CN Milton Logistics Hub: Annual Results for the Surface Water Quality and Quantity Follow-Up Program – Construction 2022

Final Report

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Acronyms / Abbreviations

ALS	ALS Global in Burlington, ON
BV	Bureau Veritas Laboratories in Mississauga, ON
CALA	Canadian Association for Laboratory Accreditation
CCME	Canadian Council of Ministers of the Environment
CFU	Coliform forming units
CH	Conservation Halton
CN	Canadian National Railway Company
CTA	Canadian Transportation Agency
CWQG-FAL	Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life
DFO	Department of Fisheries and Oceans
DQO	Data Quality Objective
ECCC	Environment and Climate Change Canada
EIS	Environmental Impact Statement
ESC	Erosion and Sediment Control
FUP	Follow-up Program
IAAC	Impact Assessment Agency of Canada
IC	Indian Creek
IR	Information Request
MECP	Ministry of Environment, Conservation, and Parks (previously Ministry of the Environment and Climate Change, MOECC)
NTU	Nephelometric Turbidity Units
PDA	Project Development Area
RPD	Relative Percent Difference
SWMP	Storm Water Management Pond
SWQQ	Surface Water Quality and Quantity
Trib A	Tributary A

1 Introduction

Stantec Consulting Ltd. (Stantec) has been retained by the Canadian National Railway Company (CN) to conduct a surface water quality and quantity (SWQQ) follow-up program (FUP) for the Milton Logistics Hub (the Project) in the Town of Milton, within the Regional Municipality of Halton (Halton Region), Ontario.

This report documents the implementation of the SWQQ FUP (Stantec 2022) for the Project during the 2022 construction period.

1.1 Program Design Considerations

The SWQQ FUP was implemented during 2022 for the construction phase of the Project to verify the accuracy of the environmental assessment and determine the effectiveness of proposed mitigation measures. As described in the SWQQ FUP (Stantec 2022), the program was developed in accordance with the information outlined in Condition 2.6 of the Minister of the Environment's Decision Statement issued January 21, 2021 and amended July 16, 2022.

The program consists of two components:

1. Monitoring of surface water quantity and quality within Tributary A and Indian Creek during construction and for at least 5 years of operation to verify the effects predicted in the Environmental Impact Statement (EIS) and to confirm the effectiveness of mitigation (Condition 5.10).

2. Monitoring of surface water effluent quantity and quality at the stormwater management ponds (SWMPs) during construction and operation to monitor the effectiveness of stormwater management infrastructure in improving runoff quality and to assess potential water quality changes within Tributary A and Indian Creek (Condition 5.9).

For the 2022 program period, the 2nd component did not apply as the SWMPs were not yet active and discharging to the environment.

1.2 Activities Undertaken During Reporting Year

Project construction commenced on January 24, 2022, with Phase One activities. In the first quarter of the year (Q1), CN undertook site preparation activities, such as surveying, delineating construction site boundaries, and installing site fencing; installation of monitoring equipment; placement of stakes/demarcation materials for site safety; clearing and grubbing of vegetated areas; access road and laydown area construction; and the installation of construction site offices and other components.

In Q2, site activities included the excavation of SWMP 2; preparation of the enhancement areas accessible during this time of year; continued excavation work; removal of CN-owned buildings; initiation of grading activities on the realignment of Indian Creek and Tributary A; and work on access roads, including the installation of a temporary bridge (access road) over Indian Creek.

Following the fisheries in-water works restricted timing window (March 15 to June 30), CN commenced construction of the portion of the Tributary A realignment channel within the existing agricultural pond and continued with construction of the associated Tributary A habitat structures and offline portions of culvert 2A and 2B. Other activities in Q3 included site grading activities; continued construction of SWMP 2, including the outlet structure, and initiation of SWMP 1 construction; site grading and earth moving activities; continued offline construction of the Indian Creek realignment channel and associated habitat structures; and the construction of an interim noise berm along Lower Base Line and the eastern property boundary near lay down area 1. An unforeseen construction activity requirement in 2022 was the removal of a beaver dam in Q3 on Indian Creek downstream of where the realignment channel will rejoin the existing channel.

Finally, in Q4, CN connected the new realigned portion of Tributary A, as well as culvert 2B and the downstream portion of culvert 2A, to the existing Tributary A. Other activities included realignment of the SunCanadian pipeline; removal of the temporary bridge over Indian Creek; completion of in-water and bank enhancements along Indian Creek; continued offline construction of the Indian Creek realignment channel and associated habitat structures; initiation of the realignment of the existing mainline, including grading and drainage; and completion of site stabilization measures in preparation for the winter period.

1.3 Report Summary

This report summarizes the results of the SWQQ FUP for 2022, which represents year 1 of the construction phase of the Project.

Beginning in January 2022, turbidity monitoring consisted of comprehensive turbidity readings two to three times per week. Continuous and monthly SWQQ field monitoring activities were also initiated. Turbidity monitoring was completed at four stations, representing inflow to and outflow from the project development area (PDA) on Tributary A and Indian Creek. Turbidity exceedances related to Project construction activities were observed for 3 of 124 monitoring events in Tributary A and 18 of 124 monitoring events Indian Creek. The SWQQ FUP action plan was implemented for each of the exceedance events attributable to the Project, including implementation of corrective actions, such as additional ESC measures, repairs and maintenance, which were effective in addressing sediment loading to the water bodies. The additional ESC measures implemented for a beaver dam removal in Indian Creek took a couple of weeks to establish (e.g., erosion control matting, seeding, live staking), while responses to other exceedance events were effective immediately or within one to two days. The beaver dam removal was an unforeseen requirement for the Project in 2022. Investigation of other turbidity exceedance events in Tributary A and Indian Creek determined non-Project related activities were the cause (e.g., failed existing agricultural pond outlet structures, fish and wildlife activity, beaver dam area).

Monthly *in situ* and laboratory analysis surface water quality monitoring results from five stations on Tributary A and Indian Creek representing PDA inflow and outflow were compliant with threshold criteria. The monitoring results for the list of agriculture related contaminant parameters originally specific to the first six months of construction confirmed there were no project-related water quality issues. Following the October 2022 monitoring event ECCC approved the discontinuation of monitoring for most of the agriculture related parameters. ECCC did not authorize discontinuation of monitoring of the pesticide chlorpyrifos and monitoring of this parameter was continued to be monitored during the November and December 2022 events.

Surface water quantity monitoring was undertaken using continuous water levels through the use of Leveloggers® and rating curves developed using manual flow measurements and water depths at five stations on Tributary A and Indian Creek. These represented PDA inflow and outflow to estimate continuous flows. Based on the number of manual flow measurements at stations in 2021 and 2022, preliminary ice-free rating curves were developed for the inflow sites Trib-Ain2 and IC-in on Tributary A and Indian Creek, respectively, and the Tributary A PDA outflow site Trib-Aout. The removal of the beaver dam approximately 200 m upstream from the Indian Creek outflow site

(IC-out) in July 2022, changed the flow regime and there were not sufficient ice-free manual flow measurements following its removal to develop a new rating curve.

Estimated ice-free condition flows at Trib-Ain2, Trib-Aout and IC-out recorded two higher flow events in the spring of 2022 associated with precipitation events that exceeded the top of bank flow condition. These flow events were visually observed during construction turbidity and monthly monitoring events as flows that exceeded top of bank elevation and had flow within the channel floodplain. The rating curves used to estimate flows have higher levels of uncertainty representing flows within the floodplain. When peak flows were observed there were no Project construction activities within Tributary A and Indian Creek, and the flood events are not attributable to Project. Following the peak flow events in 2022, monitored flows matched expected localized changes in drainage patterns within the PDA, and no changes to existing hydrologic flows, including flood and environmental flows within the PDA and downstream of the Project resulted.

Manual flow measurements will continue to be conducted in 2023 to further develop and improve station rating curves, particularly for high flow events.

2 Methods

2.1 Locations

In accordance with Condition 5.10.3, SWQQ are monitored at five monitoring locations installed during pre-construction (prior to January 2022) where:

- Flows enter (Trib-Ain, Trib-Ain2) and exit (Trib-Aout) the PDA along Tributary A
  - Trib-Ain, is located on the south side of Britannia Road where the PDA entrance will be located
  - Trib-Ain2 is located where Tributary A enters the PDA at the mainline crossing, 213 m downstream of Britannia Road and after Tributary A runs approximately 2.3 km outside the PDA
- Flows enter (IC-in) and exit (IC-out) the PDA along Indian Creek

Monitoring locations Trib-Aout and IC-out are located at the downstream extents of the PDA for Tributary A and Indian Creek, respectively.

The outlets of the two stormwater management ponds were not monitored in 2022 as they were not operational (SWMP-O1 and SWMP-O2). Monitoring locations are presented on Figure A.1.A (Appendix A.1).

2.2 Water Quality

There are two components to the water quality monitoring program:

- *In situ* turbidity monitoring
- Monthly and high flow upset condition water quality monitoring with composite surface water samples and *in situ* water quality measurements

Monitoring activities are not conducted during frozen/dry water conditions or unsafe conditions.

As determined in the SWQQ FUP, water quality measurements are compared against the following criteria:

- The Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CWQG-FAL)
- The baseline and predicted water quality information as identified in the EIS and EIS Information Request (IR) responses

- Water quality concentrations at PDA inflow stations (Trib-Ain and Trib-Ain2 for Tributary A, and IC-in for Indian Creek)

2.2.1 Construction Turbidity

Turbidity is monitored at four main monitoring stations with two on Tributary A at the PDA inflow (Trib-Ain2) and outflow (Trib-Aout) (Appendix A.1, Figure A.1.A). The other two stations are on Indian Creek representing inflow to the PDA (IC-in) and outflow (IC-out). Turbidity monitoring occurs 2 to 3 times per week and daily turbidity monitoring is conducted during periods of construction dewatering and when erosion and sediment (ESC) measures are discharging.

Turbidity monitoring is conducted using a HACH 2100Q portable Turbidimeter measuring in nephelometric turbidity units (NTU). Frequent turbidity monitoring documents changes in turbidity from upstream of the PDA (inflow conditions) and at the PDA downstream outflow stations throughout the construction process. Turbidity measurements at the inflow and outflow sites are compared to the CWQG-FAL as illustrated in Table 2-1.

Table 2-1: Daily Turbidity Monitoring Guidelines

Parameter	Unit	CWQG-FAL Guideline
Turbidity	NTU	Clear flow – Short Term; Maximum increase of 8 NTUs from background levels for a short-term exposure (e.g., 24-h period).
		High flow or turbid waters; Maximum increase of 8 NTUs from background levels at any one time when background levels are between 8 and 80 NTUs. Should not increase more than 10% of background levels when background is >80 NTUs.

If no flow is observed at the time of turbidity monitoring at the stations upstream of the PDA (e.g., intermittent Tributary A), the observed conditions are documented within the environmental monitoring field notes. To assess background turbidity levels during periods of dry upstream (background) conditions when downstream flows occurred, a background value of 0 NTUs is assumed.

If there is an exceedance in turbidity, a duplicate measurement is immediately taken to confirm the exceedance. If the result is confirmed, CN applies implements corrective action measures as per Section 4.4.1.2 of the SWQQ FUP (Stantec 2022).

2.2.2 Monthly Monitoring

During construction, composite surface water samples are collected and *in situ* water quality measurements conducted on a monthly basis and during high flow conditions at the five operational monitoring locations identified in Section 2.1.

High flow events are defined as a 35 mm rainfall or greater amount over a 1 to 12-hour period. Two forecasting tools are used to identify a potential high flow event to be monitored: Environment and Climate Change Canada Toronto International Airport forecast (https://weather.gc.ca/city/pages/on-143_metric_e.html) and the Ontario Ministry of Natural Resources and Forestry Flood Forecasting and Warning Program (https://www.gisapplication.lrc.gov.on.ca/webapps/flood/).

Water quality samples are collected and submitted for analysis at an accredited laboratory and then compared to the CWQG-FAL, baseline and predicted concentrations. The routine monitoring water quality parameters and associated criteria are presented in Table 2-2, which is Table 4-1 in the SWQQ FUP (Stantec 2022). In addition to the metal and metalloid parameters in Table 2-3, dissolved and total metals parameters are analyzed for each water quality sample. The metals and metalloid parameter results that are not listed in Table 2-3 do not have threshold criteria and are compared to CWQG-FAL values and assessed in this FUP annual report with respect to general water quality conditions in Tributary A and Indian Creek.

Table 2-2: Routine Water Quality Parameters and Threshold Criteria – Construction & Operation

Parameters[1]	Units	Threshold 1 Trigger [2,]	Threshold 1 Trigger [2]		Predicted	Threshold 1 Trigger [2]	95th Percentile Baseline [3]	
			CWQG-FAL Guidelines					
		Detection Limit (DL)	Short Term	Long Term	Annual Average Pond Effluent Concentration	Pond Effluent Concentration	Tributary A (TRIB A Baseline Monitoring Station at downstream extent of PDA)	Indian Creek (Average of Baseline Monitoring Stations IC2 and IC3)
MONITORED PARAMETERS WITH THRESHOLDS[1]								
Non-grouped parameters								
Total Phosphorus	mg/L	0.004	-	Narrative [c]	0.07 – 0.11	0.14	0.20	0.17
Dissolved Chloride (Cl)	mg/L	1	640	120	-	-	161	145
Total Suspended Solids	mg/L	1	-	Narrative [a]	1.30 – 3.76	4.70	34.6	44.1
Dissolved Oxygen	mg/L	0.05	-	Narrative [d]	-	-	11.2 [d]	15.2 [d]
Metals								
Total Chromium (Cr)	ug/L	5	-	Narrative [b]	0.11 – 1.72	2.15	5.74	4.24
Total Copper (Cu)	ug/L	1	-	4	0.95 – 29.90	37.38	6.19	7.63
Total Iron (Fe)	ug/L	100	-	300	133.0 – 4,008.7	5,010.88	4,145	3,413
Total Lead (Pb)	ug/L	0.50	-	7	0.35 – 5.20	6.50	1.89	2.18
Total Zinc (Zn)	ug/L	5	-	30	0.87 – 58.5	73.13	19.0	25.0
Hydrocarbons								

Table 2-2: Routine Water Quality Parameters and Threshold Criteria – Construction & Operation

Parameters[1]	Units	Threshold 1 Trigger [2,]	Threshold 1 Trigger [2] CWQG-FAL Guidelines		Predicted	Threshold 1 Trigger [2]	95th Percentile Baseline [3]	
		Detection Limit (DL)	Short Term	Long Term	Annual Average Pond Effluent Concentration	Pond Effluent Concentration	Tributary A (TRIB A Baseline Monitoring Station at downstream extent of PDA)	Indian Creek (Average of Baseline Monitoring Stations IC2 and IC3)
MONITORED PARAMETERS WITH THRESHOLDS[1]								
Benzene	ug/L	0.2	-	370	-	-	-	-
Toluene	ug/L	0.2	-	2	-	-	-	-
Ethylbenzene	ug/L	0.2	-	90	-	-	-	-
Total Petroleum Hydrocarbons*	mg/L	-	-	-	3.40 – 3.94	4.93	-	-
MONITORED PARAMETERS WITHOUT THRESHOLDS[1]								
Non-grouped parameters								
Phenols	ug/L	1	-	-	-	-	-	-
Temperature	°C	-5	-	-	-	-	23.2	26.0
Hydrocarbons								
Total Oil and Grease	ug/L	500	-	-	-	-	-	-
Xylenes	ug/L	0.4	-	-	-	-	-	-
Total Petroleum Hydrocarbons*	mg/L	-	-	-	3.40 – 3.94	4.93	-	-

