Results of the Water Quality Monitoring Program for Coldwater Fisheries

Sudbury to Hudson Reliability Project

June 2022 – October 2022

NOVEMBER 2022

PREPARED FOR

Eversource Energy

PREPARED BY

SWCA Environmental Consultants

RESULTS OF THE WATER QUALITY MONITORING PROGRAM FOR COLDWATER FISHERIES
SUDBURY TO HUDSON RELIABILITY PROJECT
JUNE 2022 – OCTOBER 2022

Prepared for

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SWCA Project No. 67849

November 2022

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1 INTRODUCTION

The Sudbury to Hudson Reliability Project (Project) consists of a new, approximately 9-mile-long transmission line between Eversource's existing Sudbury substation in Sudbury, Massachusetts, and the Hudson Light & Power Company's (HL&P) substation in Hudson, Massachusetts. The new underground transmission line will be installed in the municipalities of Sudbury, Hudson, Stow, and Marlborough, Massachusetts. Approximately 7.5 miles of the new transmission line will be installed within an inactive Massachusetts Bay Transportation Authority (MBTA) railroad right-of-way (ROW) which is to be converted into the Massachusetts Central Rail Trail (MCRT).

Special Condition Part I(q) of the Sudbury Order of Conditions (OOC) for the Project required baseline monitoring of flow and water quality for all Coldwater Fisheries Resources (CFR) crossed by the Project. SWCA has prepared this quarterly summary of the water quality monitoring for the two (2) crossings of CFR in Hop Brook and six (6) other streams or tributaries that contribute to CFR and are crossed by the Project (see Figures in Appendix A).

The following eight streams were included in this monitoring plan as requested by the Sudbury Conservation Commission:

- Hop Brook – Bridge 128 (400+30): ST 400 Perennial Stream and State-listed CFR;
- Unnamed Stream (527+30): ST 527 Intermittent Stream and local CFR;
- Dudley Brook (539+40): ST 540 Perennial and local CFR;
- Unnamed intermittent stream (560+82): ST 561 Intermittent and local CFR;
- Unnamed Intermittent stream (593+18): ST 593 Intermittent and local CFR;
- Intermittent Tributary to Hop Brook (700+50, 710+50): ST 700/710 Intermittent and local CFR;
- Hop Brook (Bridge 127) (725+00): ST 725 Perennial Stream and State-listed CFR; and
- Intermittent Tributary to Wash Brook (747+39): ST 747 Intermittent and local CFR.

2 WATER QUALITY MONITORING METHODS AND RESULTS

2.1 Surface Water Monitoring Methods

In accordance with the *Baseflow and Baseline Water Quality Monitoring Program for Cold Water Fisheries* proposed by SWCA dated August 25, 2021 and approved by the Sudbury Conservation Commission, the following parameters were monitored on a monthly basis:

- temperature, dissolved oxygen, as well as pH, specific conductivity, and oxygen reduction potential (ORP) measured with a YSI multi-meter;
- flow velocity with a Hach FH950 flow velocity meter;
- turbidity levels measured with a turbidity meter; and

- chlorine, hardness and alkalinity measured with field test strips.

Based on the Massachusetts Surface Water Quality Standards (SWQS) (314 CMR 4.00), CFRs have special designated criteria for dissolved oxygen and temperature. All other criteria are the same as those for warm water fisheries.

The following Table 1 includes ranges for temperature, dissolved oxygen and pH that are favorable to cold water fisheries. Table 2 indicates ranges for other surface water criteria that are favorable for freshwater fish.

Table 1. Surface Water Conditions for Cold Water Fisheries

Parameter[1]	Favorable Ranges for Cold Water Fisheries
Temperature	below 20ºC (up to 26ºC for 24 hours)
Dissolved Oxygen	min of 6 mg/L, up to 7 mg/L preferred
pH	6.5 - 8.3

Note: C = Celsius; mg/L = milligrams per liter

Source:

1: 314 CMR 4.00: Massachusetts Surface Water Quality Standards

Table 2. Surface Water Conditions for Freshwater Fish

Parameter	Favorable Ranges for Freshwater Stream or Fish
Specific Conductivity[1]	150 - 500 µs/cm
Turbidity[2]	"free from turbidity that would impair fish habitat"
Chlorine[3]	<4 mg/L
Alkalinity[4,5]	< 300 mg/L

Note: ORP = oxygen reduction potential; mg/L = milligrams per liter; µs/cm = microsiemens per centimeter; mV = millivolts

Sources:

1: EPA Volunteer Stream Monitoring: A Methods Manual

2: 314 CMR 4.00: Massachusetts Surface Water Quality Standards

3: EPA National Primary Drinking Water Regulations

4: UMass Dartmouth Northeast Regional Aquaculture Center NRAC Fact Sheet No. 170-1993.

5: EPA National Recommended Water Quality Criteria for Aquatic Life.

During this quarterly monitoring period (June to October 2022) SWCA monitored these eight locations on June 24, July 27, August 25, September 23, and October 28, 2022. Preliminary construction activities (installation of construction entrance pads) had begun at the Project in October 2022; however, no earth disturbance activities had been initiated near the monitoring points for the October monitoring event. All crossings were observed to be flowing to some extent during at least one of those monitoring events with the exception of the unnamed stream at station 593+18, which has been dry since August when the initial survey was conducted. Temperature and dissolved oxygen can fluctuate naturally when the sun rises and enables aquatic plants to release more oxygen. Sampling was conducted in the same order of monitoring points and as a result, the sampling was conducted during roughly the same time of day at each location each month to help ensure comparability over time. The Table 3 attached to this report in Appendix B summarizes the data collected during each of these monitoring events. The individual summary field logs are also included in Appendix C.

2.2 Temperature

Temperature of the surface water in the summer months of June, July and August were generally higher than the previous months and most were above 20 degrees Celsius. During these sampling months, many of the monitoring points were found to be dry, as would be anticipated for intermittent streams in the summer.

Results of the monitoring indicate that the temperatures the monitoring points in June ranged from 14.88 - 21.27 degrees Celsius. The July temperatures ranged from 21.5 – 26.25 degrees Celsius. August was similarly found to range in temperature from 20.6 – 22.64 degrees Celsius. In September, temperatures ranged from 13.4 – 16.06 degrees Celsius as the weather cooled as well. By October, temperatures had decreased to 8.69 -11.4 degrees Celsius.

2.3 Dissolved Oxygen

Dissolved oxygen levels were lower than the favorable value of 6 mg/L in June and July at Stations 540U/D and 725 D. In August, all three locations that were not dry reported levels slightly lower than the 6 mg/L at Stations 400 U/D, 540 U/D and 725 U/D. In September, the dissolved oxygen levels were all above 6 mg/L, except for the tributary to Hop Brook (ST 700/710) which based on repeated visual observations of trash and debris from the adjacent Station Road, appears to have poor water quality. In October, all of the monitoring points were reported to have levels of dissolved oxygen below the 6 mg/L, except for the two points at Stations 400U/D and 725U/D for the Hop Brook.

2.4 pH

The monitoring locations reported all the pH levels to be within normal ranges for cold water fisheries at 6.5-8.3 for June through October 2022.

2.5 Specific Conductivity

The monitoring events for specific conductivity for freshwater at Stations 400, 527, 540, 700, 710, 725 and 747 were above the acceptable range for freshwater fisheries of 150-500 µS/cm for all five monitoring events, except for ST 527 U/D in October, which was within the acceptable range. Levels between 500 – 1500 µS/cm are typical for freshwater streams and none of the readings were reported to be above 1500 µS/cm.

2.6 Turbidity

Turbidity levels are not specifically defined by a standard value in Massachusetts. Based on available information, for the purpose of this assessment, it can be assumed that a value of less than 5 NTU is favorable for freshwater, however the lower the better as typical groundwater is less than 1 NTU. Turbidity values reported for each station were less than 5 NTUs for all monitoring events except for the October monitoring event at the Hop Brook Tributary (ST 700).

2.7 Other Parameters

The stream flow velocities from the downgradient side to the upgradient side were comparable and consistent from month to month. The ORP, alkalinity, chlorine, and hardness levels from the downgradient side to the upgradient side were comparable. Alkalinity and chlorine levels were within the favorable levels for freshwater.

3 REFERENCES

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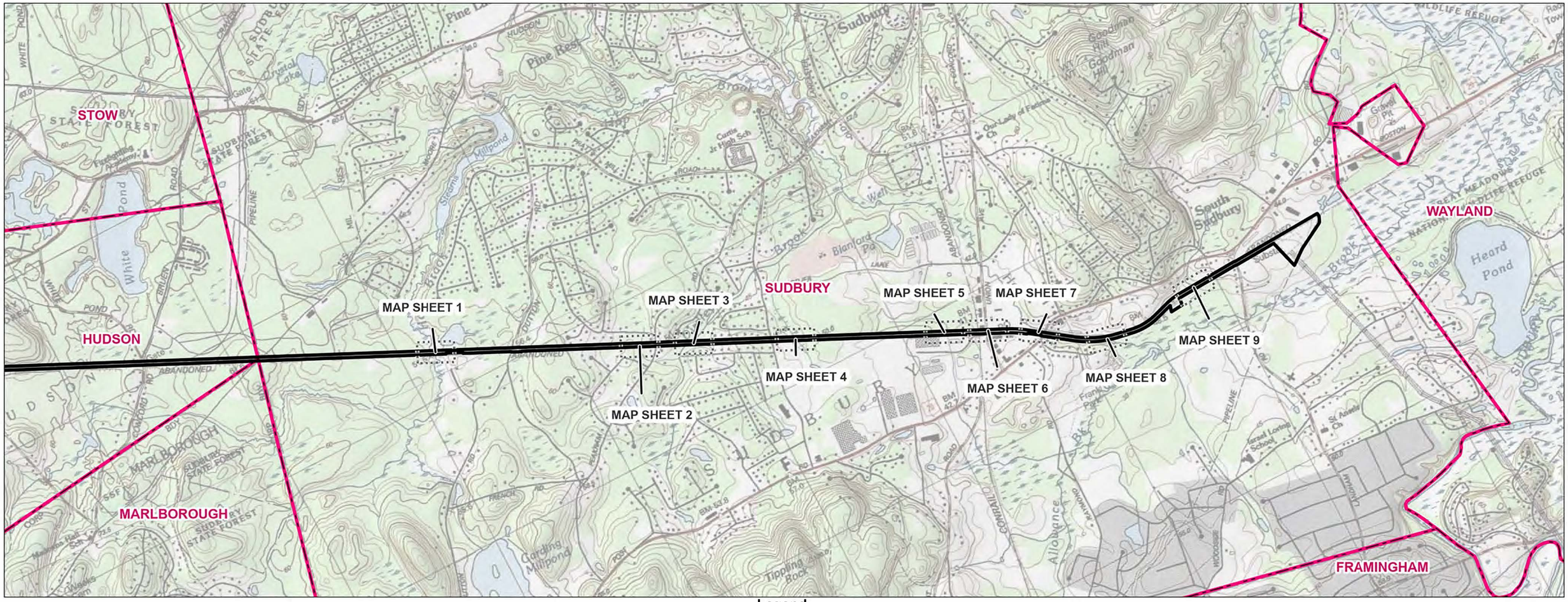
APPENDIX A

Figures Map Book

2021 - Sudbury Hudson Reliability Project

HUDSON, STOW, & SUDBURY, MA
Water Sampling Map

Date: August 11, 2021



Legend

Map Sheet Matchline

PREPARED FOR:

EVERSOURCE ENERGY
107 Selden Street
Berlin, CT 06037

N

0 0.25 0.5 Miles

INDEX OF FIGURES

Title Sheet / Index Map
Map Sheets 1-9

NO.	DATE	REVISIONS

PREPARED BY:

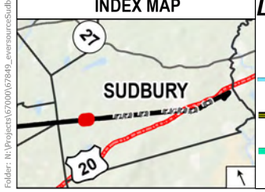
SWCA ENVIRONMENTAL CONSULTANTS
15 Research Drive
Amherst, MA 01002

SUDBURY

ST-400-D

ST-400-U

INDEX MAP



Legend

- Water Sampling Point
- Watercourse
- Limit Of Work (LOW)
- Coldwater Fisheries Line
- Open Water
- Approximate Wetland (Not Delineated)
- Existing Right-of-Way (ROW)
- Municipal Boundary

N

1:600

0 25 50 Feet

Base Map: MassGIS Ortho 2019, accessed August 2021

NO.	DATE	REVISIONS

EVERSOURCE ENERGY

Sudbury Hudson Reliability Project
Water Sampling Map

SUDBURY, MA

MAP SHEET 1 OF 9

Date: August, 2021

SWCA ENVIRONMENTAL CONSULTANTS

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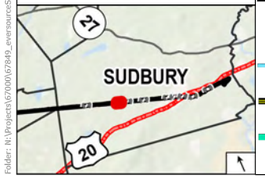
ST-527-U

ST-527-D

SUDBURY

INDEX MAP



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Sudbury Hudson Reliability Project
Water Sampling Map

SUDBURY, MA | MAP SHEET 2 OF 9

Date: August, 2021

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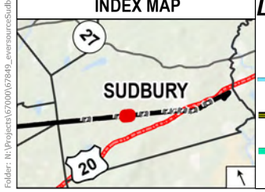
DUDLEY BROOK

ST-540-D

ST-540-U

SUDBURY

INDEX MAP



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Sudbury Hudson Reliability Project
Water Sampling Map

SUDBURY, MA

MAP SHEET 3 OF 9

Date: August, 2021

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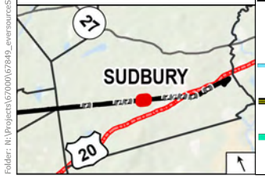
ST-561-D

