

**Assessment of Non-Water Body
(update to mapping required)**

AECOM

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# JER 3272 Site ID: R2,30
 Date: June 12 8:30am Start time: 8:30 End Time: 9:00
 Weather Conditions: light RAIN 12°C Field Crew: SHARDING SOARA-CHE
 Field Notes By: SOARA-CHE

Site Location

South of ELGIN Field and east of Arkona Rd.

UTM Co-ordinates

Easting: 433333 Northing: 4777792 Description: R2,30A
 Easting: _____ Northing: _____ Description: _____
 Easting: _____ Northing: _____ Description: _____
 Easting: _____ Northing: _____ Description: _____

Surrounding Landuse

Residential
 Agriculture
 Forest
 Other
 Meadow
 Wetland
 Livestock

Ground Water and Seepage Indicators

Watercross
 Iron Staining
 Bubbling
 Bank Seepage
 None

Description: water weath

Details: _____

Feature Description

Is the mapped water body any of the below:

- 1) a grassed waterway? Y / N
- 2) Temporary channel for surface drainage, that can be tilled or driven through? Y / N
- 3) Rock chutes or spillways? Y / N
- 4) Roadside ditches that are not connected or do not contain a permanent or intermittent stream? Y / N
- 5) Temporarily ponded areas that are normally farmed? Y / N
- 6) Artificial bodies of water intended for storage, treatment for farming purposes? Y / N
- 8) Any other:

Description: (i.e. length of change, if it reappears, if there is evidence of water)

→ No water feature from south to the Gps Point Rd. 30. (Section in the Field)
→ all planted (winter weath)

Photo log

Picture #	Description	Picture #	Description
<u>1195</u>	<u>Field next facing east</u>		
<u>1196</u>	<u>FACING SOUTH</u>	<u>1197</u>	<u>FACING SOUTH</u>

Assessment of Non-Water Body
(update to mapping required)

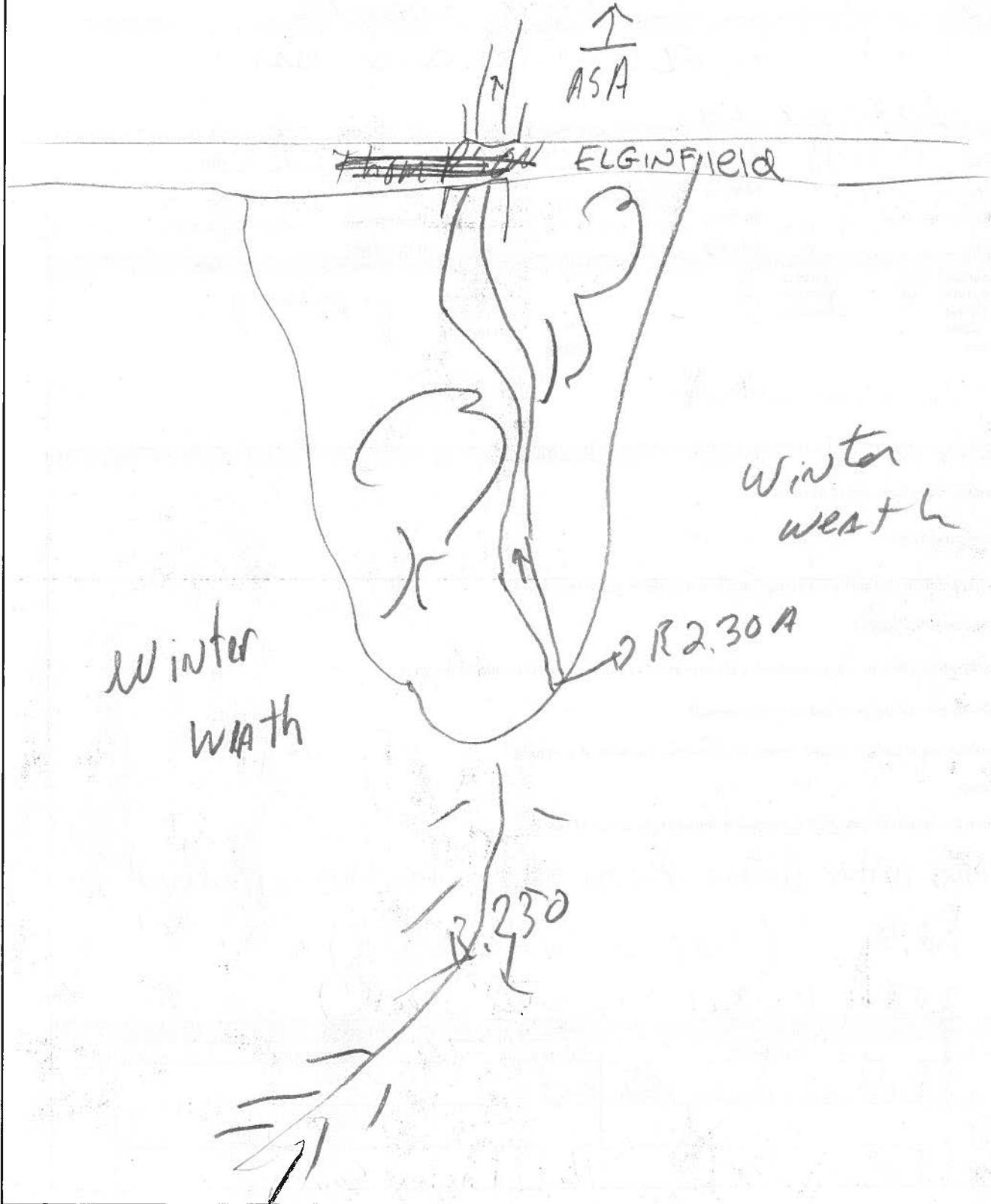
AECOM

Date: June 1 / 12

Land Parcel/Site ID: JER3745 / R2.30

Page 2 of 2

Site Sketch



Initial. QA/QC Bentley June 6/2012
Sawicki Oct 2/12

Water Bodies Assessment Field Collection Form

AECOM

Page 4 of 4

Watercourse Sketch

Study Area:

Jericho

Goshen

Bluewater

Land Parcel#

JER3747

Site ID

R2.51



LEGEND

- 10d depth (cm)
- 9w width
- Rifle
- Run/Glide
- Pool
- Island/Bar
- Fine Substrate
- Gravel Substrate
- Cobble/Boulder
- Debris
- Cattail
- Submerg/Float Veg
- Emergent Vegetation
- Watercress
- Fe-Iron Staining
- Eroded Bank
- Riprap / Other Stabilization
- Instream Log/Tree
- Dam/Weir / Obstruction
- Riparian Tree
- Seep/Spring
- Undercut Bank
- Barrier to Fish Movement
- Seasonal Barrier
- Fence line
- Culvert

JER3740

ELGINFIELD

Winter
Stream

Wetland
Zone

Wetland
Forest
Wetland
Pool

Valley

Valley

JER 3747

Horizontal View of Channel

Field

Initial QA/QC By: L. Bentley

Date: June 4, 2012

Technical QA/QC By: Sauter

Date: Oct 2/12

**Assessment of Non-Water Body
(update to mapping required)**

R2,46

AECOM

General Information
 Study Area: Vericho Goshen Bluewater Land Parcel# 5523747/3746 Site ID: R2.66-R2.58-R2.38

Date: June 12 Start time: 8:30 End Time: 11:00

Weather Conditions: RAIN 12°C
 Field Crew: 6 HANGING STAMICHE
 Field Notes By: STAMICHE

Site Location
Both sides of ELGIN Field Road

ASA
3746

UTM Co-ordinates

Easting: <u>433681</u>	Northing: <u>4777699</u>	Description: <u>R2.66B</u>
Easting: <u>433727</u>	Northing: <u>4777579</u>	Description: <u>R2.58B</u>
Easting: <u>434009</u>	Northing: <u>4777683</u>	Description: <u>R2.38A</u>
Easting: <u>433329</u>	Northing: <u>4777738</u>	Description: <u>R2.53Ver</u>

<p>Surrounding Landuse</p> Residential <input type="checkbox"/> Agriculture <input type="checkbox"/> Forest <input type="checkbox"/> Other <input type="checkbox"/> Meadow <input type="checkbox"/> Wetland <input checked="" type="checkbox"/> Livestock <input type="checkbox"/>	<p>Ground Water and Seepage Indicators</p> Watercross <input type="checkbox"/> Iron Staining <input type="checkbox"/> Bubbling <input type="checkbox"/> Bank Seepage <input type="checkbox"/> None <input checked="" type="checkbox"/>
<p>Description: <u>Wetland</u> <u>Urnal Pools</u> <u>Wet Forest</u></p>	<p>Details:</p>

Feature Description

Is the mapped water body any of the below:

- 1) a grassed waterway? Y / N
- 2) Temporary channel for surface drainage, that can be tilled or driven through? Y / N
- 3) Rock chutes or spillways? Y / N
- 4) Roadside ditches that are not connected or do not contain a permanent or intermittent stream? Y / N
- 5) Temporarily ponded areas that are normally farmed? Y / N
- 6) Artificial bodies of water intended for storage, treatment for farming purposes? Y / N
- 8) Any other:

Description: (i.e. length of change, if it reappears, if there is evidence of water)

R2.66 -> Deep Valley without channel -> Forest veget.
R2.58 -> Deep Valley with no defined channel
R2.38 -> wet forest without channel
R2.46 -> wet forest with urnal pools
-> in area study; wetland, wet forest

Photo log

Picture #	Description	Picture #	Description
1210	R2.66B	1215	From R2.38A
1211	FACING NORTH FROM	1216	From R2.38A
1212	FACING SOUTH (R2.58B)	1219	Wet Forest ASA IER 3746

1213 - 1214 -> R2.46 Facing W and E

Assessment of Non-Water Body
(update to mapping required)

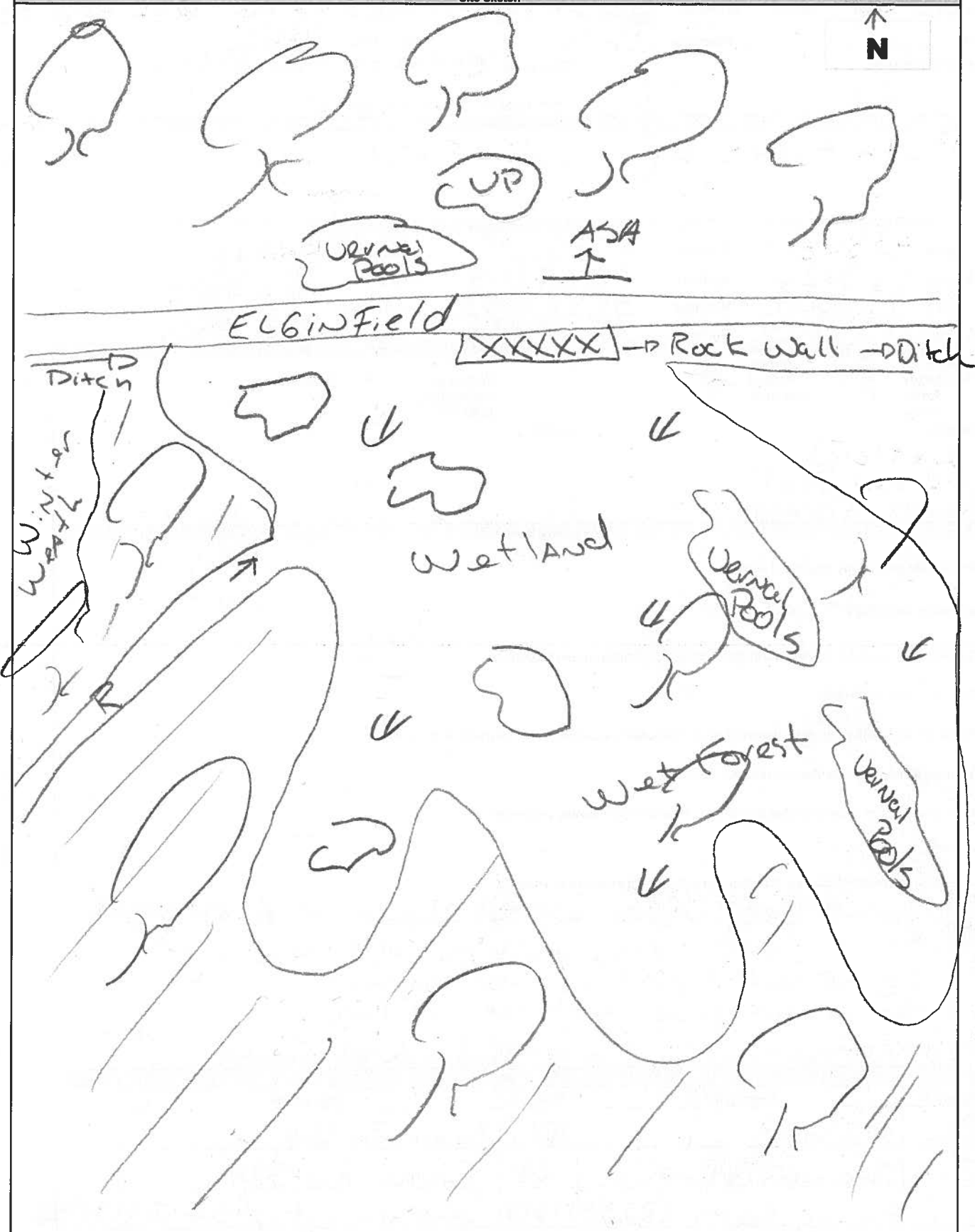
AECOM

Date: JUNE 1

Land Parcel/Site ID: JER3747-3748

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Site Sketch



Initial QA/QC: JHP Oct 2/12

Sketch Oct 2/12

**Assessment of Non-Water Body
(update to mapping required)**

AECOM		Page 1 of 2	
General Information			
Study Area: <u>Jericho</u>	Goshen	Bluewater	Land Parcel# <u>3746/3747</u> Site ID: <u>R2.38</u>
Date: <u>June 1/12</u>	Start time: <u>8:30</u>	End Time: <u>11:00</u>	
Weather Conditions: <u>rainy 12°C</u>	Field Crew: <u>C. Harding S. Dardache</u> Field Notes By: <u>S. Dardache</u>		
Site Location			
<u>Both sides of Egin Field Road</u>			
UTM Co-ordinates			
Easting: <u>434009</u>	Northing: <u>4777683</u>	Description: <u>R2.38</u>	
Easting: _____	Northing: _____	Description: _____	
Easting: _____	Northing: _____	Description: _____	
Easting: _____	Northing: _____	Description: _____	
Surrounding Landuse		Ground Water and Seepage Indicators	
Residential <input type="checkbox"/>	Meadow <input type="checkbox"/>	Watercress <input type="checkbox"/>	Bank Seepage <input type="checkbox"/>
Agriculture <input type="checkbox"/>	Wetland <input checked="" type="checkbox"/>	Iron Staining <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Forest <input type="checkbox"/>	Livestock <input type="checkbox"/>	Bubbling <input type="checkbox"/>	_____ <input type="checkbox"/>
Other _____		Details: _____	
Description: <u>wetland vernal pools wet forest</u>			
Feature Description			
Is the mapped water body any of the below:			
1) a grassed waterway?	Y / N		
2) Temporary channel for surface drainage, that can be tilled or driven through?	<u>Y</u> / N		
3) Rock chutes or spillways?	Y / N		
4) Roadside ditches that are not connected or do not contain a permanent or intermittent stream?	Y / N		
5) Temporarily ponded areas that are normally farmed?	Y / N		
6) Artificial bodies of water intended for storage, treatment for farming purposes?	Y / N		
8) Any other:			
Description: (i.e. length of change, if it reappears, if there is evidence of water)			
<u>wet forest without channel</u>			
Photo log			
Picture #	Description	Picture #	Description
<u>1215</u>	<u>from R2.38</u>		
<u>1216</u>	<u>from R2.38</u>		
<u>1219</u>	<u>wet forest JER 3746</u>		

**ASA
3746**

ASA

Assessment of Non-Water Body
(update to mapping required)

AECOM

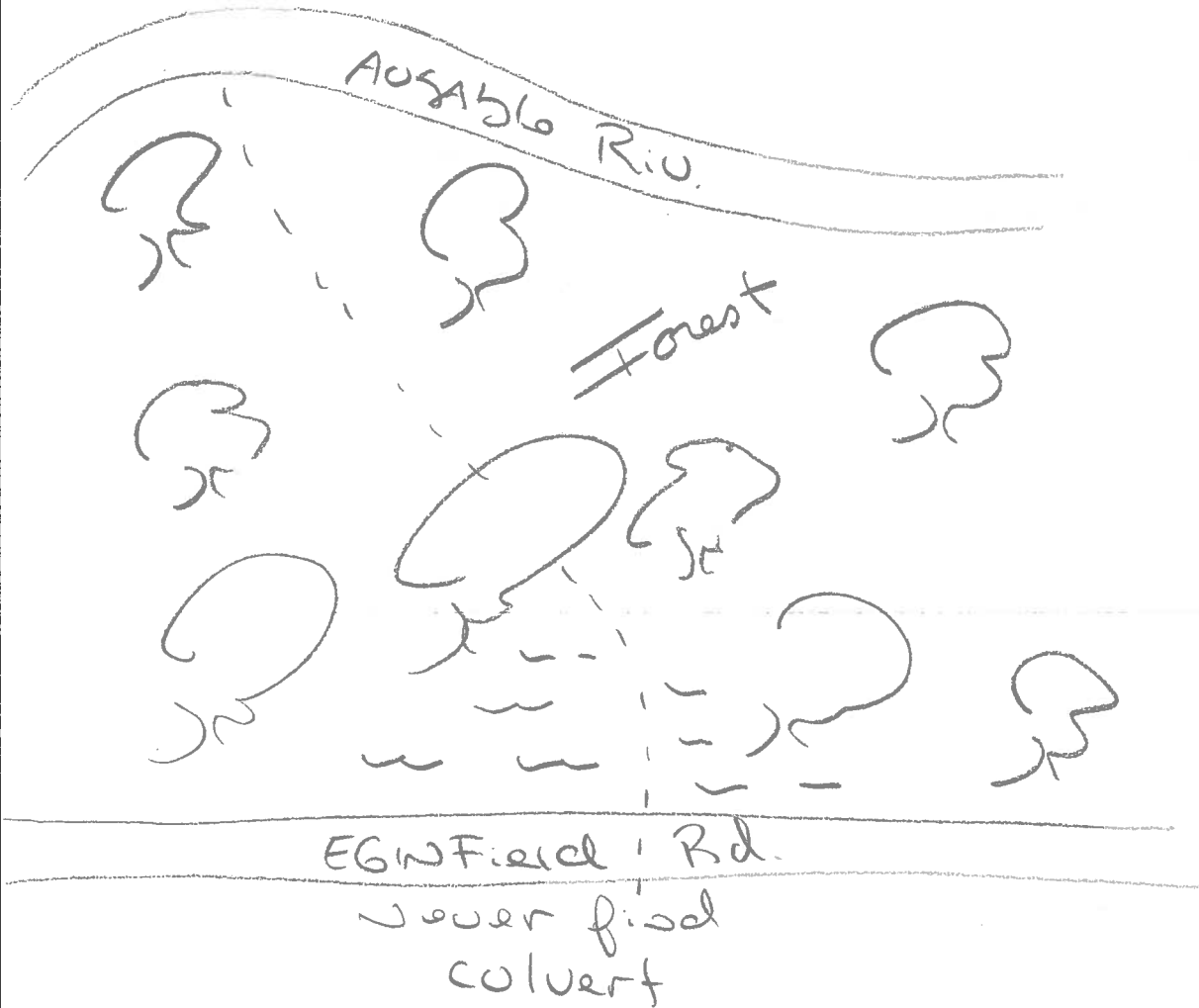
Date: June 1/12

Land Parcel/Site ID: R2.3B-JER 34(d)

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Site Sketch

37A7



Initial QA/QC: L Bentley June 6, 2012
Sawyer Oct 2/12

**Assessment of Non-Water Body
(update to mapping required)**

AECOM		Page 1 of 2	
General Information			
Study Area: <u>Jericho</u> <input type="checkbox"/> Goshen <input type="checkbox"/> Bluewater <input type="checkbox"/>	Land Parcel#: <u>3747</u>	Site ID: <u>R2-46</u>	
Date: <u>June 1/12</u>	Start time: <u>8:30</u>	End Time: <u>11:00</u>	
Weather Conditions: <u>rainy 12°C</u>	Field Crew: <u>S. Daraiche & Harding</u>	Field Notes By: <u>S. Daraiche</u>	
Site Location			
<u>Both sides of Egin Field Road</u>			
UTM Co-ordinates			
Easting: _____	Northing: _____	Description: _____	
Easting: _____	Northing: _____	Description: _____	
Easting: _____	Northing: _____	Description: _____	
Easting: _____	Northing: _____	Description: _____	
Surrounding Landuse		Ground Water and Seepage Indicators	
Residential <input type="checkbox"/>	Meadow <input type="checkbox"/>	Watercress <input type="checkbox"/>	Bank Seepage <input type="checkbox"/>
Agriculture <input type="checkbox"/>	Wetland <input checked="" type="checkbox"/>	Iron Staining <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Forest <input type="checkbox"/>	Livestock <input type="checkbox"/>	Bubbling <input type="checkbox"/>	
Other <input type="checkbox"/>		Details: _____	
Description: <u>wetland, vernal pools wet forest</u>			
Feature Description			
Is the mapped water body any of the below:			
1) a grassed waterway?	Y / N		
2) Temporary channel for surface drainage, that can be tilled or driven through?		<u>Y</u> N	
3) Rock chutes or spillways?	Y / N		
4) Roadside ditches that are not connected or do not contain a permanent or intermittent stream?			Y / N
5) Temporarily ponded areas that are normally farmed?	Y / N		
6) Artificial bodies of water intended for storage, treatment for farming purposes?			Y / N
8) Any other:			
Description: (i.e. length of change, if it reappears, if there is evidence of water)			
<u>wet forest with vernal pools</u>			
Photo log			
Picture #	Description	Picture #	Description
<u>1213</u>	<u>Facing west</u>		
<u>1214</u>	<u>Facing east</u>		

