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FIGURE: **3-D1**  
 DATE: 2023-04-03  
 PROJ N°: 221266.01  
 DRAWN BY: NH  
 CHECKED BY: BC

NSPI NEW WIND  
BEAR LAKE

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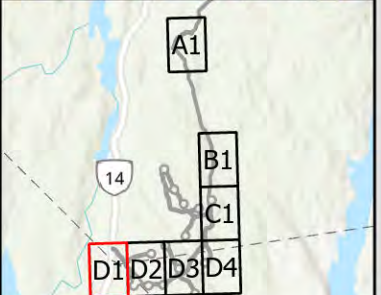
Possible Turtle Habitat

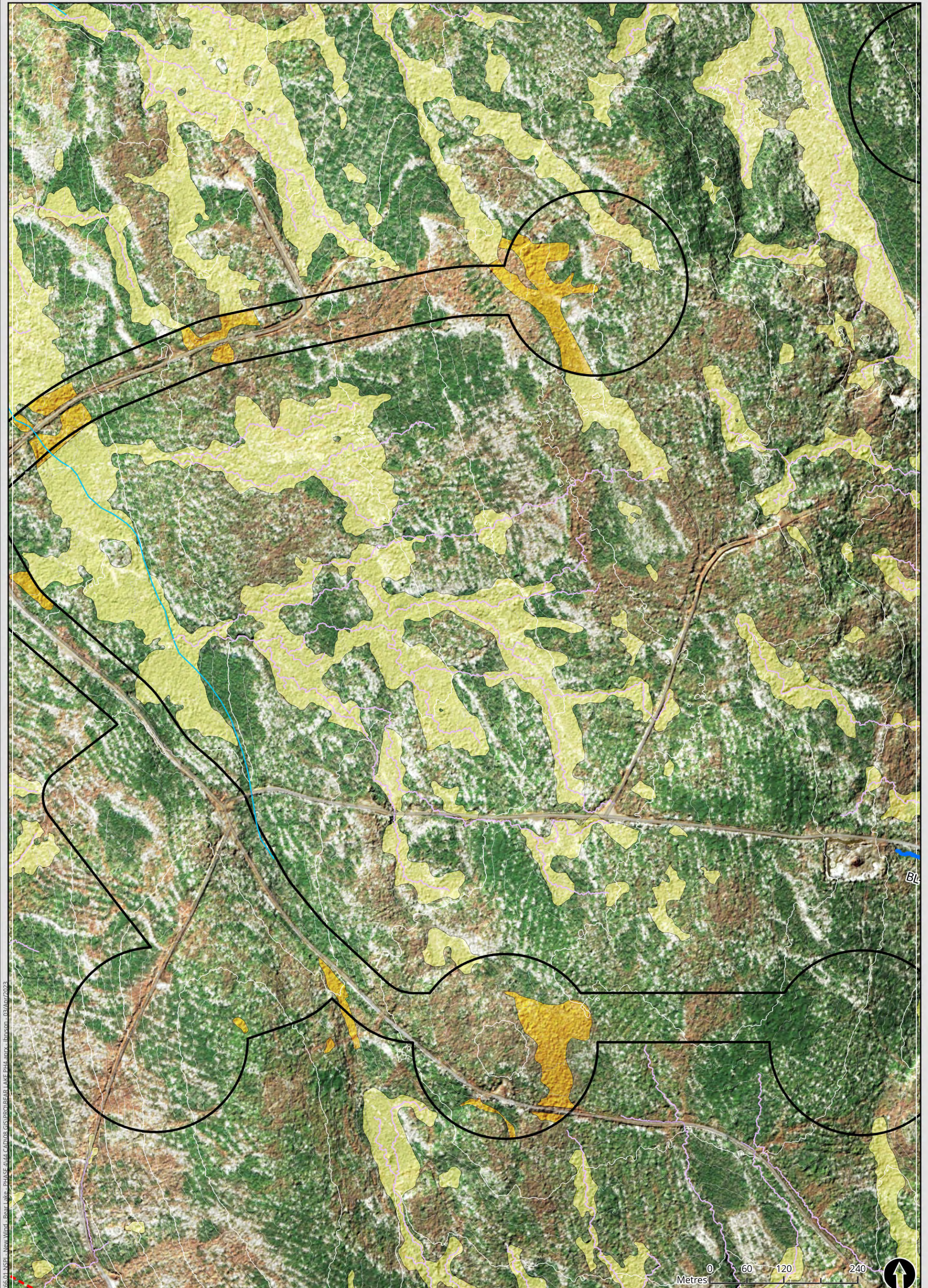
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SCALE: 1:5,500  
© 11x17