Table 2-2: Routine Water Quality Parameters and Threshold Criteria – Construction & Operation

Parameters[1]	Units	Threshold 1 Trigger [2,]	Threshold 1 Trigger [2] CWQG-FAL Guidelines		Predicted	Threshold 1 Trigger [2]	95th Percentile Baseline [3]	
		Detection Limit (DL)	Short Term	Long Term	Annual Average Pond Effluent Concentration	Pond Effluent Concentration	Tributary A (TRIB A Baseline Monitoring Station at downstream extent of PDA)	Indian Creek (Average of Baseline Monitoring Stations IC2 and IC3)
MONITORED PARAMETERS WITH THRESHOLDS[1]								
Fraction 1 (C6 – C10)	ug/L	25	-	-	-	-	-	-
Fraction 2 (C10 – C16)	ug/L	100	-	-	-	-	-	-
Fraction 3 (C16 – C34)	ug/L	200	-	-	-	-	-	-

"-" = No standard/guideline, or value for this parameter
[1] = Only parameters with regulatory or predicted thresholds will be used as trigger parameters
[2] = Threshold 1 for stormwater pond effluent is defined as: A. Predicted effluent concentration range parameter – Four consecutive monthly parameter concentration exceedances 25% above the maximum predicted annual average pond effluent range and five-times the detection limit. B. No predicted effluent concentration range parameter – Four consecutive monthly parameter concentration values at or above the respective CWQG-FAL or five-times the detection limit (DL).
[3] = Threshold 1 for Tributary A and Indian Creek watercourse sites is defined as four consecutive monthly parameter concentration exceedances above the 95th percentile baseline concentration or five-times the DL. These threshold criteria apply when the inflow concentration (as measured at the upstream monitoring stations) does not exceed this threshold at a given monitoring station. Except for dissolved oxygen, which will apply the CWQG-FAL guideline value (Note d).
* = a modified total petroleum hydrocarbon value to be calculated per CCME procedures for CCME petroleum hydrocarbon standards
[a] narrative = Total suspended solids – "clear flow: Maximum increase of 25 mg/L from background levels for any short-term exposure (e.g., 24-h period). Maximum average increase of 5 mg/L from background levels for longer term exposures (e.g., inputs lasting between 24 h and 30 d)."
[b] narrative = Chromium, hexavalent (Cr(VI)) = 1 ug/L; Chromium, trivalent (Cr(III)) = 8.9 ug/L; Chromium, total = no standard/guideline
[c] narrative = Range for Total Phosphorus (mg/L) (see Guidance Framework for Phosphorus factsheet): hyper-eutrophic >0.1; Tributary A and Indian Creek 95th percentile baseline TP concentrations are both classified as hyper-eutrophic.
[d] Indian Creek and Tributary A are both warmwater waterbodies. Narrative = Lowest acceptable DO concentrations for the protection of freshwater organisms; 6 mg/L or greater for early life stages of warmwater species, 5.5 mg/L or greater for other life stages of warmwater species. The threshold trigger value will be 6 mg/L or less for pond effluent, Tributary A and Indian Creek.

As per the SWQQ FUP (Stantec 2022), commitments were determined to include monthly reporting of select short-term water quality parameters, based on potential residual agricultural contaminants to ECCC, DFO and CH (Table 2-3**).**

Table 2-3: Select Short and Long-Term Water Quality Parameters

Parameters	Units	Detection Limit (DL)	CWQG-FAL Guidelines	
			Short Term	Long Term
Ammonia (total)	ug/L	10	-	Narrative [a]
Ammonia (unionized)	ug/L	-	-	19
Nitrate	ug/L	100	550,000	13,000
Nitrite	ug/L	10	-	197
Coliform, total	CFU/100mL	0	-	-
E. coli	CFU/100mL	0	-	-
Pesticides				
Organophosphate Package				
Metolachlor	ug/L	5	-	-
Fenchlorphos (Ronnel)	ug/L	2	-	-
Mevinphos	ug/L	2	-	-
Trifluralin	ug/L	0.05	ND	0.2
Phosmet	ug/L	2	-	-
Dichlorvos	ug/L	2	-	-
Dimethoate	ug/L	2	ND	6.2
Fonofos	ug/L	2	-	-
Triallate	ug/L	0.05	ND	0.24
Demeton-S	ug/L	2	-	-
Atrazine	ug/L	1	ND	1.8
Diazinon	ug/L	2	-	-
Malathion	ug/L	2	-	-
Parathion Ethyl	ug/L	2	-	-
Parathion Methyl	ug/L	2	-	-
Simazine	ug/L	2	ND	10
Aldicarb	ug/L	0.1	ND	1
Bendiocarb	ug/L	2	-	-
Carbaryl	ug/L	0.1	3.3	0.2

Table 2-3: Select Short and Long-Term Water Quality Parameters

Parameters	Units	Detection Limit (DL)	CWQG-FAL Guidelines	
			Short Term	Long Term
Carbofuran	ug/L	0.1	ND	1.8
Cyanazine (Bladex)	ug/L	0.1	ND	2
Prometryne	ug/L	1	-	-
Chlorpyrifos (Dursban)	ug/L	2	-	-
Terbufos	ug/L	1	-	-
Phorate	ug/L	1	-	-
Guthion (Azinophos-methyl)	ug/L	1	-	-
Ethion	ug/L	1	-	-
Fenthion	ug/L	1	-	-
Herbicides				
Dicamba	ug/L	0.5	ND	10
Picloram	ug/L	0.5	ND	29
MCPB	ug/L	0.5	-	-
2,4-D(BEE)	ug/L	0.5	-	-
MCPP	ug/L	0.5	-	-
MCPA	ug/L	0.5	ND	2.6
2,4-DP (Dichloroprop)	ug/L	0.5	-	-
2,4-D	ug/L	0.5	ND	4
2,4,5-TP (Silvex)	ug/L	0.5	-	-
2,4,5-T	ug/L	0.5	-	-
2,4-DB	ug/L	0.5	-	-

ND – no data; NLR – no longer recommended as water quality guideline as exposure predominantly via sediment, soil and/or tissue
[a] – Guideline for total ammonia is temperature and pH dependent. Measurements of total ammonia in the aquatic environment are often expressed as mg/L total ammonia-N. The present guideline values (mg/L NH_3) can be converted to mg/L total ammonia-N by multiplying the corresponding guideline value by 0.8224. Consult the CWQG-FAL factsheet for more details.

2.2.2.1 Field Monitoring Methods

Stantec collected monthly water quality samples at the five hydrometric stations using autosamplers. At each station, an ISCO 6712 portable autosampler collects 1L or 2L of sample water using a peristaltic pump. The autosamplers deposits the sampled water 1L bottles at 15-minute intervals for a 2.5 – 3-hour period. 2 L samples are collected for each time interval for sites with duplicate samples. Following the collection period, the individual bottles are composited in a clean stainless-steel pail, mixed and transferred to laboratory provided sample bottles.

Following each monitoring event, water samples are submitted to labs accredited by the Canadian Association for Laboratory Accreditation (CALA). Two laboratories are employed for this assessment: Bureau Veritas Laboratories in Mississauga, ON (BV) and ALS Global in Burlington, ON (ALS) for analysis.

In situ surface water quality measurements are taken with a calibrated YSI ProDSS multi-parameter digital water quality meter at each station. The *in situ* water quality measurement parameters include water temperature, pH, electrical conductivity, dissolved oxygen concentration and total dissolved solids. These were collected according to laboratory requirements for *in situ* parameter records and CCME Protocols Manual for Water Quality Sampling in Canada (2011). Solinst Leveloggers® are installed at each hydrometric station and collect water temperature measurements every 15 minutes to support continuous water level monitoring. These parameters were also applied for the determination of derived water quality parameters requiring field constituent concentrations, such as un-ionized ammonia.

Field sampling involved the following general steps:

- Field verification of water quality sampling locations
- Measurement of *in situ* water quality parameters using a multiparameter water quality meter
- Completion of the field data sheet, including visual observations at the time of analytical sample collection
- Shipping of water samples to the accredited laboratory/laboratories with storage at 4°C until analysis

Field monitoring quality assurance and quality control (QA/QC) included the following measures:

- Calibration of the multi-parameter digital water quality meter with certified standard solutions per manufacturer maintenance manual guidance

- Use of pre-cleaned and pre-labeled bottles and nitrile gloves for sample collection to minimize cross-contamination
- Monitoring conducted by trained and experienced sampling technician team, consisting of at least two persons
- Preservation of water samples on site with preservatives provided by the laboratory
- Submission of samples that required filtration (e.g., dissolved metals, dissolved organic carbon) to the laboratory within recommended hold times to allow for laboratory filtration.
- Routine random duplicate samples representing a minimum of 10% of the samples collected
- Completion of primary Chain of Custody form, with secondary review by alternate sampling technician
- Follow appropriate shipping protocols to maintain integrity of the samples received at the lab

Field duplicates are collected to determine field precision by measuring the difference between the collected field data and its field duplicate using relative percent difference (RPD) calculations. The data quality objective (DQO) for field precision is met when the RPD is within 20% for concentrations at least five times above the analytical detection limit. This RPD value is in line with recommendations by the Ontario Ministry of the Environment Protocol for Analytical Methods (2011).

2.2.2.2 Laboratory Methods

The primary CALA certified laboratory that analysed water quality samples in 2022 for the parameters in Table 2-2 and 2-3 was BV Laboratories. In July 2022, it was identified by ECCC that the reportable detection limit for the pesticide chlorpyrifos was above the CWQG-FAL value. Beginning in August 2022, additional water quality samples were collected and submitted to ALS for low-level concentration analysis of chlorpyrifos. Due to the low detection limit and potential for matrix interference causing false concentrations above the detection limit when analysing chlorpyrifos, field blank and additional duplicate samples were collected to provide supplemental data.

Based on the results for residual agricultural contaminants (Table 2-3) in the PDA for over six months of construction, CN submitted a request to ECCC on Nov 23, 2022 for the discontinuation of the following parameters for subsequent monthly events:

- Nitrogen compounds (total and un-ionized ammonia, nitrate and nitrite)
- Coliforms (total and *E. coli*)
- Herbicides and pesticides (except Chlorpyrifos)

The request was accepted on December 5, 2022, by ECCC.

Laboratory quality control programs included analysis of certified reference materials, laboratory control samples, laboratory duplicates, method blanks and matrix spikes to determine accuracy and precision of instrumentation and methods. Data reports submitted by ALS and BV were reviewed upon receipt. In instances where method recovery was not accurately calculated due to matrix interferences, detection limits were adjusted to prevent influence on analytical results.

2.3 Water Quantity

During construction, water quantity is monitored at five hydrometric monitoring stations (Trib-Ain, Trib-Ain2, Trib-Aout, IC-in and IC-out) by measuring water levels, channel velocity, depth and flow. The flow rates are estimated using a combination of periodic *in situ* channel velocity, depth and flow profiling measurements, supported by continuous water level monitoring.

At each hydrometric station, Solinst Leveloggers® are installed in stilling wells to dampen the effects of waves and turbulence in watercourses. The Leveloggers® are programed to monitor water level and temperature on a continuous basis collecting measurements at a 15-minute frequency starting at the top of the hour. The stilling wells are installed with the bottom of the ABS pipe below the channel bed, and below the channel thalweg (deepest point) if feasible, to allow the Leveloggers® to remain submerged during low flow conditions. The Leveloggers® are winterized using the manufacturer recommended method to prevent damage to the sensor during ice forming conditions. At Trib-Aout a Solinst Barologger® is deployed collecting atmospheric pressure and temperature measurements at a 15-minute frequency.

In situ water level and velocity measurements are collected monthly at the hydrometric monitoring stations to calculate the flow at each station. Velocity measurements are taken using a portable flow meter, SonTek FlowTracker2. Stream transects are divided into a number of manageable subsections (minimum of ten) and the velocity is measured at the depth that corresponds to 60% of the water depth when the water depth is less than 0.75 m. When total depths exceeded 0.75 m, flow measurements are taken at 20% and 80% of the water depth. The measured velocity at each section and corresponding water depths are used to estimate the total stream flow using the Mid-Section Method recommended and used by the Water Survey of Canada (Environment Canada 1999). Similarly, methods outlined by Pelletier (1990) are used for under-ice measurements during winter monitoring, when safe to do so. The Water Survey of Canada Measuring Discharge with FlowTracker Acoustic Doppler Velocimeters (2015) guidance for standard field procedures, including under-ice measurements, is also used for manual flow measurements.

The criteria threshold for water quantity as defined in the SWQQ FUP (2022) as a 25% exceedance of the range of variability predicted in the EIS (Table 2-4). A 25% variance above the predicted range is included in the threshold definition to account for seasonality and inter-event natural variation within the system.

Table 2-4: Range of Flow Variability Observed at Indian Creek and Tributary A and their Monitoring Criteria Thresholds

Watercourse (station)	Range of flow variability observed during baseline monitoring from June 2015 – June 2016	Criteria thresholds of 25% exceedance of the range of variability
Tributary A (Trib-Aout)	0 m^3/s (dry) to 0.36 m^3/s	0 m^3/s (dry) to 0.45 m^3/s
Indian Creek (IC-out)	0.004 m^3/s to 6.7m^3/s	0.003 m^3/s to 8.38 m^3/s

3 Results

3.1 Water Quality

3.1.1 Construction Turbidity

Table C.1.1 in Appendix C.1.1 presents the construction turbidity monitoring results at the Indian Creek inflow (IC-in) and outflow (IC-out), and Tributary A inflow (Trib-Ain2) and outflow (Trib-Aout) monitoring stations for the active construction PDA. Observed exceedances based on criteria (Table 2-1) and summaries of response investigations with supplemental monitoring and corrective action measures implemented are also summarized in Table C.1.1 (Appendix C.1.1). In 2022, there were no construction activities within the PDA downstream of Trib-Ain (Figure A.1.A, Appendix A.1), so no PDA inflow and outflow construction turbidity monitoring was conducted in this section of Tributary A. Photos of watercourse conditions for select construction monitoring events are presented in the Photolog (Appendix B).

Turbidity monitoring occurred two to three times per week from February 22, 2022, to December 22, 2022. Turbidity monitoring did not occur prior to February 22, 2022 as Tributary A and Indian Creek were frozen and not receiving surface water runoff from the PDA. On June 13, 2022, Tributary A was observed to have no outflow from the site, and no turbidity monitoring was conducted until August 24, 2022 following several precipitation events occurring between August 17 and 23, 2022. Turbidity monitoring stopped on Tributary A from September 7, 2022 until September 7, 2022 until December 2, 2022 in Tributary A due to no flow conditions. Consistent flows occurred again on December 19 until December 22, 2022, when turbidity monitoring was completed for the year.

Tributary A was monitored for 124 events, including observations of dry/no flow or frozen conditions and 24 turbidity criteria exceedances were observed. Indian Creek was monitored for 124 events and 48 turbidity criteria exceedances were observed at the Project outlet sites.

Each of these exceedances at the Tributary A and Indian Creek PDA outlet sites triggered supplemental monitoring to identify the potential source of the sediment loading, including activities and/or sources not related to the Project, but within the PDA, and potential implementation of corrective action measures. Investigations to identify potential sources of sediment loading included the addition of supplemental monitoring sites incorporated into the monitoring program for Tributary A and Indian Creek for different time periods (Table C.1.1, Appendix C.1).