Assessment of Non-Water Body
(update to mapping required)

AECOM

Date:

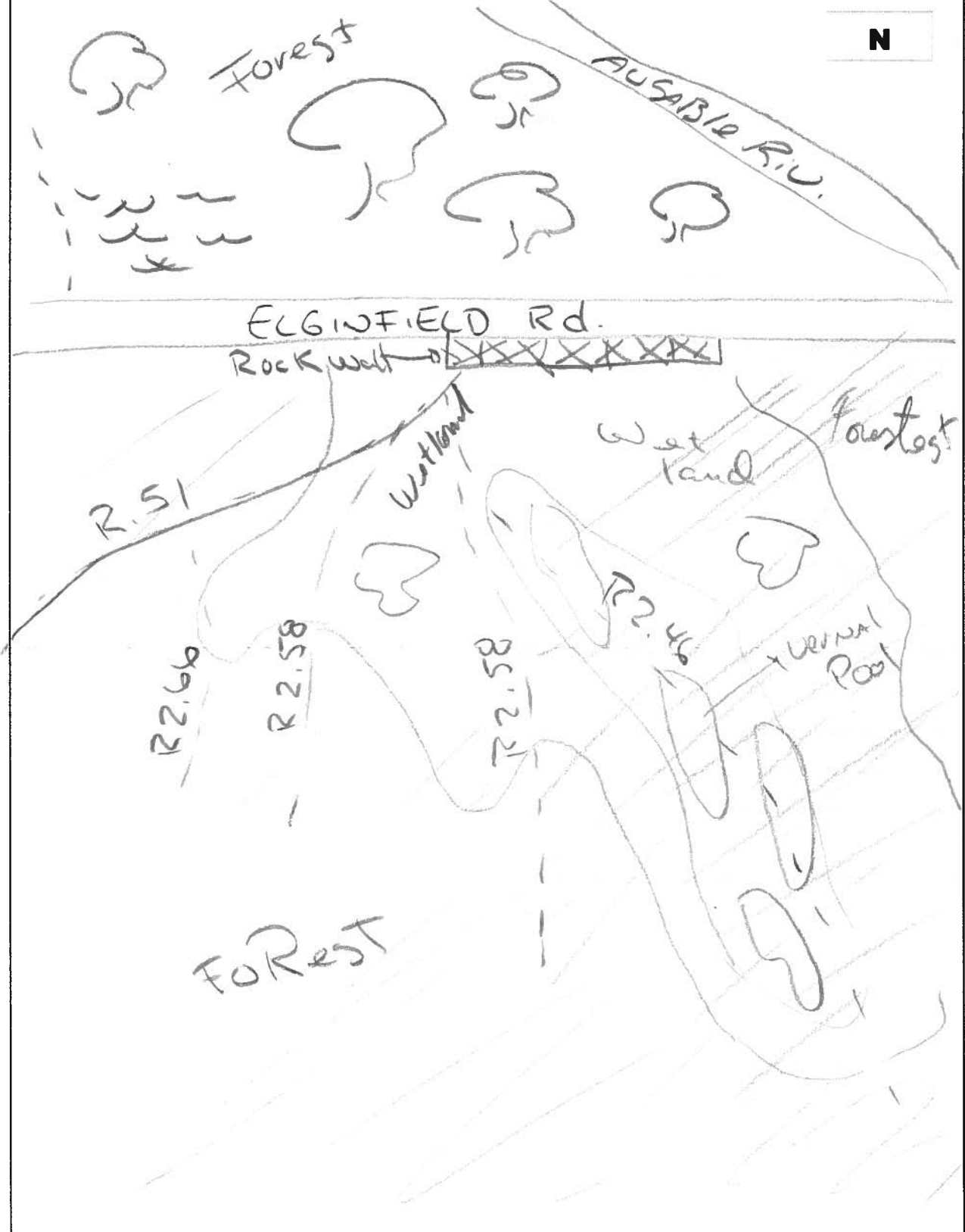
June 1/12

Land Parcel/Site ID:

R2.46-3747

Page 2 of 2

Site Sketch



Initial QA/QC: C. Bentley June 6, 2012
Sketcher Oct 2/12

**Assessment of Non-Water Body
(update to mapping required)**

AECOM

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 3747 Site ID: R2.5B
 Date: June 1/12 Start time: 8:30 End Time: 11:00

Weather Conditions: rainy 12°C Field Crew: S. Daraiche C. Harding
 Field Notes By: S. Daraiche

Site Location

Both sides of Elgin Field Road

UTM Co-ordinates

Easting: 433727 Northing: 4777579 Description: R2.5B
 Easting: _____ Northing: _____ Description: _____
 Easting: _____ Northing: _____ Description: _____
 Easting: _____ Northing: _____ Description: _____

Surrounding Landuse

Residential Meadow
 Agriculture Wetland
 Forest Livestock
 Other

Ground Water and Seepage Indicators

Watercress Bank Seepage
 Iron Staining None
 Bubbling

Description:
wetland
vernal pools
wet forest

Details:

Feature Description

Is the mapped water body any of the below:

- 1) a grassed waterway? Y / N
- 2) Temporary channel for surface drainage, that can be tilled or driven through? (Y) N
- 3) Rock chutes or spillways? Y / N
- 4) Roadside ditches that are not connected or do not contain a permanent or intermittent stream? Y / N
- 5) Temporarily ponded areas that are normally farmed? Y / N
- 6) Artificial bodies of water intended for storage, treatment for farming purposes? Y / N
- 8) Any other:

Description: (i.e. length of change, if it reappears, if there is evidence of water)

Deep valley with no defined channel

Photo log

Picture #	Description	Picture #	Description
<u>1211</u>	<u>Facing north</u>		
<u>1212</u>	<u>Facing south</u>		

Assessment of Non-Water Body
(update to mapping required)

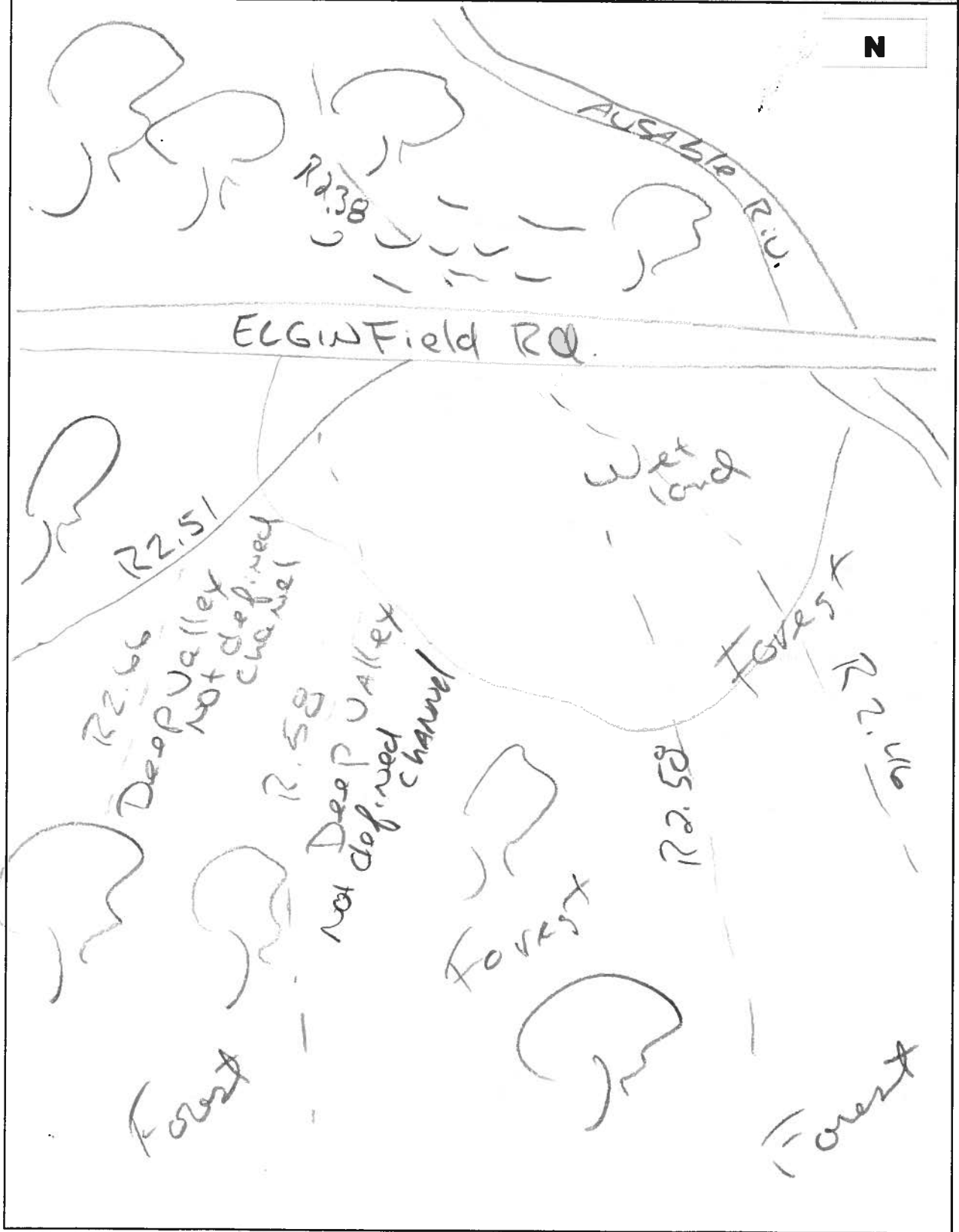
AECOM

Date: June 1/12

Land Parcel/Site ID: R2.58-JER 3747

Page 2 of 2

Site Sketch



Initial QA/QC: LBentley June 6, 2012
Sketch Oct 2/12

Water Bodies Assessment Field Collection Form

AECOM

Page 1 of 4

General Information

Study Area: (Jericho) Goshen Bluewater **Land Parcel#** 3281/3280 **Site ID:** R2.101
Date: May 2/12 **Start time:** 11:30 **End Time:** 13:10

Weather Conditions: Cloudy, 17°C **Field Crew:** C. Boros, J. Harnden
Field Notes By: C. Boros

Site Location

Arkona Rd, south of Cedar point line

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

Easting: 0433021	Northing: 4773697	Description: south end.
Easting: 0433353	Northing: 4774094	Description: north end.
Easting:	Northing:	Description:
Easting:	Northing:	Description:

Surrounding Landuse Residential <input type="checkbox"/> Agriculture <input type="checkbox"/> Forest <input checked="" type="checkbox"/> Other <input type="checkbox"/> Description: deciduous	Meadow <input type="checkbox"/> Wetland <input type="checkbox"/> Livestock <input type="checkbox"/>	Type of Watercourse Intermittent <input type="checkbox"/> Permanent <input checked="" type="checkbox"/> Ephemeral <input type="checkbox"/> Description: flow at time of investigation but very slow - could be intermittent	Channelized <input type="checkbox"/> Natural Channel <input checked="" type="checkbox"/>
---	---	---	---

Notes: (Include any inputs into the system i.e. tile drainage, seepages, overland flow)
 1/5 tile drains - main input at

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)
 valley, hills

In-Situ Water Quality		Ground Water and Seepage Indicators	
WT (°C): 13.54	AT (°C): 19°C	Watercress <input checked="" type="checkbox"/>	Bank Seepage <input type="checkbox"/>
pH: 8.94	Cond (µs/cm): 730	Iron Staining <input type="checkbox"/>	None <input type="checkbox"/>
D.O. (mg/L): 12.83		Bubbling <input type="checkbox"/>	<input type="checkbox"/>
Water Clarity: Clear <input checked="" type="checkbox"/>	Turbid <input type="checkbox"/>	Other <input checked="" type="checkbox"/>	
Water Colour: n/d		Details: in a small pool area seepage creating flow present but could not pinpoint location	
Notes:			

Water Bodies Assessment Field Collection Form

Stream Morphology															
Site Length (m): 500m		Bank Stability:													
Channel Dimensions		Stable	Slightly unstable												
Mean Wetted Width (m): 1.1	Mean Wetted Depth (m): 0.09	Moderately unstable	Unstable												
Mean Bankfull Width (m): 1.5	Mean Bankfull Depth (m): 0.04	Left Bank <input type="checkbox"/>	<input type="checkbox"/>												
Mean Top of Bank Width (m): 2.5	Mean Top of Bank Depth (m): 0.7	Right Bank <input type="checkbox"/>	<input type="checkbox"/>												
		Description: erosion on meanders													
Flow Description: (high or low flow conditions, stagnant, etc)															
slow flow in most areas, some areas stagnant															
Substrate (<=>)		Habitat													
Bo - Boulder Co - Cobble Gr - Gravel Sa - Sand Si - Silt Cl - Clay MK - Muck DT - Detritus	Description si, cl, gr, sa, co, bbs	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: center;">Morphological Structure (%)</th> </tr> <tr> <th style="width: 25%;">Pool</th> <th style="width: 25%;">Riffle</th> <th style="width: 25%;">Run</th> <th style="width: 25%;">Flat</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">20</td> <td style="text-align: center;">25</td> <td style="text-align: center;">20</td> <td style="text-align: center;">35</td> </tr> </tbody> </table>		Morphological Structure (%)				Pool	Riffle	Run	Flat	20	25	20	35
Morphological Structure (%)															
Pool	Riffle	Run	Flat												
20	25	20	35												
		Notes: riffle run pool sequence present													
Instream Cover (%) 80															
Other veg / Detritus	Woody Debris	Boulders	Cobble												
25	20	/	35												
Aquatic Vegetation*	None	Undercut Banks													
5	/	Average Depth: 15cm (% Cover) 15													
Note: Low = 0 - 30%; Moderate = 30 - 75%; High = 75 - 100%															
*Aquatic Vegetation Species Present (algae, submergent, emergent etc.)															
algae found at south end, watercress clumps															
Canopy Cover (% closed cover):		Types of Cover (% cover)													
100-90% <input checked="" type="checkbox"/>	30-1% <input type="checkbox"/>	Trees 80	Shrubs 20												
90-60% <input type="checkbox"/>	0% <input type="checkbox"/>	Grasses _____	Herbaceous _____												
60-30% <input type="checkbox"/>		Man-made structures _____ Other _____													
Note: Low = 0 - 30%; Moderate = 30 - 60%; High = 60 - 100%															
Notes: (vegetation species, types of structures)															
maple, beech, walnut															
Riparian Vegetation															
Width of riparian vegetation: 30 + m of forest															
Description of vegetation community surrounding 30 m from watercourse: deciduous forest															
Obstructions to Fish Passage															
No Obstructions <input type="checkbox"/>	Man-Made <input type="checkbox"/>	Natural <input type="checkbox"/>	Low Flow Barrier <input checked="" type="checkbox"/>												
Description of Barrier: areas where stream was not flowing + had no water															
Height of Barrier (m) /		GPS Coordinates: no specific location													

Water Bodies Assessment Field Collection Form

AECOM

Date: May 2/12

Land Parcel/Site ID: 3281/3280 R2 101

Page 3 of 4

Other General Comments Regarding the Study Area:

- input ① channel feeding small amount of water into main channel → originates from tile drain at edge of crop field to the west

Natural

Stream starts at edge of agri field and is tile drain fed, as it flows into the forest it meanders and has riffle, run, pool sequences. Upstream becomes valley area with large trees, high instream habitat cover (dominated by cobble), some woody debris overhanging in pool areas

→ then kind of gw input appears - w + seep

Additional UTM Coordinates: - frogs observed

Photo log			
Picture #	Description	Picture #	Description
1a 1b	sheet at South end forest / field interface	25	- Channel
2	tile drain feeding stream	26, 27	surrounding forest
3-10	channel		
11-12	seep 0433071 1m 4773703 0.6m		
13-14	channel		convergence area 2 pics
15-16	input ① channel 0433075 4773815		
17	channel		
18	water cross		
19	woody debris in ^{small} pool.		
20	pool		
21-23	input ② 0433246 4773916		
24			

0.7 deep
1.5 x 2

**Assessment of Non-Water Body
(update to mapping required)**

AECOM

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 3281 Site ID: R2.112 R2.101
 Date: May 2/12 Start time: 12:00 End Time: 12:10

Weather Conditions: Cloudy 17°C Field Crew: C. Boros, J. Haraden
 Field Notes By: C. Boros

Site Location

Arkona Rd

UTM Co-ordinates

Easting: 0432916 Northing: 4773604 Description: South end
 Easting: 0432988 Northing: 4773683 Description: North end
 Easting: _____ Northing: _____ Description: _____
 Easting: _____ Northing: _____ Description: _____

Surrounding Landuse

Residential Meadow
 Agriculture Wetland
 Forest Livestock
 Other _____

Description: Crop field

Ground Water and Seepage Indicators

Watercress Bank Seepage
 Iron Staining None
 Bubbling

Details: _____

Feature Description

Is the mapped water body any of the below:

- 1) a grassed waterway? Y / (N)
- 2) Temporary channel for surface drainage, that can be tilled or driven through? (Y) / N
- 3) Rock chutes or spillways? Y / (N)
- 4) Roadside ditches that are not connected or do not contain a permanent or intermittent stream? Y / (N)
- 5) Temporarily ponded areas that are normally farmed? Y / (N)
- 6) Artificial bodies of water intended for storage, treatment for farming purposes? Y / (N)
- 8) Any other: _____

Description: (i.e. length of change, if it reappears, if there is evidence of water)

Photo log

Picture #	Description	Picture #	Description

Assessment of Non-Water Body
(update to mapping required)

AECOM

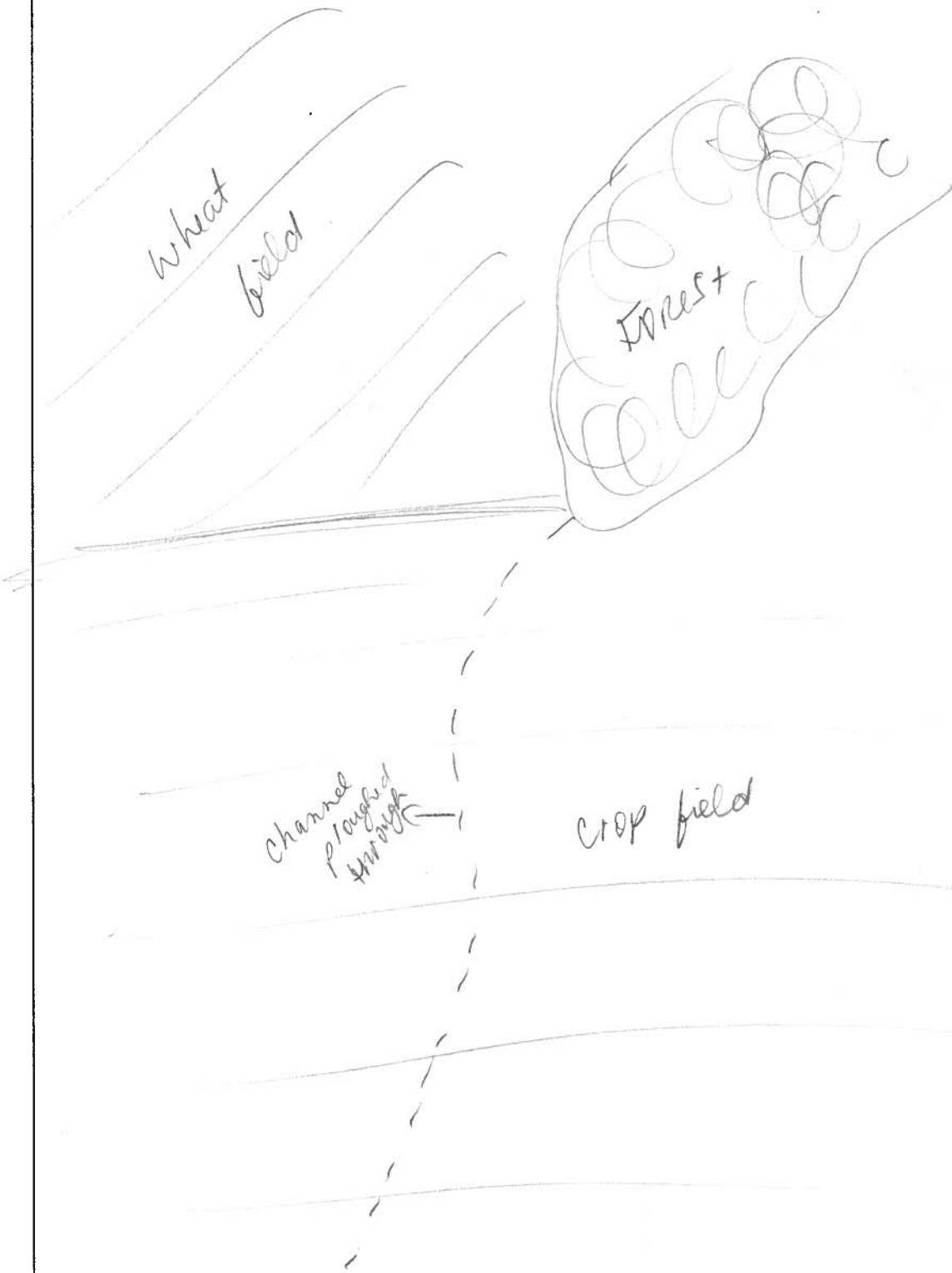
Date: May 2/12

Land Parcel/Site ID: ^{see} 3231 R2.101

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Site Sketch

N



Initial QA/QC: Jhm Oct 2/12
Sotken Oct 2/12

Water Bodies Assessment Field Collection Form

AECOM

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 3281/3280 Site ID: R2.102
 Date: May 2/12 Start time: 13:15 End Time: 14:20
 Weather Conditions: Cloudy Field Crew: C. Barros, J Harnden
 Field Notes By: C. Barros

Site Location

Arkona Rd., South of Cedar Point Co.