ST-561-U

SUDBURY

INDEX MAP



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Base Map: MassGIS Ortho 2019, accessed August 2021

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EVERSOURCE ENERGY

Sudbury Hudson Reliability Project
Water Sampling Map

SUDBURY, MA | MAP SHEET 4 OF 9

Date: August, 2021

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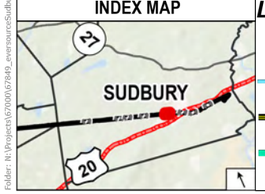
SUDBURY

ST-593-U

ST-593-D

INDEX MAP



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Base Map: MassGIS Ortho 2019, accessed August 2021

NO.	DATE	REVISIONS

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Sudbury Hudson Reliability Project
Water Sampling Map

SUDBURY, MA | MAP SHEET 5 OF 9

Date: August, 2021

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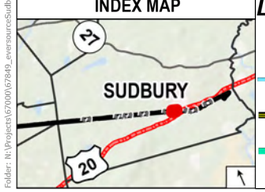
INDEX MAP



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Base Map: MassGIS Ortho 2019, accessed August 2021

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Sudbury Hudson Reliability Project
Water Sampling Map

SUDBURY, MA | MAP SHEET 6 OF 9

Date: August, 2021

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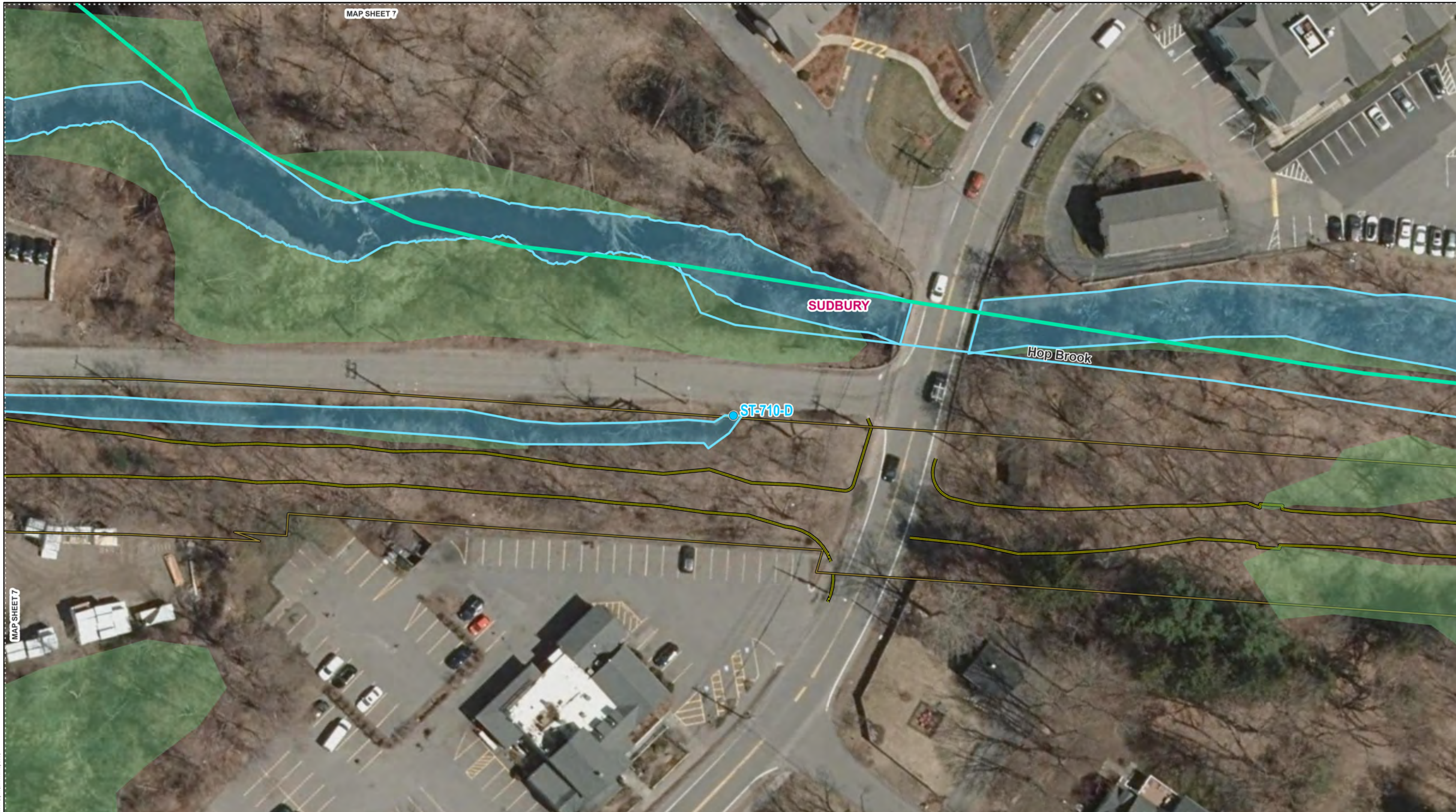

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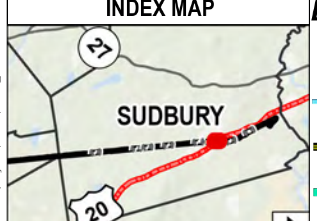

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Sudbury Hudson Reliability Project
Water Sampling Map

SUDBURY, MA

MAP SHEET 7 OF 9

Date: August, 2021

SWCA ENVIRONMENTAL CONSULTANTS

Hop Brook

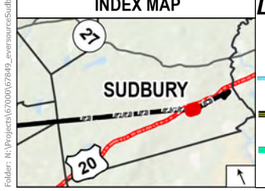
ST-725-U

ST-725-D

SUDBURY

MAP SHEET 8

INDEX MAP



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NO.	DATE	REVISIONS

EVERSOURCE ENERGY

Sudbury Hudson Reliability Project
Water Sampling Map

SUDBURY, MA

MAP SHEET 8 OF 9

Date: August, 2021

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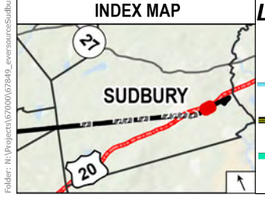
SUDBURY

ST-747-U

ST-747-D

INDEX MAP



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NO.	DATE	REVISIONS

EVERSOURCE ENERGY

Sudbury Hudson Reliability Project
Water Sampling Map

SUDBURY, MA

MAP SHEET 9 OF 9

Date: August, 2021

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APPENDIX B

Tables

Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 400 UP**													
Brook/Stream/Tributary	Conditions	Hop Brook													
Plan #	for	PLAN 47													
Direction of Flow	Cold	south													
Type	Water	perennial													
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**
Temperature (°C)	< 20	22.25	16.20	9.23	2.77	2.16	2.48	6.48	11.88	15.15	24.82	21.27	26.25	22.64	16.06	11.38
Specific Conductance (µS/cm @ 25°C)	150-500	414	422	421	408	410	573	768	730	727	889	771	787	852	666	598
Specific Conductance (µS/cm)	150-500	393	351	294	235	231	327	496	547	599	880	716	806	813	552	442
Dissolved Oxygen (%)	nsl	62	80	87	97	101	99	80.1	88.8	97.1	74.6	90.5	84.1	62.8	73.6	78.8
Dissolved Oxygen (mg/L)	> 6	5.34	7.85	9.99	13.12	13.95	13.40	9.82	9.56	9.72	6.21	8	6.78	5.4	7.23	8.6
pH	6.5-8.3	6.6	6.8	6.7	6.5	6.8	7.0	7.2	7.52	8.01	7.75	7.42	7	7.79	7.78	6.8
ORP	nsl	91	94	93	78	104	69	156	144	137	107	73	60	73	85	109
Turbidity (NTU)	free from turbidity that would impair fish habitat	2.86	1.73	2.39	1.95	2.37	2.58	1.83	0.81	1.45	2.03	3.64	1.69	2.6	1.6	2.7
Alkalinity	< 300	40	40	0	0	0	0	100	100	100	100	100	100	100	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	nsl	100	0	0	0	20	0	40	20	40	40	40	40	80	40	40
Velocity (ft/s)	nsl	0.35	0.38	0.4	0.28	Na	0.36	1.3	0.42	0.52	0.34	0.32	0.14	0.29	0.59	0.36

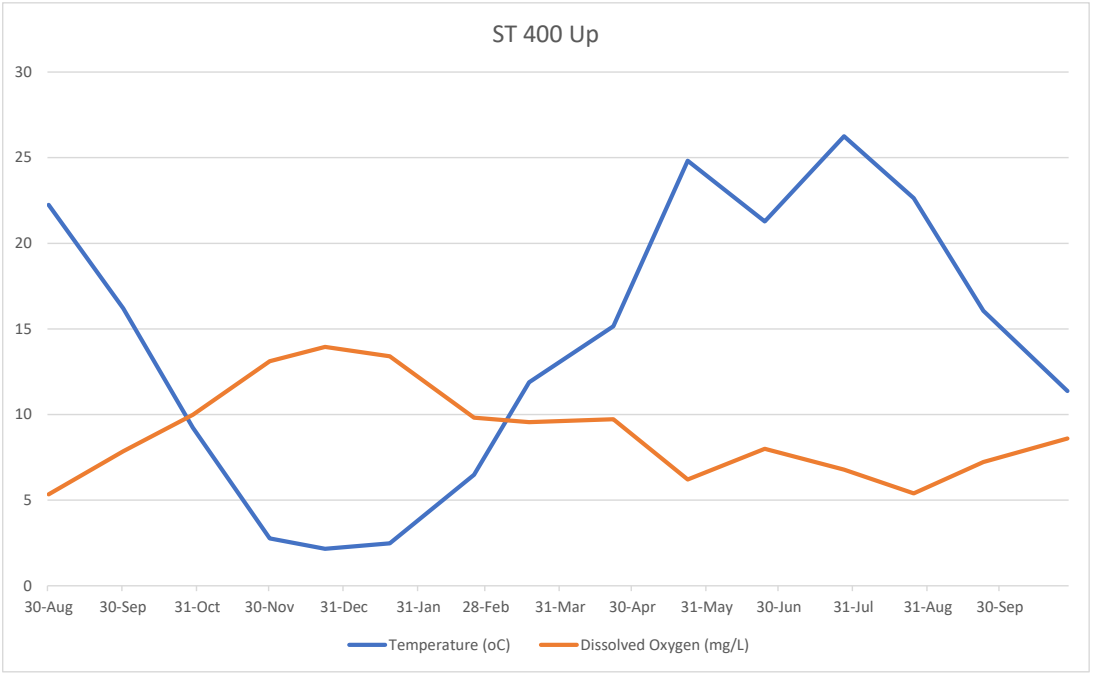


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 400 DOWN**													
Brook/Stream/Tributary	Conditions	Hop Brook													
Plan #	for	PLAN 47													
Direction of Flow	Cold	south													
Type	Water	perennial													
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**
Temperature (°C)	< 20	22.25	16.17	9.22	2.74	2.12	2.47	6.45	11.85	15.16	24.78	21.14	26.18	22.59	16.04	11.39
Specific Conductance (µS/cm @ 25°C)	150-500	415	422	420	408	408	573	775	717	715	868	777	788	877	681	604
Specific Conductance (µS/cm)	150-500	394	351	293	235	230	327	500	537	580	865	718	805	834	564	447
Dissolved Oxygen (%)	nsl	60	78	86	104	105	99	83.5	87.9	93.5	75.9	90	77.5	63.6	74.1	79.9
Dissolved Oxygen (mg/L)	> 6	5.20	7.64	9.02	14.05	14.33	13.46	10.24	9.48	9.37	6.26	7.98	6.24	5.49	7.3	8.68
pH	6.5-8.3	6.6	6.7	6.7	6.5	6.8	7.0	7.1	7.47	7.85	7.7	7.73	7	7.85	7.68	6.8
ORP	nsl	91	94	93	79	117	119	159	146	142.4	103	60	50	75	86.2	140
Turbidity (NTU)	free from turbidity that would impair fish habitat	2.86	1.73	2.30	2.02	2.43	2.56	1.88	1.04	1.91	1.97	3.25	1.5	2.63	1.3	2.74
Alkalinity	< 300	40	40	0	0	0	0	100	100	100	100	100	100	100	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	nsl	100	0	0	0	20	0	40	20	40	40	40	40	80	40	40
Velocity (ft/s)	nsl	0.34	0.31	0.39	0.4	Na	0.35	1.25	0.32	0.49	0.28	0.3	0.17	0.34	0.56	0.4