Tributary A had one supplemental monitoring site added to the monitoring program that was actively monitored from March 24, 2022, to May 30, 2022 (Figure A.1.B, Appendix A.1). During this monitoring period, it was observed that an existing agricultural pond with a failed existing outlet structure and exposed embankments was causing sediment loading to Tributary A from localized erosion that was not related to Project activities. Tributary A upstream (u/s) Farm Pond (FP) was added to represent surface water quality flowing into the agricultural pond area prior to Trib-Aout, which was located downstream of construction activities within the Tributary A drainage area. Monitoring was discontinued at the supplemental Tributary A u/s FP station due to dry/ no flow conditions occurring beginning in June 2022. The Tributary A u/s FP station was removed from the program in the fall of 2022 when the progression of construction activities on the Tributary A realignment extended to downstream of the station.

With the addition of a supplemental monitoring station on Tributary A (Tributary A u/s FP), it was identified that 3 of the 24 exceedance events were associated with Project activities (Table 3-1). The remaining 21 exceedance events were associated with the existing agricultural pond prior to Project construction activities occurring within its footprint, which included eroded berms and a failed outlet structure.

Table 3-1 2022 Tributary A Turbidity Criteria Exceedance Results Associated with Project Activities and Responses

Date	Tributary A Monitoring Station Turbidity Results (NTU)			Construction Activity & Visual Observations	Response
	Trib-Ain2	Trib A u/s FP	Trib-A out		
Mar 24, 2022	269.00	-	435.00	**Precipitation and Runoff event -** Elevated turbidity levels could not be linked to a specific construction activity	Silt fencing to isolate disturbed soil was installed to mitigate silt-laden water from entering Tributary A
May 5, 2022	45.20	47.7	82.9	**Storm Event –** Sediment laden construction water from Tributary A realignment work had back flowed through constructed rock check dam into the existing Tributary A.	Replaced existing permeable rock check dam with impermeable earth berm and stabilized disturbed soils.
May 6, 2022	NTM	12.80	89.90		
May 9, 2022	3.42	3.15	9.56		

Note:
BOLD – exceedance of Table 2-1 criteria
NTM – No turbidity monitoring

Indian Creek had two supplemental monitoring sites, IC u/s Beaver Dam and IC Midpoint, that were added to the monitoring program (Figure A.1.B, Appendix A.1). Beginning on May 26, 2022, a beaver dam approximately 200 m upstream of IC-out on Indian Creek present prior to January 17, 2022, was observed to be potentially contributing to sediment loading. IC u/s Beaver Dam was added to assess turbidity in Indian Creek downstream of PDA construction activities and prior to the beaver dam pond area. The beaver dam was removed from July 4 to July 12, 2022, and IC u/s Beaver Dam was maintained as a supplemental monitoring site to assess sediment loading associated with the beaver dam removal activities in the Indian Creek section downstream to IC-out.

IC Midpoint was added as a supplemental monitoring station to assess potential sediment loads from multiple concurrent construction activities taking place throughout the 1,670 m length of Indian Creek within the PDA. Readings taken at IC Midpoint helped to identify and isolate areas in which silt-laden discharge originating from upstream construction activities could be potentially identified.

With the addition of two supplemental monitoring stations on Indian Creek, it was identified that 18 of 48 exceedance events were associated with Project activities (Table 3-2). The other events were identified as exceedances due to the beaver dam pond area, and wildlife (e.g., carp in low water levels, waterfowl).

Table 3-2 2022 Indian Creek Turbidity Criteria Exceedance Results Associated with Project Activities and Responses

Date	Indian Creek Monitoring Station Turbidity Results (NTU)		Construction Activity & Visual Observations	Response
	IC-in	IC-out		
March 24, 2022	NTM	170.00	**Precipitation and Runoff event -** Elevated turbidity levels could not be linked to a specific construction activity.	Silt fencing to isolate disturbed soil was installed to mitigate silt-laden water from entering Indian Creek.
May 4, 2022	145	237	**Storm event -** Elevated turbidity levels could not be linked to a specific construction activity.	Silt fencing to isolate disturbed soil was installed to mitigate silt-laden water from entering Indian Creek.
May 5, 2022	61.00	66.20		
July 12, 2022	7.41	34.05	**Site Activities -** Elevated turbidity levels linked to exposed soil on the banks from which the beaver dam was removed.	Erosion control matting was used in efforts to stabilize the exposed banks at the removed beaver dam.
July 13, 2022	8.04	36.00		

Table 3-2 2022 Indian Creek Turbidity Criteria Exceedance Results Associated with Project Activities and Responses

Date	Indian Creek Monitoring Station Turbidity Results (NTU)		Construction Activity & Visual Observations	Response
	IC-in	IC-out		
July 14, 2022	8.63	34.08	**Site Activities -** Elevated turbidity levels linked to: • exposed soil on the banks from which the beaver dam was removed • sediment discharge from the temporary bridge	Erosion control matting was used in efforts to stabilize the exposed banks at the removed beaver dam. The bridge was swept of sediment and additional rubber mats were placed to close exposed gaps.
July 19, 2022	8.75	24.00	**Site Activities -** Elevated turbidity levels linked to exposed soil on the banks from which the beaver dam was removed.	Erosion control matting was used in efforts to stabilize the exposed banks at the removed beaver dam
Continued to August 9, 2022 (6 events)	4.11	23.00		
August 23, 2022	OVER RANGE	OVER RANGE	**Storm Event -** Samples had elevated results due to rainfall event from the previous day.	Onsite ESC was assessed for effectiveness and the contractor was informed of needed maintenance.
August 24, 2022	14.50	25.6		
September 1, 2022	9.28	22.0	**Site Activity -** Water level was low on both sampling dates but still flowing; there were ongoing de-watering activities along the creek that could be impacting turbidity; September 6 monitoring event observed high turbidity at IC Midpoint (**36.1** NTU)	Pumping activity was discontinued.
September 6, 2022	8.15	10.5		
September 7, 2022	10.70	OVER RANGE		
November 11, 2022	5.62	7.69	**Site Activity –** Monitoring at IC Midpoint observed value of criteria exceedance value of 17 NTU that was related to turbid runoff entering watercourse from temporary bridge.	For the ongoing work to continue Monday, Nov 14 at the Indian Creek Enhancement Area, Contractor was prompted to install the silt soxx and other ESC measures ahead of ground disturbance. Temporary bridge swept to reduce sediment runoff.

Note:
BOLD – exceedance of Table 2-1 criteria
NTM – No turbidity monitoring

3.1.2 Monthly Monitoring

Appendix C.1.2 Tables C.1.2.A to C.1.2.E present the field and laboratory surface water quality results, including duplicate (lab and field) and field blank sample results, with comparison to Table 2-2 and 2-3 threshold criteria and CWQG-FAL values. Table 2-3 parameter results (Table 4-2 parameters in the SWQQ FUP (Stantec 2022)) were reported via technical memoranda to ECCC, DFO and CH monthly from January 2022 to December 2022, and copies of the submissions are included in Appendix D.

Samples and *in situ* water quality measurements were collected on a monthly basis from January 2022 to December 2022 for a total of 12 monthly monitoring events. There were no forecasted precipitation events in 2022 that exceeded the SWQQ FUP threshold for monitoring a high flow event, so no additional flow-based monitoring was conducted. Flows were observed at the Indian Creek sites (IC-in and IC-out) for each of the 12 months and water quality samples and measurements were collected for each monthly monitoring event. Water quality samples and *in situ* measurements were not conducted at the Tributary A sites (Trib-Ain, Trib-Ain2 and Trib-Aout) for the June, July, September, October, November and December events due to no observed flow when monitoring occurred. Additionally, samples and measurements were not collected from Trib-Ain and Trib-Ain2 in January 2022. During this event, Trib-Ain was frozen solid, and Trib-Ain2 was frozen with pockets of water present, but no observed flow.

Table 3-3 presents the precipitation amounts for each of the monthly monitoring events using Toronto International Airport, ID 6158731, meteorological station precipitation data.

Table 3-3 Toronto International Airport Meteorological Station (ID 6158731) Daily Total Precipitation Amounts Preceding and During Sampling Events

Date	Total Precipitation (mm)		
	Preceding 48 hours	Preceding 24 hours	On Sample Date
January 27, 2022	0	trace	0.4
February 23, 2022	9.4	9.4	trace
February 24, 2022	9.4	trace	trace
March 24, 2022	20.4	20.4	trace
April 21, 2022	0.6	0	6.2
May 17, 2022	10.8	10.8	0
June 28, 2022	0.4	0	0
July 22, 2022	trace	0	0
August 24, 2022	12.2	0	0
August 25, 2022	0	0	5.8

Table 3-3 Toronto International Airport Meteorological Station (ID 6158731) Daily Total Precipitation Amounts Preceding and During Sampling Events

Date	Total Precipitation (mm)		
	Preceding 48 hours	Preceding 24 hours	On Sample Date
September 27, 2022	25.6	2.4	1.8
October 25, 2022	0	0	0
November 24, 2022	0	0	trace
December 13, 2022	5.2	0	0

Of the 12 sampling events, three would be considered as higher flow events, which were March 24, August 24/25 and September 27. Three days before the August sampling event, on August 21, an additional 13.2 mm of precipitation was recorded at the selected climate station. Understanding what monitoring events are associated with high flows assists with providing context for the results, particularly observed high parameter concentrations due to surface runoff events.

For the Tributary A and Indian Creek PDA outlet sites, Trib-Aout and IC-out respectively, the SWQQ FUP (Stantec 2022) defines an exceedance as either four consecutive samples with levels above the baseline 95% limit, or five times greater than the detection limit for the Table 2-2 and Table 2-3 parameters. The exceedance criteria only apply to the outlet sites (Trib-Aout; IC-out) when the inflow concentration as measured at the upstream monitoring stations do not exceed the 95% baseline threshold. The 2022 water quality FUP results found no exceedances of the threshold criteria of the Table 2-2 and Table 2-3 parameters.

The monthly monitoring program water quality results are discussed in detail below. Sampling results are discussed by monitoring locations, Trib-Aout and IC-out, in relation to parameter groupings found under Table 2-2 and Table 2-3. QA/QC comments and other parameter results are also discussed. Appendix C.1.2 contains the detailed surface water quality results table with duplicate sample results and the RPD between samples and duplicates.

3.1.2.1 Trib-Aout Table 2-2 and Table 2-3 Criteria Results

There were no water quality results at Trib-Aout that exceeded the baseline 95% limit, or were five times greater than the detection limit for the Table 2-2 and Table 2-3 parameters with threshold criteria for four consecutive monitoring events. There were no monthly water quality parameter exceedances above the trigger threshold in Tributary A due to the Project in 2022.

Table 2-2 includes a group of monitored parameters without thresholds, which includes temperature, phenol and several hydrocarbon parameters. For the August 2022 monitoring event, an *in situ* high temperature value (23.8ºC) was observed at Trib-Aout. The Leveloggers® deployed at the monitoring stations collected continuous water temperature data at 15-minute intervals with the 2022 results presented in Figures A.2.A to A.2.E, Appendix A. Figure A.1.C presents the Levelogger® results for Trib-Aout with higher temperature values between mid-May to September 2022. During this period, Trib-Aout was observed to have low flow or no flow conditions during turbidity and monthly monitoring events, so water temperature measurements were conducted in typically no flow conditions within the stilling well. High temperature values in early May observed at Trib-Aout were potentially due to the upstream agricultural pond with its failed outlet structure. Trib-Ain and Trib-Ain2 Levelogger® data do not observe temperature measurements even during no or low flow conditions above 23.2ºC.

Table 2-3 includes nitrogen compounds, fecal bacteria, and pesticides and herbicides for assessment. Trib-Aout had no exceedances for nitrogen compounds. No exceedances were observed in 2022 for the Table 2-3 pesticide and herbicide parameters, including chlorpyrifos, and, for parameters without CWQG-FAL guideline values, no values exceeded the reportable detection limits (Table C.1.2.E, Appendix B).

Total coliform and *E. coli* concentration results for the January, February and March events observed “no data due to overgrowth” at the three monitoring sites on Tributary A. Overgrowth results indicate the tray or filter had so many target indicator bacteria that the analyst was not able to determine a quantitative amount. Following the March monitoring event, water samples were diluted at 1:10 and 1:100 and total coliform and *E. coli* concentrations were quantified. Tributary A total coliform and *E. coli* concentrations for the April and May 2022 monitoring events were higher at the Trib-Ain and/or Trib-Ain2 sites in comparison to Trib-Aout.

3.1.2.2 IC-out Table 2-2 and Table 2-3 Criteria Results

There were no water quality results at IC-out that exceeded the baseline 95% limit, or were five times greater than the detection limit for the Table 2-2 and Table 2-3 parameters with threshold criteria for four consecutive monitoring events. There were no monthly water quality parameter exceedances above the trigger thresholds in Indian Creek due to the Project in 2022.

Table 2-2 provides guidance values with no threshold criteria for hydrocarbons which include benzene, toluene, ethylbenzene and total petroleum hydrocarbons. IC-out observed no elevated results for hydrocarbon parameters during the 2022 SWQQ FUP.

Water temperature is also a parameter with no threshold criteria (Table 2-2). Appendix A, Figure A.1.E presents water temperature Levelogger® data for IC-out. Higher temperature measurements were recorded for multiple instances during the summer months between May and August. These elevated values ranged from 26°C to a maximum of 29.3ºC. Higher water temperature events typically coincided with high temperature event observed at IC-in (Figure A.1.D, but with IC-out having slightly greater overall temperatures. In addition, prior to July 12, 2022, when it was removed, the beaver dam ponded area upstream of IC-out would have discharged potentially warmer water downstream to IC-out.

Table 2-3 summarizes select short term water quality parameters that were measured from January until October 2022. Following October 2022, only chlorpyrifos, a pesticide, continued to be monitored for the November and December events following ECCC approval to reduce parameter monitoring. Table 2-3 nitrogen compounds of interest include total and unionized ammonia, nitrate, and nitrite. No elevated levels for nitrogen compounds were observed at IC-out.

Total coliform and *E. coli* concentration results for the January, February and March events had "no data due to overgrowth" at the two monitoring sites on Indian Creek, except for the January 27, 2022, results for IC-in. Overgrowth results indicate the tray or filter had so many target indicator bacteria that the analyst was not able to determine a quantitative amount. Following the March monitoring event, water samples were diluted at 1:10 and 1:100 and total coliform and *E. coli* concentrations were quantified. Within Indian Creek, total coliform and *E. coli* concentrations for the remaining sampling events, *E. coli* counts were slightly higher at IC-out than IC-in, but within the same order of magnitude. From May until July 2022, immediately upstream of IC-out was an active beaver pond and lodge. The beavers would potentially contribute *E. coli* and total coliform to Indian Creek via their feces. *E. coli* counts peaked at IC-in and IC-out during the May 2022 monitoring event (410 and 590 coliform forming units (CFU)/100mL, respectively) and dropped to results ~300 CFU/100mL by September 2022. The October event had low *E. coli* counts for IC-in and IC-out (13 and 62 CFU/100mL, respectively).

Lastly, Table 2-3 included 28 pesticide and 11 herbicide parameters of interest. Indian Creek monitoring stations had no exceedances of the CWQG-FAL values during the study period with most results below the reportable detection limit, except low-level chlorpyrifos.

3.1.2.3 Results QA/QC

For the 2022 program, Trib-Aout had results for one field duplicate, and six lab replicates, for a total of six sampling events. Trib-Ain had one field duplicate and five lab replicates and Trib-Ain2 had four lab replicates, from a total of five sampling events. Thus, Tributary A had a total of two field duplicates.