Coordinate System: NAD 1983 (CSRS) v6 UTM Zone 20N  
 Units: Meter

- Turtle Evidence (CBCL 2022)
- ~ Provincially Mapped Watercourse
- ~ Predicted Water Flow Path (CBCL 2022)
- Delineated Wetland Area (CBCL 2022)
- Predicted Wetland Area (CBCL 2022)
- Assessment Area (Phase 4)
- Preliminary Assessment Area
- Provincially Mapped Waterbody (Possible Habitat for Snapping and/or Painted Turtle Only)
- Watercourse Classification (CBCL 2022)**
- ~ Small Permanent
- ~ Small Permanent with Intermittent Characteristics












Document Path: \\halifax\dm\Projects\2022\21266.01 NSPI - New Wind - Bear Lake - PHASE 4\GIS\PROJ\BEAR\_LAKE\_PHA4\_swp\_03\Apr/2023

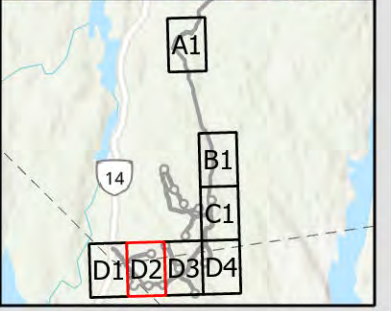
FIGURE: **3-D2**  
 DATE: 2023-04-03  
 PROJ N°: 221266.01  
 DRAWN BY: NH  
 CHECKED BY: BC

  
**NSPI NEW WIND**  
**BEAR LAKE**  
**Possible Turtle Habitat**  
 SCALE: 1:5,500  
 Coordinate System: NAD 1983 (CSRS) v6 UTM Zone 20N  
 Units: Meter



-  Turtle Evidence (CBCL 2022)
-  Provincially Mapped Watercourse
-  Predicted Water Flow Path (CBCL 2022)
-  Delineated Wetland Area (CBCL 2022)
-  Predicted Wetland Area (CBCL 2022)
-  Assessment Area (Phase 4)
-  Preliminary Assessment Area

-  Provincially Mapped Waterbody (Possible Habitat for Snapping and/or Painted Turtle Only)
- Watercourse Classification (CBCL 2022)**
-  Small Permanent
-  Small Permanent with Intermittent Characteristics