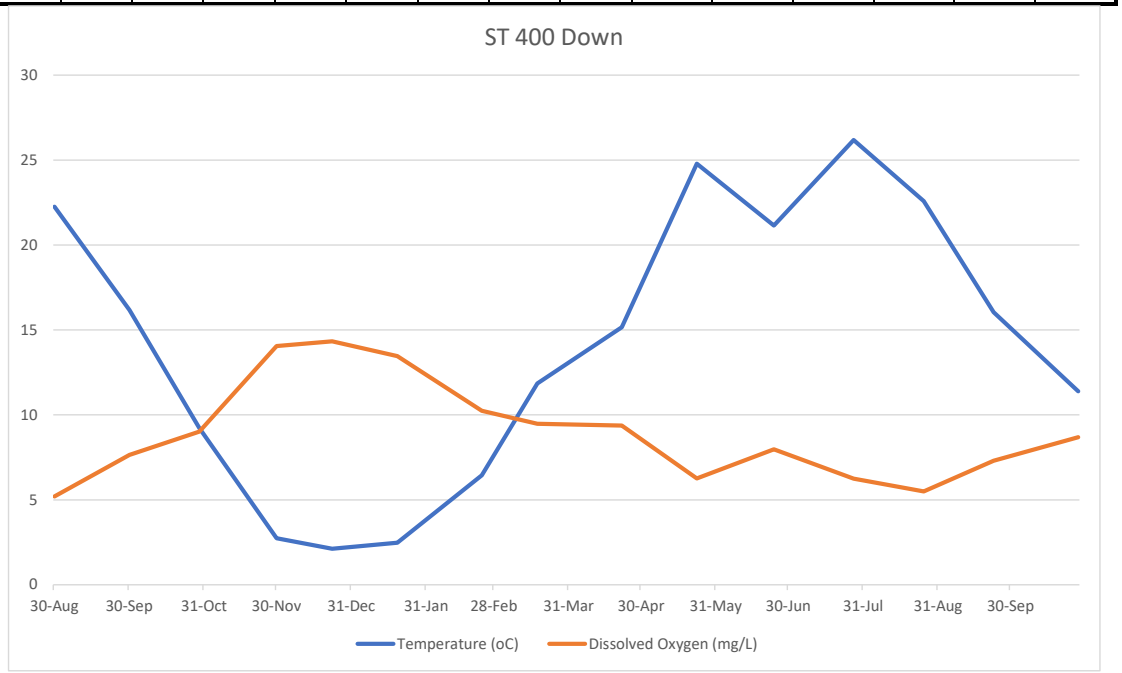


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 527 UP**														
Brook/Stream/Tributary	Conditions	Unnamed Stream														
Plan #	for	PLAN 52														
Direction of Flow	Cold	south														
Type	Water	intermittent														
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**
Temperature (°C)	< 20	17.19	12.17	7.42	2.39	1.56	1.08	5.58	10.66	13.53	17.21	15.18	dry	dry	13.4	8.75
Specific Conductance (µS/cm @ 25°C)	150-500	305	290	201	301	260	309	527	426	508	487	563	dry	dry	587	474
Specific Conductance (µS/cm)	150-500	259	219	148	170	144	163	332	309	397	420	458	dry	dry	493	327
Dissolved Oxygen (%)	nsl	51	61	54	67	70	72	62.4	78.8	91.3	50.5	63.6	dry	dry	71.2	44.3
Dissolved Oxygen (mg/L)	> 6	4.94	6.56	6.02	9.17	9.71	10.2	7.82	8.74	9.47	4.87	6.38	dry	dry	7.03	5.13
pH	6.5-8.3	5.4	6.1	6.3	6.3	6.0	6.0	6.2	6.37	6.42	6.62	6.8	dry	dry	7.2	6.8
ORP	nsl	130	117	105	97	127	97	200	186	179	119	Ns	dry	dry	90	98
Turbidity (NTU)	free from turbidity that would impair fish habitat	2.30	0.63	1.52	1.53	2.98	2.20	2.03	2.01	1.46	3.01	0.76	dry	dry	1.97	1.77
Alkalinity	< 300	0	0	0	100	0	0	0	0	0	100	100	dry	dry	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	dry	dry	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	dry	dry	0	0
Hardness	nsl	100	0	0	0	20	0	0	20	0	0	0	dry	dry	40	0
Velocity (ft/s)	nsl	0.2	0.18	0.1	0.21	Na	0.15	0.53	0.09	0.08	0.14	0.09	dry	dry	0.14	0.13

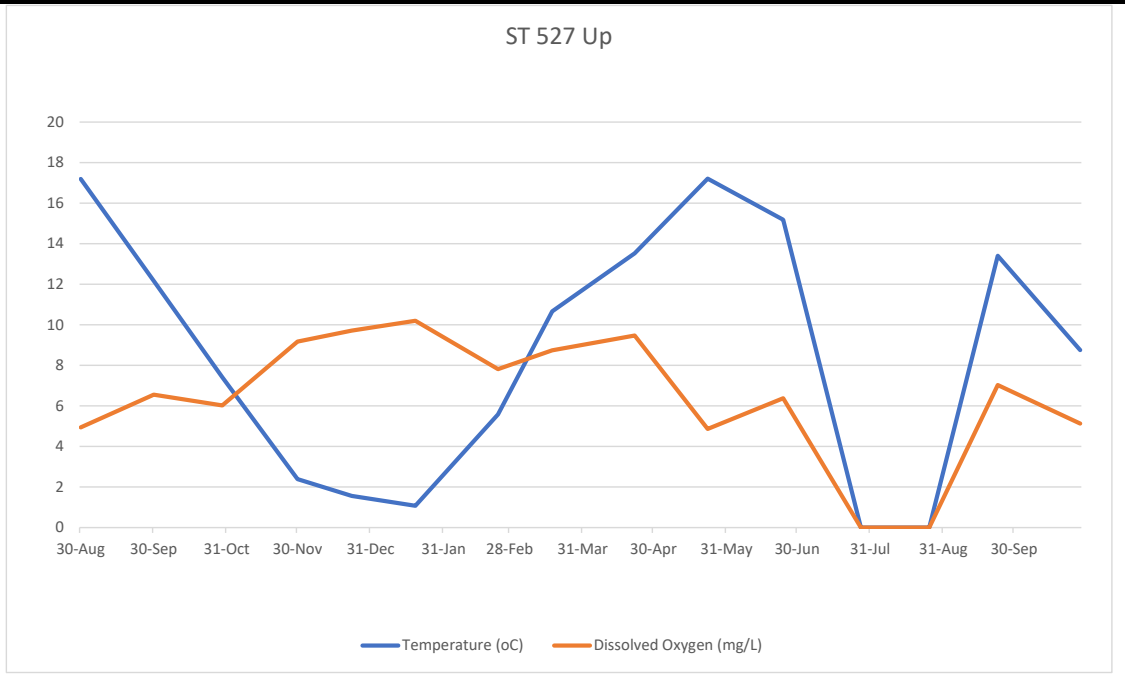


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 527 DOWN**														
Brook/Stream/Tributary	Conditions	Unnamed Stream														
Plan #	for	PLAN 52														
Direction of Flow	Cold	south														
Type	Water	intermittent														
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**
Temperature (^{o}C)	< 20	17.07	12.13	7.36	2.48	1.63	1.07	5.49	10.11	13.11	17.17	14.88	dry	dry	13.56	8.84
Specific Conductance (µS/cm @ 25^{o}C)	150-500	301	287	204	304	262	294	538	435	513	604	579	dry	dry	560	482
Specific Conductance (µS/cm)	150-500	255	217	154	174	145	159	337	311	396	513	467	dry	dry	479	323
Dissolved Oxygen (%)	nsl	52	64	56	67	74	74	64.6	70.9	85.3	54.5	61.8	dry	dry	67.9	39.4
Dissolved Oxygen (mg/L)	> 6	4.98	6.87	6.16	9.12	10.31	10.45	8.13	7.88	8.95	5.23	6.23	dry	dry	6.89	4.57
pH	6.5-8.3	5.8	6.5	6.4	6.4	6.2	6.0	6.2	6.38	6.48	6.58	6.78	dry	dry	7.2	6.8
ORP	nsl	127	106	105	96	122	81	175	178	173	123	116	dry	dry	80	90
Turbidity (NTU)	free from turbidity that would impair fish habitat	1.18	0.84	1.56	1.40	2.00	1.50	1.81	1.26	1.4	2.18	0.64	dry	dry	1.89	1.24
Alkalinity	< 300	0	0	0	100	0	0	0	0	0	100	100	dry	dry	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	dry	dry	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	dry	dry	0	0
Hardness	nsl	100	100	0	0	0	0	0	20	0	0	0	dry	dry	40	0
Velocity (ft/s)	nsl	0.21	0.06	0.13	0.14	Na	0.1	0.48	0.23	0.17	0.09	0.06	dry	dry	0.12	0.09

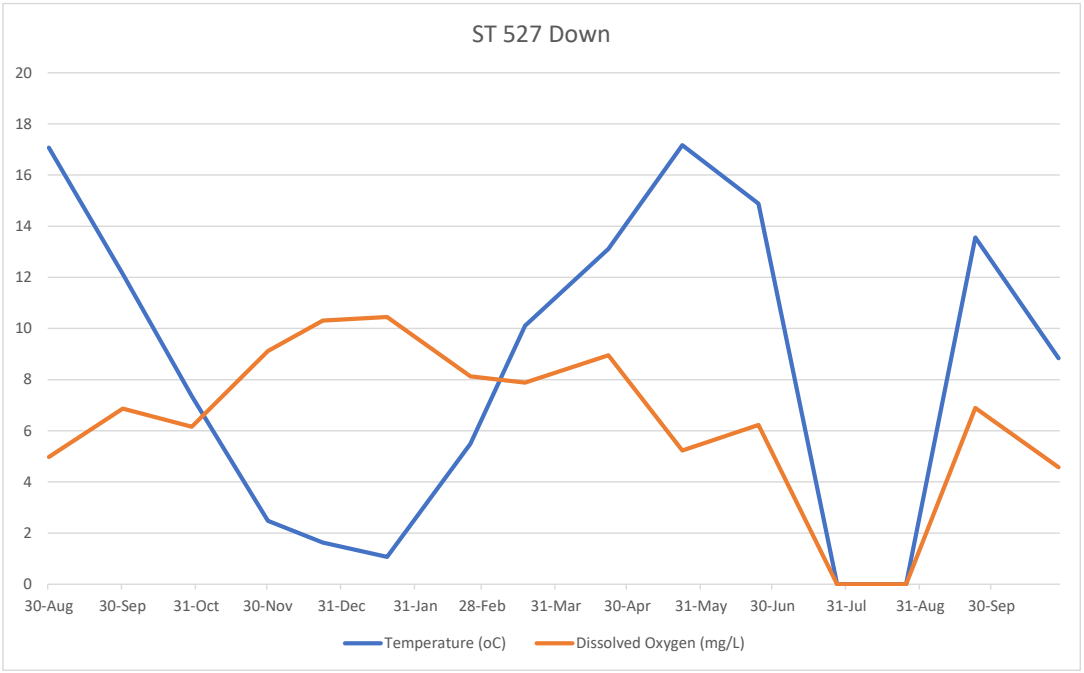


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 540 UP**														
Brook/Stream/Tributary	Conditions	Dudley Brook														
Plan #	for	PLAN 54														
Direction of Flow	Cold	south														
Type	Water	perennial														
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**
Temperature (°C)	< 20	18.84	13.17	7.78	1.62	1.02	0.42	5.2	10.35	12.72	19.67	17.54	21.73	20.7	13.9	9.67
Specific Conductance (µS/cm @ 25°C)	150-500	340	305	271	312	288	377	573	487	553	663	630	609	890	701	654
Specific Conductance (µS/cm)	150-500	300	236	182	172	157	198	360	350	423	599	540	561	805	625	378
Dissolved Oxygen (%)	nsl	16	56	52	73	79	80	83	84.4	70.6	42.1	53	58.3	57.8	67	34.8
Dissolved Oxygen (mg/L)	> 6	1.41	5.91	6.11	10.16	11.15	11.60	10.26	9.43	7.6	4.01	5.07	5.12	4.77	6.92	3.93
pH	6.5-8.3	6.1	6.7	6.5	6.6	6.6	7.0	6.7	6.95	6.99	7.45	7.2	6.8	7	7.2	6.6
ORP	nsl	123	101	101	87	106	55	162	176	168	107	94	100	80	135	68
Turbidity (NTU)	free from turbidity that would impair fish habitat	3.14	1.37	1.90	1.86	1.54	1.66	2.2	1.67	2	2.67	2.48	3.29	4.2	2.66	4.5
Alkalinity	< 300	40	20	0	100	0	0	100	0	100	100	100	100	100	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	nsl	100	0	0	0	0	0	0	20	20	40	40	40	40	40	40
Velocity (ft/s)	nsl	0.55	0.44	0.66	0.31	Na	0.8	0.78	0.52	1.1	0.4	0.25	1.09	0.19	0.26	0.26

