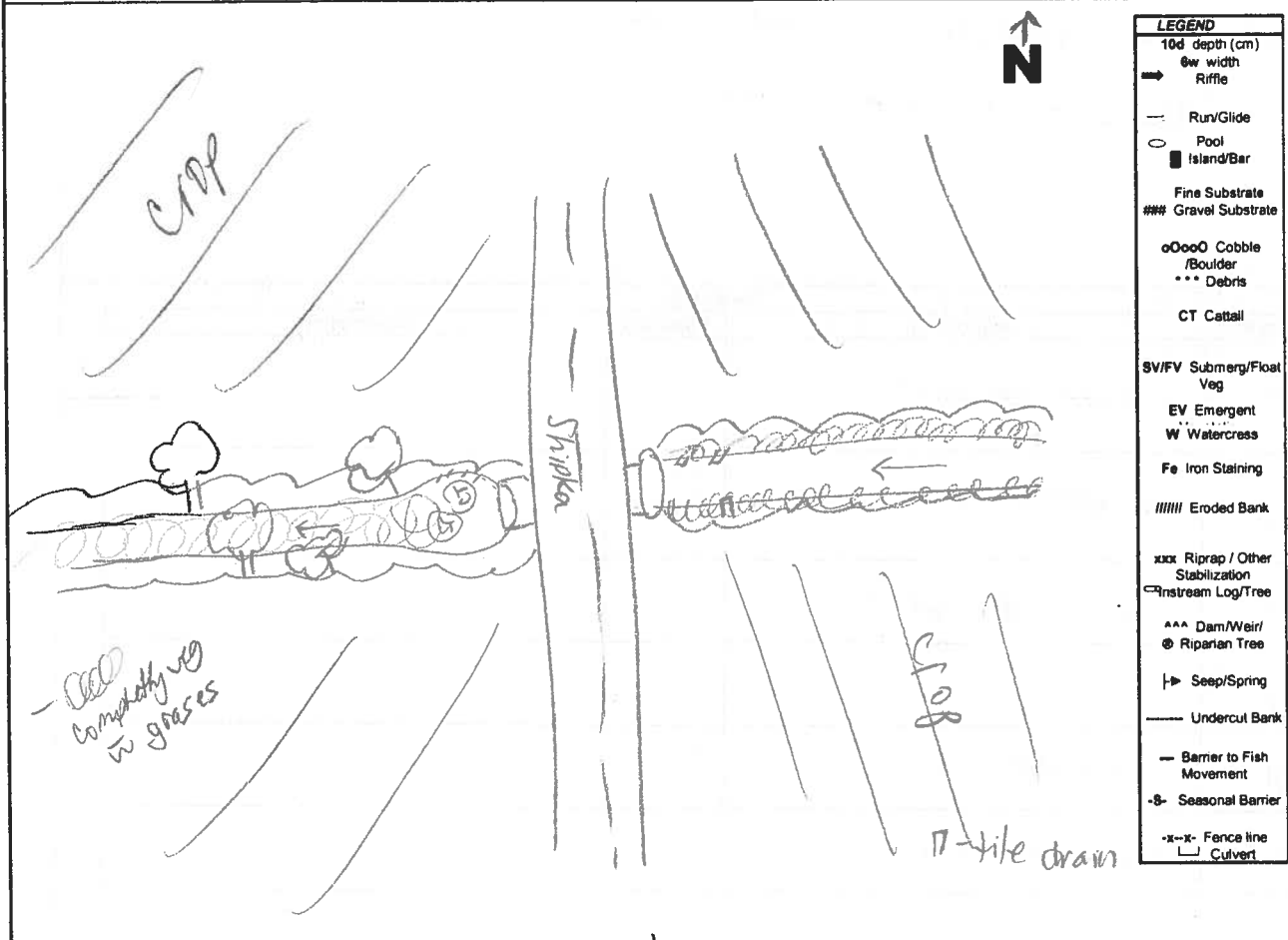
Photo log

Picture #	Description	Picture #	Description
307	West overview		
308	East overview		
309	Channel - west		
310	"		
311	→ bankfull line		
312	East - tile drains		
313	Channel - east		
314	Substrate		
315	overview		
316	East - substrate		
317	laneway on property 1635		

AECOM

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Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 1079/1635/1636 Turbine # C63

LEGEND	
10d depth (cm)	6w width
→	Riffle
---	Run/Glide
○	Pool
■	Island/Bar
Fine Substrate	
###	Gravel Substrate
oOooO	Cobble/Boulder
***	Debris
CT	Cattail
SV/FV	Submerg/Float Veg
EV	Emergent
W	Watercress
Fe	Iron Staining
	Eroded Bank
xxxx	Riprap / Other Stabilization
~	Instream Log/Tree
AAA	Dam/Weir
⊗	Riparian Tree
↳	Seep/Spring
---	Undercut Bank
---	Barrier to Fish Movement
-S-	Seasonal Barrier
-x-x-	Fence line
□	Culvert

Horizontal View of Channel