For the Tributary A sites, a single field duplicate was collected from Trib-Ain in March 2022, and Trib-Aout in April 2022. The Trib-Ain March 2022 RPD values were below the set DQO (±20%), except for ammonia (as N) with an RPD of 34% indicating a potential sample integrity issue. The Trib-Aout April 2022 RPD values were below the DQO, except for laboratory turbidity with an RPD of 51% indicating a potential sample integrity issue. Five lab duplicates were analysed with no significant variation amongst samples. Four lab duplicates were analysed for Trib-Ain2 with no significant variation amongst samples.

IC-out had results for two field duplicate samples, two additional field duplicates for chlorpyrifos assessment, and 12 lab replicates from a total of 12 sampling events. IC-in had 15 lab replicates, four field duplicates, and four additional field duplicates for the ALS chlorpyrifos assessment from a total of 12 sampling events. Thus, Indian creek had a total of 12 field duplicates.

IC-in had a total of eight field duplicates collected. The results of the RPD assessment show that no results were greater than 20% different to the original field sample, except for one event. In May 2022, the field duplicate sample demonstrated RPD values of 104%, 99%, and 25%, for ammonia, un-ionized ammonia, and laboratory turbidity, respectively. The values of these three parameters for the original sample and the duplicate were below the Table 2-3 criteria values indicating high heterogeneity in the sample. Additionally, 15 lab duplicates were analysed for IC-in samples with no significant variation amongst samples.

A total of four field duplicates were collected from IC-out. The field duplicate from the September 2022 event had an RPD of 67% for TSS, indicating a potential sample integrity issue. A total of 12 lab replicates were also tested with no RPD values above 20%.

The field duplicate DQO results with infrequent (4 of 12 field duplicates) individual parameter values with high RPD values, indicate the QA/QC protocols for water sampling are adequate for the SWQQ FUP.

As previously discussed, following the July 2022 monitoring event, samples were submitted to ALS for lower limit chlorpyrifos assessment. The short-term and long-term CCME CWQG-FAL guideline values for chlorpyrifos are 0.02 and 0.002 µg/L, respectively. From August onwards, samples were only collected along Indian Creek due to no observed flows along Tributary A. The chlorpyrifos results for the IC-out samples, and their duplicates were below the reportable detection limits ranging from <0.000021 to <0.000060 µg/L. The chlorpyrifos detection limits varied at each site between the original samples and duplicates due to measured background noise. The chlorpyrifos concentrations at IC-in and IC-out were comparable and when measurable

concentrations were observed they were around the detection limit values (maximum 0.000016 µg/L at IC-in, September 27, 2022).

3.1.2.4 CWQG-FAL Comparison

Total and dissolved metals and metalloids packages were analysed at the laboratory for the monthly water quality samples as presented in Appendix C.1.2 Tables C.1.2.A to C.1.2.E. The metal and metalloid parameters were assessed in comparison to CWQG-FAL to provide additional information on general surface water quality within Tributary A and Indian Creek.

Tributary A inflow and outflow stations had total aluminum concentrations that exceeded the CWQG-FAL for most monitoring events. The Trib-Ain and Trib A-in2 values were similar to each other and were occasionally greater than the results of Trib-Aout, indicating that the Project did not have an adverse effect on this parameter. Trib-Aout also had elevated dissolved manganese concentrations for the January 2022 monitoring event. Trib-Ain had elevated dissolved manganese observed for the February 2022 monitoring event.

The Indian Creek inflow and outflow stations also had consistent and similar total aluminum concentrations exceeding the CWQG-FAL, indicating that the Project did not have an adverse effect on this parameter. During the April 2022 monitoring event, IC-in had slightly elevated field pH readings above the CWQG-FAL range.

The elevated aluminum concentration at Indian creek and Tributary A are consistent with the elevated results of the baseline water quality report results (Stantec 2015).

3.2 Water Quantity

Appendix A.3 presents hydrometric summary sheets for each station, including location, watershed characteristics and graphs of continuous and manual water levels, precipitation data, estimated continuous flow and manual flow measurement results. Appendix C.2 presents tabular results of daily average continuous water levels, estimated daily flows, and average manual water levels and flow measurements.

Table 3-6 presents the number of manual water level and flow measurements conducted in 2022 and observations with respect to conditions when no manual flow measurements were conducted (e.g., frozen, safe access, no observed flow). Tributary A monitoring stations only monitored one flow event between June and December 2022 in August 2022 with the other events having no observed flows.

Table 3-4: Manual Flow Measurements Summary

Watercourse (station)	# of manual water level and flow measurements 2022 (2021)	Data Collected	Observations
IC-in	11 (3)	Levelogger® continuous water level and water temperature, manual water levels and manual flows	Manual flow measurements were not able to be conducted in February 2022 due to safe access issues because of ice thickness and surface flows on top of ice. Flow with ice cover conditions was monitored for the January, November and December events.
IC-out (formerly IC3)	10 (3)* * Upstream beaver dam removed in July 2022 with 5 monitoring events following removal (2 ice cover conditions)	Levelogger® continuous water level and water temperature, manual water levels and manual flows	Manual flow measurements were not able to be conducted in January and February 2022 due to safe access issues because of ice thickness. The February monitoring event had surface flows on top of ice as an additional potential safety concern. Flow with ice cover conditions was monitored for the November and December events.
Trib-Ain	3 (4)	Levelogger® continuous water level and water temperature, manual water levels and manual flows	Manual flow measurements were not able to be conducted in January 2022 due to frozen site conditions with no observed flows. Flows were not able to be accurately monitored in February 2022 due to flows on top of ice within the channel. No flows were observed during the June to July, and September to December monitoring period, and no flow measurements were taken.
Trib-Ain2	4 (4)	Levelogger® continuous water level and water temperature, manual water levels and manual flows	Manual flow measurements were not able to be conducted in January 2022 due to frozen site conditions with no observed flows. Flows were not able to be accurately monitored in February 2022 due to flows on top of ice within the channel. No flows were observed during the June to July, and September to December monitoring period, and no flow measurements were taken.

Table 3-4: Manual Flow Measurements Summary

Watercourse (station)	# of manual water level and flow measurements 2022 (2021)	Data Collected	Observations
Trib-Aout	4 (4)	Levelogger® continuous water level and water temperature, Barologger atmospheric pressure and air temperature, manual water levels and manual flows	Manual flow measurements were not able to be conducted in January 2022 due to frozen site conditions with no observed flows. Flows were not able to be accurately monitored in February 2022 due to flows on top of ice within the channel. No flows were observed during the June to July, and September to December monitoring period, and no flow measurements were taken.

Rating curves were developed using manual average water levels and average flow measurements from monitoring events from September 2021 to December 2022. Two types of rating curves were developed: 1. Ice-free conditions; and 2. Ice cover conditions. In 2022, the January 2022, November 2022 and December 2022 monitoring events had ice covered conditions. Rating curves are recommended to be developed using a minimum of 12 to 15 discrete manual flow measurements (World Meteorological Organization [WMO] 2010a, 2010b). The IC-in ice-free condition manual water level and flow dataset had the most flow measurements available to be used with 12 measurements from 2021 and 2022. No ice cover flow measurements were conducted for the Tributary A hydrometric stations. Rating curves were developed for IC-in, TRIB-Ain2 and Trib-Aout for ice-free conditions with 11 (one measurement removed with high error and average 0 m^3/s value), 7 (one flow measurement removed with average 0 m^3/s value) and 8 manual flow measurements and water levels, respectively (Hydrometric Summaries, Appendix A.3). The rating curves had satisfactory coefficient of determination values ranging from 0.86 to 0.96. The rating curves developed using 2021 and 2022 manual flow data are preliminary and will be developed further as additional manual flows are measured in 2023.

A rating curve was not developed at Trib-Ain as the flow rates above 0 m^3/s were all relatively close together (0.002 to 0.009 m^3/s), which did not produce a rating curve equation with a satisfactory coefficient of determination value ($R^2 \geq 0.8$). The IC-out ice-free rating curve was only developed using values measured from August 2022 to October 2022 (3 monitoring events) as at the end of July 2022, a beaver dam and ponded area approximately 200 m upstream of IC-out was removed. Prior to the dam removal, observed flows within Indian Creek at IC-out were observed to flow during high flow conditions into the Tremaine roadside ditch from the beaver pond and downstream

of the IC-out monitored channel profile. Additional ice-cover and ice-free flow measurements will be required in 2023 to develop the IC-out rating curve.

Rating curves were not developed for ice-cover conditions as they typically had zero to three flow measurements at the five hydrometric stations. Additional ice cover condition manual flow measurements will be required to develop rating curves to represent these ice condition flows.

Levelogger® continuous water level data for each hydrometric station was barometrically adjusted using the Barologger® data with the software, Appias. Using Appias, offsets for the continuous water level data were developed to match continuous water level values with manual water level measurements and are presented along with daily precipitation data from the Toronto International Airport (ID 6158731). The hydrometric summaries in Appendix A.3 present the continuous water level data monitored in 2022 at each of the hydrometric stations. In 2022, water levels typically were low for the month of January with ice-cover conditions. A rain and snow precipitation event on February 17, 2022, increased water levels (measured 36.2 mm of total precipitation of which 13.4 cm was snow). Although ice-covered conditions persisted, all five flow monitoring stations recorded increased water levels during and after the February 17, 2022, rain and snow precipitation event. The February 17, 2022, rain and snow event was not forecast as a high flow monitoring event triggered by forecast wet precipitation exceeding 35 mm. Higher water levels occurred for several precipitation events during ice cover conditions until early March 2022. During ice-free conditions, several precipitation events occurred during the spring with the last one observed in early May. Water levels continued to decrease from early May and low standing or no flow water levels were observed in Tributary A in June 2022. This trend of low flow or no flow water levels continued at four of the stations with water levels only beginning to have an increasing trend in November 2022 until the end of the year.

Beginning in August 2022, IC-in recorded increasing continuous water level measurements that peaked in early September and decreased until the end of November. The August to November IC-in continuous water levels did not follow the same trend as manual water levels during this period, which were consistently low in value corresponding with low flow measurements (IC-in Hydrometric Summary, Appendix A.3). This suggests there is potentially erroneous continuous water level data at IC-in for the August to November monitoring period, which could be due to silt build-up in the stilling well increasing pressure on the winterized Levelogger® and causing the higher water level measurements during a period of low flow or no flow conditions observed at the other four hydrometric stations.

Using the ice-free condition rating curves for IC-in, Trib-Ain2 and Trib-Aout, hydrographs were developed for the 2022 continuous water level datasets. For ice-free conditions at IC-in, flows were estimated to exceed the top of bank for two precipitation

events in the spring of 2022 (Appendix A.3). The rating curve was developed using flow data for less than top of bank conditions. When flows overtop the bank and enter the floodplain, the flow regime changes and the rating curve estimated flow rates are less accurate. Flow conditions above bankfull represent a zone of uncertainty on the rating curve and require further rating curve development to increase confidence. The observed high flows at IC-in were not associated with Project construction activities within the channel or floodplain.

Trib-Ain2 and Trib-Aout recorded two higher flow events in the spring of 2022 associated with precipitation events that exceeded the top of bank flow condition (Appendix A.3). The observed high flows in Tributary A were not associated with Project construction activities within the channel or floodplain. Low or no flow conditions were estimated by the rating curve equations for Trib-Ain2 and Trib-Aout for the May to late August, and mid-September to December time period, as observed in the field by the turbidity monitoring program (Section 3.1.1) and the monthly monitoring events.

4 Discussion

4.1 Conformity with Assessment Predictions

4.1.1 Water Quality

4.1.1.1 Construction Turbidity

To determine the effectiveness of the construction mitigation measures, turbidity was monitored as presented in Section 2.2.1 and results compared to CWQG-FAL guideline values. Daily turbidity results exceeded monitoring criteria (Table 2-1) at Tributary A (Trib-Aout) and Indian Creek (IC-out) during the monitoring program (Appendix C, Table 1).

For Tributary A, additional monitoring and investigation for each of the 24 daily turbidity guideline exceedances identified 3 events requiring corrective action based on Project related activities (see Section 3.1.1). The other 21 event exceedances were due to the eroding channel embankments and an existing failed outlet structure within the Tributary A agricultural pond and were not due to Project construction activities. The agricultural pond outlet was identified as the cause of exceedances through additional sampling upstream of the Tributary A outlet from the PDA and downstream of Project construction activities.

Within Indian Creek, additional monitoring and investigation identified 18 of 48 exceedances that required corrective action based on Project related activities (see Section 3.1.1). The 30 non-Project related event exceedances were due to an existing beaver dam ponded area and associated activities and wildlife (e.g., carp in low water levels, waterfowl). Additional turbidity sampling was implemented in Indian Creek when exceedances occurred during dry sampling days and / or dates where there were no nearby construction activities. Typically, exceedances in these events were related to wildlife / fish activities under low flow conditions in Indian Creek.

The construction activity related sediment loading events were responded to with repairs of existing mitigation measures (e.g., ESC fencing) and implementation of additional measures (e.g., stopping dewatering activities, additional ESC measures at beaver dam removal site). The controlled beaver dam removal caused elevated turbidity readings that persisted at IC-out as water levels receded within the former ponded area.

4.1.1.2 Monthly Monitoring

The 2022 monthly water quality monitoring program did not observe results that exceeded the threshold criteria in Table 2-2 and 2-3 at the Tributary A and Indian Creek Project outlet sites. This aligns with the expected EIS surface water quality predictions

where no measurable changes to surface water quality from the Project were expected in Tributary A and Indian Creek.

4.1.2 Water Quantity

The manual flow measurements at Trib A-In in 2022 were within the Tributary A threshold criteria range of variability in Table 2-4.

4.1.2.1 Tributary A

There were no observed changes in the flow regime in Tributary A due to activities in the PDA in 2022 as was predicted in the EIS. Trib-Ain2 and Trib A-out ice-free condition flows were estimated to exceed the Tributary A upper threshold value, based on natural high flow conditions, for two events between early March and early May 2022. At Trib-Aout there were no construction works within the PDA in the channel or the immediate floodplain upstream of the site that would potentially impact or influence the increased flow events.

Estimated flows in Tributary A at the inflow and outflow sites were not outside the established (see Table 2-4) threshold ranges from early May until December 31, 2022, when construction activities occurred within the watercourse channels and floodplains.

4.1.2.2 Indian Creek

There were no observed changes in the flow regime at IC-in due to activities in the PDA in 2022. IC-in flows were estimated to exceed the Indian Creek upper threshold value listed in Table 2-4, based on natural high flow conditions, for two precipitation-based increased flow events between March and early May 2022. These were the same precipitation events that observed high flow conditions at Trib-Ain2 and Trib-Aout in 2022. These events were estimated and observed during turbidity and monthly monitoring events to exceed the top of bank elevation and flow within the channel floodplain. There was no construction activity within the Indian Creek channel or floodplain when these high flow events occurred that would potentially impact the Indian Creek flow regime.

Flow was not estimated at IC-out as there was a beaver dam upstream approximately 200 m that diverted flow out of the channel during high flow events and into a ditch along Tremaine Road discharging downstream of IC-out. The dam was removed in mid-July 2022 and only three ice-free flow measurements were collected during the subsequent time, which was not adequate to develop a rating curve.

Estimated flows in Indian Creek at the inflow and outflow sites were not outside the established (see Table 2-4) threshold ranges from early May until December 31, 2022, when construction activities occurred within the watercourse channels and floodplains.

4.2 Effectiveness of Mitigation Measures

ESC and dewatering mitigation measures as described below employed during construction were effective. Turbidity monitoring at Tributary A identified 3 monitoring events that had elevated results required corrective actions (See Section 3.1.1). At Indian Creek turbidity monitoring identified 17 monitoring events with elevated results requiring corrective actions.