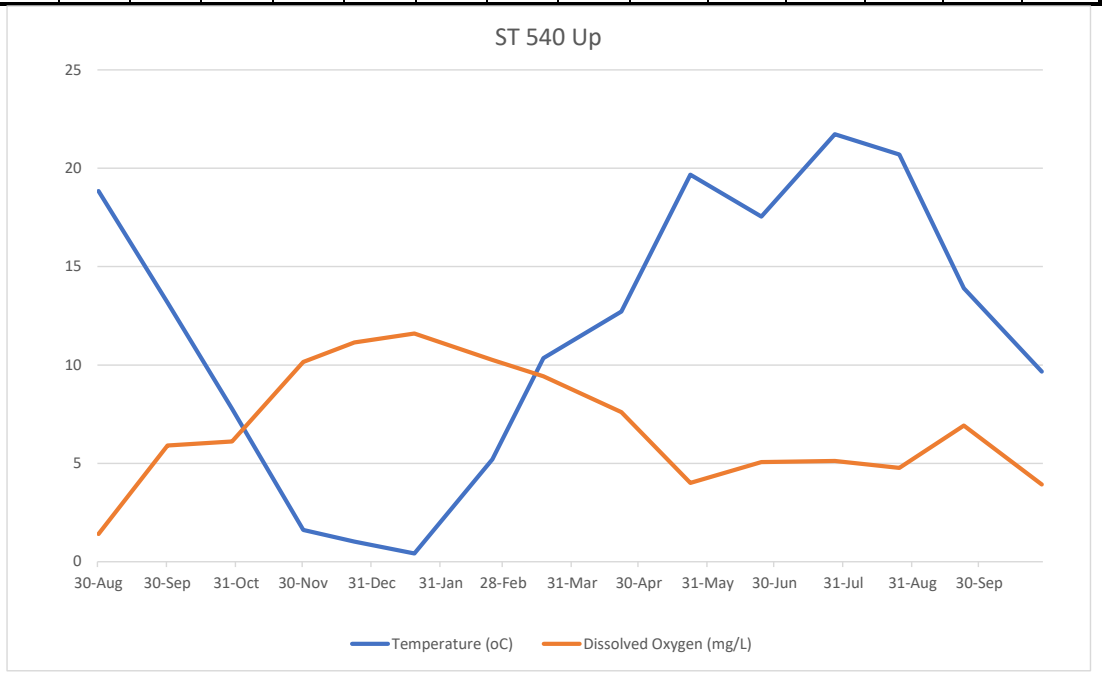


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 540 DOWN**														
Brook/Stream/Tributary	Conditions	Dudley Brook														
Plan #	for	PLAN 54														
Direction of Flow	Cold	south														
Type	Water	perennial														
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**
Temperature (°C)	< 20	18.83	13.18	7.89	1.72	0.80	0.27	5.47	10.32	13.11	19.94	17.43	21.97	20.6	13.56	9.73
Specific Conductance (µS/cm @ 25°C)	150-500	344	311	274	311	296	376	628	480	555	674	654	591	895	560	558
Specific Conductance (µS/cm)	150-500	303	241	184	173	159	199	394	345	429	609	559	556	820	479	395
Dissolved Oxygen (%)	nsl	42	67	59	76	88	78	74.3	77.2	86.4	46.7	57	55.2	57.1	67.9	36.3
Dissolved Oxygen (mg/L)	> 6	3.86	6.98	7.00	10.57	12.49	11.33	9.28	8.63	9.06	4.24	5.51	4.82	4.92	6.89	4.11
pH	6.5-8.3	6.3	6.7	6.9	6.8	6.5	7.0	6.8	7.04	7.11	7.02	7.11	7.2	7	7.2	6.5
ORP	nsl	115	97	101	85	103	52	137	151	128	125	88	100	78	80	87
Turbidity (NTU)	free from turbidity that would impair fish habitat	2.09	1.34	1.84	1.77	1.46	1.94	2.08	1.8	1.4	2.2	2.56	3.4	3.61	1.89	2.25
Alkalinity	< 300	40	40	0	0	0	0	0	100	100	100	100	100	100	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	<Null>	0	0	0	0	0	0	0
Hardness	nsl	100	0	0	0	20	0	0	20	20	40	40	40	40	40	40
Velocity (ft/s)	nsl	0.4	0.34	0.8	0.31	Na	0.25	0.6	1.2	0.82	0.36	0.57	0.26	0.26	0.12	0.43

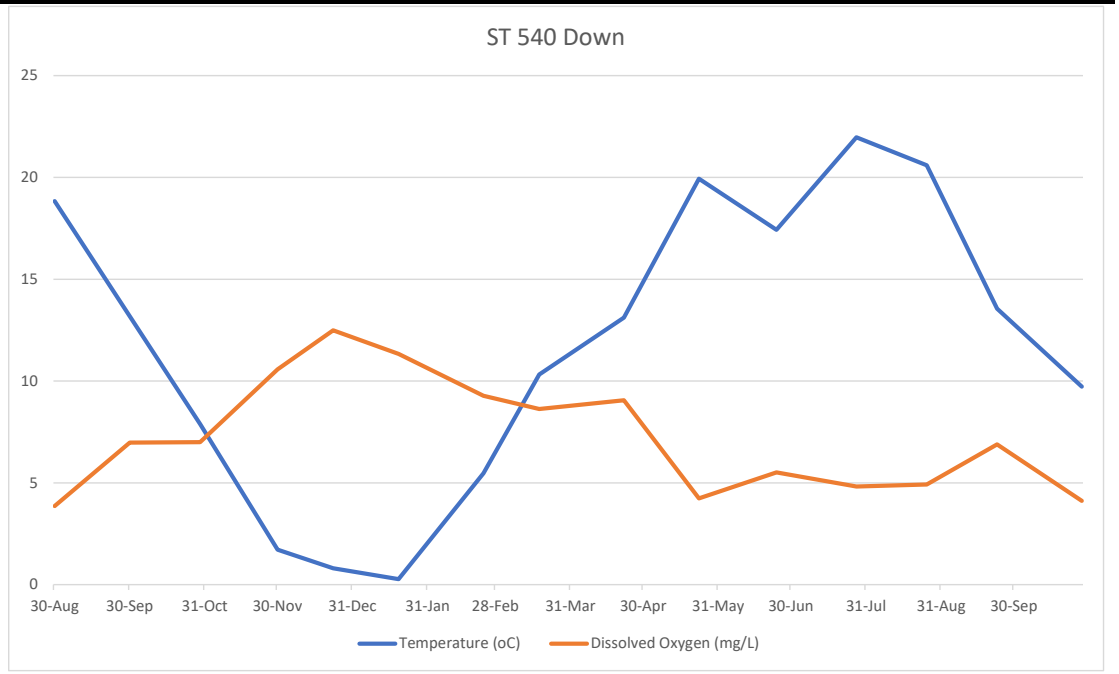


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 561 UP**														
Brook/Stream/Tributary	Conditions	Unnamed Stream														
Plan #	for	PLAN 57														
Direction of Flow	Cold	north														
Type	Water	intermittent														
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**
Temperature (°C)	< 20	20.59	14.12	7.57	0.84	0.02	0.22	6.7	12.92	15.79	21	dry	dry	dry	dry	dry
Specific Conductance (µS/cm @ 25°C)	150-500	361	344	243	308	244	269	485	439	557	790	dry	dry	dry	dry	dry
Specific Conductance (µS/cm)	150-500	331	272	162	166	127	141	315	337	459	678	dry	dry	dry	dry	dry
Dissolved Oxygen (%)	nsl	22	42	38	64	71	40	62.4	80.8	91.3	62.5	dry	dry	dry	dry	dry
Dissolved Oxygen (mg/L)	> 6	2.00	4.32	4.53	9.07	10.4	5.81	7.6	8.53	9.03	6.01	dry	dry	dry	dry	dry
pH	6.5-8.3	6.1	6.7	6.4	6.9	6.6	6.7	6.8	7.08	7.35	7.45	dry	dry	dry	dry	dry
ORP	nsl	47	78	73	72	99	68	147	98	94	89	dry	dry	dry	dry	dry
Turbidity (NTU)	free from turbidity that would impair fish habitat	5.74	1.40	2.16	1.72	1.44	1.70	1.58	3.28	1.94	3.2	dry	dry	dry	dry	dry
Alkalinity	< 300	40	40	40	0	0	0	100	100	100	100	dry	dry	dry	dry	dry
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	dry	dry	dry	dry	dry
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	dry	dry	dry	dry	dry
Hardness	nsl	100	100	0	0	40	0	40	20	40	40	dry	dry	dry	dry	dry
Velocity (ft/s)	nsl	0.08	0.06	0.19	0.16	Na	0.04	0.15	0.31	0.18	0.17	dry	dry	dry	dry	dry

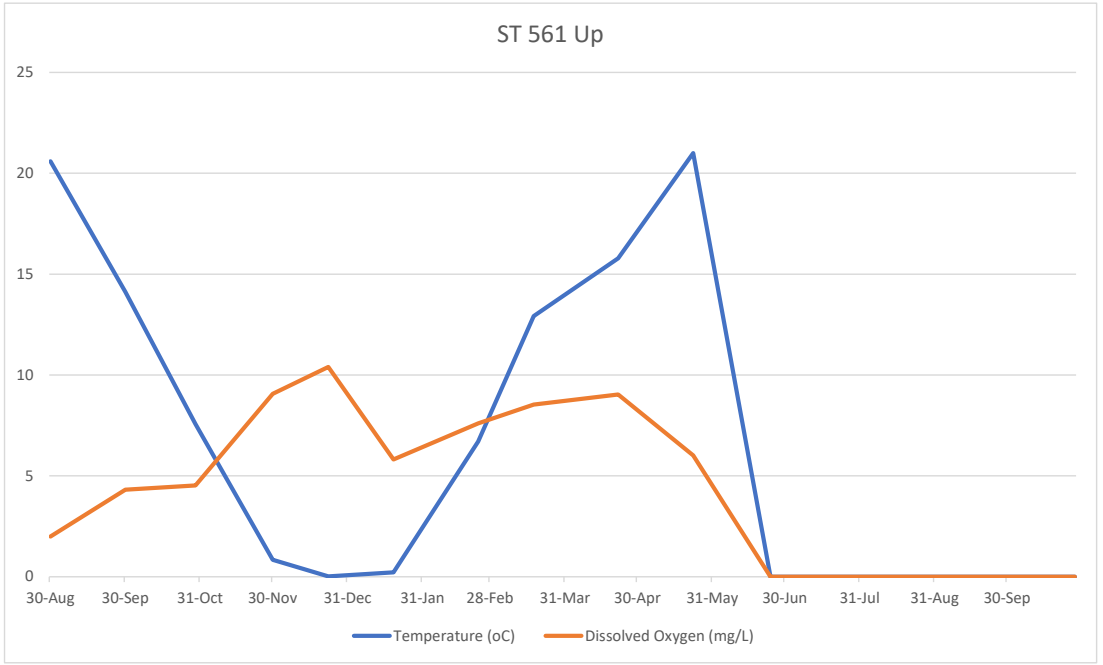


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 561 DOWN**														
Brook/Stream/Tributary	Conditions	Unnamed Stream														
Plan #	for	PLAN 57														
Direction of Flow	Cold	north														
Type	Water	intermittent														
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**
Temperature (°C)	< 20	20.14	14.10	7.61	1.17	0.19	0.27	6.79	12.42	14.56	20.3	dry	dry	dry	dry	dry
Specific Conductance (µS/cm @ 25°C)	150-500	350	338	252	311	245	281	497	431	567	835	dry	dry	dry	dry	dry
Specific Conductance (µS/cm)	150-500	318	268	168	168	129	149	324	327	454	750	dry	dry	dry	dry	dry
Dissolved Oxygen (%)	nsl	37	62	62	76	85	44	63.6	74.4	85	67.8	dry	dry	dry	dry	dry
Dissolved Oxygen (mg/L)	> 6	3.36	5.34	7.28	10.78	12.28	6.29	7.74	7.93	8.61	6.4	dry	dry	dry	dry	dry
pH	6.5-8.3	6.7	7.0	7.3	7.2	6.5	6.7	6.9	7.1	7.26	7.45	dry	dry	dry	dry	dry
ORP	nsl	53	70	52	46	79	95	131	116	92.2	48	dry	dry	dry	dry	dry
Turbidity (NTU)	free from turbidity that would impair fish habitat	1.87	1.90	3.27	1.90	1.73	1.67	1.89	1.85	2.3	4.2	dry	dry	dry	dry	dry
Alkalinity	< 300	40	40	40	100	0	0	0	100	100	100	dry	dry	dry	dry	dry
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	dry	dry	dry	dry	dry
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	dry	dry	dry	dry	dry
Hardness	nsl	100	100	0	40	0	0	0	20	20	40	dry	dry	dry	dry	dry
Velocity (ft/s)	nsl	0.1	0.13	0.45	0.37	Na	0.04	0.28	0.12	0.2	0.12	dry	dry	dry	dry	dry

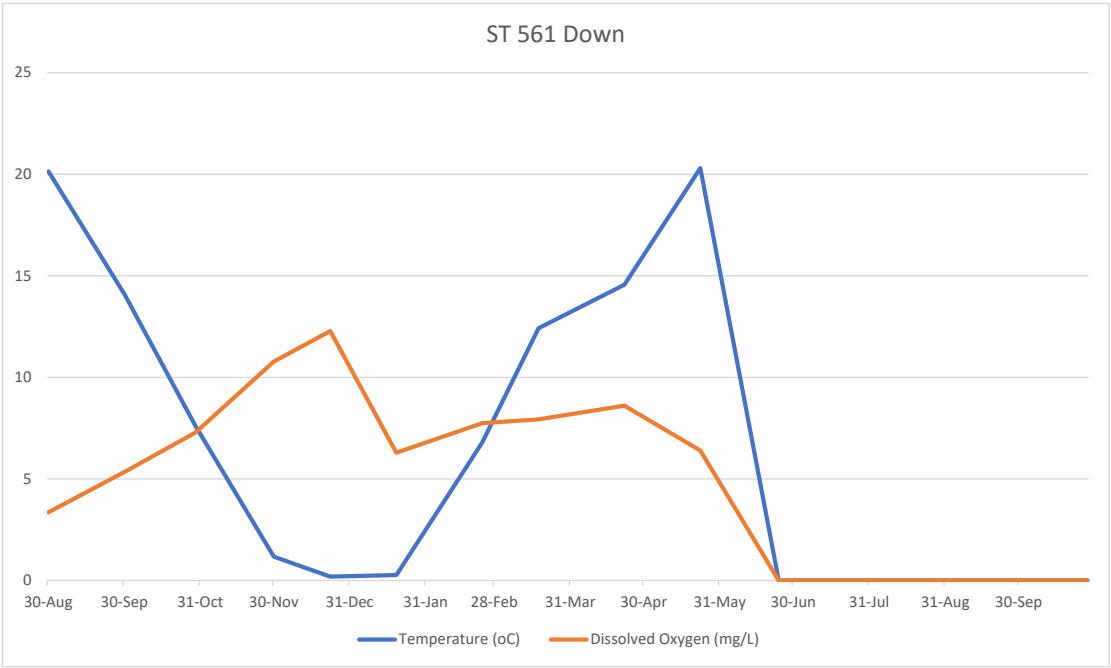


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 593 UP**														
Brook/Stream/Tributary	Conditions	Unnamed Stream														
Plan #	for	PLAN 60														
Direction of Flow	Cold	north														
Type	Water	intermittent														
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**
Temperature (^{o}C)	< 20	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Specific Conductance (µS/cm @ 25^{o}C)	150-500	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Specific Conductance (µS/cm)	150-500	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Dissolved Oxygen (%)	nsl	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Dissolved Oxygen (mg/L)	> 6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
pH	6.5-8.3	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
ORP	nsl	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Turbidity (NTU)	free from turbidity that would impair fish habitat	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Alkalinity	< 300	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Chlorine, Free	< 4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Chlorine, Total	< 4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Hardness	nsl	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Velocity (ft/s)	nsl	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry

Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 593 DOWN**														
Brook/Stream/Tributary	Conditions	Unnamed Stream														
Plan #	for	PLAN 60														
Direction of Flow	Cold	north														
Type	Water	intermittent														
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**
Temperature (^{o}C)	< 20	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Specific Conductance (µS/cm @ 25^{o}C)	150-500	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Specific Conductance (µS/cm)	150-500	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Dissolved Oxygen (%)	nsl	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Dissolved Oxygen (mg/L)	> 6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
pH	6.5-8.3	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
ORP	nsl	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Turbidity (NTU)	free from turbidity that would impair fish habitat	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Alkalinity	< 300	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Chlorine, Free	< 4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Chlorine, Total	< 4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Hardness	nsl	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Velocity (ft/s)	nsl	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry

Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 700 UP**														
Brook/Stream/Tributary	Conditions	Hop Brook Tributary														
Plan #	for	PLAN 61														
Direction of Flow	Cold	East														
Type	Water	intermittent														
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**
Temperature (°C)	< 20	21.13	16.14	9.67	7.56	6.43	4.49	6.79	8.15	16.21	26	dry	dry	dry	13.88	11.4
Specific Conductance (µS/cm @ 25°C)	150-500	1362	1129	1104	1110	1079	1689	2225	3094	2398	10112	dry	dry	dry	946	900
Specific Conductance (µS/cm)	150-500	1263	938	702	742	697	1027	1450	2098	1909	9978	dry	dry	dry	728	750
Dissolved Oxygen (%)	nsl	43	41	52	51	56	61	84.2	49.6	76.3	39.5	dry	dry	dry	48.9	46.8
Dissolved Oxygen (mg/L)	> 6	3.96	4.13	5.87	5.45	6.88	7.84	10.19	5.78	7.11	3.7	dry	dry	dry	4.6	4.57
pH	6.5-8.3	6.5	6.9	6.8	6.6	6.4	6.4	6.8	6.82	7.1	7.8	dry	dry	dry	7.6	6.7
ORP	nsl	62	10	20	29	15	70	56.3	55	65	20	dry	dry	dry	105	82
Turbidity (NTU)	free from turbidity that would impair fish habitat	20.90	12.09	8.17	14.70	7.59	3.76	6.34	12.8	15	7.2	dry	dry	dry	3.7	5.1
Alkalinity	< 300	40	80	40	250	0	100	250	250	100	250	dry	dry	dry	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	dry	dry	dry	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	dry	dry	dry	0	0
Hardness	nsl	100	100	100	80	40	40	40	80	40	40	dry	dry	dry	40	40
Velocity (ft/s)	nsl	0.23	0.02	0.05	0.01	Na	0.02	0.1	0.05	0.00	0.03	dry	dry	dry	0.02	0.03

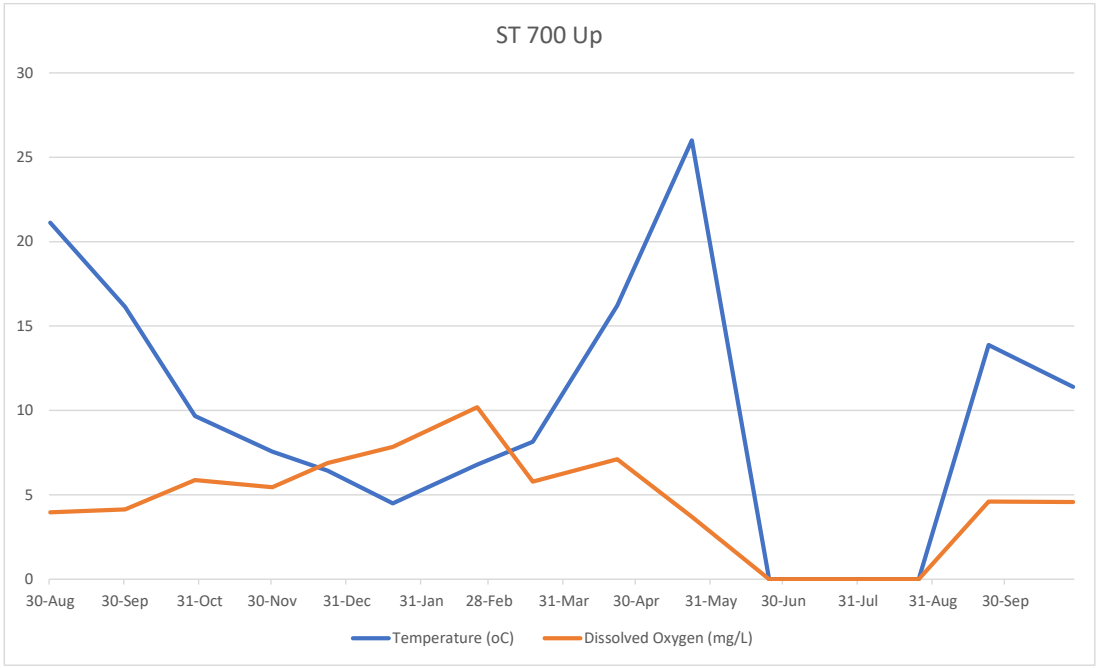


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 710 DOWN**														
Brook/Stream/Tributary	Conditions	Hop Brook Tributary														
Plan #	for	PLAN 63														
Direction of Flow	Cold	East														
Type	Water	intermittent														
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**
Temperature (°C)	< 20	21.08	14.28	9.55	0.40	0.01	frozen	8.55	11.06	15.44	24	dry	dry	dry	13.94	11.35
Specific Conductance (µS/cm @ 25°C)	150-500	1122	755	927	1054	1108	frozen	2215	3268	2228	10068	dry	dry	dry	878	1260
Specific Conductance (µS/cm)	150-500	1039	600	653	559	580	frozen	1520	2409	1822	9630	dry	dry	dry	677	867
Dissolved Oxygen (%)	nsl	37	49	61	59	73	frozen	54.8	57.4	82.5	46.8	dry	dry	dry	53.5	24.3
Dissolved Oxygen (mg/L)	> 6	3.30	4.97	6.87	8.52	10.51	frozen	6.35	6.25	8.18	4.2	dry	dry	dry	5.61	2.8
pH	6.5-8.3	6.8	6.9	6.8	6.5	6.5	frozen	6.8	6.94	7.3	7.6	dry	dry	dry	7.54	6.76
ORP	nsl	66	51	25	72	60	frozen	92.4	98	79	10	dry	dry	dry	110	72.7
Turbidity (NTU)	free from turbidity that would impair fish habitat	11.50	9.48	6.62	6.00	3.82	frozen	3.98	7.25	23	5.7	dry	dry	dry	3.65	4.58
Alkalinity	< 300	100	120	40	100	0	frozen	100	250	100	100	dry	dry	dry	100	100
Chlorine, Free	< 4	0	0	0	0	0	frozen	0	0	0	0	dry	dry	dry	0	0
Chlorine, Total	< 4	0	0	0	0	0	frozen	0	0	0	0	dry	dry	dry	0	0
Hardness	nsl	100	100	100	40	20	frozen	40	40	40	40	dry	dry	dry	40	40
Velocity (ft/s)	nsl	0.08	0.02	0.07	0.02	Na	frozen	0.18	0.2	0.02	0.08	dry	dry	dry	0.06	0.04

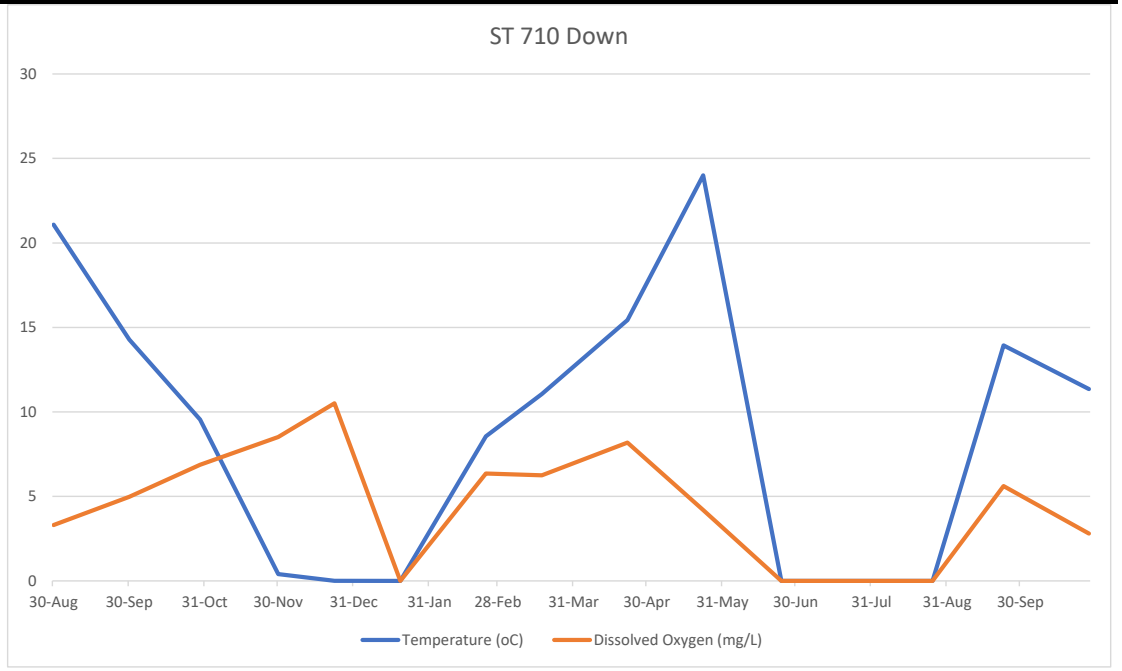


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 725 UP**														
Brook/Stream/Tributary	Conditions	Hop Brook														
Plan #	for	PLAN 65														
Direction of Flow	Cold	south														
Type	Water	perennial														
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**
Temperature (°C)	< 20	20.55	14.52	7.67	1.17	0.54	0.05	6.3	8.9	12.12	22.2	18.63	21.51	21.36	14.26	10.28
Specific Conductance (µS/cm @ 25°C)	150-500	393	355	380	309	358	487	789	653	726	817	750	777	807	658	650
Specific Conductance (µS/cm)	150-500	360	284	254	168	190	255	507	452	548	773	659	725	750	523	475
Dissolved Oxygen (%)	nsl	75	87	94	95	97	105	82.8	83	94	85.9	68.9	67.6	67.3	69.9	74.6
Dissolved Oxygen (mg/L)	> 6	6.74	8.87	11.23	13.48	13.89	15.20	10.29	9.56	10.07	7.47	6.43	5.93	5.95	7.15	8.32
pH	6.5-8.3	6.8	7.0	6.9	7.1	7.2	7.4	7.2	7.49	7.75	7.89	6.8	7.63	7.2	6.8	6.8
ORP	nsl	97	96	88	81	94	35	88.5	121	116	91	Ns	134	100	140	127
Turbidity (NTU)	free from turbidity that would impair fish habitat	2.62	2.15	2.62	2.42	2.25	2.21	2.07	1.86	0.78	3.1	4.59	2.42	3.52	2.29	2.44
Alkalinity	< 300	40	0	0	100	0	0	0	100	100	100	100	100	100	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	nsl	100	0	0	40	0	0	0	20	40	40	40	40	80	40	40
Velocity (ft/s)	nsl	0.23	0.15	0.51	0.23	Na	0.46	0.34	0.57	0.38	0.2	0.06	0.1	0.18	0.2	0.27