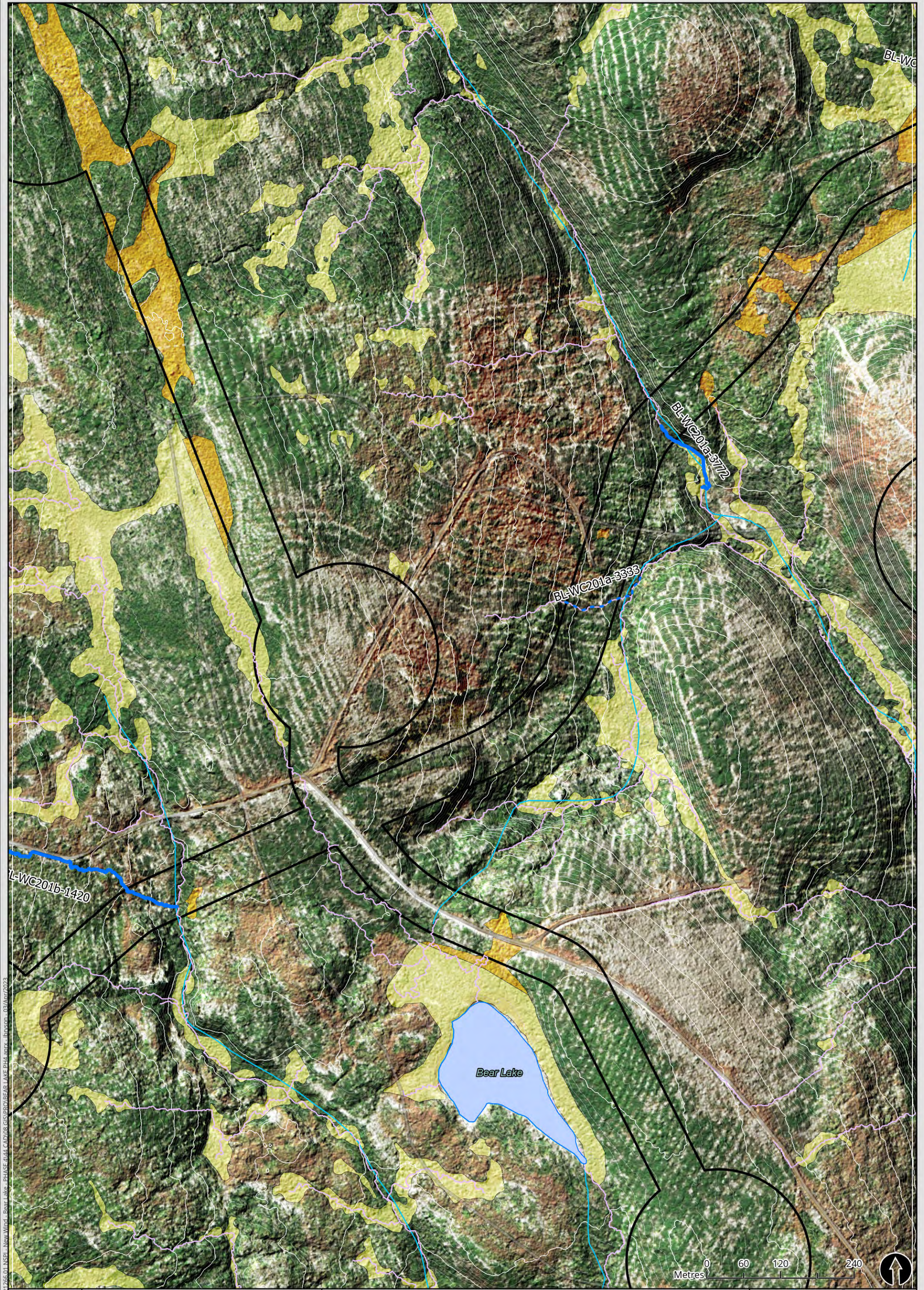


FIGURE: <b>3-D3</b>	 <b>NSPI NEW WIND</b> <b>BEAR LAKE</b>		Turtle Evidence (CBCL 2022)	Provincially Mapped Waterbody (Possible Habitat for Snapping and/or Painted Turtle Only)
DATE: 2023-04-03			Provincially Mapped Watercourse	Watercourse Classification (CBCL 2022)
PROJ N°: 221266.01	<b>Possible Turtle Habitat</b>	Assessment Area (Phase 4)	Predicted Water Flow Path (CBCL 2022)	Small Permanent
DRAWN BY: NH			Delineated Wetland Area (CBCL 2022)	Small Permanent with Intermittent Characteristics
CHECKED BY: BC			Predicted Wetland Area (CBCL 2022)	
SCALE: 1:5,500	Coordinate System: NAD 1983 (CSRS) v6 UTM Zone 20N Units: Meter		Preliminary Assessment Area	

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C201c-3446

Southwest Brook

South West Brook

0 60 120 240  
Metres



FIGURE: **3-D4**  
DATE: 2023-04-03  
PROJ N°: 221266.01  
DRAWN BY: NH  
CHECKED BY: BC

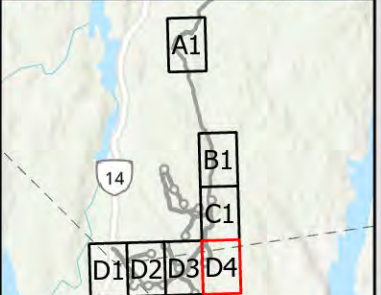
Nova Scotia POWER  
An Emera Company

**NSPI NEW WIND  
BEAR LAKE**

**Possible Turtle Habitat**

SCALE: 1:5,500  
Coordinate System: NAD 1983 (CSRS) v6 UTM Zone 20N  
Units: Meter

- Turtle Evidence (CBCL 2022)
- Provincially Mapped Watercourse
- Predicted Water Flow Path (CBCL 2022)
- Delineated Wetland Area (CBCL 2022)
- Predicted Wetland Area (CBCL 2022)
- Assessment Area (Phase 4)
- Preliminary Assessment Area
- Provincially Mapped Waterbody (Possible Habitat for Snapping and/or Painted Turtle Only)
- Watercourse Classification (CBCL 2022)**
- Small Permanent
- Small Permanent with Intermittent Characteristics



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# APPENDIX B

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## Fish Habitat Assessment Fact Sheets