There were two primary types of mitigation measures implemented to support the 2022 construction activities: ESC and dewatering.

The ESC measures implemented for the Project were based on daily monitoring, inspection and reporting of conditions within the PDA by qualified monitoring personnel (Environmental Monitors). Where additional ESC measures were required to manage surface water runoff, the Contractor was informed by the Environmental Monitor to install, maintain and ensure effectiveness as conditions warranted. ESC mitigation measures implemented prior to construction and during construction were followed and implemented according to the Project ESC Plan with active monitoring for deficiencies and Contractor response in a timely manner.

ESC mitigation measures implemented during the 2022 construction period included:

- Keyed-in silt and animal fencing isolating construction activities (i.e., grading, excavation or demolition and stockpiles)
- Erosion control matting (i.e., coir, jute, straw) used to stabilize exposed soil and slopes as well as assist in re-vegetation efforts
- Silt bags, constructed sediment basins and flow dissipaters implemented during dewater/unwater activities at least 30 m from the watercourse.
- Construction entrance mud-mat installation at each access to mitigate sediment tracking onto public roads
- Straw bales and rock check dams
- Timing of works to avoid large rain events
- Fording of watercourses or water bodies was prohibited unless approved by applicable regulatory authorities
- Seeding of channel realignment and enhancement disturbed areas to accelerate soil stabilization

The dewatering mitigation measures implemented throughout 2022 construction period included:

- the contractor developed and provided a detailed site-specific mitigation plan that met all applicable requirements prior to initiating any watercourse or water body crossing activities as part of channel realignments works
- dewatering activities associated with the realignment of Indian Creek or its tributaries completed in isolation as per the site Isolation and Dewatering Plan
- Stream diversions and culvert installations where work was conducted in isolation of stream flows (e.g., cofferdam, pump, flume, diversion)
- Pump intakes had end of pipe fish protection screens for small water intakes and avoided disturbance of channel bed
- Construction activities were timed to avoid or minimize the extent and duration of watercourse diversions required during the realignment of Tributary A
- Downstream flows were maintained during in-water construction activities
- Construction dewatering was discharged at least 30 m away from a watercourse or water body within a contained sediment basin and/or filter bag
- Constructed riparian ponds were established and utilized to contain construction water during dewatering activities and act as settling ponds to mitigate sediment loading to watercourses
- Constructed SWMPs 1 and 2 that had no outflows constructed in 2022 were utilized to contain construction water during dewatering activities and act as evaporation ponds to mitigate sediment loading to watercourses.

4.3 Adaptive Management

There was no adaptive management implemented in 2022. Corrective actions were taken in response to elevated turbidity results in Tributary A and Indian Creek as planned in the implementation of mitigation measures described in the SWQQ FUP (2022).

5 Conclusions

A copy of this report will be provided to the Impact Assessment Agency in accordance with Condition 2.6, as well as to 5.9 and 5.10 per the commitments in the SWQQ FUP (Stantec 2022). In addition, this report will be posted to CN's Project website (www.cn.ca/en/about-cn/milton-logistics-hub/) and a summary will be included in CN's 2022 Annual Report.

6 References

Canadian Council of Ministers of the Environment (CCME). 2011. Protocols Manual for Water Quality Sampling in Canada. *PN 1461*. ISBN 978-1-896997-7-0. Pp. 175.

Dufferin. 2021. CN Milton Logistics Hub Erosion and Sediment Control Implementation Plan - Stream Realignment. CN Milton Logistics Hub - Phase 1 Grading & Drainage. 60579933

Environment Canada. 1999. The Water Survey of Canada. Hydrometric Technician Career Development Program. Lesson Package No. 10.1-Principle of Discharge Measurement.

Ministry of the Environment. 2011. Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. Published 2004, amended as of 2011.

Pelletier, P. M. (1990). A Review of Techniques used by Canada and other Northern Countries for Measurement and Computation of Streamflow under Ice Conditions. Paper presented at the 8th Northern Res. Basins Symposium/Workshop (Abisko, Sweden, March 1990), Hydrol. Res., 21, 317-340, https://doi.org/10.2166/nh.1990.0023.

Stantec Consulting Ltd. (Stantec). 2015. Milton Logistics Hub Technical Data Report Hydrology and Surface Water Quality Baseline Study And Effects Assessment (Appendix E.15). Prepared for Canadian National Railway Company. 160960844.

Stantec. 2022. CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program. Prepared for Canadian National Railway Company. 160960844. Stantec Consulting Ltd. 23 pp.

World Meteorological Organization (WMO). 2010a. Manual on Stream Gauging, Vol. I: Fieldwork. WMO- No. 1044

WMO. 2010b. Manual on Stream Gauging, Vol. II: Computation of discharge. WMO- No. 1044

Appendices

Appendix A Figures

A.1 Monitoring Station Locations

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Revised: 2023-02-09 By: dhanley

February 2023
160960844

Stantec

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2015. Site layout: July 10, 2015.
3. Orthoimagery © First Base Solutions, 2023. Imagery taken in 2021.

Legend

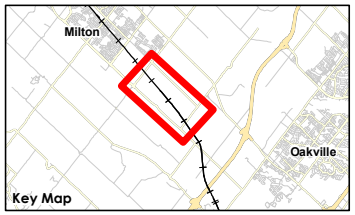
- Surface Water Monitoring Station
- Future Surface Water Monitoring Station

Project Components

- Project Development Area
- Existing Single Track Mainline
- Existing Double Track Mainline
- Single Track - Mainline
- Double Track - Mainline
- Project Component
- CN-Owned Property
- SWM Pond

Existing Features

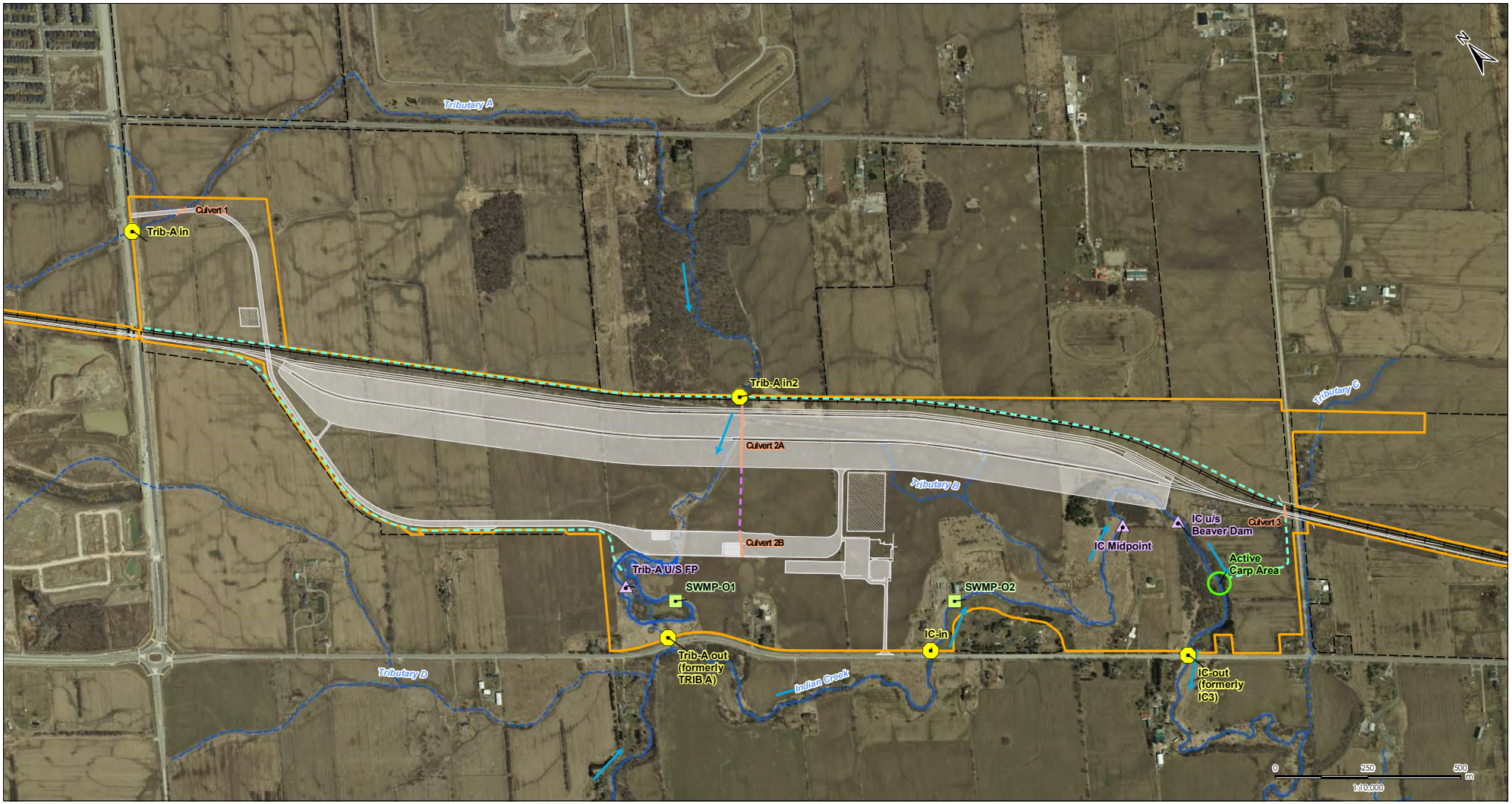
- Permanent Watercourse
- Intermittent Watercourse
- Waterbody
- Flow Direction
- Proposed Culvert
- Drainage Ditch
- Tributary A Regional Diversion Ditch
- Creek Realignment



Client/Project
Canadian National Railway
Milton Logistics Hub
Annual Results for the Surface Water Quantity and Quality Follow-Up Program – Construction 2022

Figure No.
A.1.A

Title
Construction and Operation Surface Water Monitoring Stations



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Revised: 2023-02-09 by: dhanley

February 2023
160960844

Stantec

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2015. Site layout: July 10, 2015.
3. Orthoimagery © First Base Solutions, 2023. Imagery taken in 2021.

Legend

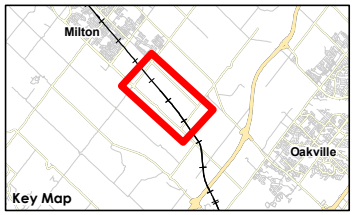
- Surface Water Monitoring Station
- Future Surface Water Monitoring Station
- Visual Surface Water Monitoring
- Supplemental Surface Water Monitoring

Project Components

- Project Development Area
- Existing Single Track Mainline
- Existing Double Track Mainline
- Single Track - Mainline
- Double Track - Mainline
- Project Component
- CN-Owned Property
- SWM Pond

Existing Features

- Permanent Watercourse
- Intermittent Watercourse
- Waterbody
- Flow Direction
- Proposed Culvert
- Drainage Ditch
- Tributary A Regional Diversion Ditch
- Creek Realignment



Client/Project
Canadian National Railway
Milton Logistics Hub
Annual Results for the Surface Water Quantity and Quality Follow-Up Program – Construction 2022