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

Easting: <u>0433402</u>	Northing: <u>4774106</u>	Description: <u>R2.102 N Start</u>
Easting: <u>0433000469</u>	Northing: <u>4773600016</u>	Description: <u>R2.102 S End</u>
Easting: _____	Northing: _____	Description: _____
Easting: _____	Northing: _____	Description: _____

Surrounding Landuse

Residential <input type="checkbox"/>	Meadow <input type="checkbox"/>
Agriculture <input type="checkbox"/>	Wetland <input type="checkbox"/>
Forest <input checked="" type="checkbox"/>	Livestock <input type="checkbox"/>
Other _____	

Type of Watercourse

Intermittent <input type="checkbox"/>	Channelized <input type="checkbox"/>
Permanent <input checked="" type="checkbox"/>	Natural Channel <input checked="" type="checkbox"/>
Ephemeral <input type="checkbox"/>	_____ <input type="checkbox"/>

Description:

mixed -> deciduous dominant

Description:

low flow at time of investigation
 could be intermittent

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

tile drain input at south end - start of stream at forest

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

If Yes describe:

only flows in forest area, ploughed through in crop field

GPS Coordinate: Easting - 0433469 Northing - 4773616 Description - forest edge

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

Forest - valley -> hilly

In-Situ Water Quality

WT (°C): <u>11.99</u>	AT (°C): <u>20°C</u>
pH: <u>7.33</u>	Cond (µs/cm): <u>587</u>
D.O. (mg/L) <u>19.16</u>	

Water Clarity: Clear Turbid
slightly turbid in some areas

Water Colour: brown tinge

Notes:

Ground Water and Seepage Indicators

Watercress <input checked="" type="checkbox"/>	Bank Seepage <input type="checkbox"/>
Iron Staining <input type="checkbox"/>	None <input type="checkbox"/>
Bubbling <input type="checkbox"/>	_____ <input type="checkbox"/>
Other <input type="checkbox"/>	

Details:

Watercress only observed near
 convergence area of 100+101 (north end of
 site)
 water speedwell, stink cabbage
 observed.

Water Bodies Assessment Field Collection Form

Stream Morphology						
Site Length (m): 500 m			Bank Stability:			
Channel Dimensions			Stable	Slightly unstable	Moderately unstable	Unstable
Mean Wetted Width (m): 0.6	Mean Wetted Depth (m): 0.1		Left Bank <input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mean Bankfull Width (m): 1.0	Mean Bankfull Depth (m): 0.5		Right Bank <input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mean Top of Bank Width (m): 9 m	Mean Top of Bank Depth (m): 1 m		Description: areas of erosion			
Flow Description: (high or low flow conditions, stagnant, etc)						
frickle flow and stagnant in some areas						
Habitat						
Substrate (<=>)			Morphological Structure (%)			
Description			Pool	Riffle	Run	Flat
Bo - Boulder Co - Cobble Gr - Gravel Sa - Sand Si - Silt Cl - Clay MK - Muck DT - Detritus			25	15	/	60
Si, cl, gr, co, > dt			Notes:			
Instream Cover (%)						
Other <i>Overhanging</i>	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	None	Undercut Banks
woody debris 10	10		40	5	/	Average Depth: 0.15 (% Cover) 5
Note: Low = 0 - 30%; Moderate = 30 - 75%; High = 75 - 100%						
*Aquatic Vegetation Species Present (algae, submergent, emergent etc.)						
algae						
Canopy Cover (% closed cover):			Types of Cover (% cover)			
100-90% <input checked="" type="checkbox"/>	30-1% <input type="checkbox"/>		Trees 80	Shrubs 10	Man-made structures	
90-60% <input type="checkbox"/>	0% <input type="checkbox"/>		Grasses 10	Herbaceous	Other	
60-30% <input type="checkbox"/>						
Note: Low = 0 - 30%; Moderate = 30 - 60%; High = 60 - 100%						
Notes: (vegetation species, types of structures)						
Maple, huch, oak, elm						
Riparian Vegetation						
Width of riparian vegetation: 30+m						
Description of vegetation community surrounding 30 m from watercourse: forest						
Obstructions to Fish Passage						
No Obstructions <input type="checkbox"/>	Man-Made <input type="checkbox"/>	Natural <input type="checkbox"/>	Low Flow Barrier <input checked="" type="checkbox"/>			
Description of Barrier: some areas of stream already < 30cm wide, < 10cm deep						
Height of Barrier (m) /			GPS Coordinates: n/a			

Water Bodies Assessment Field Collection Form

AECOM

Date: May 2 / 12

Land Parcel/Site ID: R2.102
JKR 3281 Page 3 of 4

Other General Comments Regarding the Study Area:

Input at South end - tile drain N 4773664 E 0433475

Walked from north end to South end → stream mouth at convergence small and little flow, moving upstream it enters a wetland area and becomes braided, it then flows into a valley area w more defined banks → it is a meandering stream with good instream cover (cobbles dominate), riffle run, pool sequence present, very low water levels. Canopy cover high - trees

Additional UTM Coordinates:

The South end of stream fed by tile drains - no evidence of gw indicators after wetland area

→ stream ploughed through in agri field

Photo log

Picture #	Description	Picture #	Description
1-29	Convergence area		
2-4	wetlands		
3-30			
3-30	Channel overview		

Water Bodies Assessment Field Collection Form

AECOM

Page 4 of 4

Watercourse Sketch

Study Area:

Jericho

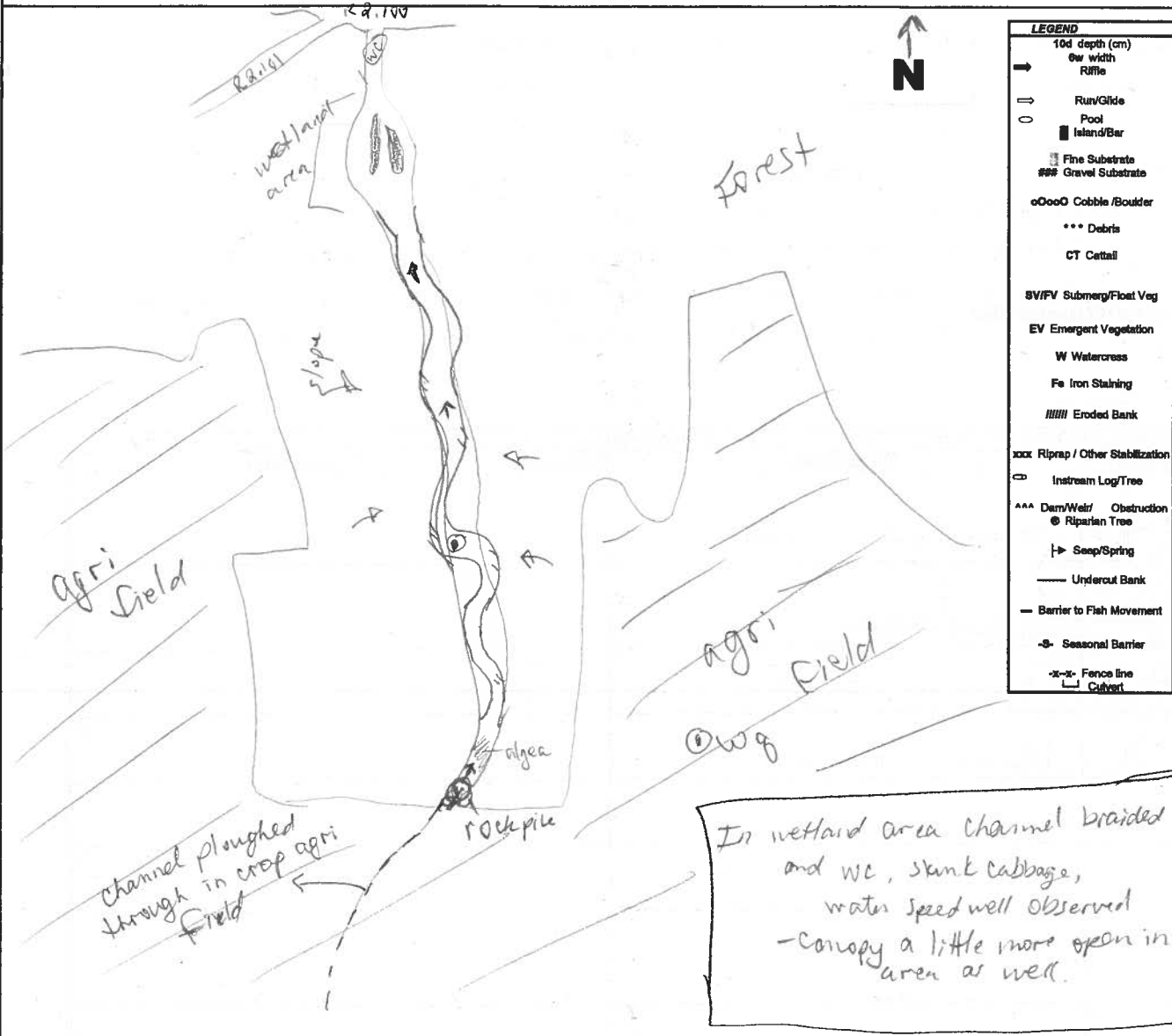
Goshen

Bluewater

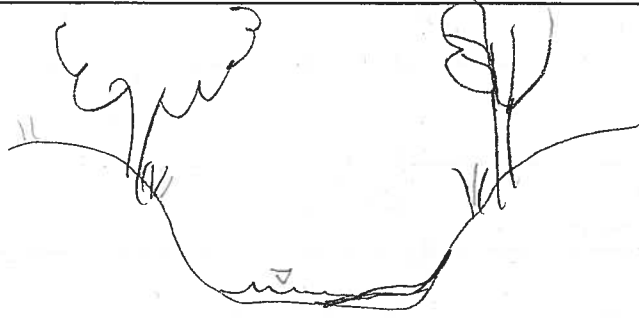
Land Parcel# 3281

Site ID

R2.102



Horizontal View of Channel



Initial QA/QC By: L. Bentley

Date: May 8, 2012

Technical QA/QC By: J. [unclear]

Date: Oct 2/12

**Assessment of Non-Water Body
(update to mapping required)**

AECOM		Page 1 of 2	
General Information			
Study Area: <u>Jericho</u>	<u>Goshen</u>	<u>Bluewater</u>	Land Parcel# <u>3281/3280</u> Site ID: <u>RR.102</u>
Date: <u>May 2/12</u>	Start time: <u>13:15</u>	End Time: <u>13:25</u>	
Weather Conditions: <u>Cloudy</u>		Field Crew: <u>C. Baros, J. Harnden</u> Field Notes By: <u>O. Baros.</u>	
Site Location			
<u>Arkona Rd, South of Cedar Point Line.</u>			
UTM Co-ordinates			
Easting: _____	Northing: _____	Description: _____	
Easting: _____	Northing: _____	Description: _____	
Easting: _____	Northing: _____	Description: _____	
Easting: _____	Northing: _____	Description: _____	
Surrounding Landuse		Ground Water and Seepage Indicators	
Residential <input type="checkbox"/>	Meadow <input type="checkbox"/>	Watercress <input type="checkbox"/>	Bank Seepage <input type="checkbox"/>
Agriculture <input checked="" type="checkbox"/>	Wetland <input type="checkbox"/>	Iron Staining <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Forest <input type="checkbox"/>	Livestock <input type="checkbox"/>	Bubbling <input type="checkbox"/>	<input type="checkbox"/>
Other <input type="checkbox"/>			
Description: _____		Details: _____	
Feature Description			
Is the mapped water body any of the below:			
1) a grassed waterway?	<u>Y/N</u>		
2) Temporary channel for surface drainage, that can be tilled or driven through?	Y / N		
3) Rock chutes or spillways?	<u>Y/N</u>		
4) Roadside ditches that are not connected or do not contain a permanent or intermittent stream?	Y / N		
5) Temporarily ponded areas that are normally farmed?	<u>Y/N</u>		
6) Artificial bodies of water intended for storage, treatment for farming purposes?	<u>Y/N</u>		
8) Any other:			
Description: (i.e. length of change, if it reappears, if there is evidence of water)			
<u>watercourse is tile drained in agricultural field.</u>			
Photo log			
Picture #	Description	Picture #	Description

Assessment of Non-Water Body
(update to mapping required)

R 2.102

AECOM

Date: May 2/12

Land Parcel/Site ID: 3281

Page 2 of 2

Site Sketch



Forest

Agricultural field

Initial QA/QC: L Bentley Oct. 25/12
Sketcher Oct 2/12

**Assessment of Non-Water Body
(update to mapping required)**

AECOM

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 3281 Site ID: ~~FR2.111~~ FR2.111
 Date: May 2/12 Start time: 11:50 End Time: 11:59
 Weather Conditions: Cloudy, 17°C Field Crew: C. Boros, J. Harnden
 Field Notes By: C. Boros

Site Location

Arkona Rd., South of Cedar Point Cn.

UTM Co-ordinates

Easting: 0432800 Northing: 4773611 Description: South end
 Easting: 0432966 Northing: 4773682 Description: North end
 Easting: _____ Northing: _____ Description: _____
 Easting: _____ Northing: _____ Description: _____

Surrounding Landuse

Residential Meadow
 Agriculture Wetland
 Forest Livestock
 Other _____

Description: wheat field

Ground Water and Seepage Indicators

Watercress Bank Seepage
 Iron Staining None
 Bubbling _____

Details: _____

Feature Description

Is the mapped water body any of the below:

- 1) a grassed waterway? Y / (N)
- 2) Temporary channel for surface drainage, that can be tilled or driven through? (Y) / N
- 3) Rock chutes or spillways? Y / (N)
- 4) Roadside ditches that are not connected or do not contain a permanent or intermittent stream? Y / (N)
- 5) Temporarily ponded areas that are normally farmed? Y / (N)
- 6) Artificial bodies of water intended for storage, treatment for farming purposes? Y / (N)
- 8) Any other: _____

Description: (i.e. length of change, if it reappears, if there is evidence of water)

Photo log

Picture #	Description	Picture #	Description
<u>1-2</u>	<u>overview</u>		

Assessment of Non-Water Body
(update to mapping required)

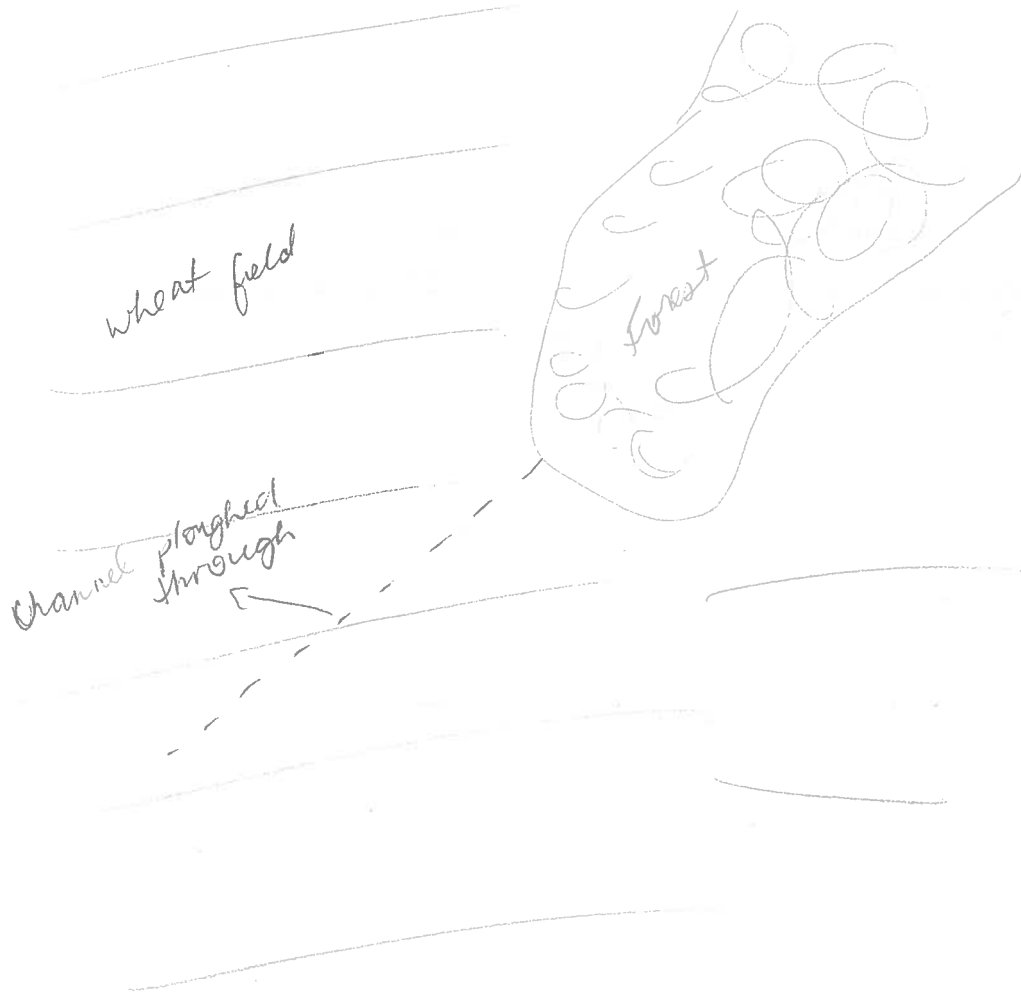
AECOM

Date: May 2 / 12

Land Parcel/Site ID: JER 3281 R2.111

Page 2 of 2

Site Sketch



Initial QA/QC: JG Oct 2/12
Sauter Oct 2/12

Water Bodies Assessment Field Collection Form

AECOM

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 9197/9196 Site ID: B2.10 B
 Date: May 24/12 Start time: 8.30 End Time: 9:33
 Weather Conditions: Sunny, slight breeze 27°C
 Field Crew: S. Atken, S. Daraiche
 Field Notes By: S. Atken

ASA
9196

Site Location

located east off Arkona Road

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

Easting: 433196 Northing: 4780377 Description: start
 Easting: Northing: Description: 2.10 culvert
 Easting: Northing: Description: 2.10 end.
 Easting: Northing: Description:

Surrounding Landuse

Residential Meadow
 Agriculture Wetland
 Forest Livestock
 Other

Type of Watercourse

Intermittent Channelized
 Permanent Natural Channel
 Ephemeral

Description: CROP - soy + corn (east) (west)
 Description: very uniform

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

tile drain inputs noted - not flowing

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

GPS Coordinate: Easting - Northing - Description -

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

very flat - slope towards the west between two fields

In-Situ Water Quality

WT (°C): 17.3 AT (°C): 24
 pH: 7.46 Cond (µs/cm): 861
 D.O. (mg/L): 2.19
 Water Clarity: Clear Turbid

Water Colour: light brown.

Notes: natural film on water breaks apart.