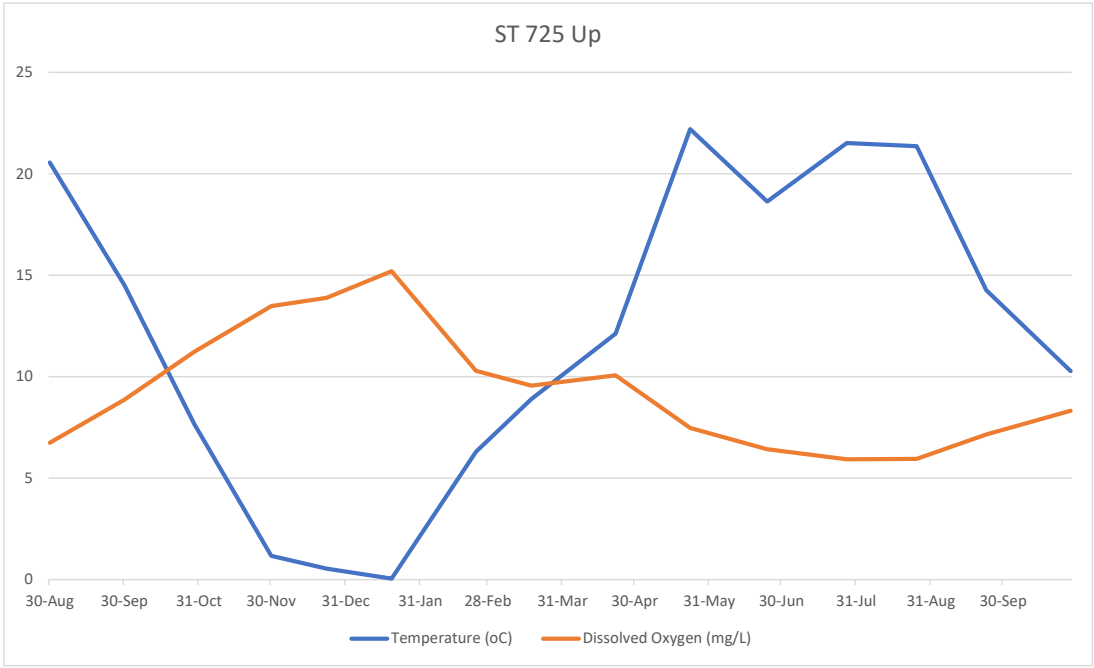


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 725 DOWN**														
Brook/Stream/Tributary	Conditions	Hop Brook														
Plan #	for	PLAN 65														
Direction of Flow	Cold	south														
Type	Water	perennial														
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**
Temperature (°C)	< 20	20.49	14.45	7.63	1.13	0.51	0.06	4.91	8.81	12.17	22.14	18.57	21.5	21.39	14.23	10.24
Specific Conductance (µS/cm @ 25°C)	150-500	399	360	378	324	358	487	777	658	719	833	767	816	788	681	650
Specific Conductance (µS/cm)	150-500	365	287	253	176	190	255	479	455	543	788	673	760	733	541	467
Dissolved Oxygen (%)	nsl	80	79	100	102	101	106	74	81.5	93	87	62.4	65.1	65.2	70.6	75.6
Dissolved Oxygen (mg/L)	> 6	7.20	8.00	11.88	14.37	14.52	15.39	9.44	9.45	9.95	7.57	5.83	5.83	5.77	7.22	8.47
pH	6.5-8.3	7.2	7.0	7.1	7.2	7.2	7.3	7.1	7.6	7.78	7.98	6.8	7.61	7.25	6.8	6.8
ORP	nsl	98	98	80	76	92	29	128	124	122.2	89	Ns	140.3	110	120	120
Turbidity (NTU)	free from turbidity that would impair fish habitat	2.63	2.19	3.05	2.25	2.21	2.40	2.76	1.19	0.94	3.22	1.52	2.3	3.89	1.92	2.3
Alkalinity	< 300	40	0	0	100	0	0	100	100	100	100	100	100	100	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	nsl	100	0	0	0	0	0	0	20	40	40	40	40	80	40	40
Velocity (ft/s)	nsl	0.08	0.13	0.17	0.28	Na	0.3	0.28	0.25	0.35	0.27	0.1	0.16	0.11	0.22	0.23

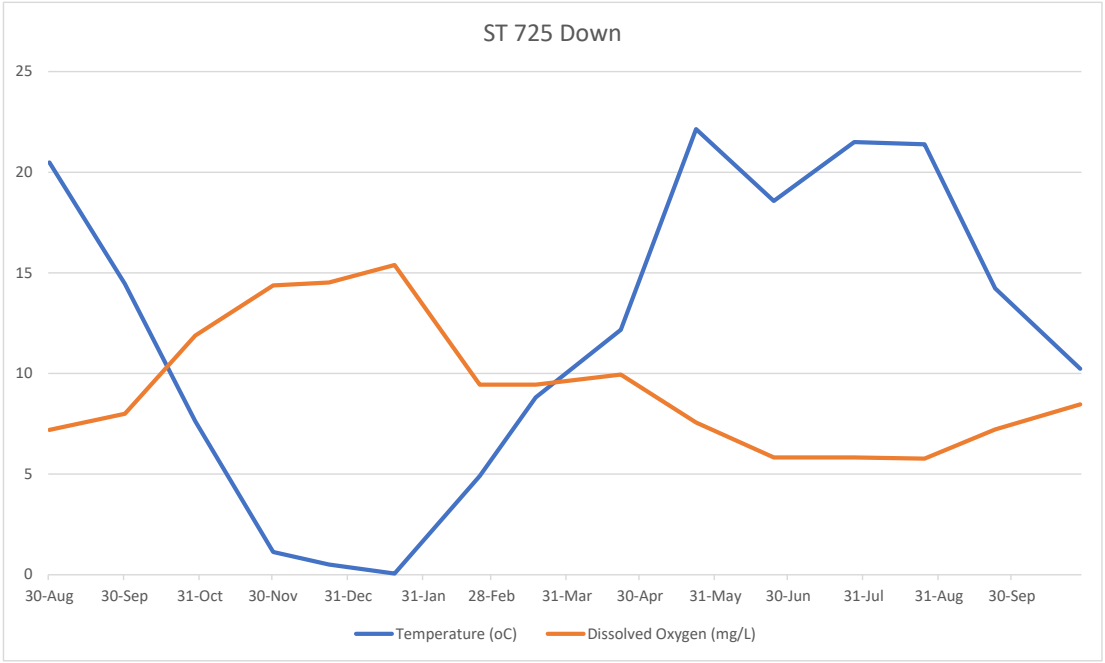


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 747 UP**														
Brook/Stream/Tributary	Conditions	Wash Brook Tributary														
Plan #	for	PLAN 67														
Direction of Flow	Cold	south														
Type	Water	intermittent														
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**
Temperature (°C)	< 20	19.39	13.34	7.72	1.94	0.32	0.83	5.04	8.81	12.86	19.02	16.01	dry	dry	dry	9.6
Specific Conductance (µS/cm @ 25°C)	150-500	524	418	379	451	377	530	774	626	798	826	832	dry	dry	dry	627
Specific Conductance (µS/cm)	150-500	468	325	254	252	200	286	473	432	612	730	689	dry	dry	dry	451
Dissolved Oxygen (%)	nsl	91	86	89	92	107	97	73.5	79.6	80.5	72.5	67	dry	dry	dry	54.2
Dissolved Oxygen (mg/L)	> 6	8.32	9.02	10.57	12.66	15.15	13.77	9.33	9.23	8.5	7.49	6.6	dry	dry	dry	5.87
pH	6.5-8.3	7.2	7.0	6.6	7.2	7.2	7.4	7.15	7.55	7.5	7.4	6.8	dry	dry	dry	6.8
ORP	nsl	58	60	80	59	76	-15	124	98	92	101	Ns	dry	dry	dry	102
Turbidity (NTU)	free from turbidity that would impair fish habitat	0.72	1.15	1.88	1.69	1.58	2.17	3.32	1.28	1.29	2.6	2.42	dry	dry	dry	1.67
Alkalinity	< 300	80	40	40	100	0	0	100	100	100	100	100	dry	dry	dry	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	dry	dry	dry	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	dry	dry	dry	0
Hardness	nsl	100	100	100	40	20	40	40	40	40	40	40	dry	dry	dry	40
Velocity (ft/s)	nsl	0.24	0.23	0.35	0.33	Na	0.1	0.36	0.43	0.55	0.19	0.03	dry	dry	dry	0.14

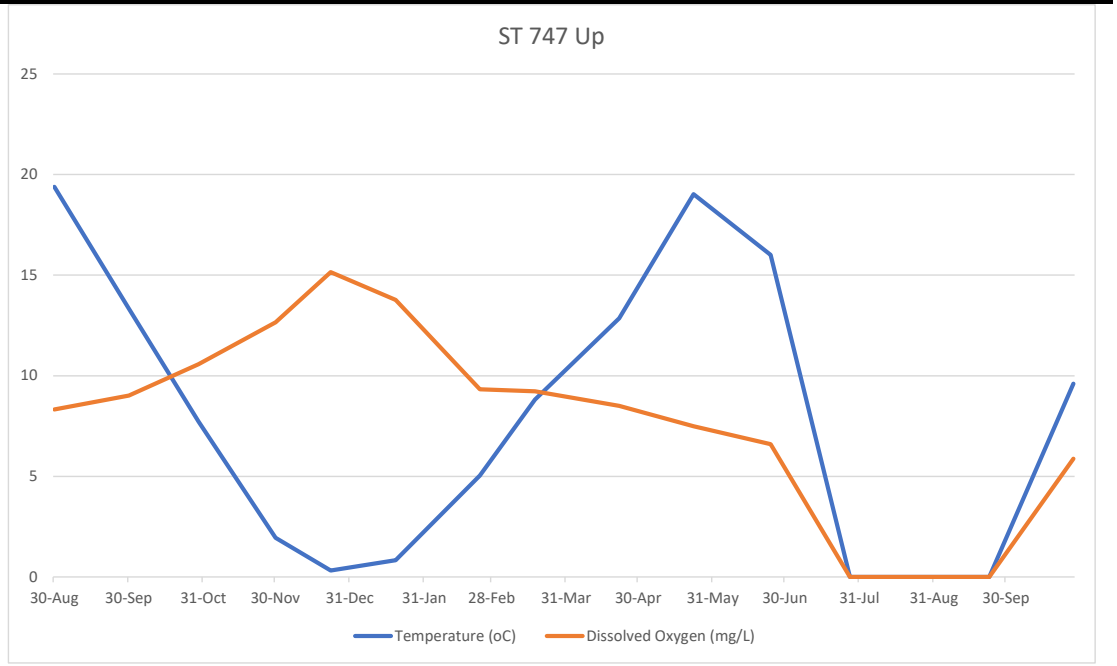
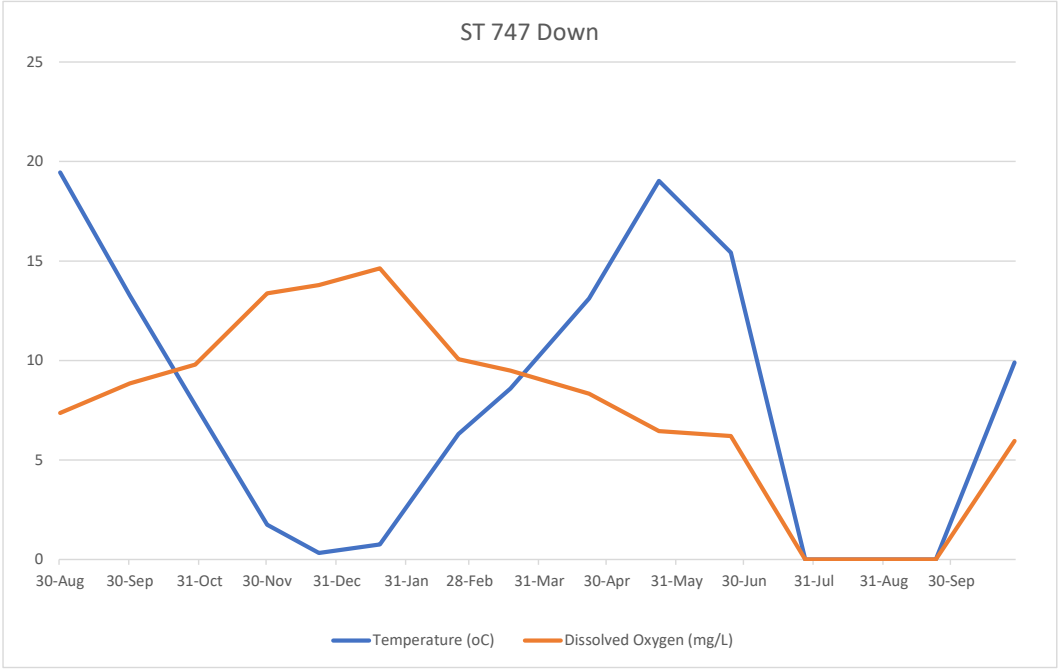


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 747 DOWN**														
Brook/Stream/Tributary	Conditions	Wash Brook Tributary														
Plan #	for	PLAN 67														
Direction of Flow	Cold	south														
Type	Water	intermittent														
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**
Temperature (°C)	< 20	19.45	13.26	7.76	1.75	0.33	0.76	6.31	8.59	13.12	19.03	15.42	dry	dry	dry	9.9
Specific Conductance (µS/cm @ 25°C)	150-500	495	451	382	453	403	532	803	643	795	875	836	dry	dry	dry	647
Specific Conductance (µS/cm)	150-500	443	350	256	252	213	285	516	441	614	775	683	dry	dry	dry	460
Dissolved Oxygen (%)	nsl	80	85	82	96	95	103	81.8	81.6	79.5	69.8	62.3	dry	dry	dry	53
Dissolved Oxygen (mg/L)	> 6	7.36	8.85	9.79	13.37	13.79	14.63	10.06	9.49	8.33	6.45	6.2	dry	dry	dry	5.96
pH	6.5-8.3	7.0	6.8	6.5	7.3	7.1	7.8	7.07	7.77	7.55	7.58	6.8	dry	dry	dry	6.7
ORP	nsl	73	75	84	57	82	21	25.5	106	94	91.1	Ns	dry	dry	dry	100
Turbidity (NTU)	free from turbidity that would impair fish habitat	0.79	1.87	1.81	1.82	1.77	2.27	2.21	1.56	1.11	2.9	1.92	dry	dry	dry	1.9
Alkalinity	< 300	80	40	40	100	0	0	0	100	100	100	100	dry	dry	dry	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	dry	dry	dry	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	dry	dry	dry	0
Hardness	nsl	100	100	100	40	40	40	0	40	40	40	40	dry	dry	dry	40
Velocity (ft/s)	nsl	0.07	0.1	0.2	0.17	Na	0.06	0.39	0.31	0.46	0.22	0.06	dry	dry	dry	0.13