Figure No.
A.1.B

Title
Permanent and Supplemental Surface Water Monitoring Stations

A.2 Water Temperature Results

Figure A.2.A Trib-Ain 2022 Levelogger® Water Temperature Results

Figure A.2.B Trib-Ain2 2022 Levelogger® Water Temperature Results

Figure A.2.C Trib-Aout 2022 Levelogger® Water Temperature Results

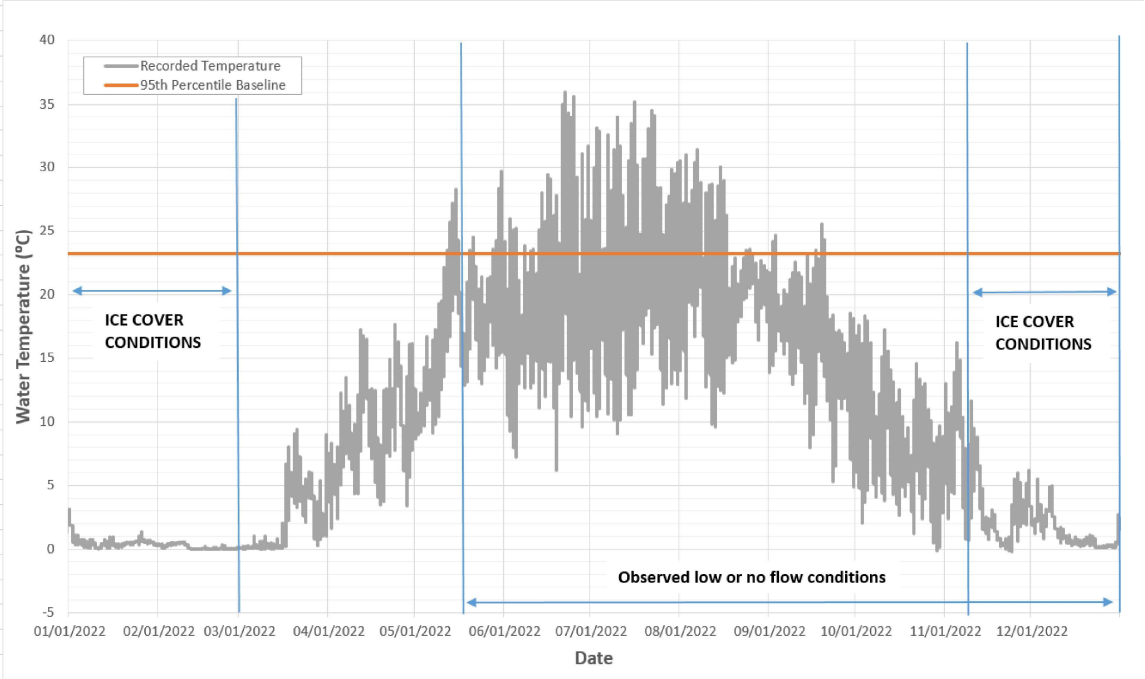


Figure A.2.D IC-in 2022 Levelogger® Water Temperature Results

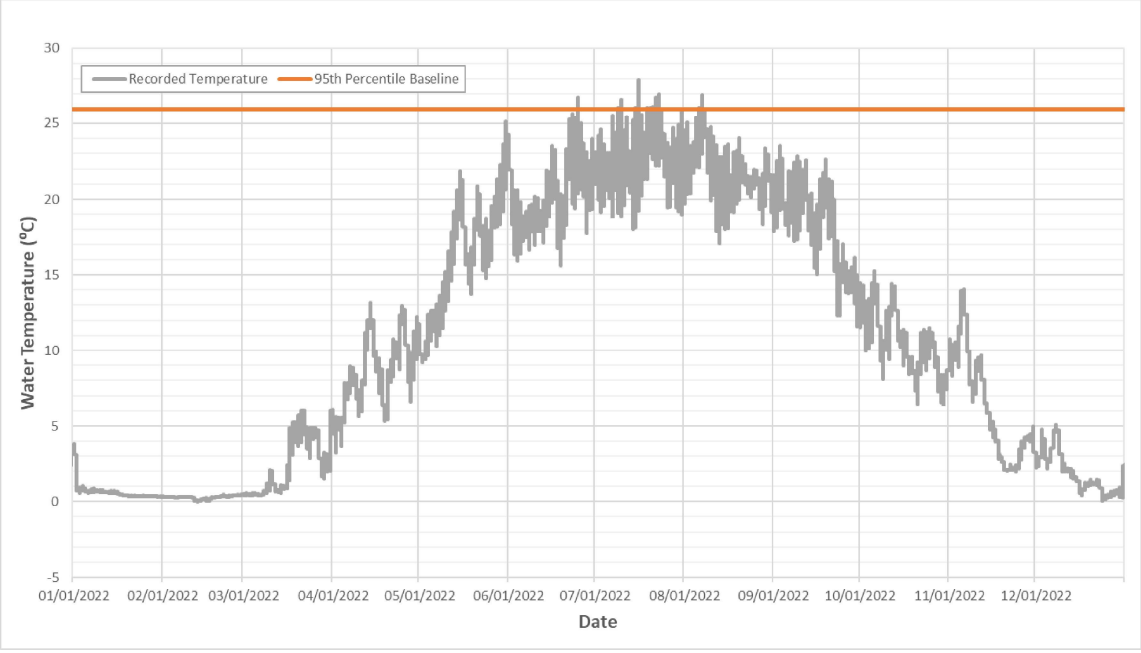
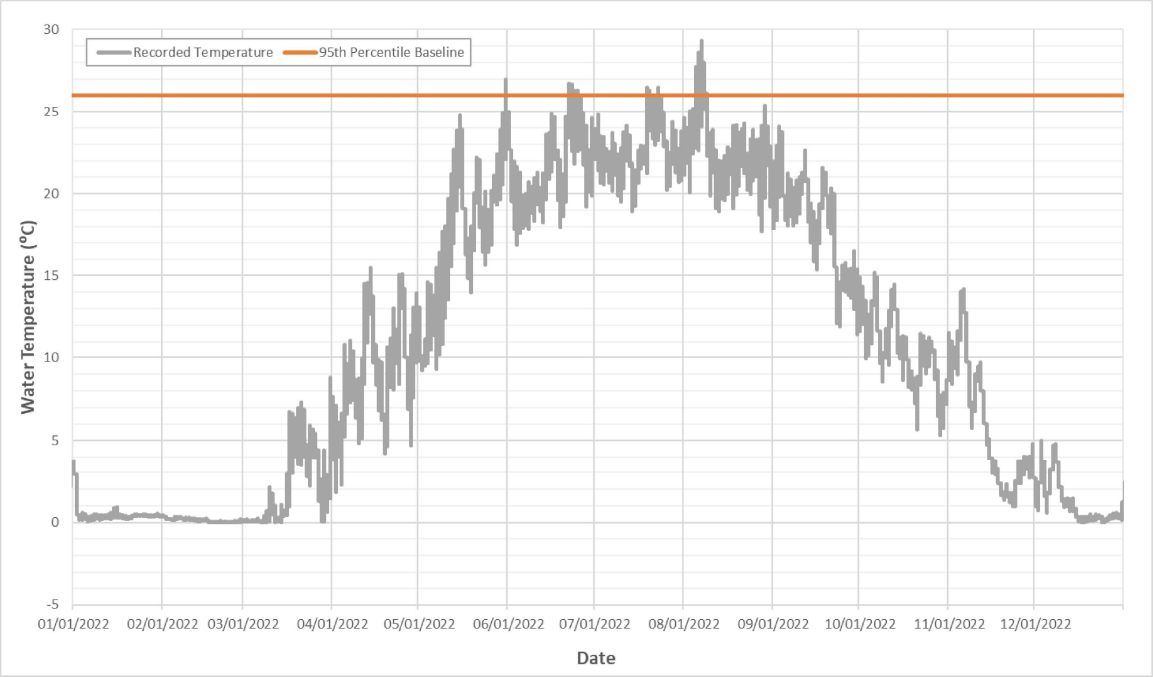
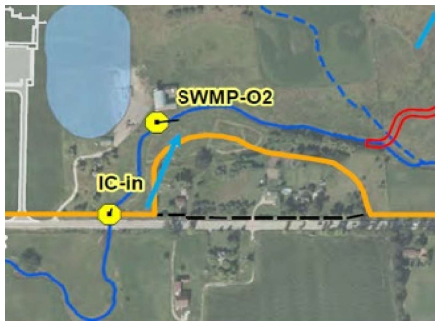


Figure A.2.E IC-out 2022 Levelogger® Water Temperature Results



A.3 Hydrometric Summaries

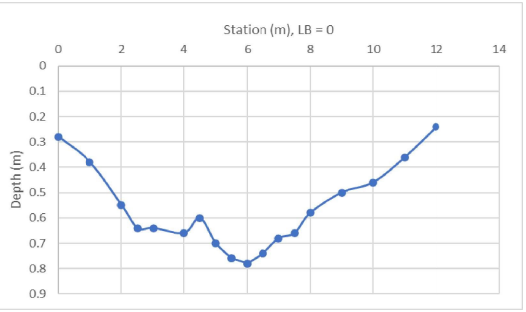
Hydrometric Monitoring Station IC-IN Summary			
Station ID	IC-IN	**Instruments Serial #**	Levelogger 2130170
Location	Indian Creek	**Measurements**	Temperature, Water level
Installation Date	29-Sep-21	**Spot Measurments**	Water Quality, Flow
GPS Coordinates	43.454083 N, -79.837836 W	**Main Channel:**	Straight
Access	Trenmaine Rd	**Channel Bottom**	Rock
Drainage Area	32 km^2	**Flood Plain:**	Light vegetation, mostly grass
Period of Record	September 29, 2021 - January 11, 2023	**Comments:**	Data downloaded monthly and on January 10, 2023.
Active	Year Round		



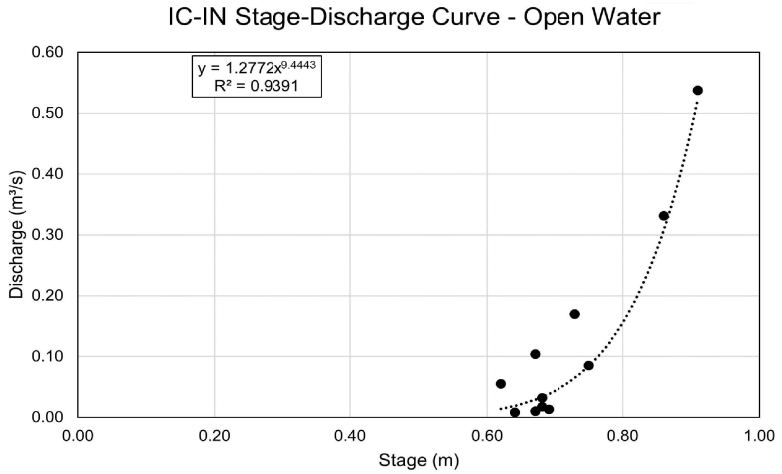
Map: IC-IN Location

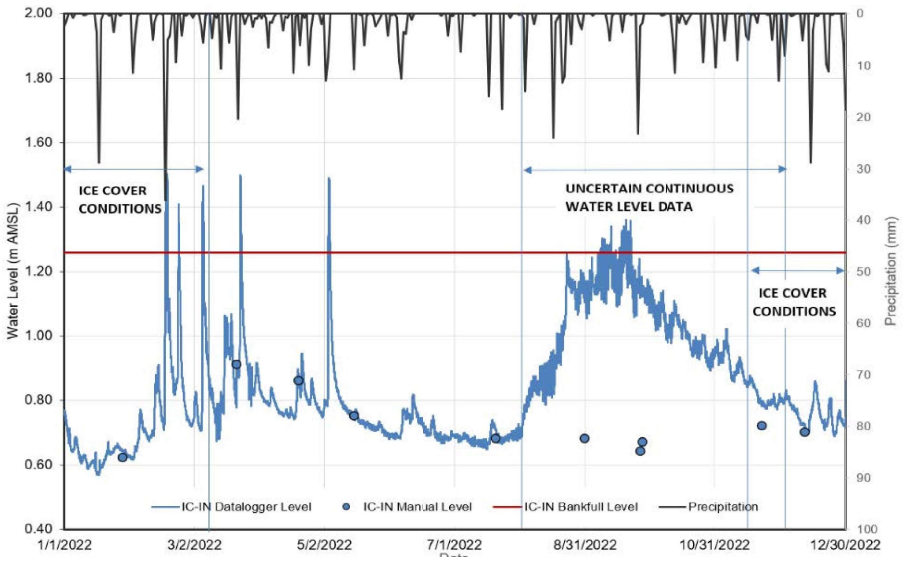

Photo 1: Looking Upstream

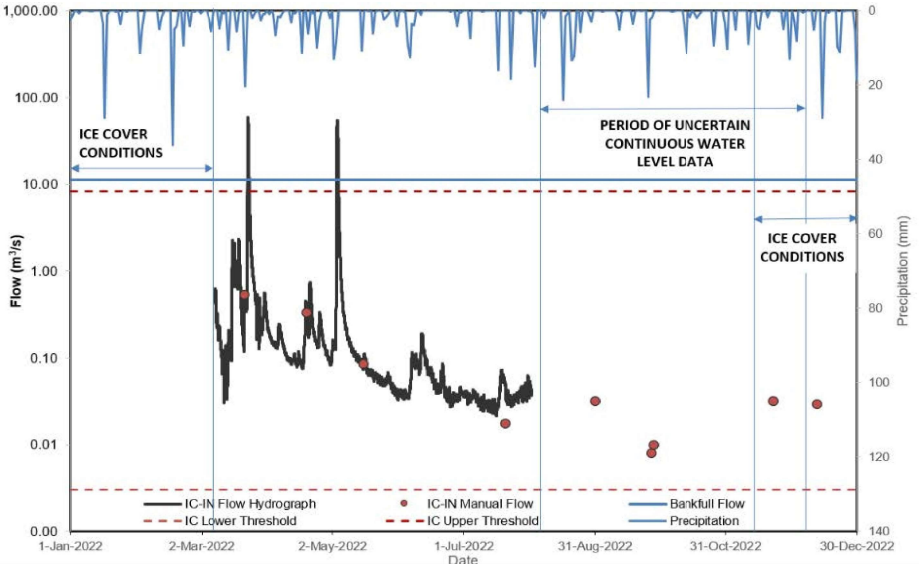

Photo 2: Looking Downstream



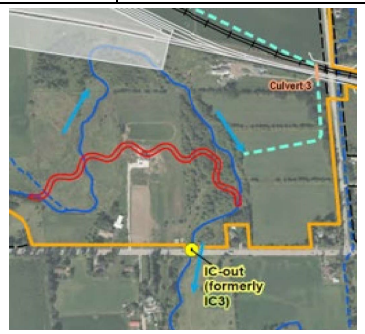
Cross Section Profile




ICE COVER CONDITIONS
UNCERTAIN CONTINUOUS WATER LEVEL DATA
ICE COVER CONDITIONS
Water Level (m AMSL)
Precipitation (mm)
IC-IN Datalogger Level
IC-IN Manual Level
IC-IN Bankfull Level
Precipitation
1/1/2022
3/2/2022
5/2/2022
7/1/2022
8/31/2022
10/31/2022
12/30/2022


ICE COVER CONDITIONS
PERIOD OF UNCERTAIN CONTINUOUS WATER LEVEL DATA
ICE COVER CONDITIONS
Flow (m³/s)
Precipitation (mm)
IC-IN Flow Hydrograph
IC-IN Manual Flow
Bankfull Flow
IC Lower Threshold
IC Upper Threshold
Precipitation
1-Jan-2022
2-Mar-2022
2-May-2022
1-Jul-2022
31-Aug-2022
31-Oct-2022
30-Dec-2022
Date

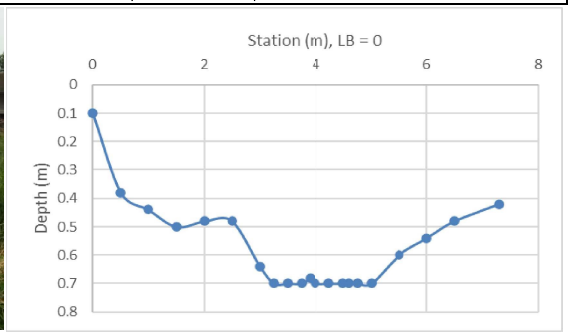
Hydrometric Monitoring Station IC-OUT Summary			
Station ID	IC-OUT	**Instruments Serial #**	Levelogger 2130175
Location	Indian Creek	**Measurements**	Temperature, Water level
Installation Date	29-Sep-21	**Spot Measurments**	Water Quality, Flow
GPS Coordinates	43.45002467 N, -79.83149183 W	**Main Channel:**	Straight
Access	Trenmaine Rd	**Channel Bottom**	Rock
Drainage Area	34 km^2	**Flood Plain:**	Light vegetation, mostly grass
Period of Record	September 29, 2021 - January 11, 2023	**Comments:**	Station located upstream of Tremaine Rd. bridge where Indian Creek flows from Project Development Area. Data downloaded monthly and on January 11, 2023.
Active	Year Round		



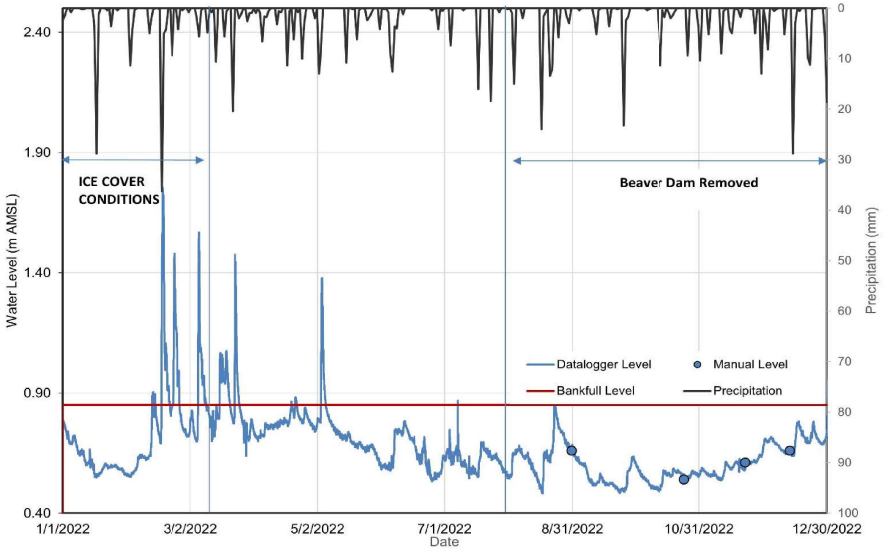
Map: IC-OUT Location


Photo 1: Looking Upstream


Photo 2: Looking Downstream



Cross Section Profile

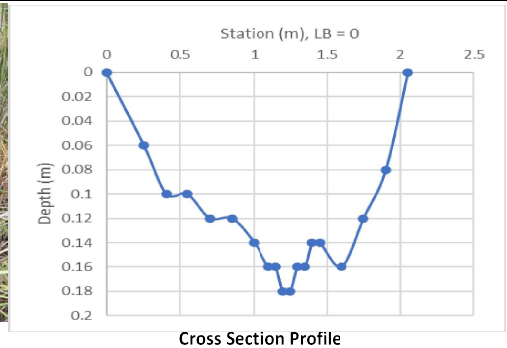


Hydrometric Monitoring Station Trib A In Summary			
Station ID	TribA-In	**Instruments Serial #**	Levelogger 2130157
Location	Tributary A	**Measurements**	Temperature, Water level, Atmospheric Pressure
Installation Date	28-Sep-21	**Spot Measurments**	Water Quality, Flow
GPS Coordinates	43.474822 N, -79.847514 W	**Main Channel:**	Braded channel
Access	Tremaine Rd	**Channel Bottom**	Small rocks
Drainage Area	1 km^2	**Flood Plain:**	Light vegetation, mostly grass
Period of Record	September 28, 2021 - January 11, 2022	**Comments:**	Data downloaded monthly and on January 11, 2023.
Active	Intermittent		