## Watercourse Fact Sheet: Fish Habitat - Page 1

WATERCOURSE INFORMATION		CHANNEL MEASUREMENTS		RIPARIAN VEGETATION SPECIES		
Watercourse ID:	<b>Watercourse BL-WC105-1267</b>	Average Channel Width (m)	1.6	#	<b>Common Name</b>	<b>Scientific Name</b>
General Site Location:	Bear Lake	Average Wetted Width (m)	1.6	1		#N/A
Watercourse Assessor(s):	CJ, AC	Average Bankful Depth (m)	0.2	2		#N/A
Affiliation:	CBCL Limited	Average Water Depth (m)	0.2	3		#N/A
Field Assessment Date:	Nov 16 2022	Average Pool Depth (m)	0.3	4		#N/A
UTM Coordinates:	Wp. 1937	<b>WATERCOURSE MORPHOLOGY</b>		5		#N/A
Datum:	NAD 1983	Watercourse Type	Small Permanent with Intermittent Characteristics	6		#N/A
<b>HABITAT QUALITY</b>		Stage (season was very dry)	High	7		#N/A
Overall Habitat Quality	Moderate	Morphology (assumed in dry area)	Run	8		#N/A
Spawning	Moderate	Channel Depth Class	Class 3: <0.5m	9		#N/A
Rearing	Good	Pattern	Sinuuous	10		#N/A
Foraging	Moderate	Slope		<b>RIPARIAN INFORMATION</b>		
Migration		Confinement	Unconfined	Crown Closure %		
Overwintering	Moderate	<b>INSTREAM COVER</b>		Bank Texture		Fines and boulder
<b>POTENTIAL FOR FISH PRESENCE</b>		Dominant		Bank Shape		Some undercut, sloped
Overall Fish Potential	High	Subdominant	Undercut Banks	Bank Stability		
<b>FISH OBSERVED</b>		Subdominant	Deep Pool	Vegetation Stage		Mature Forest
No		Subdominant	Overhanging Vegetation	<b>IMPORTANT FEATURES OBSERVED</b>		
<b>WATER QUALITY AND VELOCITY</b>		Trace	Instream Vegetation	Spawning Area / REDD	<input type="checkbox"/>	
Temperature (Deg. C)	6.8	Trace	Small Woody Debris	Beaver Dam	<input type="checkbox"/>	
pH	4.01	Trace		Beaver Pond	<input type="checkbox"/>	
Dissolved Oxygen (mg/l)	6.89	Trace		Underground Sections	<input checked="" type="checkbox"/>	
Dissolved Oxygen (%)		Trace		Waterfall or Cascade	<input type="checkbox"/>	
Conductivity (µs/cm)	50	<b>SUBSTRATE</b>		No Defined Channel	<input type="checkbox"/>	
Salinity (mg/L)	0.02	Dominant	Gravel	Hanging Culvert	<input type="checkbox"/>	
Total Dissolved Solids (g/L)	0.032	Subdominant	Fines	Blocked or Damaged Culvert	<input type="checkbox"/>	
Turbidity (NTU)	6.7	Subdominant	Boulder	Bridge	<input type="checkbox"/>	
Average Velocity (m/sec)		Trace		<b>ADDITIONAL NOTES</b>		
Velocity Location		Trace		Water sample taken @Wp. 1676 (CJ), might not be permanent but deep pools suggest fish could survive-winter		
		<b>BARRIERS</b>				
		Yes, Full Barrier				
		<b>STREAM INVERTEBRATES</b>				
		Trace < 5%				

**Watercourse Fact Sheet: Fish Habitat - Page 2**  
**Watercourse ID: Watercourse 105-1267**



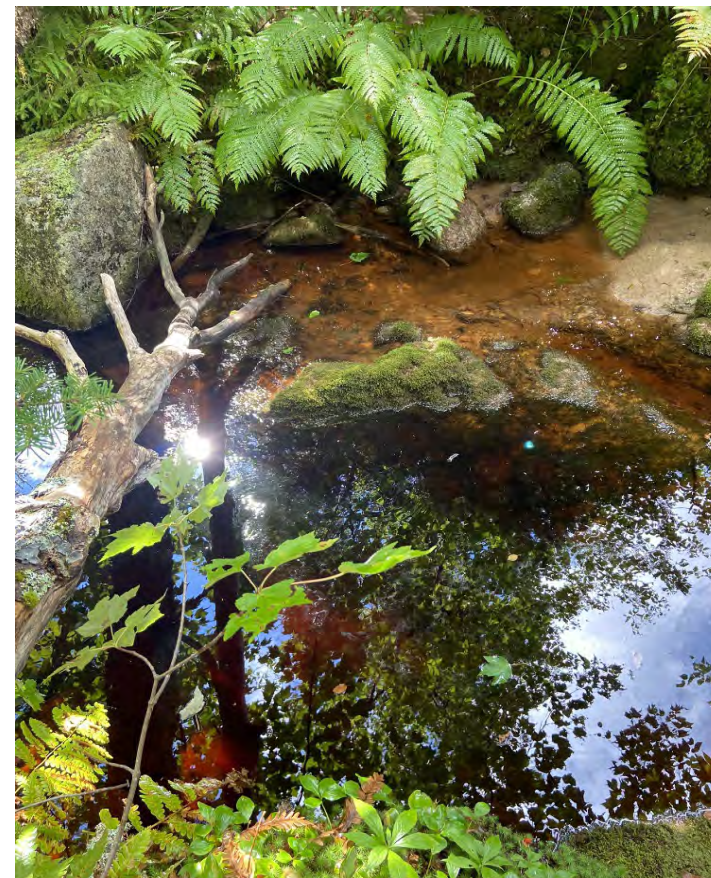
**Photo 1: Upstream of WC-15**



**Photo 2: Downstream of WC-15**



**Photo 3: Underground section in U/S reach**



**Photo 4: Deep pool on the D/S section of WC**

**Watercourse Fact Sheet: Fish Habitat - Page 1**

WATERCOURSE INFORMATION	
Watercourse ID:	<b>Watercourse BL-WC106f-2773</b>
General Site Location:	Bear Lake
Watercourse Assessor(s):	CJ,NH
Affiliation:	CBCL Limited
Field Assessment Date:	Nov 22 2022
UTM Coordinates:	Wp.1989
Datum:	NAD 1983
HABITAT QUALITY	
Overall Habitat Quality	Poor
Spawning	Poor
Rearing	Moderate
Foraging	Moderate
Migration	Poor
Overwintering	Poor
POTENTIAL FOR FISH PRESENCE	
Overall Fish Potential	High
FISH OBSERVED	
No	
WATER QUALITY AND VELOCITY	
Temperature (Deg. C)	4.86
pH	5.06
Dissolved Oxygen (mg/l)	4.89
Dissolved Oxygen (%)	
Conductivity (µs/cm)	0.024
Salinity (mg/L)	0.01
Total Dissolved Solids (g/L)	0.016
Turbidity (NTU)	45.7
Average Velocity (m/sec)	7.38
Velocity Location	Crossing