Ground Water and Seepage Indicators

Watercress Bank Seepage
 Iron Staining None
 Bubbling
 Other

Details: patches of watercress very red in colour

Water Bodies Assessment Field Collection Form

Stream Morphology								
Site Length (m): <u>~500</u>			Bank Stability:					
Channel Dimensions			Stable	Slightly unstable	Moderately unstable	Unstable		
Mean Wetted Width (m):	<u>2.30</u>	Mean Wetted Depth (m):	<u>0.20</u>	Left Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mean Bankfull Width (m):	<u>4.5</u>	Mean Bankfull Depth (m):	<u>0.80</u>	Right Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mean Top of Bank Width (m):	<u>7.0</u>	Mean Top of Bank Depth (m):	<u>2.5</u>	Description: <u>Well vegetated no signs of erosion</u>				
Flow Description: (high or low flow conditions, stagnant, etc)								
<u>low flow conditions, water is stagnant. max depth - 0.25 m</u>								
Habitat								
Substrate (<=>)			Morphological Structure (%)					
Bo - Boulder	<u>Si</u>	Description	Pool	Riffle	Run	Flat		
Co - Cobble						<u>100</u>		
Gr - Gravel								
Sa - Sand								
Si - Silt								
Cl - Clay								
MK-Muck								
DT-Debris								
			Notes: <u>not moving</u>					
Instream Cover (%)								
Other	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	None	Undercut Banks		
				<u>100</u>		Average Depth: _____ (% Cover) _____		
Note: Low = 0 - 30%; Moderate = 30 - 75%; High = 75 - 100%								
*Aquatic Vegetation Species Present (algae, submergent, emergent etc.)								
<u>arrowhead, duckweed, pondweed sp emergent grasses, floating algae</u>								
Canopy Cover (% closed cover):								
100-90%	<input type="checkbox"/>	30-1%	<input checked="" type="checkbox"/>	Types of Cover (% cover)				
90-60%	<input type="checkbox"/>	0%	<input type="checkbox"/>	Trees	Shrubs <u>5</u>	Man-made structures		
60-30%	<input type="checkbox"/>			Grasses	Herbaceous	Other		
Note: Low = 0 - 30%; Moderate = 30 - 60%; High = 60 - 100%								
Notes: (vegetation species, types of structures)								
Riparian Vegetation								
Width and Description of riparian vegetation:	<u>LB - 5m herbaceous cover</u>			<u>RB - 5m herbaceous + shrub cover.</u>				
Overhanging Vegetation Present	<u>Y/N</u>	% Overhanging Vegetation:						
Description of Overhanging Vegetation:								
Obstructions to Fish Passage								
None Observed	<input checked="" type="checkbox"/>	Man-Made	<input type="checkbox"/>	Natural	<input type="checkbox"/>	Low Flow Barrier	<input type="checkbox"/>	
Description of Barrier:								
Height of Barrier (m)			GPS Coordinates:					

Water Bodies Assessment Field Collection Form

AECOM

Date: 24 MAY 2012

Land Parcel/Site ID:

9197/
9196/B2.10B

Page 3 of 4

Other General Comments Regarding the Study Area:

- green frogs observed, cyprinids observed near culvert
- very uniform straightened channel full of emergent, submergent vegetation
- large CSP located under bridge
- d/s ASA very similar to channel JER 9197
- cobble & boulder placed near culvert

Additional UTM Coordinates:

Photo log

Picture #	Description	Picture #	Description
1	fieldsheet	13	overview ASA
2	facing u/s		
3	facing d/s		
4	aquatic plant		
5	pondweed sp		
6	facing downstream		
7	facing upstream		
8	facing u/s		
9	facing d/s		
10	watercress		
11	watercress		
12	overview ASA		

Water Bodies Assessment Field Collection Form

AECOM

Page 4 of 4

Watercourse Sketch

Study Area:

Jericho

Goshen

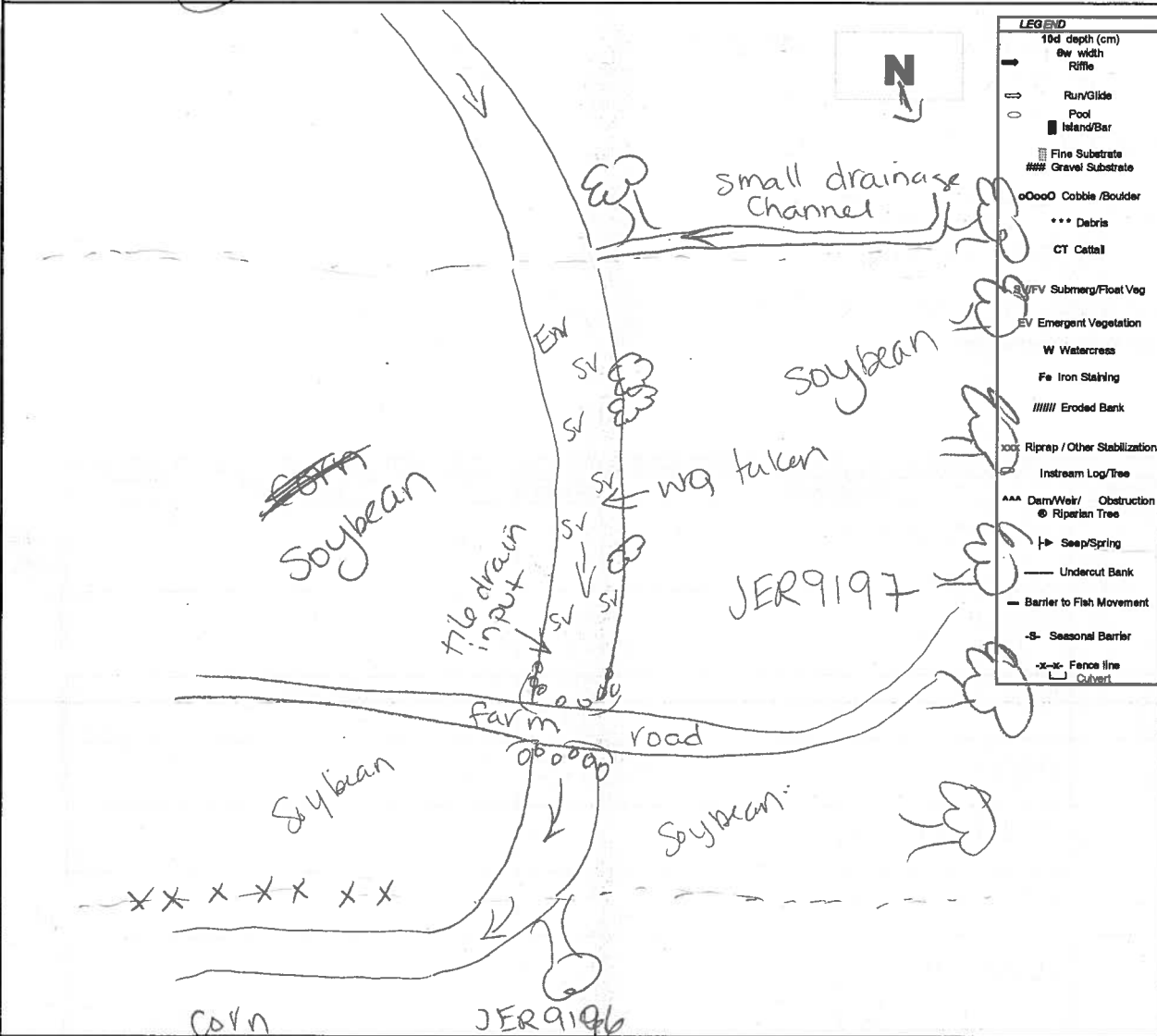
Bluewater

Land Parcel#

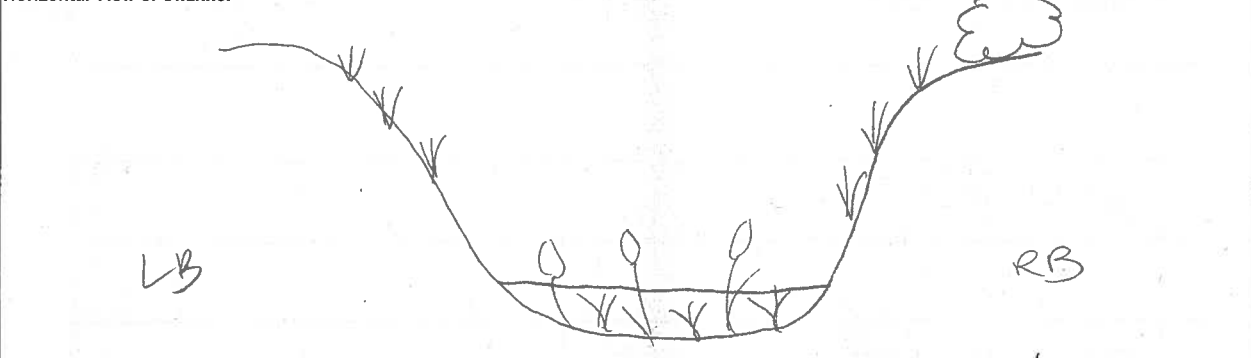
9197/9196

Site ID

R2.10B



Horizontal View of Channel



Initial QA/QC By: L. Bentley

Date: May 30, 2012

Technical QA/QC By: M

Date: 7th June 2012

Water Bodies Assessment Field Collection Form

AECOM

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 3293/6803 Site ID: R2.14
 Date: May 24/12 Start time: 9:43 End Time: 10:00
 Weather Conditions: Sunny 24c Field Crew: SAITKEN SODARICHE
 Field Notes By: SAITKEN

Site Location

through the Arkona Rd. Roadside Survey

ASA

UTM Co-ordinates (continue on page 3 if necessary) none taken

Easting: _____ Northing: _____ Description: See the map
 Easting: _____ Northing: _____ Description: _____
 Easting: _____ Northing: _____ Description: _____
 Easting: _____ Northing: _____ Description: _____

Surrounding Landuse

Residential Meadow
 Agriculture Wetland
 Forest Livestock
 Other

Type of Watercourse

Intermittent Channelized
 Permanent Natural Channel
 Ephemeral

Description: Forest on east side
Wetland + forest on west

Description: Meandering stream

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

none observed

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

GPS Coordinate: Easting - _____ Northing - _____ Description - _____

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

→ rolling hills in a forest habitat
→ cross the Arkona road by culvert

In-Situ Water Quality

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

Ground Water and Seepage Indicators

Watercress Bank Seepage
 Iron Staining None
 Bubbling
 Other

Details:

Water Colour: _____
 Notes: No water quality
ASA

Water Bodies Assessment Field Collection Form

Stream Morphology							
Site Length (m): <u>40 → 20 on either side of road</u>				Bank Stability:			
Channel Dimensions				Stable	Slightly unstable	Moderately unstable	Unstable
Mean Wetted Width (m):	<u>1.00</u>	Mean Wetted Depth (m):	<u>0.25</u>	Left Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mean Bankfull Width (m):	<u>3.5</u>	Mean Bankfull Depth (m):	<u>0.60</u>	Right Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mean Top of Bank Width (m):	<u>—</u>	Mean Top of Bank Depth (m):	<u>—</u>	Description: <u>well vegetated banks, very gradual</u>			
Flow Description: (high or low flow conditions, stagnant, etc) <u>low flow conditions, flat gradient flat floodplain on west side</u>							
Habitat							
Substrate (< = >)				Morphological Structure (%)			
Description Bo - Boulder Co - Cobble Gr - Gravel Sa - Sand Si - Silt Cl - Clay MK - Muck DT - Detritus <u>Si > Sa</u>				Notes:			
				Pool	Riffle	Run	Flat
				<u>100</u>			
Instream Cover (%)							
Other	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	None	Undercut Banks	
	<u>10</u>					Average Depth: (% Cover)	
Note: Low = 0 - 30%; Moderate = 30 - 75%; High = 75 - 100%							
*Aquatic Vegetation Species Present (algae, submergent, emergent etc.) <u>FRAGMARIAS AND CATTAILS</u>							
Canopy Cover (% closed cover):				Types of Cover (% cover)			
100-90%	<input type="checkbox"/>	30-1%	<input type="checkbox"/>	Trees	<u>30</u>	Man-made structures	
90-60%	<input checked="" type="checkbox"/>	0%	<input type="checkbox"/>	Grasses	<u>20</u>	Herbaceous	
60-30%	<input type="checkbox"/>				<u>20</u>	Other	
Note: Low = 0 - 30%; Moderate = 30 - 60%; High = 60 - 100%							
Notes: (vegetation species, types of structures) <u>deciduous trees, willow shrubs</u>							
Riparian Vegetation							
Width and Description of riparian vegetation:			Riparian Vegetation				
LB - <u>>5m</u>			RB - <u>>5m good riparian cover</u>				
Overhanging Vegetation Present <input checked="" type="checkbox"/> N			% Overhanging Vegetation:				
Description of Overhanging Vegetation: <u>grasses</u>							
Obstructions to Fish Passage							
None Observed	<input checked="" type="checkbox"/>	Man-Made	<input type="checkbox"/>	Natural	<input type="checkbox"/>	Low Flow Barrier	
Description of Barrier:							
Height of Barrier (m)			GPS Coordinates:				

Water Bodies Assessment Field Collection Form

AECOM

Date:

May 24/12

Land Parcel/Site ID:

3293-6804

Page 3 of 4

R2.14

Other General Comments Regarding the Study Area:

- natural permanent channel flows through deciduous forest on east, through Wetland/deciduous forest on west.

Additional UTM Coordinates:

Photo log

Picture #	Description	Picture #	Description
14	On West side of Arkora Rd		
15	View of channel west side		
16	View of channel west side		
17	View of channel east		
18	View of channel east		

Water Bodies Assessment Field Collection Form

AECOM

Page 4 of 4

Watercourse Sketch

Study Area:

Jericho

Goshen

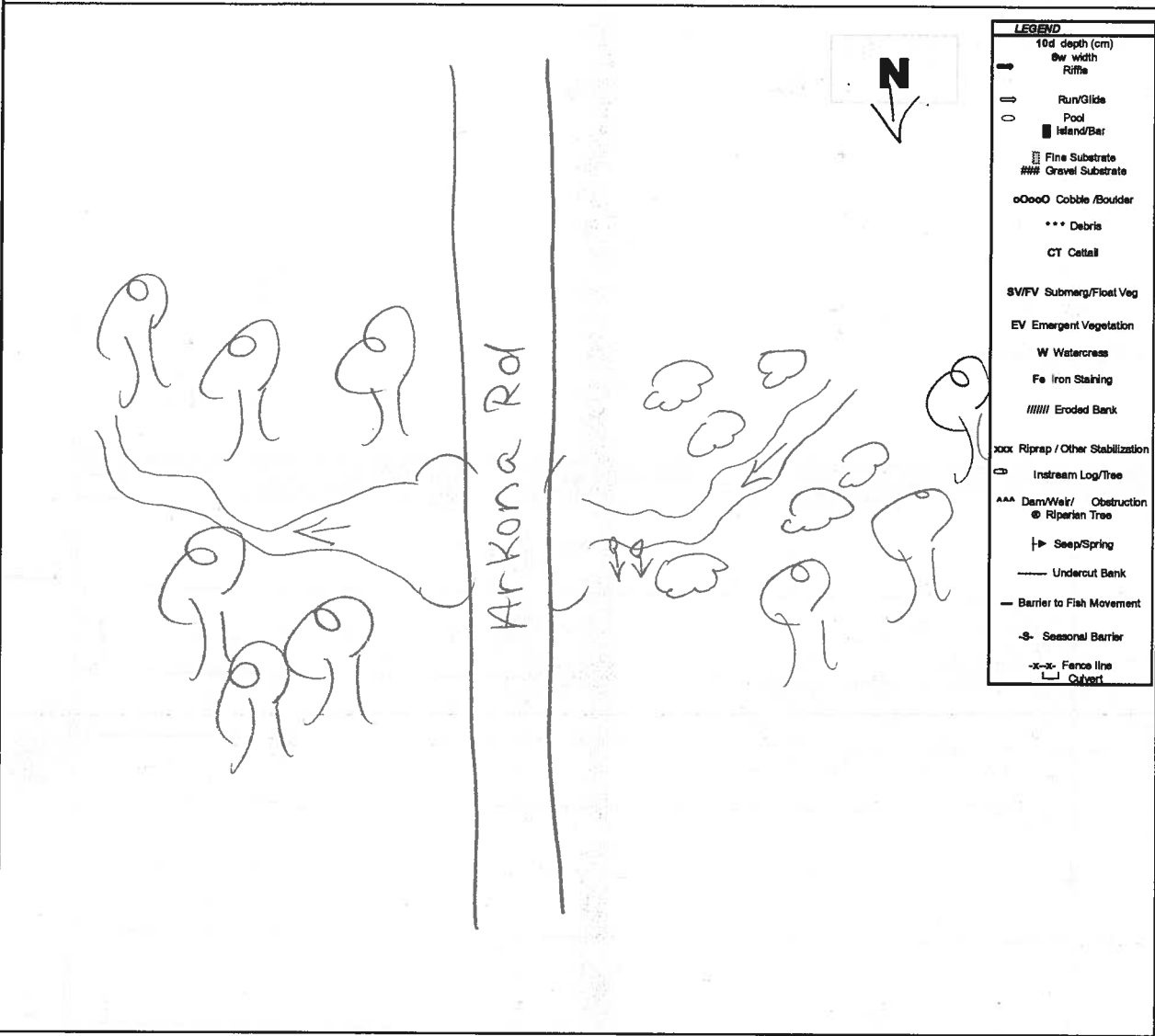
Bluewater

Land Parcel#

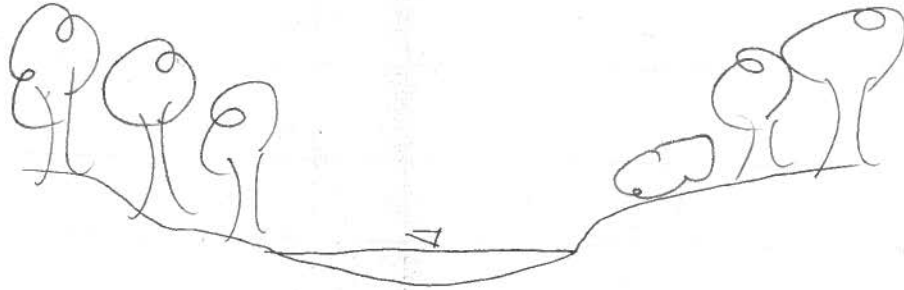
3293/6803

Site ID

B214



Horizontal View of Channel



Initial QA/QC By: L. Bentley

Date: May 30, 2012

Technical QA/QC By: NL

Date: 7th June 2012

Water Bodies Assessment Field Collection Form

AECOM

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 3294/3293 Site ID: R2.1⁴-JER3294

Date: May 15/12 Start time: 11:30 End Time: 14:30

Weather Conditions: Sunny, 21°C Field Crew: C. Boros, A. Ars enault
Field Notes By: C. Boros

Site Location

Arkona Ln, South of Kennedy Rd.

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

Easting: <u>0432263</u>	Northing: <u>4781007</u>	Description: <u>JER3294 start</u>
Easting: <u>0432299</u>	Northing: <u>4781116</u>	Description: <u>JER3294 iron</u>
Easting: <u>0432325</u>	Northing: <u>4781204</u>	Description: <u>JER3294 end → wq as well.</u>

ASA for 3293

wq as well.

Surrounding Landuse		Type of Watercourse	
Residential <input type="checkbox"/>	Meadow <input type="checkbox"/>	Intermittent <input type="checkbox"/>	Channelized <input type="checkbox"/>
Agriculture <input type="checkbox"/>	Wetland <input checked="" type="checkbox"/>	Permanent <input checked="" type="checkbox"/>	Natural Channel <input checked="" type="checkbox"/>
Forest <input checked="" type="checkbox"/>	Livestock <input type="checkbox"/>	Ephemeral <input type="checkbox"/>	
Other <input type="checkbox"/>			

Description: runs from pond surrounded by forest to wetland area

Description: after dammed pond flow in natural meander

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

yes → seeps observed throughout by iron staining + slow flow + all channels

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

If Yes describe: At the laneway the watercourse is dammed. South of laneway is a pond + also just north is ponded

GPS Coordinate: Easting - 0432263 Northing - 4781007 Description - laneway/dam

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

flat

In-Situ Water Quality

WT (°C): <u>20.29</u>	AT (°C): <u>21</u>
pH: <u>6.76</u>	Cond (µs/cm): <u>397</u>
D.O. (mg/L) <u>2.50</u>	
Water Clarity: Clear <input checked="" type="checkbox"/> Turbid <input type="checkbox"/>	

Water Colour: n/a

Notes: wq taken in wetland area

Ground Water and Seepage Indicators

Watercress <input type="checkbox"/>	Bank Seepage <input type="checkbox"/>
Iron Staining <input checked="" type="checkbox"/>	None <input type="checkbox"/>
Bubbling <input type="checkbox"/>	
Other <input type="checkbox"/>	

Details:

iron staining found throughout wetland area

Water Bodies Assessment Field Collection Form

Stream Morphology						
Site Length (m): <u>200m</u>		Bank Stability:				
Channel Dimensions		Stable	Slightly unstable			
Mean Wetted Width (m): <u>0.9</u>	Mean Wetted Depth (m): <u>0.10</u>	Moderately unstable	Unstable			
Mean Bankfull Width (m): <u>1.3</u>	Mean Bankfull Depth (m): <u>0.30</u>	Left Bank <input checked="" type="checkbox"/> Stable	<input type="checkbox"/> Slightly unstable			
Mean Top of Bank Width (m): <u>1.3</u>	Mean Top of Bank Depth (m): <u>0.6</u>	Right Bank <input checked="" type="checkbox"/> Stable	<input type="checkbox"/> Slightly unstable			
		Description: <u>meanders through wetland area</u>				
Flow Description: (high or low flow conditions, stagnant, etc)						
<u>slow flow</u>						
Substrate (<=>)		Habitat				
Bo - Boulder	Description <u>mk > silt = sand</u>	Morphological Structure (%)				
Co - Cobble		Pool	Riffle	Run	Flat	
Gr - Gravel					100	
Sa - Sand		Notes: <u>meanders but no riffles</u>				
Si - Silt						
Cl - Clay						
MK - Muck						
DT - Detritus						
Instream Cover (%) <u>25</u>						
Other veg debris	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	None	Undercut Banks
10				10		Average Depth: <u>0.15m</u> (% Cover) <u>5</u>
Note: Low = 0 - 30%; Moderate = 30 - 75%; High = 75 - 100%						
*Aquatic Vegetation Species Present (algae, submergent, emergent etc.)						
<u>grass</u>						
Canopy Cover (% closed cover):			Types of Cover (% cover)			
100-90%	<input type="checkbox"/>	<u>30</u> 1%	<input checked="" type="checkbox"/>	Trees	Shrubs <u>85</u>	Man-made structures
90-60%	<input type="checkbox"/>	0%	<input type="checkbox"/>	Grasses <u>15</u>	Herbaceous	Other
60-30%	<input type="checkbox"/>					
Note: Low = 0 - 30%; Moderate = 30 - 60%; High = 60 - 100%						
Notes: (vegetation species, types of structures)						
<u>dogwood thicket</u>						
Riparian Vegetation						
Width of riparian vegetation: <u>10m of wetland before mixed forest starts</u>						
Description of vegetation community surrounding 30 m from watercourse:						
<u>forest then agri fields on west side</u>						
Obstructions to Fish Passage						
No Obstructions	<input type="checkbox"/>	Man-Made	<input checked="" type="checkbox"/>	Natural	<input type="checkbox"/>	Low Flow Barrier
Description of Barrier: <u>dam</u>						
Height of Barrier (m)						
GPS Coordinates: <u>0432263 7787007</u> <u>Start point</u>						

AECOM

Date: May 15/12

Land Parcel/Site ID: JER 3294/
3293 R2.14 Page 3 of 4

Other General Comments Regarding the Study Area:

- watercourse is dammed south of driveway and large pond is present. It flows north into a wetland area where the watercourse meanders in a small channel - shallow water. Substrate is much silt. A large steel pipe runs through the wetland and may be a drainage pipe periodically adding water to the wetland area. Also found multiple iron staining areas.