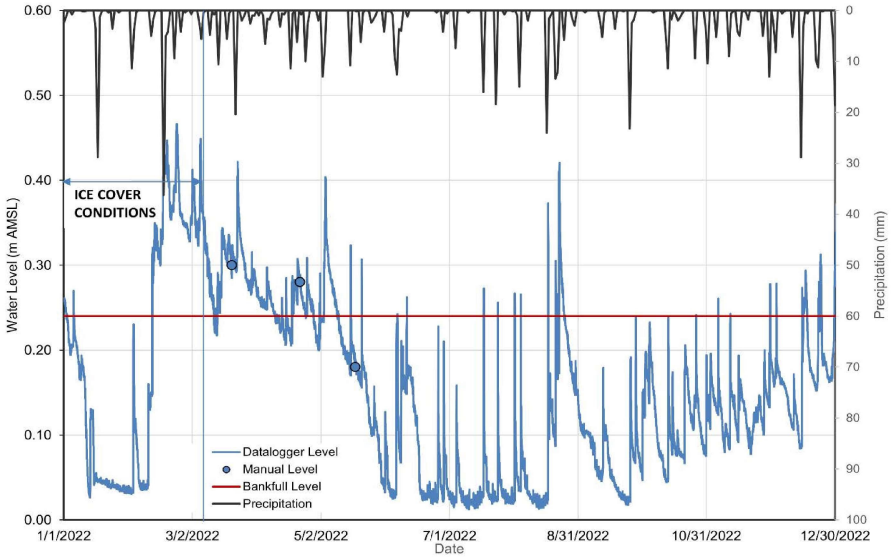
Map: Trib A - In Location

Photo 1: Looking Upstream

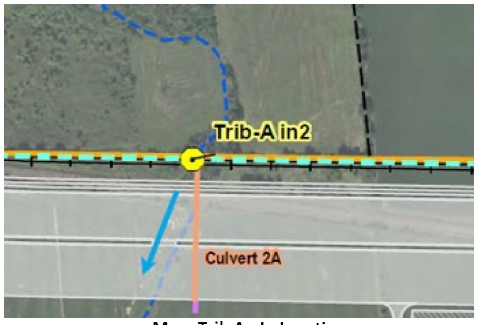
Photo 2: Looking Downstream



Cross Section Profile



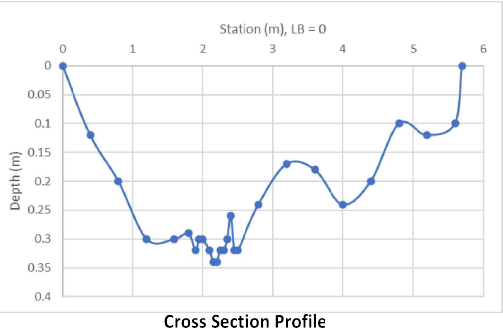
Hydrometric Monitoring Station Trib A In 2 Summary			
Station ID	TribA-In2	**Instruments Serial #**	Levelogger 2130153
Location	Tributary A	**Measurements**	Temperature, Water level, Atmospheric Pressure
Installation Date	28-Sep-21	**Spot Measurments**	Water Quality, Flow
GPS Coordinates	43.461583 N, -79.836873 W	**Main Channel:**	Braded channel
Access	Lower Base Line W	**Channel Bottom**	Small rocks
Drainage Area	4 km^2	**Flood Plain:**	Light vegetation, mostly grass
Period of Record	September 28, 2021 - January 11, 2022	**Comments:**	Data downloaded monthly and on January 11, 2023.
Active	Intermittent		



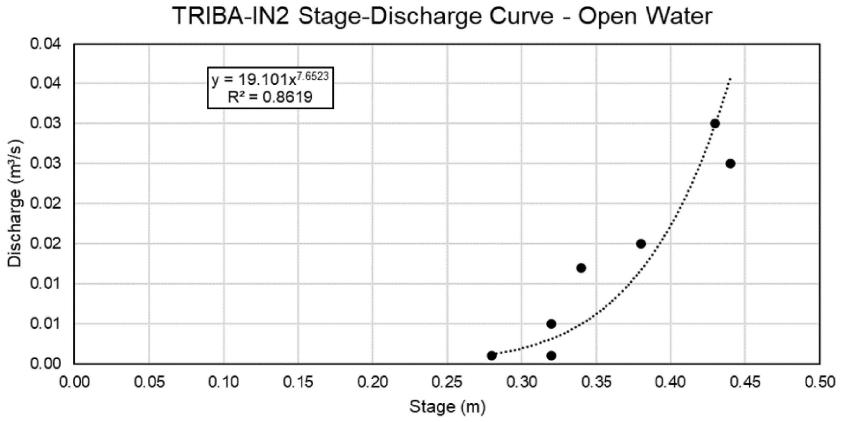
Map: Trib A - In Location

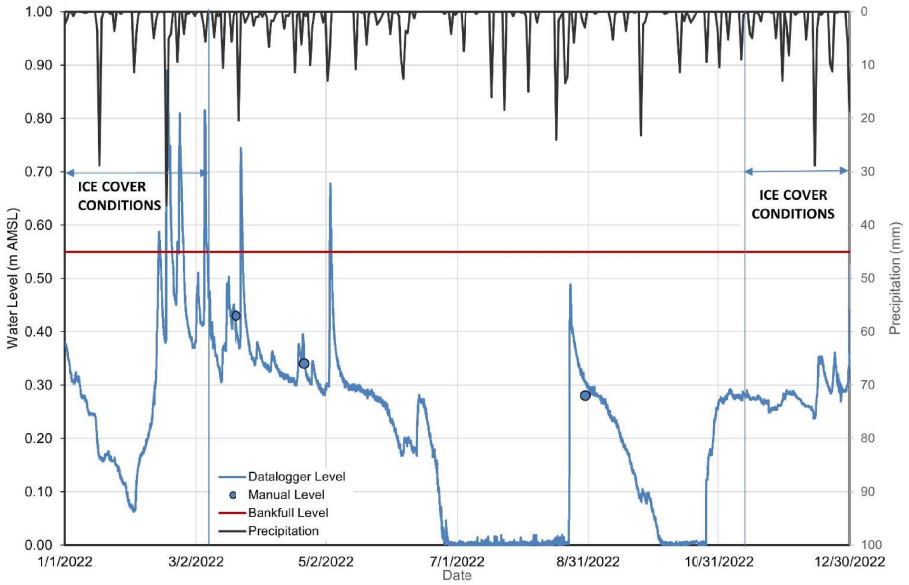

Photo 1: Looking Upstream

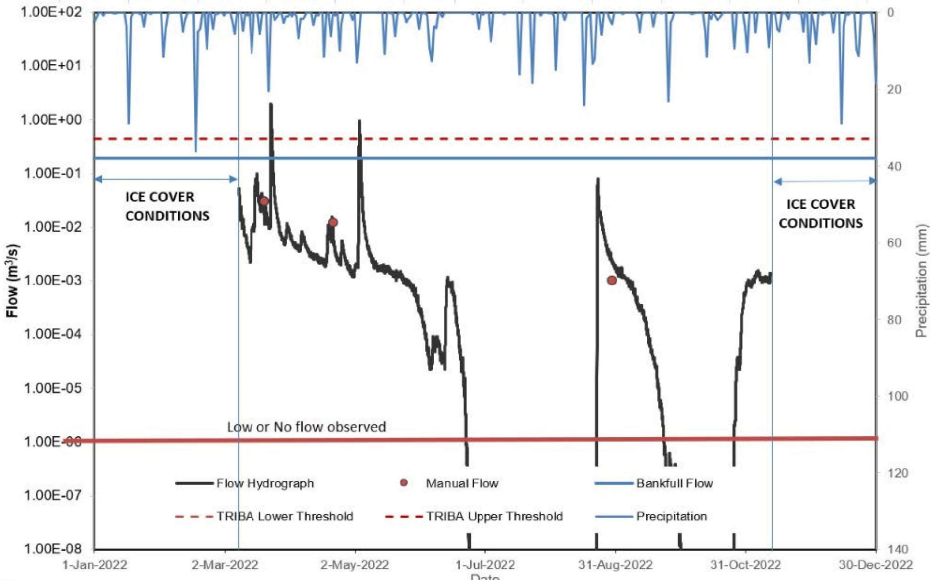

Photo 2: Looking Downstream



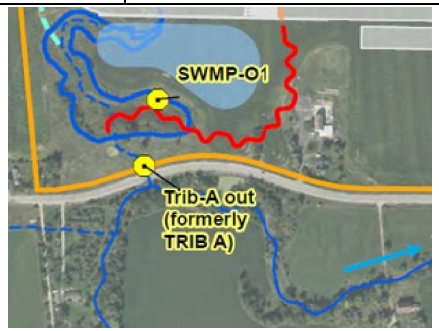
Cross Section Profile




ICE COVER CONDITIONS
ICE COVER CONDITIONS
Datalogger Level
Manual Level
Bankfull Level
Precipitation
Water Level (m AMSL)
Precipitation (mm)
Date
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
10
20
30
40
50
60
70
80
90
100
1/1/2022
3/2/2022
5/2/2022
7/1/2022
8/31/2022
10/31/2022
12/30/2022


ICE COVER CONDITIONS
ICE COVER CONDITIONS
Low or No flow observed
Flow Hydrograph
Manual Flow
Bankfull Flow
TRIBA Lower Threshold
TRIBA Upper Threshold
Precipitation
Flow (m³/s)
Precipitation (mm)
1.00E+02
1.00E+01
1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
0
20
40
60
80
100
120
140
1-Jan-2022
2-Mar-2022
2-May-2022
1-Jul-2022
31-Aug-2022
31-Oct-2022
30-Dec-2022

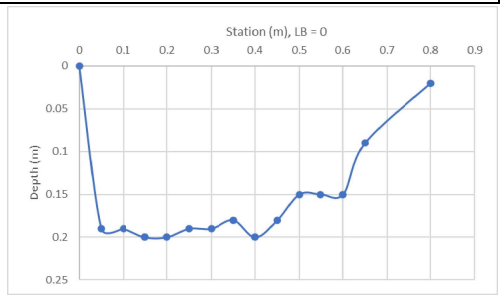
Hydrometric Monitoring Station Trib A Out Summary			
Station ID	TribA-Out	**Instruments Serial #**	Levelogger 2130164
Location	Tributary A	**Measurements**	Temperature, Water level, Atmospheric Pressure
Installation Date	28-Sep-21	**Spot Measurments**	Water Quality, Flow
GPS Coordinates	43.463256 N, -79.851060 W	**Main Channel:**	Braded channel
Access	Tremaine Rd	**Channel Bottom**	Small rocks
Drainage Area	2 km^2	**Flood Plain:**	Light vegetation, mostly grass
Period of Record	September 28, 2021 - January 11, 2022	**Comments:**	Data downloaded monthly and on January 11, 2023.
Active	Intermittent		



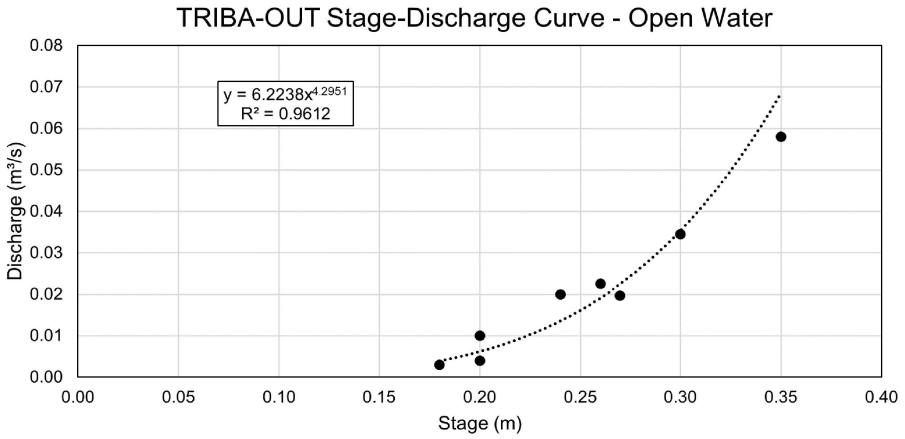
Map: Trib A - Out Location

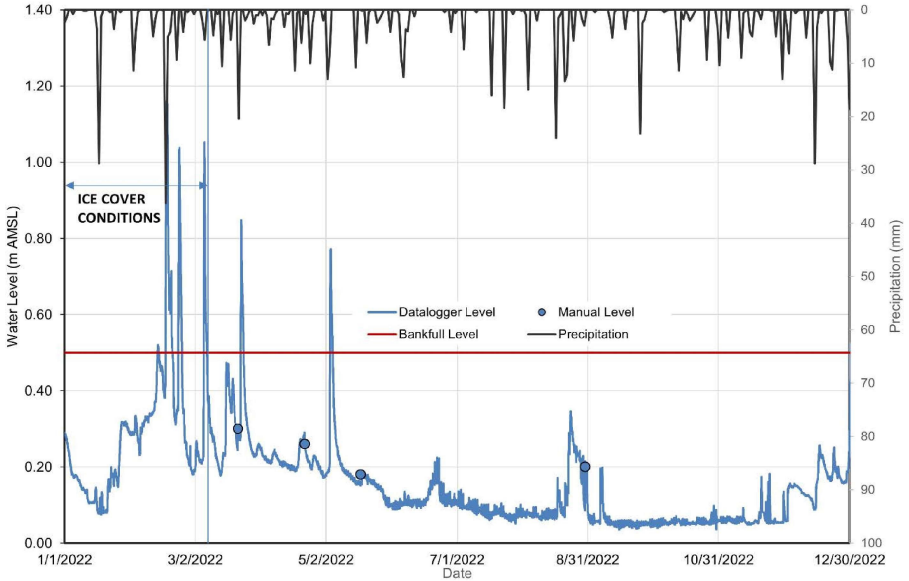

Photo 1: Looking Upstream

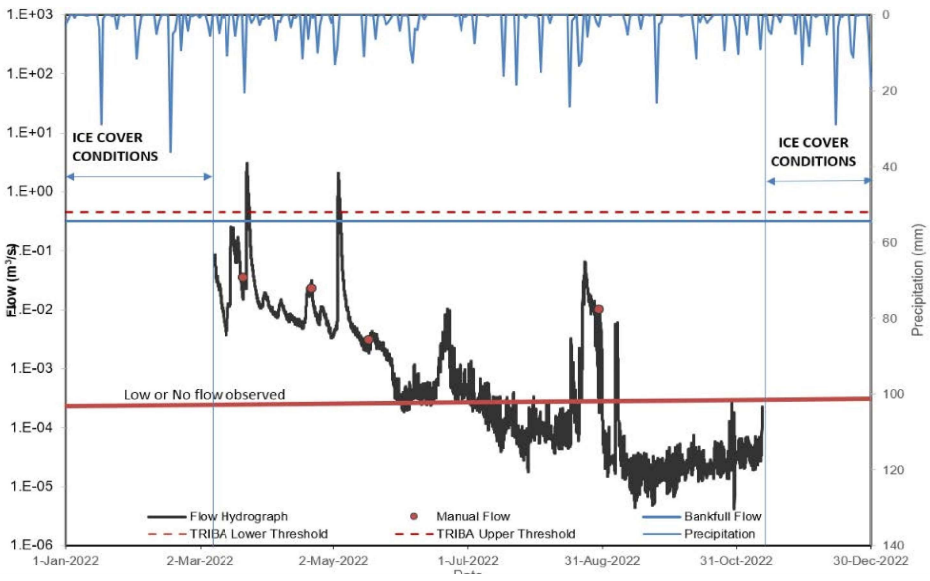

Photo 2: Looking Downstream



Cross Section Profile




ICE COVER CONDITIONS
Datalogger Level
Manual Level
Bankfull Level
Precipitation
Water Level (m AMSL)
Precipitation (mm)
Date
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
0
10
20
30
40
50
60
70
80
90
100
1/1/2022
3/2/2022
5/2/2022
7/1/2022
8/31/2022
10/31/2022
12/30/2022