CHANNEL MEASUREMENTS	
Average Channel Width (m)	1.7
Average Wetted Width (m)	1.4
Average Bankful Depth (m)	0.4
Average Water Depth (m)	0.1
Average Pool Depth (m)	
WATERCOURSE MORPHOLOGY	
Watercourse Type	Intermittent with Ephemeral Characteristics
Stage (season was very dry)	Mid
Morphology (assumed in dry area)	Run
Channel Depth Class	Class 3: <0.5m
Pattern	Sinuuous
Slope	
Confinement	None
INSTREAM COVER	
Dominant	Overhanging Vegetation
Subdominant	Instream Vegetation
Subdominant	Small Woody Debris
Subdominant	
Trace	
Trace	
Trace	
Trace	
SUBSTRATE	
Dominant	Fines
Subdominant	Gravel
Subdominant	
Trace	
Trace	
BARRIERS	
Yes, Full Barrier	
STREAM INVERTEBRATES	
None	

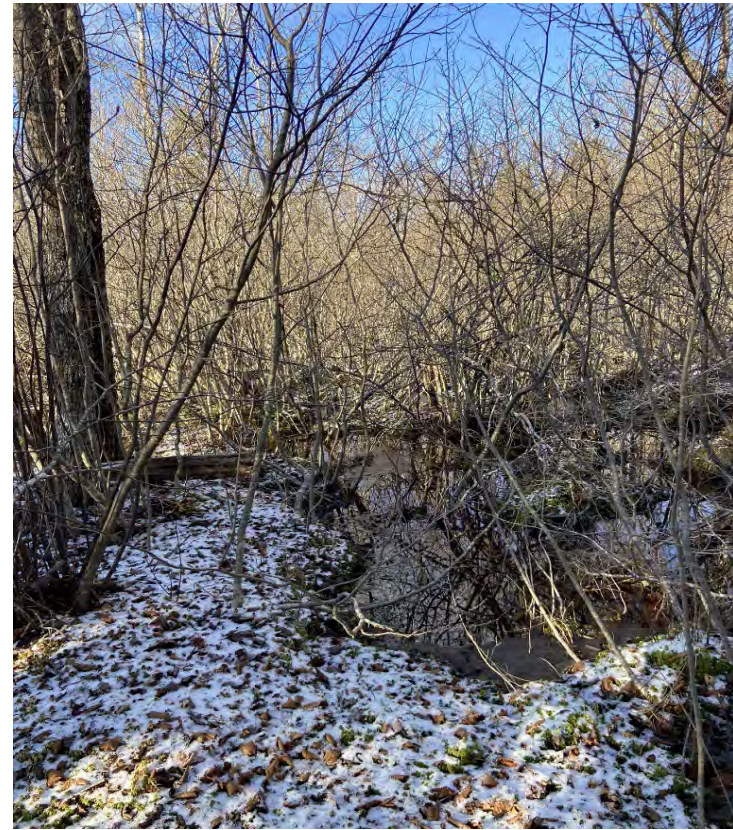
RIPARIAN VEGETATION SPECIES		
#	Common Name	Scientific Name
1	American Beech	<i>Fagus grandifolia</i>
2	Balsam Fir	<i>Abies balsamea</i>
3	Speckled Alder	<i>Alnus incana</i>
4	Red Spruce	<i>Picea rubens</i>
5	Yellow Birch	<i>Betula alleghaniensis</i>
6	Red Maple	<i>Acer rubrum</i>
7	Wild Raisin	#N/A
8	Grasses	#N/A
9		#N/A
10		#N/A
RIPARIAN INFORMATION		
Crown Closure %	1-25%	
Bank Texture		
Bank Shape		
Bank Stability	Fair 50-80% Stable	
Vegetation Stage	Mature Forest	
IMPORTANT FEATURES OBSERVED		
Spawning Area / REDD	<input type="checkbox"/>	
Beaver Dam	<input type="checkbox"/>	
Beaver Pond	<input type="checkbox"/>	
Underground Sections	<input checked="" type="checkbox"/>	
Waterfall or Cascade	<input type="checkbox"/>	
No Defined Channel	<input checked="" type="checkbox"/>	
Hanging Culvert	<input type="checkbox"/>	
Blocked or Damaged Culvert	<input type="checkbox"/>	
Bridge	<input type="checkbox"/>	
ADDITIONAL NOTES		
Underground water source @ culvert groundwater. Turbidity taken at underground water source. American Beech @ Wp. 1995(CJ)		