Additional UTM Coordinates:

Frogs + tadpoles observed.

Photo log

Picture #	Description	Picture #	Description
1-2	@ ASA ☺ looking west		
3	↓ looking east		
4	Pond South of driveway		
5	dam		
6-7	Pond 40m x 100m		
8-9	North side - pond		
10-13	moving down stream		
14-15	Iron staining in wetland		

Water Bodies Assessment Field Collection Form

AECOM

Page 4 of 4

Watercourse Sketch

Study Area:

Jericho

Goshen

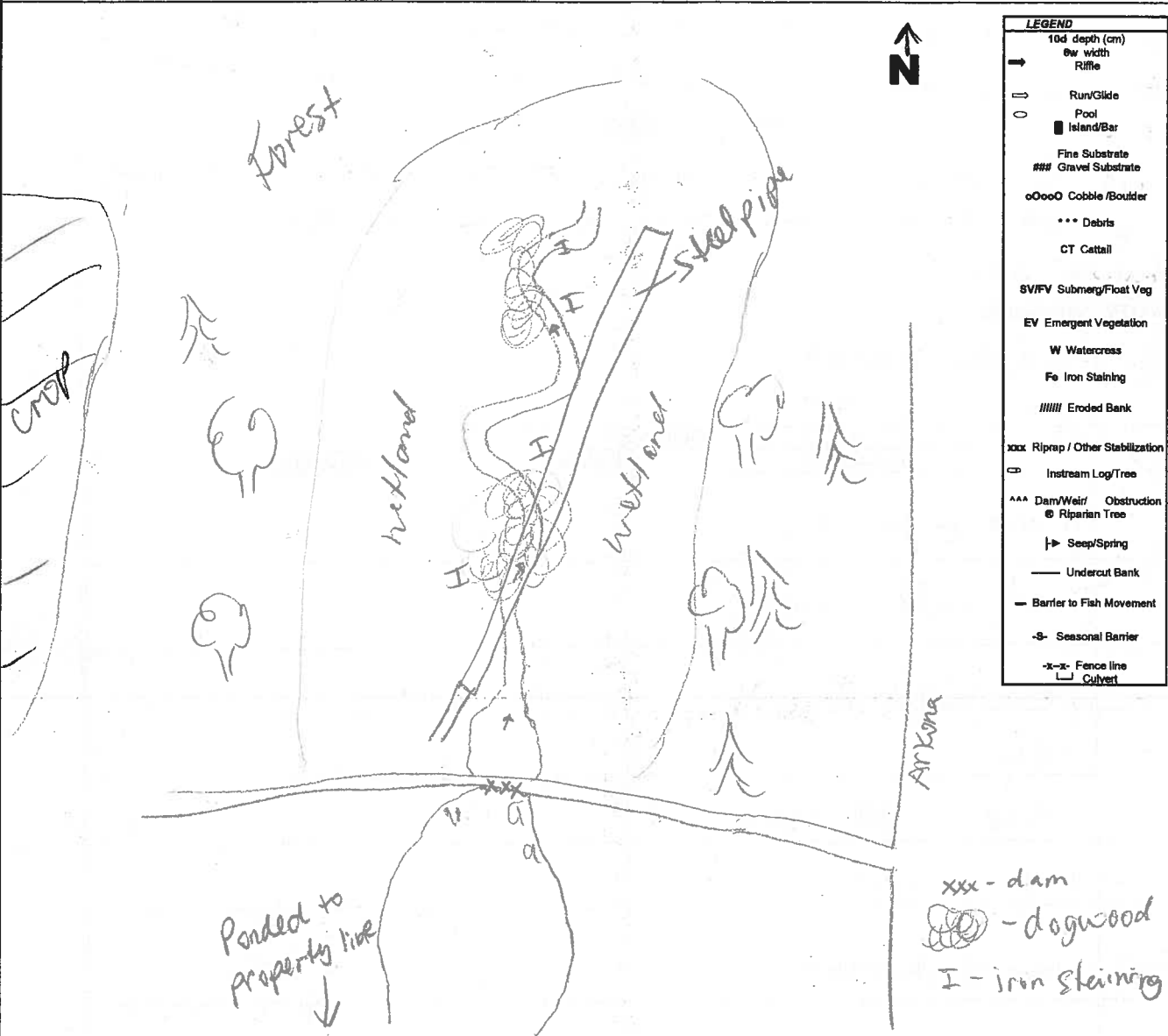
Bluewater

Land Parcel#

3294

Site ID

R2.14



Horizontal View of Channel



Initial QA/QC By: L Bentley

Date: May 22 2012

Technical QA/QC By: Sullivan

Date: Jun 11/12

AECOM		Page 1 of 4	
General Information			
Study Area: <u>Jericho</u> <u>Goshen</u> <u>Bluewater</u>		Land Parcel# <u>JER3261</u>	Site ID: <u>R2.14</u>
Date: <u>May 30/12</u>		Start time: <u>13400</u>	End Time: <u>15:15</u>
Weather Conditions: <u>Sunny cloudy day</u>		Field Crew: <u>CHARDIN</u> <u>S DARAKHE</u>	Field Notes By: <u>S DARAKHE</u>
Site Location			
<u>west of arkona Rd</u>			
UTM Co-ordinates (continue on page 3 if necessary)			
Easting: <u>432138</u>	Northing: <u>4780808</u>	Description: <u>R2.14ST</u>	
Easting: <u>431929</u>	Northing: <u>4780642</u>	Description: <u>R2.14Culvert</u>	
Easting: <u>432054</u>	Northing: <u>4780634</u>	Description: <u>R2.14Swale</u>	
Easting: <u>431633</u>	Northing: <u>4780802</u>	Description: <u>R2.14Emb</u>	
Surrounding Landuse		Type of Watercourse	
Residential <input type="checkbox"/>	Meadow <input type="checkbox"/>	Intermittent <input type="checkbox"/>	Channelized <input type="checkbox"/>
Agriculture <input checked="" type="checkbox"/>	Wetland <input type="checkbox"/>	Permanent <input checked="" type="checkbox"/>	Natural Channel <input checked="" type="checkbox"/>
Forest <input checked="" type="checkbox"/>	Livestock <input type="checkbox"/>	Ephemeral <input type="checkbox"/>	
Other <input type="checkbox"/>	Description: <u>Crop Soy, Bean only</u>		
Description: <u>Band of forest with wetland zone</u>		Description: <u>Natural</u>	
Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)			
<u>input drain to ponded area at tree line R2.14 (CP12)</u>			
Is any portion of the water body underground or not as mapped? Y <input type="checkbox"/> N <input checked="" type="checkbox"/>			
If Yes describe:			
GPS Coordinate: Easting - Northing - Description-			
Description of Land Topography Surrounding Water Body (rolling hills, sloping towards water body)			
<u>-> Sloping towards water stream</u>			
In-Situ Water Quality		Ground Water and Seepage Indicators	
WT (°C): <u>22.2</u>	AT (°C): <u>24.4</u>	Watercress <input type="checkbox"/>	Bank Seepage <input type="checkbox"/>
pH: <u>7.57</u>	Cond (s/cm): <u>615</u>	Iron Staining <input type="checkbox"/>	None <input checked="" type="checkbox"/>
D.O. (mg/L) <u>5.43</u>		Bubbling <input type="checkbox"/>	
Water Clarity: Clear <input checked="" type="checkbox"/> Turbid <input type="checkbox"/>		Other <input type="checkbox"/>	
Water Colour: <u>light green</u>		Details:	
Notes: <u>D/S of the culvert in field section</u>			

Water Bodies Assessment Field Collection Form

Stream Morphology							
Site Length (m): <u>480m</u>				Bank Stability:			
Channel Dimensions				Stable	Slightly unstable	Moderately unstable	Unstable
Mean Wetted Width (m): <u>0.30</u>	Mean Wetted Depth (m): <u>0.10</u>		Left Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mean Bankfull Width (m): <u>0.90</u>	Mean Bankfull Depth (m): <u>0.35</u>		Right Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mean Top of Bank Width (m): <u>25</u>	Mean Top of Bank Depth (m): <u>2.00</u>		Description: <u>— Vegetated</u>				
Flow Description: (high or low flow conditions, stagnant, etc) <u>low flow</u>							
Habitat							
Substrate (<=>)			Morphological Structure (%)				
Bo - Boulder	Description		Pool	Riffle	Run	Flat	
Co - Cobble	<u>Si</u>				<u>60</u>	<u>40</u>	
Gr - Gravel			Notes:				
Sa - Sand							
Si - Silt							
Cl - Clay							
MK - Muck							
DT - Detritus							
Instream Cover (%)							
Other	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	None	Undercut Banks	
				<u>20</u>		Average Depth: <u>—</u> (% Cover)	
Note: Low = 0 - 30%; Moderate = 30 - 75%; High = 75 - 100%							
*Aquatic Vegetation Species Present (algae, submergent, emergent etc.) <u>Cattail</u> <u>HORSETAIL</u>							
Canopy Cover (% closed cover):				Types of Cover (% cover)			
100-90%	<input type="checkbox"/>	30-1%	<input checked="" type="checkbox"/>	Trees <u>15</u>	Shrubs <u>10</u>	Man-made structures	
90-60%	<input type="checkbox"/>	0%	<input type="checkbox"/>	Grasses	Herbaceous	Other	
60-30%	<input type="checkbox"/>						
Note: Low = 0 - 30%; Moderate = 30 - 60%; High = 60 - 100%							
Notes: (vegetation species, types of structures) <u>ash - willow shrubs</u>							
Riparian Vegetation							
Width and Description of riparian vegetation:	LB - <u>15m 0m</u>				RB - <u>15m 0m</u>		
<u>Salix, Alnus, Larix, Pinus, etc wood</u>							
Overhanging Vegetation Present Y/N			% Overhanging Vegetation:				
Description of Overhanging Vegetation:							
Obstructions to Fish Passage							
None Observed	<input checked="" type="checkbox"/>	Man-Made	<input type="checkbox"/>	Natural	<input type="checkbox"/>	Low Flow Barrier	<input type="checkbox"/>
Description of Barrier:							
Height of Barrier (m)			GPS Coordinates:				

Water Bodies Assessment Field Collection Form

32001

AECOM

Date: May 30/12

Land Parcel/Site ID: Jee ~~32001~~

Page 3 of 4

R214

Other General Comments Regarding the Study Area:

→ photo of swale (cell phone 6) and CL7
 dry in depression planted in 1st -432054 } swale
 4780634 } R2.14Swal

heard
 bull frog

~~large turtle jet 3201 R2.27~~
 culvert

the swales on map are dry

Additional UTM Coordinates:

~~TORR2.14C~~
~~SURFING~~

Photo log

Picture #	Description	Picture #	Description
579 CP5 ⁵¹⁶	D/S From R2.14ST		
581 CP6/CP7	U/S From "		
CP8	U/S From		
583 CP8	Trail access TORR2.14CU		
584 CP9	U/S From R2.14CU		
585 CP10	D/S From R2.14CU		
CP11			
586 CP12	US/US culvert inlet @ tree line.		
580	U/S From R2.14ST		

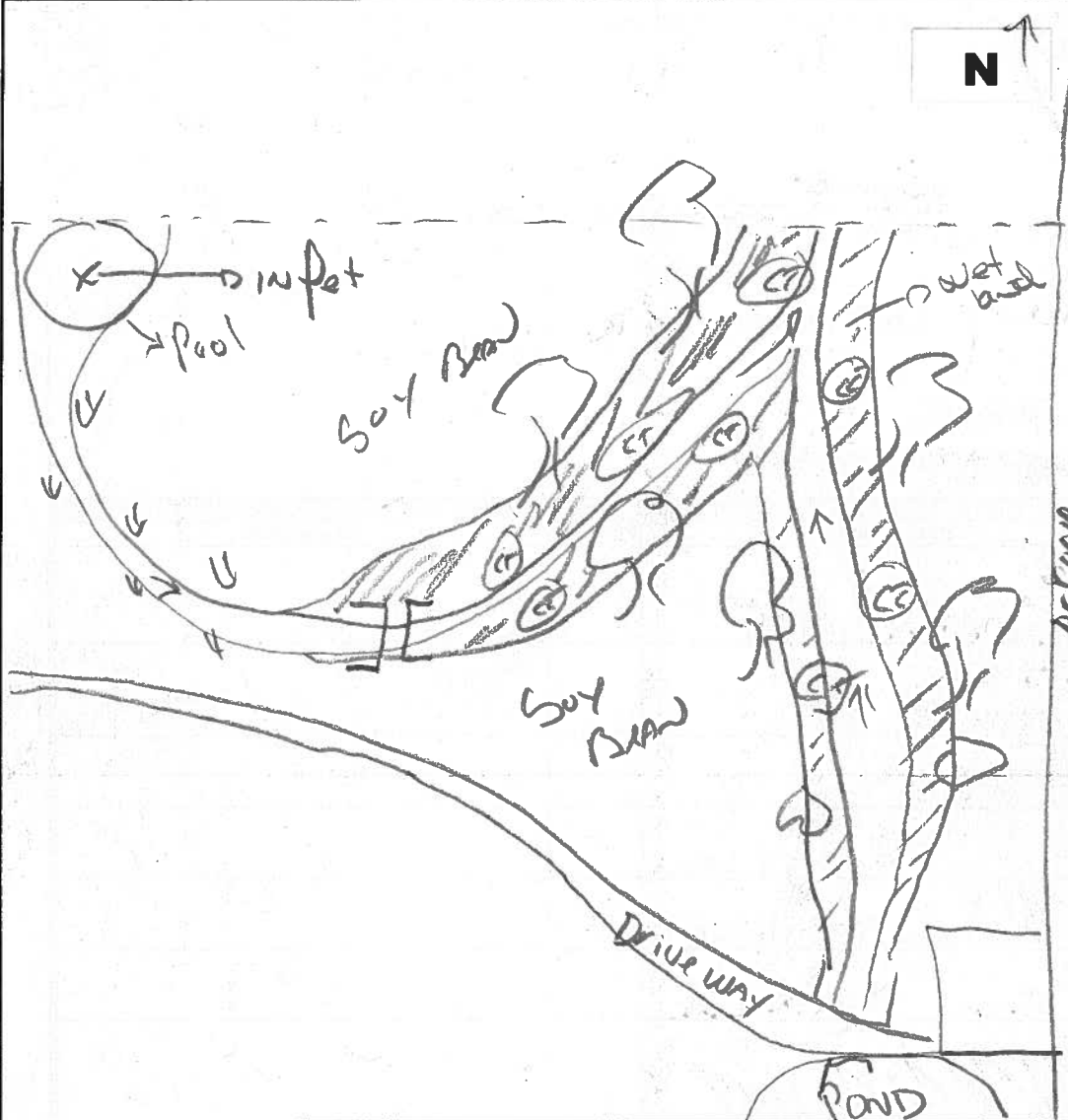
Water Bodies Assessment Field Collection Form

AECOM

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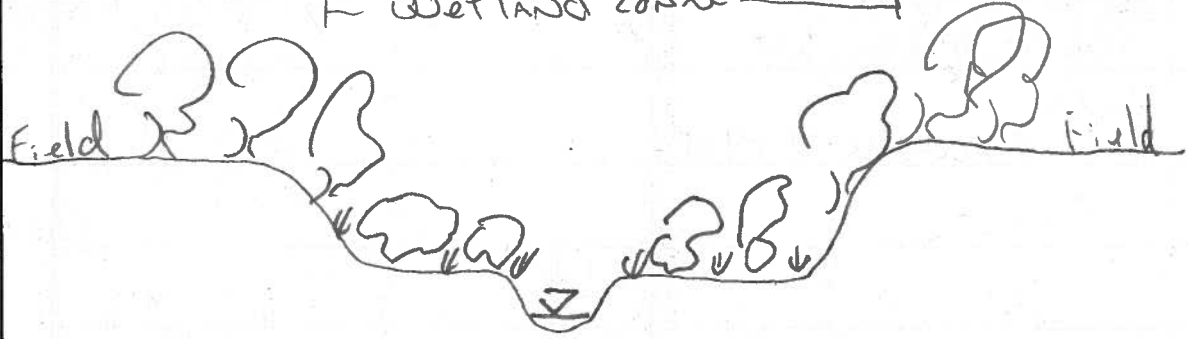
Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# # 3261 Site ID R2.14



LEGEND	
10d depth (cm)	→
6w width	⇌
Riffle	○
Run/Glide	○
Pool	○
Island/Bar	■
Fine Substrate	
Gravel Substrate	###
Cobble/Boulder	oOoO
Debris	***
Cattail	CT
Submerg/Floater Veg	SV/FV
Emergent Vegetation	EV
Watercress	W
Iron Staining	Fe
Eroded Bank	
Riprap / Other Stabilization	xxx
Instream Log/Tree	⊃
Dam/Waif Obstruction	AAA
Riparian Tree	⊙
Seep/Spring	⊥
Undercut Bank	—
Barrier to Fish Movement	—
Seasonal Barrier	-S-
Fence line	-x-x-
Culvert	⊥

Horizontal View of Channel



Initial QA/QC By: L. Bentley Date: June 6, 2012 Technical QA/QC By: M. Miller Date: Oct 2, 12

Water Bodies Assessment Field Collection Form

AECOM

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# ER3261 Site ID: R2.27
 Date: MAY 30/12 Start time: 13h00 End Time: 1515
 Weather Conditions: 28°C Field Crew: C HAKIOING & PARALICHE
Sunny cloudy Day Field Notes By: S DARICHE

Site Location

West of Arkona Rd.