APPENDIX C

Field Logs

	Summary of Field Monitoring (pg 1/3)									
	Jun-22									
Stream Point ID	**Station Number**	**Weather**	**AirTemp**	**Technician**	**Date**	**Upgradient or Downgradient**	**Flow Appearance**	**Flow_Odor**	**Location**	**Sampling Site**
ST 400 down	Hop brook	sunny	73	ALH	6/24/2022	Downgradient	clear	none	From Bridge	Open Channel
ST 400 up	Hop Brook	sunny	72	ALH	6/24/2022	Upgradient	clear	none	From Bridge	Open Channel
ST 527 down	Unnamed	sunny	72	ALH	6/24/2022	Downgradient	light_tea	none	From Headwall	Open Channel
ST 527 up	Unnamed	sunny	72	ALH	6/24/2022	Upgradient	clear	none	From Headwall	Open Channel
ST 540 down	Dudley Brook	sunny	72	ALH	6/24/2022	Downgradient	clear	none	From Headwall	Open Channel
ST 540 up	Dudley brook	sunny	72	ALH	6/24/2022	Upgradient	cloudy_milky	none	From Headwall	Open Channel
ST 561 down	Unnamed	sunny	70	ALH	6/24/2022	Downgradient	dark_tea	none	From Bank	Open Channel
ST 561 up	Unnamed	sunny	70	ALH	6/24/2022	Upgradient	dark_tea	none	From Headwall	Open Channel
ST 593 down	Unnamed	sunny	70	ALH	6/24/2022	Downgradient	Ns	Ns	Ns	Ns
ST 593 up	Unnamed	sunny	70	ALH	6/24/2022	Upgradient	Ns	Ns	Ns	Ns
ST 700 up	Hop Brook tributary	sunny	70	ALH	6/24/2022	Upgradient	cloudy_milky	sewage	From Headwall	Open Channel
ST 710 down	Hop brook tributary	sunny	70	ALH	6/24/2022	Downgradient	cloudy_milky	sewage	From Headwall	Open Channel
ST 725 Up	Hop Brook	sunny	69	ALH	6/24/2022	Upgradient	cloudy_milky	none	From Bridge	Open Channel
ST 725-D	Hop Brook	sunny	69	ALH	6/24/2022	Downgradient	cloudy_milky	none	From Bridge	Open Channel
ST 747 Down	Wash brook tributary	sunny	67	ALH	6/24/2022	Downgradient	clear	none	From Bank	Open Channel
ST 747-U	Wash brook tributary	sunny	67	ALH	6/24/2022	Upgradient	clear	none	From Bank	Open Channel

	Summary of Field Monitoring (pg2/3)							
	Jun-22							
Stream Point ID	**Signs of Flow**	**Floatables**	**Condition of Bottom**	**Survey Comments**	**Water Temperature**	**Specific Conductance µS/cm @ 25 Degrees**	**Specific Conductance µS/cm**	**Dissolved Oxygen %**
ST 400 down	Present-Fast	None	sandy	slow flowing	21.14	777	718	90
ST 400 up	Present-Fast	None	sandy	flowing	21.27	771	716	90.5
ST 527 down	Present-Slow	None	not_visible	slow flow	14.88	579	467	61.8
ST 527 up	Present-Slow	None	mud_clay	slow flow	15.18	563	458	63.6
ST 540 down	Present-Fast	None	not_visible	flowing	17.43	654	559	57
ST 540 up	Present-Slow	Debris_buildup,Iron_Bacteria	not_visible	flowing	17.54	630	540	53
ST 561 down	Not Seen	None	mud_clay	flowing culvert	Ns	Ns	Ns	Ns
ST 561 up	Not Seen	None	mud_clay	flowing	Ns	Ns	Ns	Ns
ST 593 down		Ns	Ns	dry	Ns	Ns	Ns	Ns
ST 593 up		Ns	Ns	dry	Ns	Ns	Ns	Ns
ST 700 up	Not Seen	Debris_buildup,Floating_Solids,Trash	not_visible	slightly stagnant, algae	Ns	Ns	Ns	Ns
ST 710 down	Not Seen	Trash,Iron_Bacteria,Floating_Solids	not_visible	stagnant	Ns	Ns	Ns	Ns
ST 725 Up	Present-Slow	Trash,Iron_Bacteria,Floating_Solids,Debris_buildup	not_visible	<Null>	18.63	750	659	68.9
ST 725-D	Present-Slow	None	not_visible	bridge impedes flow	18.57	767	673	62.4
ST 747 Down	Present-Slow	Iron_Bacteria	mud_clay	<Null>	15.42	836	683	62.3
ST 747-U	Present-Slow	None	mud_clay	<Null>	16.01	832	689	67

	Summary of Field Monitoring (pg 3/3)								
	Jun-22								
Stream Point ID	**Dissolved Oxygen mg/L**	**pH**	**ORP**	**Turbidity (NTU)**	**Hardness**	**Chlorine_Free**	**Chlorine_Total**	**Alkalinity**	**Velocity (ft/s)**
ST 400 down	7.98	7.73	60	3.25	100	0	0	40	0.3
ST 400 up	8	7.42	73	3.64	100	0	0	40	0.32
ST 527 down	6.23	6.78	116	0.64	100	0	0	0	0.06
ST 527 up	6.38	6.8	Ns	0.76	100	0	0	0	0.09
ST 540 down	5.51	7.11	88	2.56	100	0	0	40	0.57
ST 540 up	5.07	7.2	94	2.48	100	0	0	40	0.25
ST 561 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 561 up	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 593 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 593 up	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 700 up	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 710 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 725 Up	6.43	6.8	Ns	4.59	100	0	0	40	0.06
ST 725-D	5.83	6.8	Ns	1.52	100	0	0	40	0.1
ST 747 Down	6.2	6.8	Ns	1.92	100	0	0	40	0.06
ST 747-U	6.6	6.8	Ns	2.42	100	0	0	40	0.03

	Summary of Field Monitoring (pg 1/3)									
	Jul-22									
Stream Point ID	**Station Number**	**Weather**	**AirTemp**	**Technician**	**Date**	**Upgradient or Downgradient**	**Flow Appearance**	**Flow_Odor**	**Location**	**Sampling Site**
ST 400 down	Hop brook	sunny	85	ALH	7/27/2022	Downgradient	clear	none	From Bridge	Open Channel
ST 400 up	Hop Brook	sunny	85	ALH	7/27/2022	Upgradient	clear	none	From Bridge	Open Channel
ST 527 down	Unnamed	sunny	85	ALH	7/27/2022	Downgradient	dry	none	From Headwall	Open Channel
ST 527 up	Unnamed	sunny	85	ALH	7/27/2022	Upgradient	dry	none	From Headwall	Open Channel
ST 540 down	Dudley Brook	sunny	85	ALH	7/27/2022	Downgradient	clear	none	From Headwall	Open Channel
ST 540 up	Dudley brook	sunny	85	ALH	7/27/2022	Upgradient	dark_tea	none	From Headwall	Open Channel
ST 561 down	Unnamed	sunny	85	ALH	7/27/2022	Downgradient	dry	none	From Bank	Open Channel
ST 561 up	Unnamed	sunny	85	ALH	7/27/2022	Upgradient	dry	none	From Headwall	Open Channel
ST 593 down	Unnamed	sunny	85	ALH	7/27/2022	Downgradient	dry	Ns	Ns	Ns
ST 593 up	Unnamed	sunny	85	ALH	7/27/2022	Upgradient	dry	Ns	Ns	Ns
ST 700 up	Hop Brook tributary	sunny	85	ALH	7/27/2022	Upgradient	dry	sewage	From Headwall	Open Channel
ST 710 down	Hop brook tributary	sunny	85	ALH	7/27/2022	Downgradient	dry	sewage	From Headwall	Open Channel
ST 725 Up	Hop Brook	sunny	85	ALH	7/27/2022	Upgradient	cloudy_milky	none	From Bridge	Open Channel
ST 725-D	Hop Brook	sunny	85	ALH	7/27/2022	Downgradient	cloudy_milky	none	From Bridge	Open Channel
ST 747 Down	Wash brook tributary	sunny	85	ALH	7/27/2022	Downgradient	dry	none	From Bank	Open Channel
ST 747-U	Wash brook tributary	sunny	85	ALH	7/27/2022	Upgradient	dry	none	From Bank	Open Channel

	Summary of Field Monitoring (pg2/3)							
	Jul-22							
Stream Point ID	**Signs of Flow**	**Floatables**	**Condition of Bottom**	**Survey Comments**	**Water Temperature**	**Specific Conductance µS/cm @ 25 Degrees**	**Specific Conductance µS/cm**	**Dissolved Oxygen %**
ST 400 down	Present-Slow	None	sandy		26.18	788	805	77.5
ST 400 up	Present-Slow	None	sandy		26.25	787	806	84.1
ST 527 down	Not Seen	None	Ns	dry	Ns	Ns	Ns	Ns
ST 527 up	Not Seen	None	Ns	dry	Ns	Ns	Ns	Ns
ST 540 down	Present-Fast	foam	gravel		21.97	591	556	55.2
ST 540 up	Present-Slow	Debris_buildup,Iron_Bacteria	not_visible		21.73	609	561	58.3
ST 561 down	Not Seen	None	mud_clay	dry	Ns	Ns	Ns	Ns
ST 561 up	Not Seen	None	mud_clay	dry	Ns	Ns	Ns	Ns
ST 593 down	Not Seen	None	Ns	dry	Ns	Ns	Ns	Ns
ST 593 up	Not Seen	None	Ns	dry	Ns	Ns	Ns	Ns
ST 700 up	Not Seen	None	Ns	dry	Ns	Ns	Ns	Ns
ST 710 down	Not Seen	None	Ns	dry	Ns	Ns	Ns	Ns
ST 725 Up	Present-Slow	Trash,Iron_Bacteria,Floating_Solids,Debris_buildup	not_visible	lots of painted turtles	21.51	777	725	67.6
ST 725-D	Present-Slow	None	not_visible	water level down	21.5	816	760	65.1
ST 747 Down	Not Seen	None	mud_clay	dry	Ns	Ns	Ns	Ns
ST 747-U	Not Seen	None	mud_clay	dry	Ns	Ns	Ns	Ns

	Summary of Field Monitoring (pg 3/3)								
	Jul-22								
Stream Point ID	**Dissolved Oxygen mg/L**	**pH**	**ORP**	**Turbidity (NTU)**	**Hardness**	**Chlorine_Free**	**Chlorine_Total**	**Alkalinity**	**Velocity (ft/s)**
ST 400 down	6.24	7	50	1.5	100	0	0	40	0.17
ST 400 up	6.78	7	60	1.69	100	0	0	40	0.14
ST 527 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 527 up	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 540 down	4.82	7.2	100	3.4	100	0	0	40	0.26
ST 540 up	5.12	6.8	100	3.29	100	0	0	40	1.09
ST 561 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 561 up	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 593 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 593 up	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 700 up	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 710 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 725 Up	5.93	7.63	134	2.42	100	0	0	40	0.1
ST 725-D	5.83	7.61	140.3	2.3	100	0	0	40	0.16
ST 747 Down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 747-U	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns

Summary of Field Monitoring (pg 1/3)										
	Aug-22									
Stream Point ID	**Station Number**	**Weather**	**AirTemp**	**Technician**	**Date**	**Upgradient or Downgradient**	**Flow Appearance**	**Flow_Odor**	**Location**	**Sampling Site**
ST 400 down	Hop brook	sunny	72	ALH	8/25/2022	Downgradient	clear	none	From Bridge	Open Channel
ST 400 up	Hop Brook	sunny	72	ALH	8/25/2022	Upgradient	clear	none	From Bridge	Open Channel
ST 527 down	Unnamed	sunny	72	ALH	8/25/2022	Downgradient	dry	Ns	Ns	Ns
ST 527 up	Unnamed	sunny	72	ALH	8/25/2022	Upgradient	dry	Ns	Ns	Ns
ST 540 down	Dudley Brook	sunny	72	ALH	8/25/2022	Downgradient	light_tea	none	From Bank	Open Channel
ST 540 up	Dudley brook	sunny	72	ALH	8/25/2022	Upgradient	light_tea	none	From Headwall	Open Channel
ST 561 down	Unnamed	sunny	72	ALH	8/25/2022	Downgradient	dry	Ns	Ns	Ns
ST 561 up	Unnamed	sunny	72	ALH	8/25/2022	Upgradient	dry	Ns	Ns	Ns
ST 593 down	Unnamed	sunny	72	ALH	8/25/2022	Downgradient	dry	Ns	Ns	Ns
ST 593 up	Unnamed	sunny	72	ALH	8/25/2022	Upgradient	dry	Ns	Ns	Ns
ST 700 up	Hop Brook tributary	sunny	72	ALH	8/25/2022	Upgradient	dry	Ns	Ns	Ns
ST 710 down	Hop brook tributary	sunny	72	ALH	8/25/2022	Downgradient	dry	Ns	Ns	Ns
ST 725 Up	Hop Brook	sunny	72	ALH	8/25/2022	Upgradient	cloudy_milky	none	From Bridge	Open Channel
ST 725-D	Hop Brook	sunny	72	ALH	8/25/2022	Downgradient	cloudy_milky	none	From Bridge	Open Channel
ST 747-D	Wash brook tributary	sunny	72	ALH	8/25/2022	Downgradient	dry	Ns	Ns	Ns
ST 747-U	Wash brook tributary	sunny	72	ALH	8/25/2022	Upgradient	dry	Ns	Ns	Ns