**Watercourse Fact Sheet: Fish Habitat - Page 2**  
**Watercourse ID: Watercourse 106f-2773**



**Photo 1: Upstream at Crossing Location**



**Photo 2: Downstream at Crossing Location**



**Photo 3: Upstream loss of channel**



**Photo 4: Downstream area leading to waterbody**

## Watercourse Fact Sheet: Fish Habitat - Page 1

WATERCOURSE INFORMATION	
Watercourse ID:	<b>Watercourse BL-WC106g-2780</b>
General Site Location:	Bear Lake
Watercourse Assessor(s):	CJ, NH
Affiliation:	CBCL Limited
Field Assessment Date:	Nov-22-2022
UTM Coordinates:	Wp.1981 (CJ)
Datum:	NAD 1983
HABITAT QUALITY	
Overall Habitat Quality	Poor
Spawning	Poor
Rearing	Poor-Moderate
Foraging	Poor
Migration	Poor
Overwintering	Poor
POTENTIAL FOR FISH PRESENCE	
Overall Fish Potential	Moderate
FISH OBSERVED	
No	
WATER QUALITY AND VELOCITY	
Temperature (Deg. C)	4.91
pH	4.22
Dissolved Oxygen (mg/l)	7.63
Dissolved Oxygen (%)	
Conductivity (mS/cm)	0.038
Salinity (mg/L)	0.02
Total Dissolved Solids (g/L)	0.024
Turbidity (NTU)	4.1
Average Velocity (m/sec)	7.38
Velocity Location	Xing

CHANNEL MEASUREMENTS	
Average Channel Width (m)	1.23
Average Wetted Width (m)	1.05
Average Bankful Depth (m)	0.37
Average Water Depth (m)	0.14
Average Pool Depth (m)	0.32
WATERCOURSE MORPHOLOGY	
Watercourse Type	Intermittent w/ ephemeral characteristics
Stage (season was very dry)	Mid
Morphology (assumed in dry areas)	Run
Channel Depth Class	3
Pattern	Straight, R.Meanders
Slope	N/A
Confinement	N/A
INSTREAM COVER	
Dominant	Overhanging Vegetation
Subdominant	Instream Vegetation/Moss
Subdominant	Small Woody Debris
Subdominant	
Subdominant	
Trace	Boulder
Trace	
Trace	
Trace	
SUBSTRATE	
Dominant	Fines
Subdominant	Gravel
Subdominant	Cobble
Trace	Boulder
Trace	
BARRIERS	
Yes, Partial	
STREAM INVERTEBRATES	
None (Not good time of year)	

RIPARIAN VEGETATION SPECIES		
#	Common Name	Scientific Name
1	Balsam Fir	<i>Abies balsamea</i>
2	Cinnamon fern	<i>Osmunda cinnamomea</i>
3	Wild Raisin	<i>Viburnum nudum</i>
4	Soft Rush	<i>Juncus effusus</i>
5	Red Spruce	<i>Picea rubens</i>
6	Paper Birch	<i>Betula papyrifera</i>
7	Red Maple	<i>Acer rubrum</i>
8	Sphagnum	#N/A
9	Grass	#N/A
10		#N/A
RIPARIAN INFORMATION		
Crown Closure %	26-50%	
Bank Texture	Fines	
Bank Shape	Sloped	
Bank Stability	Fair 50-80%	
Vegetation Stage	Young Forest	
IMPORTANT FEATURES OBSERVED		
Spawning Area / REDD	<input type="checkbox"/>	
Beaver Dam	<input type="checkbox"/>	
Beaver Pond	<input type="checkbox"/>	
Underground Sections	<input checked="" type="checkbox"/>	
Waterfall or Cascade	<input type="checkbox"/>	
No Defined Channel	<input checked="" type="checkbox"/>	
Hanging Culvert	<input type="checkbox"/>	
Blocked or Damaged Culvert	<input checked="" type="checkbox"/>	
Bridge	<input type="checkbox"/>	
ADDITIONAL NOTES		
Watercourse seems diverted into ditch by whomever built the road. Barrier Notes: Underground section - Wp. 1985m @12:37 loss of definition into WL. Hanging/Perched/Blocked Culvert - @12:08 Culvert crushed on US side, water moving through. Loss of Channel Definition - Wp. 1982 @12:20 US channel lost definition into ditch. Partial barrier because could be conductivity during high water events.		