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

Easting: <u>432218</u>	Northing: <u>4780626</u>	Description: <u>R2.27ST</u>
Easting: <u>432112</u>	Northing: <u>4780761</u>	Description: <u>R2.27END</u>
Easting: _____	Northing: _____	Description: _____
Easting: _____	Northing: _____	Description: _____

Surrounding Landuse

Residential <input type="checkbox"/>	Meadow <input type="checkbox"/>
Agriculture <input checked="" type="checkbox"/>	Wetland <input type="checkbox"/>
Forest <input checked="" type="checkbox"/>	Livestock <input type="checkbox"/>
Other <input type="checkbox"/>	

Type of Watercourse

Intermittent <input type="checkbox"/>	Channelized <input type="checkbox"/>
Permanent <input checked="" type="checkbox"/>	Natural Channel <input checked="" type="checkbox"/>
Ephemeral <input type="checkbox"/>	

Description:

forest Band 60m wide with wetland zone

Description:

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

2 DRAINS at R2.27ST

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)

Slopping Towards water stream

In-Situ Water Quality

WT (°C): <u>23.5</u>	AT (°C): <u>25</u>
pH: <u>7.81</u>	Cond (s/cm): <u>320</u>
D.O. (mg/L): <u>4.85</u>	
Water Clarity: Clear <input checked="" type="checkbox"/> Turbid <input type="checkbox"/>	

Ground Water and Seepage Indicators

Watercress <input type="checkbox"/>	Bank Seepage <input type="checkbox"/>
Iron Staining <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Bubbling <input type="checkbox"/>	
Other <input type="checkbox"/>	

Details:

Water Colour:

Transparent

Notes:

closed to the culvert DIS of Drive way

Water Bodies Assessment Field Collection Form

Stream Morphology							
Site Length (m): <u>350m</u>				Bank Stability:			
Channel Dimensions				Stable	Slightly unstable	Moderately unstable	Unstable
Mean Wetted Width (m): <u>0.35</u>	Mean Wetted Depth (m): <u>0.05</u>		Left Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mean Bankfull Width (m): <u>0.65</u>	Mean Bankfull Depth (m): <u>0.30</u>		Right Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mean Top of Bank Width (m): <u>>30m</u>	Mean Top of Bank Depth (m): <u>~2.50</u>		Description: <u>vegetated (wetland)</u>				
Flow Description: (high or low flow conditions, stagnant, etc) <u>low flow</u>							
Habitat							
Substrate (<=>)			Morphological Structure (%)				
Description: <u>Si</u>			Pool	Riffle	Run	Flat	
Bo - Boulder Co - Cobble Gr - Gravel Sa - Sand Si - Silt Cl - Clay MK - Muck DT - Detritus					<u>60</u>	<u>40</u>	
Notes:							
Instream Cover (%)							
Other	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	None	Undercut Banks	
<u>25</u> <u>Grasses</u>				<u>15</u>	<u>X</u>	Average Depth: (% Cover)	
Note: Low = 0 - 30%; Moderate = 30 - 75%; High = 75 - 100%							
*Aquatic Vegetation Species Present (algae, submergent, emergent etc.) <u>None CATTAILS</u>							
Canopy Cover (% closed cover):				Types of Cover (% cover)			
100-90%	<input type="checkbox"/>	30-1%	<input type="checkbox"/>	Trees	Shrubs <u>30</u>	Man-made structures	
90-60%	<input checked="" type="checkbox"/>	0%	<input type="checkbox"/>	Grasses <u>30</u>	Herbaceous	Other	
60-30%	<input type="checkbox"/>						
Note: Low = 0 - 30%; Moderate = 30 - 60%; High = 60 - 100%							
Notes: (vegetation species, types of structures) <u>Dogwood and Salix shrubs, grasses, cattail Phragmites, Carex sp.</u>							
Riparian Vegetation							
Width and Description of riparian vegetation: <u>>25m</u> <u>Dogwood Salix Grasses P</u>			LB - <u>>25m</u> RB - <u>7.25m</u>				
Overhanging Vegetation Present (Y/N) <u>Y</u>			% Overhanging Vegetation: <u>5</u>				
Description of Overhanging Vegetation: <u>Grasses</u>							
Obstructions to Fish Passage							
None Observed	<input type="checkbox"/>	Man-Made	<input checked="" type="checkbox"/>	Natural	<input type="checkbox"/>	Low Flow Barrier	<input type="checkbox"/>
Description of Barrier: <u>culvert with 0.50m step</u>							
Height of Barrier (m): <u>0.50</u>			GPS Coordinates: <u>R2.27 St</u>				

Water Bodies Assessment Field Collection Form

AECOM

Date: MAY 30/12

Land Parcel/Site ID: JER3261 R2.27

Page 3 of 4

Other General Comments Regarding the Study Area:

- across a wetland, small channel
- meander channel, with no underground water section
- Snapping turtle observed close to the R2.27ST point

Additional UTM Coordinates:

Photo log

Picture #	Description	Picture #	Description
1127	D/S Facing North From 2.27ST		
1128	Colvert 2.27ST		
1129	Wetland zone		
575	" "		
577	At R2.27END		
576	Channel (R2.27END)		
587	SNAPPING TURTLE (R2.27ST)		

Water Bodies Assessment Field Collection Form

AECOM

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Watercourse Sketch

Study Area:

Jericho

Goshen

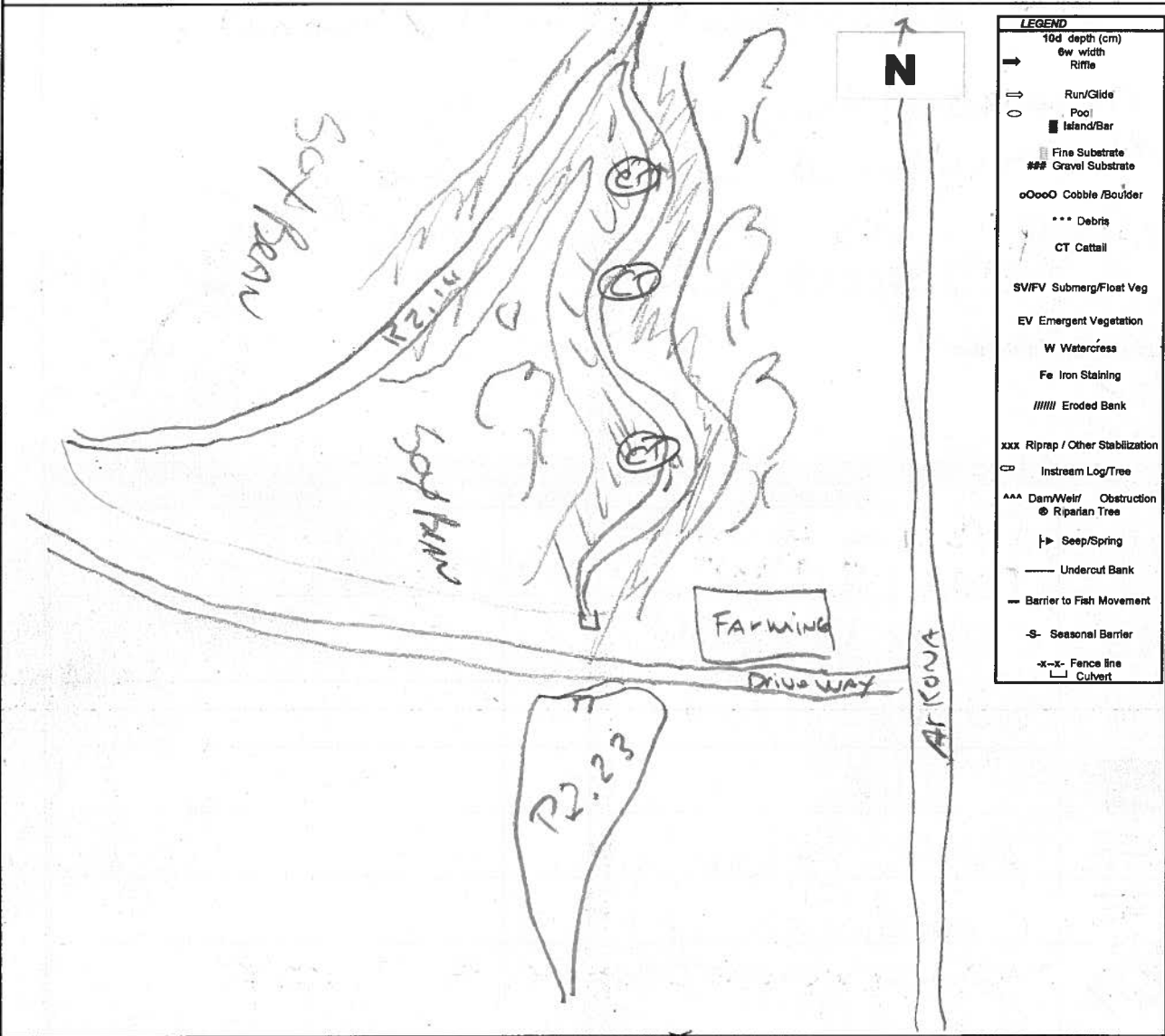
Bluewater

Land

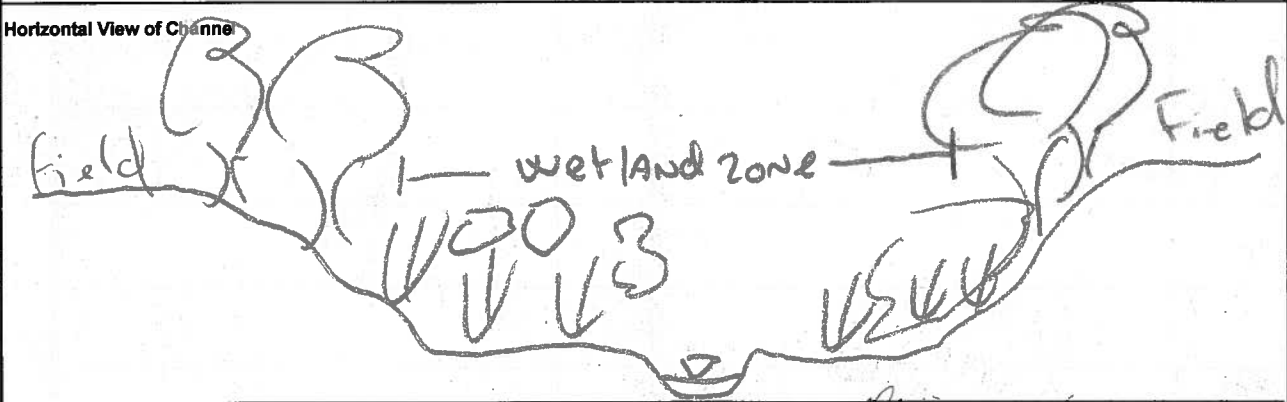
Parcel# JER 3261

Site ID

R2.27



Horizontal View of Channel



Initial QA/QC By: L. Bentley

Date: June 4, 2012

Technical QA/QC By: Rutke

Date: Oct 2/12

Water Bodies Assessment Field Collection Form

AECOM

Page 1 of 4

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 3294/3293 Site ID: R2.18-JER3294
 Date: May 15 / 12 Start time: 11:50 End Time: 14:00
 Weather Conditions: Sunny, 23°C Field Crew: C. Boros, A. Arsenault
 Field Notes By: C. Boros

Site Location

Arkona Ln, South of Kennedy

ASA for 3293

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

Easting: 0432207 Northing: 4781215 Description: R2.18
 Easting: 0431872 Northing: 4781192 Description: R2.18 w/g
 Easting: 0431660 Northing: 4781173 Description: R2.18 end. - fish barrier
 Easting: _____ Northing: _____ Description: _____

Surrounding Landuse

Residential Meadow
 Agriculture Wetland
 Forest Livestock
 Other

Description: surrounding stream is wetland then forest (mostly)

Type of Watercourse

Intermittent Channelized
 Permanent Natural Channel
 Ephemeral

Description: could be intermittent - may dry up in summer

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

possible seeps -> iron staining observed
-> fish drain input noted at west end of site flowing

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)

slightly hilly

In-Situ Water Quality

WT (°C): 16.66 AT (°C): 23°
 pH: 5.93 Cond (µs/cm): 455
 D.O. (mg/L) 10.90
 Water Clarity: Clear Turbid

Water Colour: n/a

Notes: w/g taken in shallow pool
G.W. low throughout

Ground Water and Seepage Indicators

Watercress Bank Seepage
 Iron Staining None
 Bubbling
 Other

Details:

small patches throughout

Water Bodies Assessment Field Collection Form

Stream Morphology											
Site Length (m): <u>400m</u>			Bank Stability:								
Channel Dimensions			Stable	Slightly unstable	Moderately unstable	Unstable					
Mean Wetted Width (m): <u>0.7</u>	Mean Wetted Depth (m): <u>0.05</u>	Left Bank <input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
Mean Bankfull Width (m): <u>1.2</u>	Mean Bankfull Depth (m): <u>0.15</u>		Right Bank <input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Mean Top of Bank Width (m): <u>1.2</u>	Mean Top of Bank Depth (m): <u>0.15</u>	Description: <u>meanders through wetland</u>									
Flow Description: (high or low flow conditions, stagnant, etc) <u>v. slow flow, at times stagnant</u>											
Habitat											
Substrate (<=>)		Description		Morphological Structure (%)							
Bo - Boulder	Co - Cobble	Gr - Gravel	Sa - Sand	Si - Silt	Cl - Clay	MK - Muck	DT - Detritus	Pool	Riffle	Run	Flat
<u>mk > cl/si/sa</u>								Notes: <u>no riffles or pools</u>			
Instream Cover (%) <u>50</u>											
Other	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	None	Undercut Banks					
/	<u>25</u>	/	/	<u>20</u>	/	Average Depth: <u>0.05 m</u> (% Cover) <u>5</u>					
Note: Low = 0 - 30%; Moderate = 30 - 75%; High = 75 - 100%											
*Aquatic Vegetation Species Present (algae, submergent, emergent etc.) <u>algae, grasses (attached)</u>											
Canopy Cover (% closed cover):			Types of Cover (% cover)								
100-90%	<input checked="" type="checkbox"/>	30-1%	<input type="checkbox"/>	Trees	<u>75</u>	Shrubs	<u>5</u>	Man-made structures			
90-60%	<input type="checkbox"/>	0%	<input type="checkbox"/>	Grasses		Herbaceous	<u>20</u>	Other			
60-30%	<input type="checkbox"/>										
Note: Low = 0 - 30%; Moderate = 30 - 60%; High = 60 - 100%											
Notes: (vegetation species, types of structures) <u>wetland veg _____ covers in some areas but forest trees dominant</u>											
Riparian Vegetation											
Width and Description of riparian vegetation:			Riparian Vegetation:								
LB - <u>710m - wetland</u>			RB - <u>710m - wetland</u>								
Overhanging Vegetation Present <input checked="" type="checkbox"/> N			% Overhanging Vegetation: <u>25</u>								
Description of Overhanging Vegetation: <u>shrubs - dogwood & wetland plant</u>											
Obstructions to Fish Passage											
None Observed	<input type="checkbox"/>	Man-Made	<input type="checkbox"/>	Natural	<input checked="" type="checkbox"/>	Low Flow Barrier	<input type="checkbox"/>				
Description of Barrier: <u>tree root causing height barrier</u>											
Height of Barrier (m) <u>0.40</u>			GPS Coordinates: <u>0431660 7781173</u> <u>end gps point</u>								

Water Bodies Assessment Field Collection Form

AECOM

Date: May 15/12

Land Parcel/Site ID: JER 3294/3293
 R2.18-JER3294 Page 3 of 4

Other General Comments Regarding the Study Area:

- Watercourse flows through wetland area for entire reach, it is meandering and has a soft bottom, sometimes becomes braided. Very low water level - may dry out in late summer.

- frogs observed

Note: R2.25 does not exist

Additional UTM Coordinates:

Photo log

Picture #	Description	Picture #	Description
1-8	Start of Channel - overview		
9	- in forest area checking for watercourse branch		
10-13	Channel overview		
14	Iron staining		
15-23	Channel overview		
24	tile drain flowing		
25	end of site fish barrier		
26	past site		
27	tile drain eg.		
28-29	R2.18		

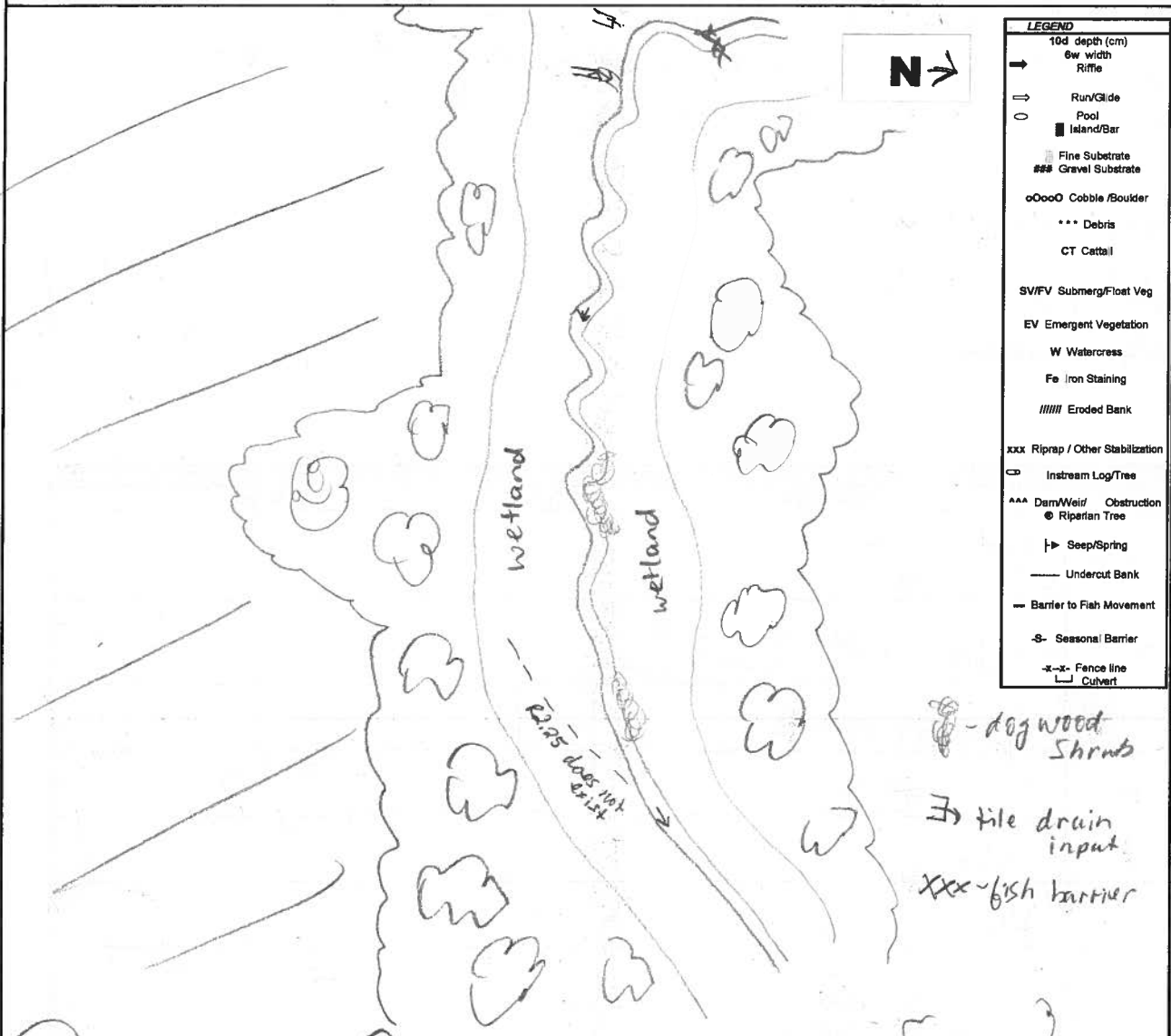
Water Bodies Assessment Field Collection Form

AECOM

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Watercourse Sketch

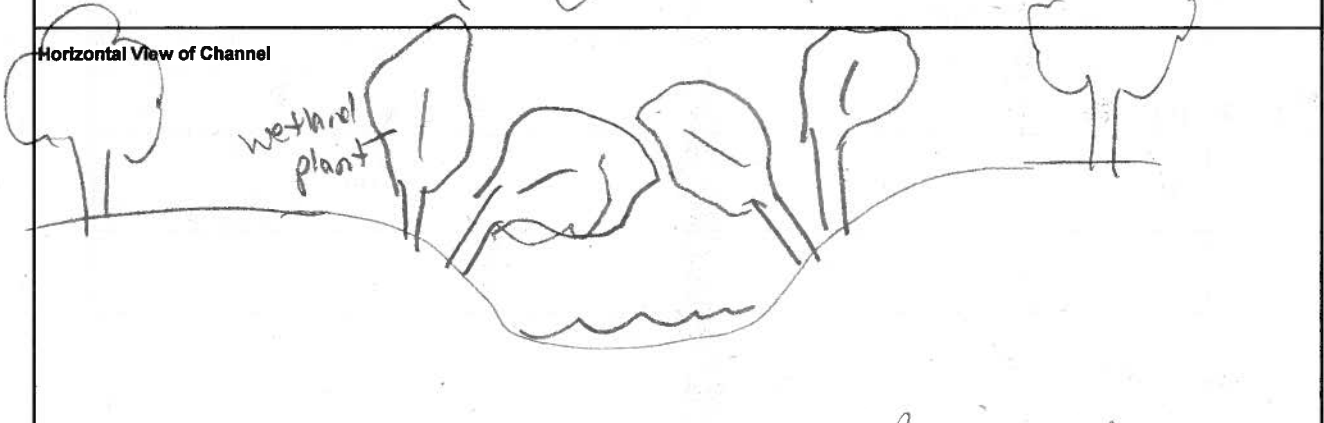
Study Area: Jericho Goshen Bluewater Land Parcel# JER3294 Site ID R2.18



LEGEND	
10d depth (cm)	→
8w width	⇌
Rifle	⇌
Run/Glide	⇌
Pool	○
Island/Bar	■
Fine Substrate	□
Gravel Substrate	###
Cobble / Boulder	oOooO
Debris	***
Cattail	CT
Submerg/Float Veg	SV/FV
Emergent Vegetation	EV
Watercress	W
Iron Staining	Fe
Eroded Bank	
Riprap / Other Stabilization	xxx
Instream Log/Tree	⊠
Dam/Weir / Obstruction	AAA
Riparian Tree	⊙
Seep/Spring	⊢
Undercut Bank	—
Barrier to Fish Movement	—
Seasonal Barrier	-S-
Fence line	-x-x-
Culvert	⊥

⊙ - dogwood shrubs
 ⊢ file drain input
 xxx - fish barrier

Horizontal View of Channel



Initial QA/QC By: L. Bentley Date: May 22, 2012 Technical QA/QC By: Skotkin Date: June 11/12

Water Bodies Assessment Field Collection Form

AECOM

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 3652/3653 Site ID: ~~R2.149~~ R2.140A

Date: May 3/12 Start time: 9:00 End Time: 10:05

Weather Conditions: Sunny, 18°C Field Crew: C. Barros, J. Harnden
Field Notes By: J. Harnden

Site Location

Arkona Ln, South Jura Rd.