Summ	Summary of Field Monitoring (pg2/3)							
	Aug-22							
Stream Point ID	**Signs of Flow**	**Floatables**	**Condition of Bottom**	**Survey Comments**	**Water Temperature**	**Specific Conductance µS/cm @ 25 Degrees**	**Specific Conductance µS/cm**	**Dissolved Oxygen %**
ST 400 down	Present-Fast	None	sandy	<Null>	22.59	877	834	63.6
ST 400 up	Present-Fast	None	sandy	<Null>	22.64	852	813	62.8
ST 527 down	Not Seen	None	Ns	dry	Ns	Ns	Ns	Ns
ST 527 up	Not Seen	None	Ns	dry	Ns	Ns	Ns	Ns
ST 540 down	Present-Slow	None	gravel	<Null>	20.6	895	820	57.1
ST 540 up	Present-Slow	Debris_buildup	mud_clay	<Null>	20.7	890	805	57.8
ST 561 down	Not Seen	None	mud_clay	dry	Ns	Ns	Ns	Ns
ST 561 up	Not Seen	None	mud_clay	dry	Ns	Ns	Ns	Ns
ST 593 down	Not Seen	None	Ns	dry	Ns	Ns	Ns	Ns
ST 593 up	Not Seen	None	Ns	dry	Ns	Ns	Ns	Ns
ST 700 up	Not Seen	None	Ns	dry	Ns	Ns	Ns	Ns
ST 710 down	Not Seen	None	Ns	dry	Ns	Ns	Ns	Ns
ST 725 Up	Present-Slow	None	not_visible	apping and painted turtl	21.36	807	750	67.3
ST 725-D	Present-Slow	Debris_buildup,Floating_Solids,Trash	not_visible	apping and painted turtl	21.39	788	733	65.2
ST 747-D	Not Seen	None	mud_clay	dry	Ns	Ns	Ns	Ns
ST 747-U	Not Seen	None	mud_clay	dry	Ns	Ns	Ns	Ns

Summ	Summary of Field Monitoring (pg 3/3)								
	Aug-22								
Stream Point ID	**Dissolved Oxygen mg/L**	**pH**	**ORP**	**Turbidity (NTU)**	**Hardness**	**Chlorine_Free**	**Chlorine_Total**	**Alkalinity**	**Velocity (ft/s)**
ST 400 down	5.49	7.85	75	2.63	100	0	0	80	0.34
ST 400 up	5.4	7.79	73	2.6	100	0	0	80	0.29
ST 527 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 527 up	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 540 down	4.92	7	78	3.61	100	0	0	40	0.26
ST 540 up	4.77	7	80	4.2	100	0	0	40	0.19
ST 561 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 561 up	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 593 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 593 up	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 700 up	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 710 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 725 Up	5.95	7.2	100	3.52	100	0	0	80	0.18
ST 725-D	5.77	7.25	110	3.89	100	0	0	80	0.11
ST 747-D	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 747-U	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns

Summary of Field Monitoring (pg 1/3)										
	Sep-22									
Stream Point ID	**Station Number**	**Weather**	**AirTemp**	**Technician**	**Date**	**Upgradient or Downgradient**	**Flow Appearance**	**Flow_Odor**	**Location**	**Sampling Site**
ST 400 up	Hop Brook	sunny	60	ALH	9/23/2022	Upgradient	clear	none	From Bridge	Open Channel
ST 400 down	Hop brook	sunny	60	ALH	9/23/2022	Downgradient	clear	none	From Bridge	Open Channel
ST 527 up	Unnamed	sunny	60	ALH	9/23/2022	Upgradient	light_tea	none	From Headwall	Open Channel
ST 527 down	Unnamed	sunny	60	ALH	9/23/2022	Downgradient	light_tea	none	From Headwall	Open Channel
ST 540 up	Dudley brook	sunny	60	ALH	9/23/2022	Upgradient	dark_tea	none	From Headwall	Open Channel
ST 540 down	Dudley Brook	sunny	60	ALH	9/23/2022	Downgradient	clear	none	From Headwall	Open Channel
ST 561 up	Unnamed	sunny	60	ALH	9/23/2022	Upgradient	dry	Ns	Ns	Ns
ST 561 down	Unnamed	sunny	60	ALH	9/23/2022	Downgradient	dry	Ns	Ns	Ns
ST 593 up	Unnamed	sunny	60	ALH	9/23/2022	Upgradient	dry	Ns	Ns	Ns
ST 593 down	Unnamed	sunny	60	ALH	9/23/2022	Downgradient	dry	Ns	Ns	Ns
ST 700 up	Hop Brook tributary	sunny	60	ALH	9/23/2022	Upgradient	cloudy_milky	none	From Headwall	Open Channel
ST 710 down	Hop brook tributary	sunny	60	ALH	9/23/2022	Downgradient	light_tea	none	From Headwall	Open Channel
ST 725 Up	Hop Brook	sunny	60	ALH	9/23/2022	Upgradient	light_tea	none	From Bridge	Open Channel
ST 725-D	Hop Brook	sunny	60	ALH	9/23/2022	Downgradient	light_tea	none	From Bridge	Open Channel
ST 747-U	Wash brook tributary	sunny	60	ALH	9/23/2022	Upgradient	clear	none	From Bank	Braided
ST-747-D	Wash brook tributary	sunny	60	ALH	9/23/2022	Downgradient	clear	none	From Bank	Braided

Summ	Summary of Field Monitoring (pg2/3)							
	Sep-22							
Stream Point ID	**Signs of Flow**	**Floatables**	**Condition of Bottom**	**Survey Comments**	**Water Temperature**	**Specific Conductance µS/cm @ 25 Degrees**	**Specific Conductance µS/cm**	**Dissolved Oxygen %**
ST 400 up	Present-Fast	None	sandy	<Null>	16.06	666	552	73.6
ST 400 down	Present-Fast	None	sandy	<Null>	16.04	681	564	74.1
ST 527 up	Present-Slow	None	mud_clay	<Null>	13.4	587	493	71.2
ST 527 down	Present-Slow	None	mud_clay	<Null>	13.56	560	479	67.9
ST 540 up	Not Seen	Debris_buildup,Floating_Solids	not_visible	is blocking culvert. Flow	13.9	701	625	67
ST 540 down	Present-Fast	None	gravel	<Null>	13.8	677	569	67.3
ST 561 up	Not Seen	None	mud_clay	dry	Ns	Ns	Ns	Ns
ST 561 down	Not Seen	None	mud_clay	dry	Ns	Ns	Ns	Ns
ST 593 up	Not Seen	None	Ns	dry	Ns	Ns	Ns	Ns
ST 593 down	Not Seen	None	Ns	dry	Ns	Ns	Ns	Ns
ST 700 up	Not Seen	Trash,Iron_Bacteria,Debris_buildup	not_visible	No flow out of outlet	13.88	946	728	48.9
ST 710 down	Present-Slow	None	mud_clay	<Null>	13.94	878	677	53.5
ST 725 Up	Present-Slow	Trash,Debris_buildup,Floating_Solids	not_visible	<Null>	14.26	658	523	69.9
ST 725-D	Present-Slow	None	mud_clay	<Null>	14.23	681	541	70.6
ST 747-U	Not Seen	None	sandy	lot enough flow to sampl	Ns	Ns	Ns	Ns
ST-747-D	Not Seen	None	sandy	lot enough flow to sampl	Ns	Ns	Ns	Ns

Summ	Summary of Field Monitoring (pg 3/3)								
	Sep-22								
Stream Point ID	**Dissolved Oxygen mg/L**	**pH**	**ORP**	**Turbidity (NTU)**	**Hardness**	**Chlorine_Free**	**Chlorine_Total**	**Alkalinity**	**Velocity (ft/s)**
ST 400 up	7.23	7.78	85	1.6	100	0	0	40	0.59
ST 400 down	7.3	7.68	86.2	1.3	100	0	0	40	0.56
ST 527 up	7.03	7.2	90	1.97	100	0	0	40	0.14
ST 527 down	6.89	7.2	80	1.89	100	0	0	40	0.12
ST 540 up	6.92	7.2	135	2.66	100	0	0	40	0.26
ST 540 down	7.2	7	130	2.07	100	0	0	40	0.51
ST 561 up	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 561 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 593 up	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 593 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 700 up	4.6	7.6	105	3.7	100	0	0	40	0.02
ST 710 down	5.61	7.54	110	3.65	100	0	0	40	0.06
ST 725 Up	7.15	6.8	140	2.29	100	0	0	40	0.2
ST 725-D	7.22	6.8	120	1.92	100	0	0	40	0.22
ST 747-U	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST-747-D	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns

Summary of Field Monitoring (pg 1/3)										
	Oct-22									
Stream Point ID	**Station Number**	**Weather**	**AirTemp**	**Technician**	**Date**	**Upgradient or Downgradient**	**Flow Appearance**	**Flow_Odor**	**Location**	**Sampling Site**
ST 400 up	Hop Brook	vercast_cloud	55	ALH	10/28/2022	Upgradient	clear	none	From Bridge	Open Channel
ST 400 down	Hop brook	vercast_cloud	55	ALH	10/28/2022	Downgradient	clear	none	From Bridge	Open Channel
ST 527 up	Unnamed	vercast_cloud	55	ALH	10/28/2022	Upgradient	dark_tea	none	From Headwall	Open Channel
ST 527 down	Unnamed	vercast_cloud	55	ALH	10/28/2022	Downgradient	dark_tea	none	From Headwall	Open Channel
ST 540 up	Dudley brook	vercast_cloud	55	ALH	10/28/2022	Upgradient	light_tea	none	From Headwall	Open Channel
ST 540 down	Dudley Brook	vercast_cloud	55	ALH	10/28/2022	Downgradient	light_tea	none	From Headwall	Open Channel
ST 561 up	Unnamed	vercast_cloud	55	ALH	10/28/2022	Upgradient	dry	Ns	Ns	Ns
ST 561 down	Unnamed	vercast_cloud	55	ALH	10/28/2022	Downgradient	dry	Ns	Ns	Ns
ST 593 up	Unnamed	vercast_cloud	55	ALH	10/28/2022	Upgradient	dry	Ns	Ns	Ns
ST 593 down	Unnamed	vercast_cloud	55	ALH	10/28/2022	Downgradient	dry	Ns	Ns	Ns
ST 700 up	Hop Brook tributary	vercast_cloud	55	ALH	10/28/2022	Upgradient	cloudy_milky	none	From Headwall	Open Channel
ST 710 down	Hop brook tributary	vercast_cloud	55	ALH	10/28/2022	Downgradient	cloudy_milky	none	From Headwall	Open Channel
ST 725 Up	Hop Brook	vercast_cloud	55	ALH	10/28/2022	Upgradient	light_tea	none	From Bridge	Open Channel
ST 725-D	Hop Brook	vercast_cloud	55	ALH	10/28/2022	Downgradient	light_tea	none	From Bridge	Open Channel
ST 747-U	Wash brook tributary	vercast_cloud	55	ALH	10/28/2022	Upgradient	clear	none	From Bank	Open Channel
ST-747-D	Wash brook tributary	vercast_cloud	55	ALH	10/28/2022	Downgradient	clear	none	From Bank	Open Channel

Summ	Summary of Field Monitoring (pg2/3)							
	Oct-22							
Stream Point ID	**Signs of Flow**	**Floatables**	**Condition of Bottom**	**Survey Comments**	**Water Temperature**	**Specific Conductance µS/cm @ 25 Degrees**	**Specific Conductance µS/cm**	**Dissolved Oxygen %**
ST 400 up	Present-Slow	None	sandy	<Null>	11.38	598	442	78.8
ST 400 down	Present-Slow	None	not_visible	<Null>	11.39	604	447	79.9
ST 527 up	Present-Slow	Iron_Bacteria,Debris_buildup,Floating_Solids	not_visible	<Null>	8.75	474	327	44.3
ST 527 down	Present-Slow	None	not_visible	<Null>	8.84	482	323	39.4
ST 540 up	Present-Fast	Debris_buildup,Floating_Solids	not_visible	<Null>	9.67	654	378	34.8
ST 540 down	Present-Fast	None	not_visible	<Null>	9.73	558	395	36.3
ST 561 up	Not Seen	None	mud_clay	dry	Ns	Ns	Ns	Ns
ST 561 down	Not Seen	None	mud_clay	dry	Ns	Ns	Ns	Ns
ST 593 up	Not Seen	None	Ns	dry	Ns	Ns	Ns	Ns
ST 593 down	Not Seen	None	Ns	dry	Ns	Ns	Ns	Ns
ST 700 up	Not Seen	Bacteria,Floating_Solids,Debris_buildup,Oil_S	not_visible	<Null>	11.4	900	750	46.8
ST 710 down	Not Seen	Debris_buildup	not_visible	<Null>	11.35	1260	867	24.3
ST 725 Up	Present-Slow	Trash,Floating_Solids,Debris_buildup	not_visible	<Null>	10.28	650	475	74.6
ST 725-D	Present-Slow	None	not_visible	<Null>	10.24	650	467	75.6
ST 747-U	Present-Slow	None	sandy	<Null>	9.6	627	451	54.2
ST-747-D	Present-Slow	None	sandy	<Null>	9.9	647	460	53

Summ	Summary of Field Monitoring (pg 3/3)								
	Oct-22								
Stream Point ID	**Dissolved Oxygen mg/L**	**pH**	**ORP**	**Turbidity (NTU)**	**Hardness**	**Chlorine_Free**	**Chlorine_Total**	**Alkalinity**	**Velocity (ft/s)**
ST 400 up	8.6	6.8	109	2.7	100	0	0	40	0.36
ST 400 down	8.68	6.8	140	2.74	100	0	0	40	0.4
ST 527 up	5.13	6.8	98	1.77	100	0	0	0	0.13
ST 527 down	4.57	6.8	90	1.24	100	0	0	0	0.09
ST 540 up	3.93	6.6	68	4.5	100	0	0	40	0.26
ST 540 down	4.11	6.5	87	2.25	100	0	0	40	0.43
ST 561 up	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 561 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 593 up	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 593 down	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
ST 700 up	4.57	6.7	82	5.1	100	0	0	40	0.03
ST 710 down	2.8	6.76	72.7	4.58	100	0	0	40	0.04
ST 725 Up	8.32	6.8	127	2.44	100	0	0	40	0.27
ST 725-D	8.47	6.8	120	2.3	100	0	0	40	0.23
ST 747-U	5.87	6.8	102	1.67	100	0	0	40	0.14
ST-747-D	5.96	6.7	100	1.9	100	0	0	40	0.13