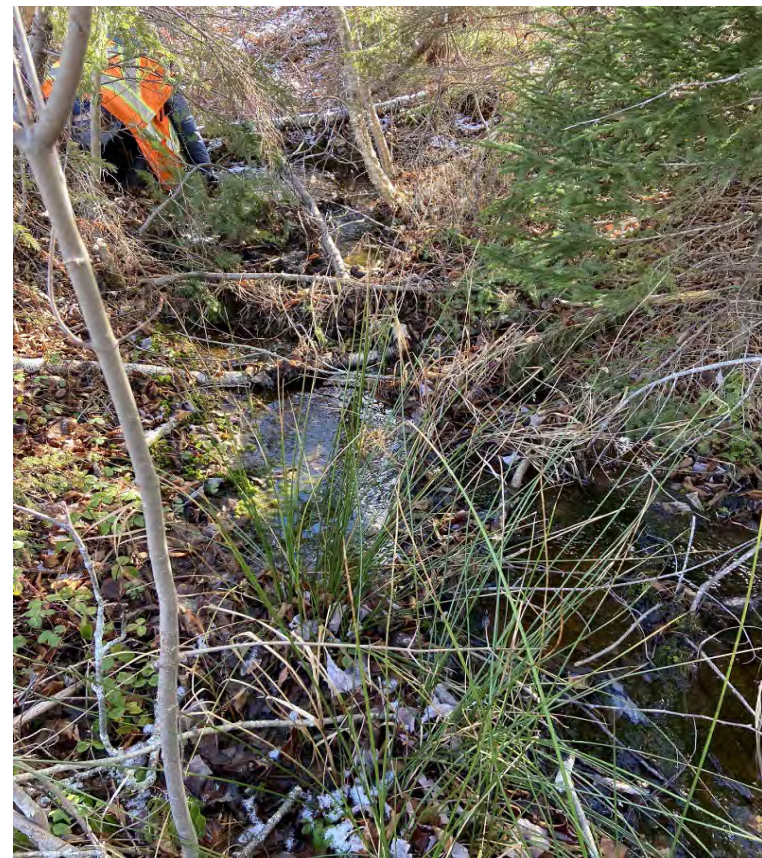
**Watercourse Fact Sheet: Fish Habitat - Page 2**  
**Watercourse ID: Watercourse 106g-2780**



**Photo 1: Upstream at Crossing Location**



**Photo 2: Downstream at Crossing Location**



**Photo 3: Down Stream, General Habitat**



**Photo 4: Feature 1 Crushed Culvert**

## Watercourse Fact Sheet: Fish Habitat - Page 1

WATERCOURSE INFORMATION	
Watercourse ID:	<b>Watercourse BL-WC106g-2958</b>
General Site Location:	Bear Lake
Watercourse Assessor(s):	CT, MT
Affiliation:	CBCL Limited
Field Assessment Date:	Nov 22 2022
UTM Coordinates:	Wp. 1347
Datum:	NAD 1983
HABITAT QUALITY	
Overall Habitat Quality	Moderate
Spawning	Poor
Rearing	Moderate
Foraging	Moderate
Migration	
Overwintering	Poor
POTENTIAL FOR FISH PRESENCE	
Overall Fish Potential	Moderate
FISH OBSERVED	
No	
WATER QUALITY AND VELOCITY	
Temperature (Deg. C)	4.07
pH	4.59
Dissolved Oxygen (mg/l)	10.6
Dissolved Oxygen (%)	
Conductivity (µs/cm)	0.03
Salinity (mg/L)	0.01
Total Dissolved Solids (g/L)	0.0190
Turbidity (NTU)	
Average Velocity (m/sec)	0.05
Velocity Location	Upstream

CHANNEL MEASUREMENTS	
Average Channel Width (m)	1.2
Average Wetted Width (m)	0.9
Average Bankful Depth (m)	0.26
Average Water Depth (m)	0.09
Average Pool Depth (m)	0.13
WATERCOURSE MORPHOLOGY	
Watercourse Type	Intermittent
Stage (season was very dry)	Mid
Morphology (assumed in dry area)	Flat
Channel Depth Class	
Pattern	Straight
Slope	
Confinement	Frequently Confined
INSTREAM COVER	
Dominant	Overhanging Vegetation
Subdominant	Instream Vegetation
Subdominant	Small Woody Debris
Subdominant	
Subdominant	
Trace	Boulder
Trace	
Trace	
Trace	
SUBSTRATE	
Dominant	Gravel
Subdominant	Fines
Subdominant	
Trace	Cobble
Trace	Boulder
BARRIERS	
Yes, Partial Barrier	
STREAM INVERTEBRATES	
None	

RIPARIAN VEGETATION SPECIES		
#	Common Name	Scientific Name
1	Red Maple	<i>Acer rubrum</i>
2	Speckled Alder	<i>Alnus incana</i>
3	Eastern Hemlock	<i>Tsuga canadensis</i>
4	Paper Birch	<i>Betula papyrifera</i>
5	Red Oak	#N/A
6	Cattail Sp.	#N/A
7		#N/A
8		#N/A
9		#N/A
10		#N/A
RIPARIAN INFORMATION		
Crown Closure %		
Bank Texture		
Bank Shape		
Bank Stability		Poor <50% Stable
Vegetation Stage		Young Forest
IMPORTANT FEATURES OBSERVED		
Spawning Area / REDD	<input type="checkbox"/>	
Beaver Dam	<input type="checkbox"/>	
Beaver Pond	<input type="checkbox"/>	
Underground Sections	<input type="checkbox"/>	
Waterfall or Cascade	<input type="checkbox"/>	
No Defined Channel	<input type="checkbox"/>	
Hanging Culvert	<input type="checkbox"/>	
Blocked or Damaged Culvert	<input checked="" type="checkbox"/>	
Bridge	<input type="checkbox"/>	
ADDITIONAL NOTES		
Wp. 1346 - PIWO holes in snag pic @12:51, Wp.1353- Culvert, WC joins area with Culvert, likely becoming WC 2. Sunked Culvert @ Wp. 1348		