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

Easting: <u>0431606</u>	Northing: <u>4771789</u>	Description: <u>R2.142 PL (property line btwn 52+53)</u>
Easting: <u>0431739</u>	Northing: <u>4771924</u>	Description: <u>R2.149 WC S - 2nd wc pops on</u>
Easting: <u>0431893</u>	Northing: <u>4771966</u>	Description: <u>R2.149 WC N - end of survey</u>

Easting: _____ Northing: _____ Description: _____

Surrounding Landuse

- | | |
|---|------------------------------------|
| Residential <input type="checkbox"/> | Meadow <input type="checkbox"/> |
| Agriculture <input checked="" type="checkbox"/> | Wetland <input type="checkbox"/> |
| Forest <input type="checkbox"/> | Livestock <input type="checkbox"/> |
| Other <input type="checkbox"/> | |

Description: crop on 3653
weedy pasture 3652

Type of Watercourse

- | | |
|---|---|
| Intermittent <input type="checkbox"/> | Channelized <input checked="" type="checkbox"/> |
| Permanent <input checked="" type="checkbox"/> | Natural Channel <input type="checkbox"/> |
| Ephemeral <input type="checkbox"/> | |

Description: _____

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

tile drain inputs observed - not flowing

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

If Yes describe: watercourse buried on 3653 and remains buried until forest area on 3652

GPS Coordinate: Easting - 0431606 Northing - 4771789 Description: at property line where drain is buried on both sides

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

slightly rolling

In-Situ Water Quality

WT (°C): <u>18.8</u>	AT (°C): <u>18°C</u>
pH: <u>7.36</u>	Cond (µs/cm): <u>747</u>
D.O. (mg/L) <u>15.68</u>	
Water Clarity: <u>Clear</u> <input checked="" type="checkbox"/>	<u>Turbid</u> <input type="checkbox"/>

Water Colour: n/a

Notes:

Ground Water and Seepage Indicators

- | | |
|--|--|
| Watercress <input type="checkbox"/> | Bank Seepage <input type="checkbox"/> |
| Iron Staining <input type="checkbox"/> | None <input checked="" type="checkbox"/> |
| Bubbling <input type="checkbox"/> | |
| Other <input type="checkbox"/> | |

Details:

Water Bodies Assessment Field Collection Form

Stream Morphology				
Site Length (m): 100m			Bank Stability:	
Channel Dimensions			Stable	Slightly unstable
Mean Wetted Width (m): 1.0	Mean Wetted Depth (m): 0.12		Moderately unstable	Unstable
Mean Bankfull Width (m): 1.2	Mean Bankfull Depth (m): 0.5	Left Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mean Top of Bank Width (m): 7	Mean Top of Bank Depth (m): 1.6	Right Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>
			Description: small areas slumping causing grass mounds in stream	
Flow Description: (high or low flow conditions, stagnant, etc)				
Water present but no flow observed - Stagnant				
Habitat				
Substrate (<=>)		Morphological Structure (%)		
Bo - Boulder	Description Si, Sa > Co > Bo	Pool	Riffle	Run
Co - Cobble				100
Gr - Gravel				
Sa - Sand				
Si - Silt				
Cl - Clay				
MK - Muck				
DT - Detritus				
Instream Cover (%) 80		Notes:		
Other	Woody Debris Small	Boulders	Cobble	Aquatic Vegetation*
	5%	5%	20	40
				None
				Undercut Banks
				Average Depth: 10cm
				(% Cover) 10%
Note: Low = 0 - 30%; Moderate = 30 - 75%; High = 75 - 100%				
*Aquatic Vegetation Species Present (algae, submergent, emergent etc.)				
Algae bloom + submerged >> grasses				
Canopy Cover (% closed cover):			Types of Cover (% cover)	
100-90%	<input type="checkbox"/>	30-1%	<input type="checkbox"/>	Trees
90-60%	<input type="checkbox"/>	0%	<input type="checkbox"/>	Shrubs 30
60-30%	<input checked="" type="checkbox"/>			Man-made structures
				Grasses 70
				Herbaceous
				Other
Note: Low = 0 - 30%; Moderate = 30 - 60%; High = 60 - 100%				
Notes: (vegetation species, types of structures)				
willow shrubs near outlet area				
Riparian Vegetation				
Width of riparian vegetation: S - 5m - grasses + meadow N - 10m - grasses, meadow, tree plantation				
Description of vegetation community surrounding 30 m from watercourse: riparian, agri-fallow pasture				
Obstructions to Fish Passage				
No Obstructions	<input type="checkbox"/>	Man-Made	<input checked="" type="checkbox"/>	Natural
				Low Flow Barrier
Description of Barrier: culvert at outlet is paved -> but goes into buried stream				
Height of Barrier (m)		GPS Coordinates: buried on 3653		

Water Bodies Assessment Field Collection Form

AECOM

Date: May 3/12

Land Parcel/Site ID:

R2, 140
JER 3652/3653

Page 3 of 4

Other General Comments Regarding the Study Area:

- watercourse is buried until forest area on JER 3652, it then outlets into a channelized stream that is straight but evidence of erosion suggests it is starting to meander, algae blooms present throughout and in most of instream habitat cover, substrate is soft to some cobble + boulder, Stagnant

- frogs heard calling in forest area past study area

Additional UTM Coordinates:

Photo log			
Picture #	Description	Picture #	Description
1a 1b	sheet preview at PL		
2	looking S at 3653 - no watercourse		ploughed through
3, 4	Property line - drain grate present		
5	Looking N at 3652 - no watercourse		
6	3652 land cover		
7-8	Watercourse pops out into meadow forest area on 3652		
9, 10	outlet area		
11-18	moving north along stream		
19	Advert before forest thicket		
20	Stream moving into forest		

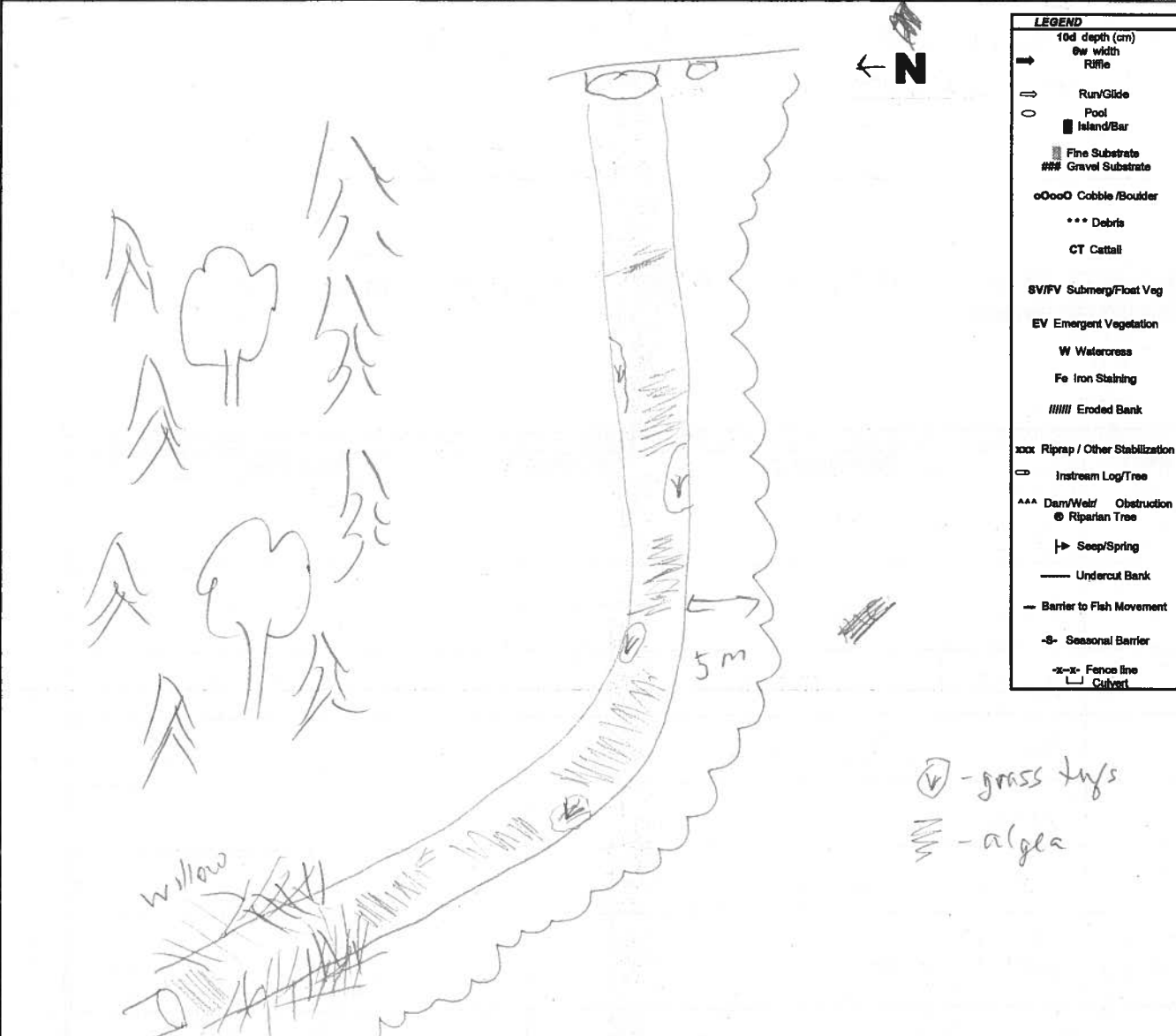
Water Bodies Assessment Field Collection Form

AECOM

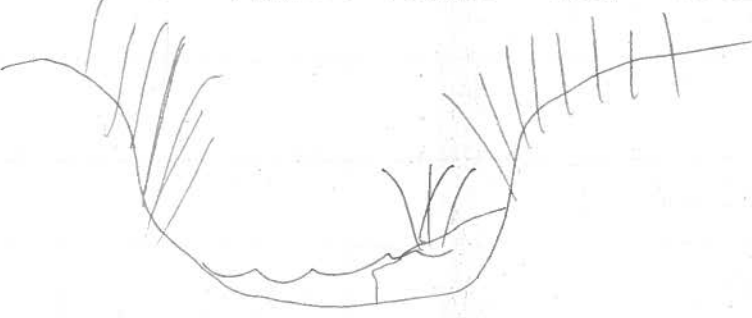
Page 4 of 4

Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 3653/3652 Site ID R2. 140 A



Horizontal View of Channel



Initial QA/QC By: L. Bentley Date: May 8, 2012 Technical QA/QC By: Justin Date: Oct 2/12

**Assessment of Non-Water Body
(update to mapping required)**

AECOM			
General Information			
Study Area: <u>Jericho</u> Goshen Bluewater Land Parcel# <u>3652/3653</u> Site ID: <u>R2.140-A</u>			
Date: <u>May 3/12</u> Start time: <u>9:00</u> End Time: <u>9:10</u>			
Weather Conditions: <u>Sunny 18°C</u>	Field Crew: <u>C. Boros, J. Harnden</u> Field Notes By: <u>C. Boros</u>		
Site Location			
<u>Aricona Ln, South of Jura Rd.</u>			
UTM Co-ordinates			
Easting: <u>431606</u> Northing: <u>4771789</u> Description:			
Easting: _____ Northing: _____ Description:			
Easting: _____ Northing: _____ Description:			
Easting: _____ Northing: _____ Description:			
Surrounding Landuse	Ground Water and Seepage Indicators		
Residential <input type="checkbox"/> Meadow <input type="checkbox"/> Agriculture <input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Forest <input type="checkbox"/> Livestock <input type="checkbox"/> Other _____	Watercress <input type="checkbox"/> Bank Seepage <input type="checkbox"/> Iron Staining <input type="checkbox"/> None <input checked="" type="checkbox"/> Bubbling <input type="checkbox"/>		
Description: <u>crop on 3653</u> <u>weedy pasture 3652</u>	Details: _____		
Feature Description			
Is the mapped water body any of the below:			
1) a grassed waterway? Y / <u>(N)</u>			
2) Temporary channel for surface drainage, that can be tilled or driven through? <u>(Y)</u> / N			
3) Rock chutes or spillways? Y / <u>(N)</u>			
4) Roadside ditches that are not connected or do not contain a permanent or intermittent stream? Y / <u>(N)</u>			
5) Temporarily ponded areas that are normally farmed? Y / <u>(N)</u>			
6) Artificial bodies of water intended for storage, treatment for farming purposes? Y / <u>(N)</u>			
8) Any other:			
Description: (i.e. length of change, if it reappears, if there is evidence of water)			
<u>watercourse is buried in agricultural fields</u>			
Photo log			
Picture #	Description	Picture #	Description
<u>2</u>	<u>looking @ 3653</u>		

Assessment of Non-Water Body
(update to mapping required)

R.R. 140-A

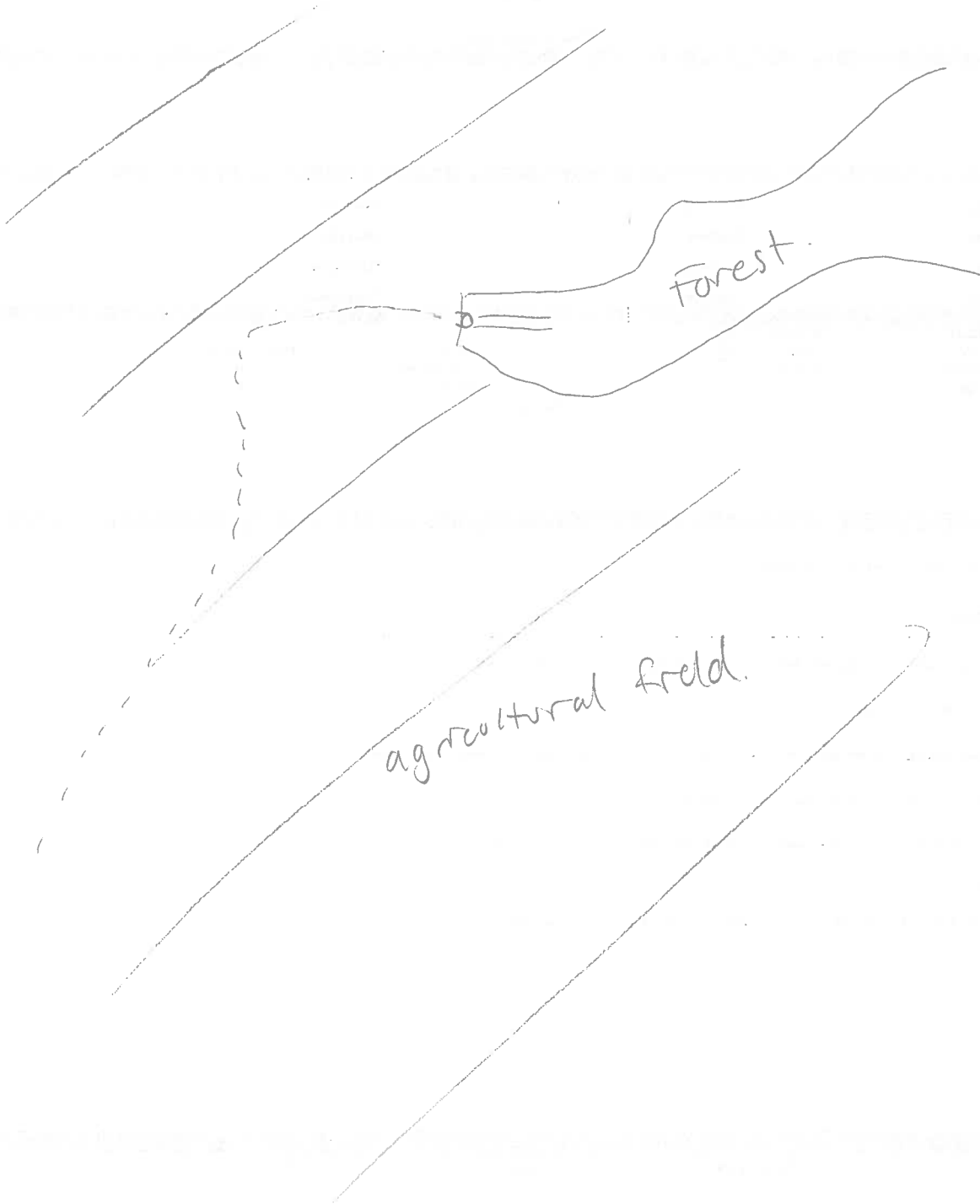
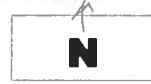
AECOM

Date: May 3/12

Land Parcel/Site ID: 3652 / 3653

Page 2 of 2

Site Sketch



Initial QA/QC: Bentley Oct. 25/12
Sketcher Oct 2/12

Water Bodies Assessment Field Collection Form

AECOM

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# JER370F Site ID: R3.74
 Date: Sept 28 / 12 Start time: 7:45 End Time: 8:45
 Weather Conditions: Sunny, 9°C Field Crew: C. Boros, R. Byer-Goward
 Field Notes By: C. Boros

Site Location

Widder Rd, just east of Gordon, south of Kennedy.

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

Easting: 430487 Northing: 4781613 Description: JER3708 s.
 Easting: 430421 Northing: 4781668 Description: JER3708 w
 Easting: _____ Northing: _____ Description: _____
 Easting: _____ Northing: _____ Description: _____

Surrounding Landuse

Residential Meadow
 Agriculture Wetland
 Forest Livestock
 Other _____

Description: In small swale area - meadow then forest

Type of Watercourse

Intermittent Channelized
 Permanent Natural Channel
 Ephemeral _____

Description: See description

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

Yes, tile drain from adjacent property (south side)

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

If Yes describe: Un-mapped watercourse

GPS Coordinate: Easting - _____ Northing - _____ Description - See above

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

Watercourse found along toe of slope - hill ~ 2m high

In-Situ Water Quality

WT (°C): 8.65 AT (°C): 9
 pH: 6.99 Cond (µs/cm): 4.00
 D.O. (mg/L) 2.76
 Water Clarity: Clear Turbid

Water Colour: brown

Notes: wq taken in stagnat pool at north end of property. ~ water depth 0.10m

Ground Water and Seepage Indicators

Watercress Bank Seepage
 Iron Staining None
 Bubbling _____
 Other

Details: small patches at south end.

Water Bodies Assessment Field Collection Form

Stream Morphology																				
Site Length (m): 100m			Bank Stability:																	
Channel Dimensions <i>dry dimensions</i>			<table style="width: 100%; text-align: center;"> <tr> <td></td> <td>Stable</td> <td>Slightly unstable</td> <td>Moderately unstable</td> <td>Unstable</td> </tr> <tr> <td>Left Bank</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Right Bank</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>				Stable	Slightly unstable	Moderately unstable	Unstable	Left Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Right Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Stable	Slightly unstable	Moderately unstable	Unstable																
Left Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																
Right Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																
Mean Wetted Width (m): 2.5	Mean Wetted Depth (m): /		Description:																	
Mean Bankfull Width (m): /	Mean Bankfull Depth (m): /																			
Mean Top of Bank Width (m): 4	Mean Top of Bank Depth (m): 0.75																			
Flow Description: (high or low flow conditions, stagnant, etc)																				
→ Channel dry for 90% then stagnant water (pool) at north end → no flow																				
Habitat																				
Substrate (<=>)			Morphological Structure (%)																	
Description Bo - Boulder Co - Cobble Gr - Gravel Sa - Sand Si - Silt Cl - Clay MK - Muck DT - Detritus <i>dt) cl, si, sa</i>			<table border="1" style="width: 100%; text-align: center;"> <tr> <th>Pool</th> <th>Riffle</th> <th>Run</th> <th>Flat</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>			Pool	Riffle	Run	Flat											
			Pool	Riffle	Run	Flat														
			Notes: <i>dry 90% of channel then stagnant pool</i>																	
Instream Cover (%)																				
Other	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	None	Undercut Banks														
	10			70*		Average Depth: (% Cover)														
Note: Low = 0 - 30%; Moderate = 30 - 75%; High = 75 - 100%																				
*Aquatic Vegetation Species Present (algae, submergent, emergent etc.)																				
<i>* dry channel overgrown w/ veg → not just aquatic</i>																				
<i>aquatic veg - emergent grasses, iris, waterlilies, creeping jenny</i>																				
Canopy Cover (% closed cover):			Types of Cover (% cover)																	
100-90% <input type="checkbox"/>	30-1% <input type="checkbox"/>	Trees <u>75</u> Shrubs <u>20</u> Man-made structures _____																		
90-60% <input checked="" type="checkbox"/>	0% <input type="checkbox"/>	Grasses <u>10</u> Herbaceous _____ Other _____																		
60-30% <input type="checkbox"/>																				
Note: Low = 0 - 30%; Moderate = 30 - 60%; High = 60 - 100%																				
Notes: (vegetation species, types of structures)																				
<i>Ash, walnut, dogwood, grape vine.</i>																				
Riparian Vegetation																				
Width and Description of riparian vegetation:			LB - 15m - meadow, forest at south end																	
			RB - 10m - meadows forest at south end																	
Overhanging Vegetation Present <input checked="" type="checkbox"/> N % Overhanging Vegetation: 2																				
Description of Overhanging Vegetation:																				
<i>small patches of overhanging veg - do not span stream width</i>																				
Obstructions to Fish Passage																				
None Observed <input type="checkbox"/> Man-Made <input type="checkbox"/> Natural <input type="checkbox"/> Low Flow Barrier <input checked="" type="checkbox"/>																				
Description of Barrier: <i>dry channel</i>																				
Height of Barrier (m)			GPS Coordinates:																	

Water Bodies Assessment Field Collection Form

AECOM

Date: *Sept 28/12*

Land Parcel/Site ID: *JER3708 R3.74* Page 3 of 4

Other General Comments Regarding the Study Area:

It appears that the stream begins at an outlet pipe on JER 3709, runs down the slope onto JER 3708. At time of investigation there was no flow. Channel was defined and had slight meander (natural), as the channel approached north end it was very defined - could have previously been dug out. Channel dry until last 25m. In dry sections it is overgrown w/ vegetation.