**Watercourse Fact Sheet: Fish Habitat - Page 2**  
**Watercourse ID: Watercourse 106g-2958**



**Photo 1: Upstream at Crossing**



**Photo 2: Downstream at Crossing Location**



**Photo 3: Sunken Culvert D/S of crossing**



**Photo 4: U/S general habitat**

**Watercourse Fact Sheet: Fish Habitat - Page 1**

WATERCOURSE INFORMATION	
Watercourse ID:	<b>Watercourse BL-WC201a-3333</b>
General Site Location:	Bear Lake
Watercourse Assessor(s):	CJ, CM
Affiliation:	CBCL Limited
Field Assessment Date:	Nov 4 2022
UTM Coordinates:	Wp. 1912
Datum:	NAD 1893
HABITAT QUALITY	
Overall Habitat Quality	Moderate
Spawning	Poor
Rearing	Good
Foraging	Good
Migration	
Overwintering	Poor
POTENTIAL FOR FISH PRESENCE	
Overall Fish Potential	High
FISH OBSERVED	
Yes, Salmonid	
WATER QUALITY AND VELOCITY	
Temperature (Deg. C)	8.7
pH	4.7
Dissolved Oxygen (mg/l)	9.80
Dissolved Oxygen (%)	84.9
Conductivity (µs/cm)	29.7
Salinity (mg/L)	0.02
Total Dissolved Solids (g/L)	
Turbidity (NTU)	
Average Velocity (m/sec)	2.43
Velocity Location	

CHANNEL MEASUREMENTS	
Average Channel Width (m)	2.2
Average Wetted Width (m)	2.17
Average Bankful Depth (m)	.68
Average Water Depth (m)	0.18
Average Pool Depth (m)	
WATERCOURSE MORPHOLOGY	
Watercourse Type	Small Permanent with Intermittent Characteristics
Stage (season was very dry)	Mid
Morphology (assumed in dry area)	Cascade
Channel Depth Class	Class 1: >1.0m
Pattern	Straight
Slope	
Confinement	Confined
INSTREAM COVER	
Dominant	
Subdominant	
Subdominant	
Subdominant	Large Woody Debris
Trace	Small Woody Debris
Trace	Boulder
Trace	Overhanging Vegetation
Trace	Undercut Banks
Trace	Instream Vegetation
SUBSTRATE	
Dominant	Fines
Subdominant	Cobble
Subdominant	Boulder
Trace	Gravel
Trace	
BARRIERS	
No Barriers	
STREAM INVERTEBRATES	
High (>60%)	

RIPARIAN VEGETATION SPECIES		
#	Common Name	Scientific Name
1	Balsam Fir	<i>Abies balsamea</i>
2	Red Maple	<i>Acer rubrum</i>
3	Yellow Birch	<i>Betula alleghaniensis</i>
4	Cinnamon Fern	<i>Osmunda cinnamomea</i>
5	Sphagnum	#N/A
6	Sensitive Fern	<i>Onoclea sensibilis</i>
7		#N/A
8		#N/A
9		#N/A
10		#N/A
RIPARIAN INFORMATION		
Crown Closure %	51-75%	
Bank Texture	Fines, cobble	
Bank Shape	Sloped	
Bank Stability		
Vegetation Stage	Mature Forest	
IMPORTANT FEATURES OBSERVED		
Spawning Area / REDD	<input type="checkbox"/>	
Beaver Dam	<input type="checkbox"/>	
Beaver Pond	<input type="checkbox"/>	
Underground Sections	<input type="checkbox"/>	
Waterfall or Cascade	<input type="checkbox"/>	
No Defined Channel	<input type="checkbox"/>	
Hanging Culvert	<input type="checkbox"/>	
Blocked or Damaged Culvert	<input type="checkbox"/>	
Bridge	<input type="checkbox"/>	
ADDITIONAL NOTES		
Velocity location : Wp. 1596. No deep pools in assessed reach. Intermittent WC w/ Small perm characteristics that flow to the small perm D/S (wc-g2-01), Decent rearing for salmonid but not habitat for spawning or overwintering		

**Watercourse Fact Sheet: Fish Habitat - Page 2**  
**Watercourse ID: Watercourse 201a-3333**



**Photo 1: Upstream habitat, example of large woody debris**



**Photo 2: Downstream habitat (Wp. 1913)**



**Photo 3: Location where small Salmonid observed (Wp. 1913)**