Additional UTM Coordinates:

- Leopard frog observed

Photo log

Picture #	Description	Picture #	Description
<i>1-2</i>	<i>view from slope</i>		
<i>3</i>	<i>tile drain</i>		
<i>4-12</i>	<i>channel overview in meadow</i>		
<i>11-13</i>	<i>channel overview in forest</i>		
<i>14-18</i>	<i>pool.</i>		

Water Bodies Assessment Field Collection Form

AECOM

Page 4 of 4

Watercourse Sketch

Study Area:

Jericho

Goshen

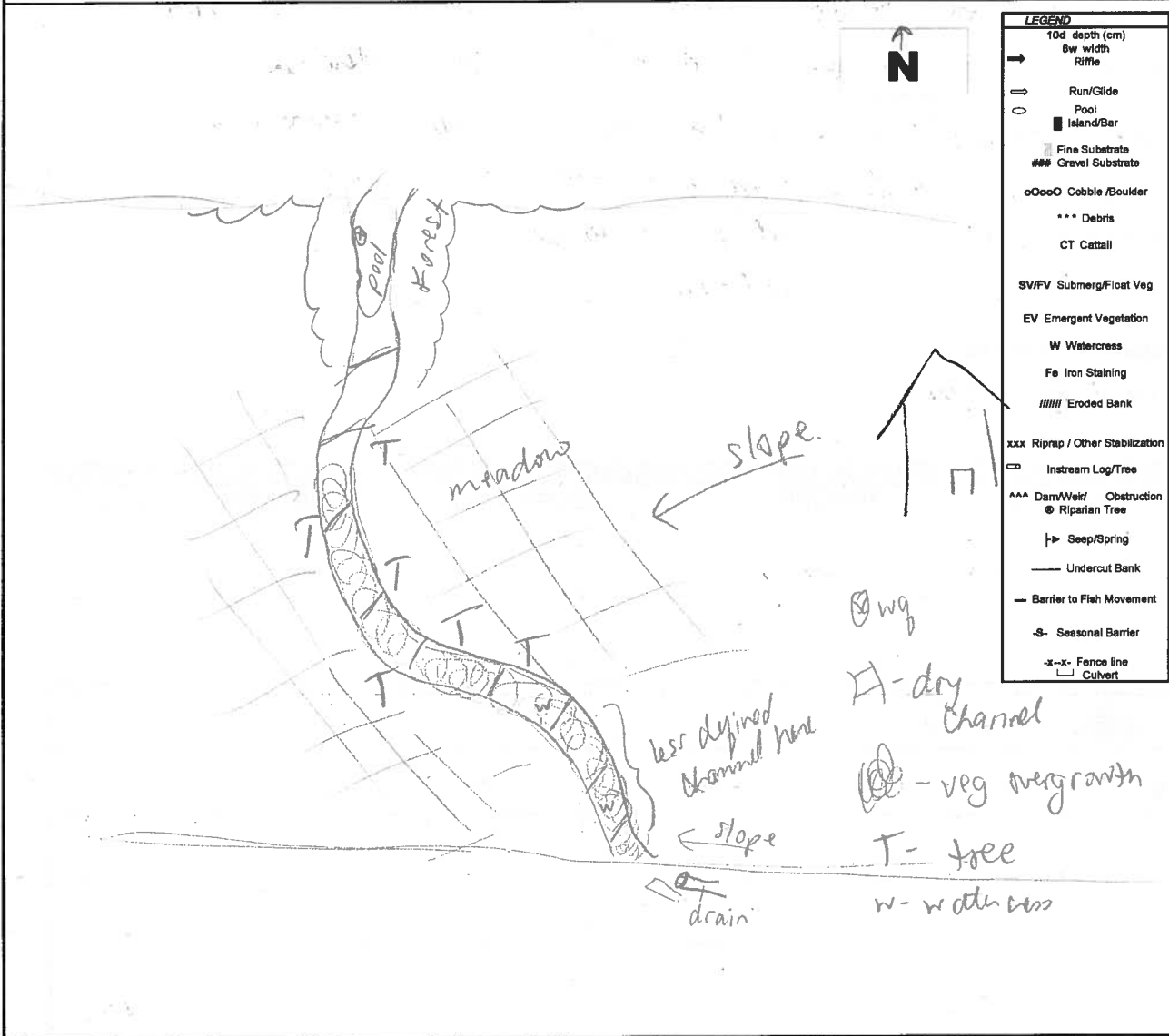
Bluemwater

Land Parcel#

JER 3708

Site ID

23.74



Horizontal View of Channel



Initial QA/QC By: JGM

Date: Oct 2/12

Technical QA/QC By: [Signature] Date: Oct 2/12

Water Bodies Assessment Field Collection Form

R3.28

AECOM

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 1070/3698/3494 Site ID: R3.51/R3.28

Date: May 31/12 Start time: 16:00 End Time: 18:00

Weather Conditions: Cloudy, 10°C Field Crew: C. Boros, A. Arsenault
Field Notes By: C. Boros

ASA
3494

Site Location

Gordon Rd, (S) of Kennedy Ln.

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

Easting: 0429401 Northing: 4780934 Description: R3.51 start

Easting: 0429500 Northing: 478230 Description: JR 3698 R3.28

Easting: 0429646 Northing: 4780919 Description: JR 3698 R3.28 END.

Easting: 0429409 Northing: 4781458 Description: R3.51 WQ

Surrounding Landuse

- Residential
- Agriculture
- Forest
- Other
- Meadow
- Wetland
- Livestock

Description: forest surrounded by agri fields + one section through soy field

Type of Watercourse

- Intermittent
- Permanent
- Ephemeral
- Channelized
- Natural Channel

Description: it appears to be dependant on tile drain flow

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

tile drains observed

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

If Yes describe:

The location through the agri field is buried -> above for GPS

GPS Coordinate: Easting - Northing - Description -

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

flat in agri fields; channel in large valley area.

In-Situ Water Quality

WT (°C): 14.55 AT (°C): 10°C
pH: 5.23 Cond (µs/cm): 017
D.O. (mg/L) 7.21
Water Clarity: Clear Turbid

Water Colour:

Clear, murky when

Notes:

walked in

Ground Water and Seepage Indicators

- Watercress
- Iron Staining
- Bubbling
- Other
- Bank Seepage
- None

Details:

Site length +
channel
dimensions

Stream Morphology Assessment Field Collection Form

Site Length		Stream Morphology		Bank Stability:			
Channel D				Stable	Slightly unstable	Moderately unstable	Unstable
Mean Wetted Width (m):			0.15	Left Bank	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mean Bankfull Width (m):			0.3	Right Bank	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mean Top of Bank Width (m):	1	Mean Top of Bank Depth (m):	0.3	Description:			

Flow Description: (high or low flow conditions, stagnant, etc)
no flow, areas of stagnant pools

Substrate (<=>)		Habitat		Morphological Structure (%)			
Bo - Boulder	Description			Pool	Riffle	Run	Flat
Co - Cobble							100
Gr - Gravel	cl, si, mk > co >> bo			Notes:			
Sa - Sand				water not flowing			
Si - Silt							
Cl - Clay							
MK - Muck							
DT - Detritus							

Instream Cover (%)						
Other	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	None	Undercut Banks
						Average Depth: (% Cover)

Note: Low = 0 - 30%; Moderate = 30 - 75%; High = 75 - 100%
*Aquatic Vegetation Species Present (algae, submergent, emergent etc.)
undercut, cobble, wood debris present ~ 40%

Canopy Cover (% closed cover):				Types of Cover (% cover)			
100-90%	<input checked="" type="checkbox"/>	30-1%	<input type="checkbox"/>	Trees	80	Shrubs	15
90-60%	<input type="checkbox"/>	0%	<input type="checkbox"/>	Grasses	5	Herbaceous	
60-30%	<input type="checkbox"/>			Man-made structures		Other	

Note: Low = 0 - 30%; Moderate = 30 - 60%; High = 60 - 100%
Notes: (vegetation species, types of structures)
high canopy deciduous forest

Riparian Vegetation	
Width and Description of riparian vegetation:	LB - >15m - forest
	RB - >15m forest

Overhanging Vegetation Present N
Description of Overhanging Vegetation: dogwood.
% Overhanging Vegetation: 5

Obstructions to Fish Passage			
None Observed	<input type="checkbox"/>	Man-Made	<input type="checkbox"/>
Natural	<input type="checkbox"/>	Low Flow Barrier	<input checked="" type="checkbox"/>
Description of Barrier: stretches of channel dry.			
Height of Barrier (m)		GPS Coordinates:	

Water Bodies Assessment Field Collection Form

AECOM

Date: May 31/12

Land Parcel/Site ID: JCR 1070 / 3608 / 3494 / R3.5T / R3.2B Page 3 of 4

Other General Comments Regarding the Study Area:

The assessment began at the fence line of JCR 3494 - it was an outlet area for a tile drain. It was a ponded area (pond) ~5m x 5m. Tadpoles observed in pool. The channel is buried through the soy bean field. There was no defined channel at the southern portion of the forest; as you move north a defined channel appears and it becomes a deep valley area. The watercourse is a shallow channel and a series of long stagnant pools. It meanders and has areas of erosion + undercutting.

Photo log

Picture #	Description	Picture #	Description
1	Pool at South end		
2-4	old tile drain		
5	new tile drain (by pool)		
6	buried channel		
7-8	before forest area		
9-10	before channel		
11-12	tile drain into forest		
13-23	Channel overview		
24-26	drainage ditch on N/W		
27-28	wetland area		
29-33	Channel overview		

Need photos

Can't find!

!!

Water Bodies Assessment Field Collection Form

AECOM

Page 4 of 4

Watercourse Sketch

Study Area:

Jericho

Goshen

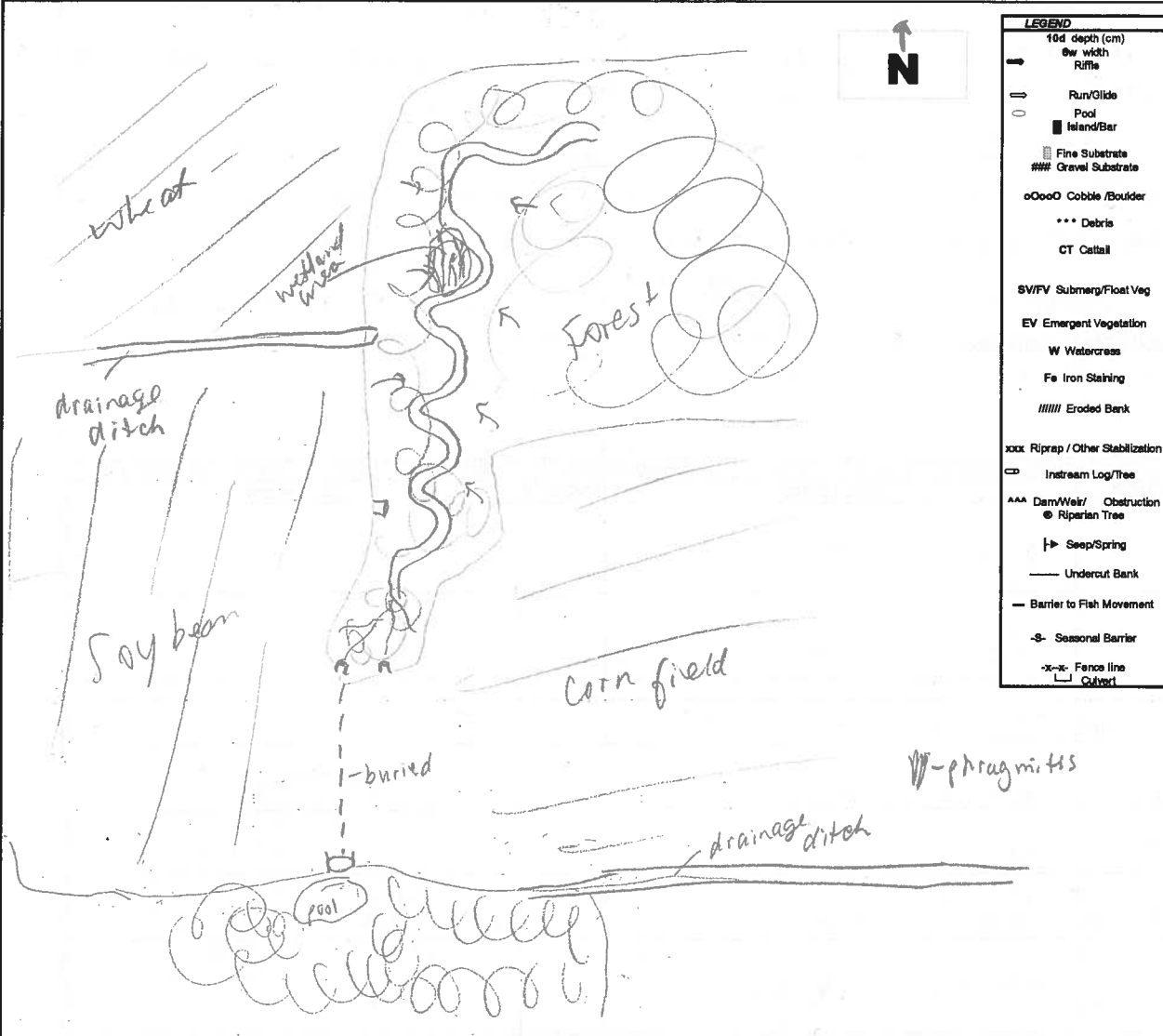
Bluewater

Land Parcel#

JER

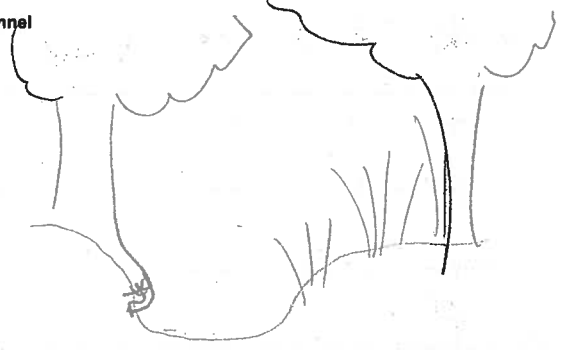
1979/3698/3499 Site ID

R3.51/R3.28



LEGEND	
10d depth (cm)	→
0w width	→
Riffle	→
Run/Glide	→
Pool	○
Island/Bar	■
Fine Substrate	□
Gravel Substrate	###
Cobble/Boulder	oOooO
Debris	***
Cattail	CT
Submerg/Float Veg	SV/FV
Emergent Vegetation	EV
Watercress	W
Iron Staining	Fe
Eroded Bank	////
Riprap / Other Stabilization	xxx
Instream Log/Tree	☐
Dam/Walk/ Obstruction	AAA
Riparian Tree	●
Seep/Spring	↑
Undercut Bank	—
Barrier to Fish Movement	—
Seasonal Barrier	-S-
Fence line	-x-x-
Culvert	□

Horizontal View of Channel



Initial QA/QC By: *Berkeley*

Date: *June 9, 2012*

Technical QA/QC By: *Jutka* Date: *Oct 2, 12*

**Assessment of Non-Water Body
(update to mapping required)**

AECOM

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# JER 3698. Site ID: R3.51 R3.28.
 Date: May 31/12 Start time: 16:00 End Time: 16:10.
 Weather Conditions: Cloudy 10°C Field Crew: C. Boros, A. Arsenault
 Field Notes By: C. Boros

Site Location

Gordon Rd. @ of Kennedy Line.

UTM Co-ordinates

Easting: _____	Northing: _____	Description: _____
Easting: _____	Northing: _____	Description: _____
Easting: _____	Northing: _____	Description: _____
Easting: _____	Northing: _____	Description: _____

Surrounding Landuse

Residential <input type="checkbox"/>	Meadow <input type="checkbox"/>
Agriculture <input checked="" type="checkbox"/>	Wetland <input type="checkbox"/>
Forest <input type="checkbox"/>	Livestock <input type="checkbox"/>
Other <input type="checkbox"/>	

Ground Water and Seepage Indicators

Watercress <input type="checkbox"/>	Bank Seepage <input type="checkbox"/>
Iron Staining <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Bubbling <input type="checkbox"/>	

Description: Corn/Soybean

Details:

Feature Description

Is the mapped water body any of the below:

- 1) a grassed waterway? Y/N
- 2) Temporary channel for surface drainage, that can be tilled or driven through? Y/N
- 3) Rock chutes or spillways? Y/N
- 4) Roadside ditches that are not connected or do not contain a permanent or intermittent stream? Y/N
- 5) Temporarily ponded areas that are normally farmed? Y/N
- 6) Artificial bodies of water intended for storage, treatment for farming purposes? Y/N
- 8) Any other:

Description: (i.e. length of change, if it reappears, if there is evidence of water)

The watercourse is buried through Corn/Soybean fields + re-emerges in the forest

Photo log

Picture #	Description	Picture #	Description
<u>6</u>	<u>buried channel.</u>		

Assessment of Non-Water Body
(update to mapping required)

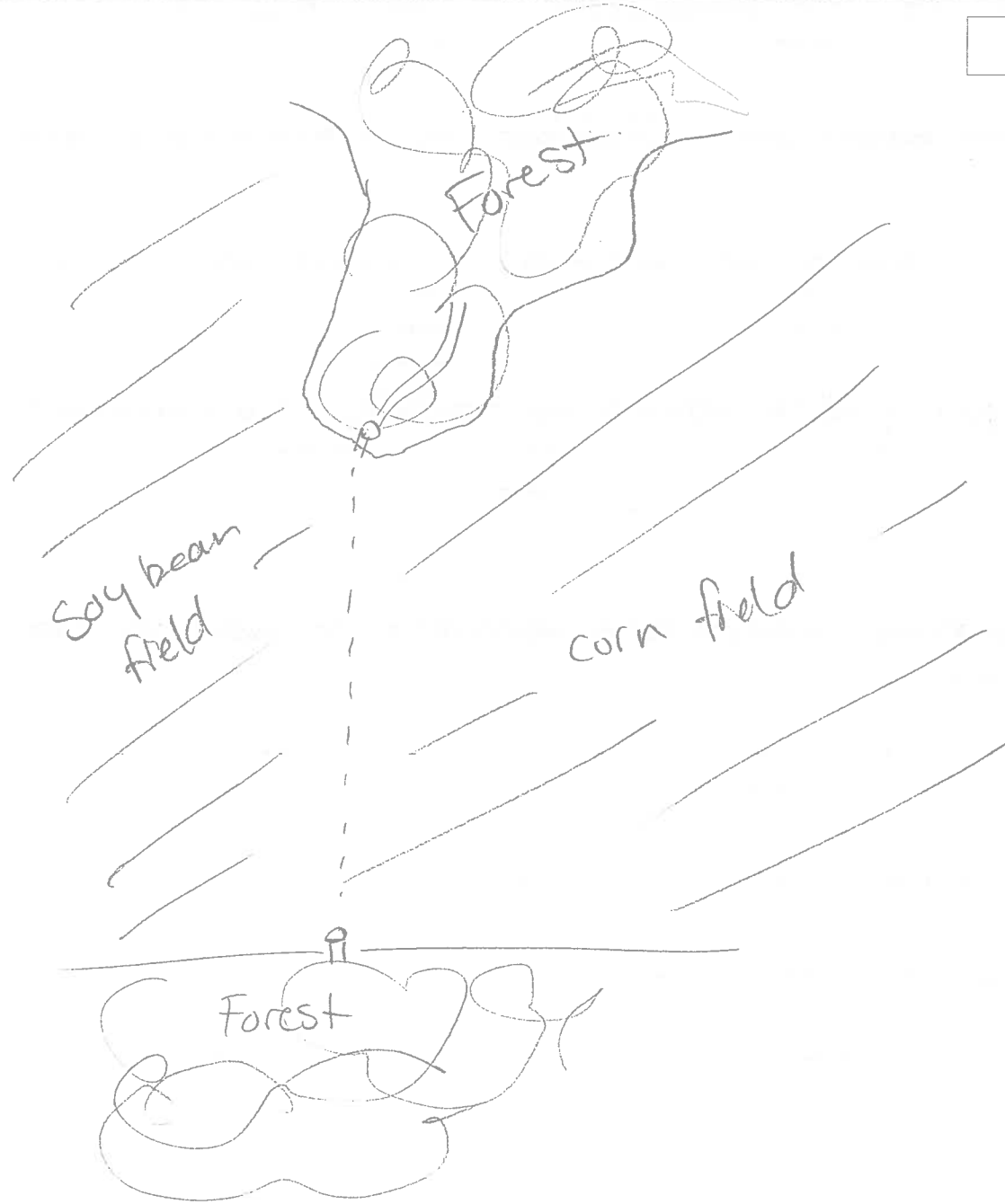
AECOM

Date: May 31/12

Land Parcel/Site ID: JER 3698 . R3.28

Page 2 of 2

Site Sketch



Initial QA/QC: LBentley Oct. 25/12
JAntka Oct 2/12