ICE COVER CONDITIONS
ICE COVER CONDITIONS
Low or No flow observed
Flow Hydrograph
Manual Flow
Bankfull Flow
TRIBA Lower Threshold
TRIBA Upper Threshold
Precipitation
Flow (m³/s)
Precipitation (mm)
1.E+03
1.E+02
1.E+01
1.E+00
1.E-01
1.E-02
1.E-03
1.E-04
1.E-05
1.E-06
0
20
40
60
80
100
120
140
1-Jan-2022
2-Mar-2022
2-May-2022
1-Jul-2022
31-Aug-2022
31-Oct-2022
30-Dec-2022

Appendix B Photolog

Photo 1: Turbidity Monitoring - Tributary A farm pond failed outlet structure looking Upstream at eroding berm. 4/07/2022

Photo 2: Turbidity Monitoring – TRIB A-U/S FP Looking Downstream at Farm Pond 4/05/2022

Photo 3: Turbidity Monitoring - IC Midpoint- Looking Downstream 8/17/2022

Photo 4: Turbidity Monitoring - IC U/S Beaver Pond- Looking Upstream 09/19/2022

Photo 5: Turbidity Monitoring - IC U/S Beaver Pond- Looking Downstream 09/19/2022

Photo 6: Turbidity Monitoring - Active Carp Area at Regional Drainage Channel Outlet. 11/11/2022

Photo 7: TRIB-Ain Looking Upstream 3/24/2022

Photo 8: TRIB-Ain Looking Downstream 3/24/2022

Photo 9: TRIB-Ain Looking Upstream 9/26/2022

Photo 10: TRIB-Ain Looking Downstream 9/26/2022

Photo 11: TRIB-Ain2 Looking Upstream 3/24/2022

Photo 12: TRIB-Ain2 Looking Downstream 3/24/2022

Photo 13: TRIB-Ain2 Looking Upstream 8/30/2022

Photo 14: TRIB-Ain2 Looking Downstream 8/30/2022

Photo 15: TRIB-Aout Looking Upstream 3/24/2022

Photo 16: TRIB-Aout Looking Downstream 3/24/2022

Photo 17: TRIB-Aout Looking Upstream 5/18/2022

Photo 18: TRIB-Aout Looking Downstream 5/18/2022

Photo 19: IC-IN Looking Upstream 3/23/2022

Photo 20: IC-IN Looking Downstream 3/23/2022

Photo 21: IC-IN Looking Upstream 8/31/2022

Photo 22: IC-IN Looking Downstream 8/31/2022

Photo 23: IC-IN Looking Upstream 11/22/2022

Photo 24: IC-IN Looking Downstream 11/22/2022

Photo 25: IC-OUT Looking Upstream 2/24/2022

Photo 26: IC-OUT Looking Downstream 2/24/2022

Photo 27: IC-OUT Looking Upstream 6/27/2022

Photo 28: IC-OUT Looking Downstream 6/27/2022

Photo 29: IC-OUT Looking Upstream 11/23/2022

Photo 30: IC-OUT Looking Downstream 11/23/2022

Appendix C Tables

C.1 Water Quality

C.1.1 Construction Turbidity

Table C.1.1 - 2022 Construction Turbidity Monitoring Results, Investigations and Responses
CN Milton Logistics Hub: Annual Results for the Surface Water Quality and Quantity Follow-Up Program – Construction 2022

Date	Total Precipitation (mm)	Turbidity (NTU)							Exceedance Investigation Comments		Adaptive Management Response	
		Tributary A			Indian Creek							
		Permanent Monitoring Sites		Supplemental	Permanement Monitoring Station		Supplemental					
		Trib-Ain2	Trib-Aout	Trib A u/s FP	IC-IN	IC-OUT	IC u/s Beaver Dam	IC Midpoint	Tributary A	Indian Creek	Tributary A	Indian Creek
17-Jan-22	28.8	NTM ***	NTM ***	-	NTM ***	NTM ***	-	-				
25-Jan-22	0	NTM ***	NTM ***	-	NTM ***	NTM ***	-	-				
27-Jan-22	0.4	NTM ***	NTM ***	-	NTM ***	NTM ***	-	-				
31-Jan-22	0	NTM ***	NTM ***	-	NTM ***	NTM ***	-	-				
02-Feb-22	11.4	NTM ***	NTM ***	-	NTM ***	NTM ***	-	-				
07-Feb-22	0	NTM ***	NTM ***	-	NTM ***	NTM ***	-	-				
09-Feb-22	0	NTM ***	NTM ***	-	NTM ***	NTM ***	-	-				
14-Feb-22	0	NTM ***	NTM ***	-	NTM ***	NTM ***	-	-				
16-Feb-22	0.2	NTM ***	NTM ***	-	NTM ***	NTM ***	-	-				
22-Feb-22	9.4	18	15	-	10.7	15.2	-	-				
28-Feb-22	0	NTM ***	NTM ***	-	5.7	7.5	-	-				
08-Mar-22	0.4	35	NTM ***	-	33	36.5	-	-				
10-Mar-22	0	15	13.6	-	37	18	-	-				
17-Mar-22	0	NTM	NTM	-	NTM	NTM	-	-				
18-Mar-22	0	NTM	NTM	-	NTM	NTM	-	-				
22-Mar-22	0	NTM	NTM	-	NTM	NTM	-	-				
23-Mar-22	20.4	7	27		11.5	16						
24-Mar-22	0	269.00	**435.00**	-	NTM	**170.00**	-	-	Elevated turbidity levels could not be linked to a specific construction activity as backgroung levels were high entering the PDA.	Elevated turbidity levels could not be linked to a specific construction activity as backgroung levels were high entering the PDA.	Silt fencing to isolate disturbed soil was installed to mitigate silt-laden water from entering Tributary A.	Silt fencing to isolate disturbed soil was installed to mitigate silt-laden water from entering Indian Creek.
28-Mar-22	0.2	18.7	**29.6**	-	12.5	14.7	-	-	Existing agricultural pond failed outlet structure and berms, 100 m upstream of Trib-Aout, observed to be eroding. Local surface water runoff and flows causing erosive processes. Monitoring immediately upstream of the agricultural pond area and downstream of Project activites at Trib A u/s FP did not record an exceedance.		Failling outlet structure was addressed with the construction of a berm breach at the final stage of Trib A realignmnet works in October 2022.	
31-Mar-22	1	24.50	12.70	10.50	13.30	14.3	-	-				
04-Apr-22	0	8.51	16.30	10.30	5.97	8.47	-	-				
05-Apr-22	1	10.70	**24.90**	5.27	6.91	11.40	-	-	Existing agricultural pond failed outlet structure and berms, 100 m upstream of Trib-Aout, observed to be eroding. Local surface water runoff and flows causing erosive processes. Monitoring immediately upstream of the agricultural pond area and downstream of Project activites at Trib A u/s FP did not record an exceedance.		Failling outlet structure was addressed with the construction of a berm breach at the final stage of Trib A realignmnet works in October 2022.	
06-Apr-22	6.6	6.84	**27.00**	6.70	7.79	12.00	-	-	Existing agricultural pond failed outlet structure and berms, 100 m upstream of Trib-Aout, observed to be eroding. Local surface water runoff and flows causing erosive processes. Monitoring immediately upstream of the agricultural pond area and downstream of Project activites at Trib A u/s FP did not record an exceedance.		Failling outlet structure was addressed with the construction of a berm breach at the final stage of Trib A realignmnet works in October 2022.	
07-Apr-22	1.6	11.10	**33.50**	5.80	9.78	12.60	-	-	Existing agricultural pond failed outlet structure and berms, 100 m upstream of Trib-Aout, observed to be eroding. Local surface water runoff and flows causing erosive processes. Monitoring immediately upstream of the agricultural pond area and downstream of Project activites at Trib A u/s FP did not record an exceedance.		Failling outlet structure was addressed with the construction of a berm breach at the final stage of Trib A realignmnet works in October 2022.	
11-Apr-22	0	5.90	**25.50**	3.45	5.63	7.17	-	-	Existing agricultural pond failed outlet structure and berms, 100 m upstream of Trib-Aout, observed to be eroding. Local surface water runoff and flows causing erosive processes. Monitoring immediately upstream of the agricultural pond area and downstream of Project activites at Trib A u/s FP did not record an exceedance.		Failling outlet structure was addressed with the construction of a berm breach at the final stage of Trib A realignmnet works in October 2022.	

Table C.1.1 - 2022 Construction Turbidity Monitoring Results, Investigations and Responses
CN Milton Logistics Hub: Annual Results for the Surface Water Quality and Quantity Follow-Up Program – Construction 2022

Date	Total Precipitation (mm)	Turbidity (NTU)							Exceedance Investigation Comments		Adaptive Management Response	
		Tributary A			Indian Creek							
		Permanent Monitoring Sites		Supplemental	Permanement Monitoring Station		Supplemental					
		Trib-Ain2	Trib-Aout	Trib A u/s FP	IC-IN	IC-OUT	IC u/s Beaver Dam	IC Midpoint	Tributary A	Indian Creek	Tributary A	Indian Creek
12-Apr-22	0	5.80	**16.40**	4.11	5.52	9.86	-	-	Existing agricultural pond failed outlet structure and berms, 100 m upstream of Trib-Aout, observed to be eroding. Local surface water runoff and flows causing erosive processes. Monitoring immediately upstream of the agricultural pond area and downstream of Project activites at Trib A u/s FP did not record an exceedance.		Failling outlet structure was addressed with the construction of a berm breach at the final stage of Trib A realignmnet works in October 2022.	
13-Apr-22	3.2	4.54	11.20	3.35	8.36	**17.50**	-	-		Fish and wildlife activity observed in Indian Creek within PDA causing channel sediment disturbance		
19-Apr-22	0.6	8.94	12.8	2.94	8.41	8.73	-	-				
21-Apr-22	6.2	6.10	**17.40**	7.30	19.20	25.50	-	-	Existing agricultural pond failed outlet structure and berms, 100 m upstream of Trib-Aout, observed to be eroding. Local surface water runoff and flows causing erosive processes. Monitoring immediately upstream of the agricultural pond area and downstream of Project activites at Trib A u/s FP did not record an exceedance.		Failling outlet structure was addressed with the construction of a berm breach at the final stage of Trib A realignmnet works in October 2022.	
22-Apr-22	0	7.90	11.20	7.79	12.50	14.90	-	-				
26-Apr-22	2.8	9.81	9.52	12.10	8.55	15.30	-	-				
27-Apr-22	0	4.39	6.38	3.52	3.88	5.68	-	-				
28-Apr-22	0	3.30	3.20	2.02	2.72	3.41	-	-				
02-May-22	0.2	3.66	5.23	2.10	3.26	4.52	-	-				
03-May-22	13	3.93	4.70	2.10	5.23	3.93	-	-				
04-May-22	8.6	171	**242**	175	145	**237**	-	-	Elevated turbidity levels could not be linked to a specific construction activity as backgroung levels were high entering the PDA.	Elevated turbidity levels could not be linked to a specific construction activity as backgroung levels were high entering the PDA.	Silt fencing to isolate disturbed soil was installed to mitigate silt-laden water from entering Tributary A.	Silt fencing to isolate disturbed soil was installed to mitigate silt-laden water from entering Indian Creek.
05-May-22	0	45.20	**82.90**	47.70	61.00	66.20	-	-	Sediment laden construction water from Tributary A realignment work had back flow through constructed rock check dam into the existing Tributary A. Existing agricultural pond failed outlet structure and berms, 100 m upstream of Trib-Aout, observed to be eroding. Local surface water runoff and flows causing erosive processes. Monitoring immediately upstream of the agricultural pond area and downstream of Project activites at Trib A u/s FP did not record an exceedance.		Replaced existing permeable rock check dam with impermeable earth berm and stabilized disturbed soils. Failling outlet structure was addressed with the construction of a berm breach at the final stage of Trib A realignmnet works in October 2022.	
06-May-22	0	10	**89.00**	12.80	12.20	11.30	-	-	Sediment laden construction water from Tributary A realignment work had back flow through constructed rock check dam into the existing Tributary A. Existing agricultural pond failed outlet structure and berms, 100 m upstream of Trib-Aout, observed to be eroding. Local surface water runoff and flows causing erosive processes. Monitoring immediately upstream of the agricultural pond area and downstream of Project activites at Trib A u/s FP did not record an exceedance.		Replaced existing permeable rock check dam with impermeable earth berm and stabilized disturbed soils. Failling outlet structure was addressed with the construction of a berm breach at the final stage of Trib A realignmnet works in October 2022.	
09-May-22	0	3.42	9.56	3.15	4.29	7.93	-	-				
10-May-22	0	3.95	8.45	3.58	8.85	3.71	-	-				

Table C.1.1 - 2022 Construction Turbidity Monitoring Results, Investigations and Responses
CN Milton Logistics Hub: Annual Results for the Surface Water Quality and Quantity Follow-Up Program – Construction 2022

Date	Total Precipitation (mm)	Turbidity (NTU)							Exceedance Investigation Comments		Adaptive Management Response	
		Tributary A			Indian Creek							
		Permanent Monitoring Sites		Supplemental	Permanement Monitoring Station		Supplemental					
		Trib-Ain2	Trib-Aout	Trib A u/s FP	IC-IN	IC-OUT	IC u/s Beaver Dam	IC Midpoint	Tributary A	Indian Creek	Tributary A	Indian Creek
12-May-22	0	4.32	**20.40**	6.82	5.11	**14.00**		-	Existing agricultural pond failed outlet structure and berms, 100 m upstream of Trib-Aout, observed to be eroding. Local surface water runoff and flows causing erosive processes. Monitoring immediately upstream of the agricultural pond area and downstream of Project activites at Trib A u/s FP did not record an exceedance.	Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.	Failling outlet structure was addressed with the construction of a berm breach at the final stage of Trib A realignmnet works in October 2022.	
16-May-22	10.8	4.74	**28.20**	8.40	8.10	14.30	-	-	Existing agricultural pond failed outlet structure and berms, 100 m upstream of Trib-Aout, observed to be eroding. Local surface water runoff and flows causing erosive processes. Monitoring immediately upstream of the agricultural pond area and downstream of Project activites at Trib A u/s FP did not record an exceedance.		Failling outlet structure was addressed with the construction of a berm breach at the final stage of Trib A realignmnet works in October 2022.	
18-May-22	0	5.90	**19.70**	5.27	3.55	**16.8******	-	-	Existing agricultural pond failed outlet structure and berms, 100 m upstream of Trib-Aout, observed to be eroding. Local surface water runoff and flows causing erosive processes. Monitoring immediately upstream of the agricultural pond area and downstream of Project activites at Trib A u/s FP did not record an exceedance.	Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.	Failling outlet structure was addressed with the construction of a berm breach at the final stage of Trib A realignmnet works in October 2022.	
19-May-22	0.2	7.41	13.50	8.35	9.48	12.90	-	-				
24-May-22	0	4.13	**18.70**	3.44	3.60	**14.40**	-	-	Existing agricultural pond failed outlet structure and berms, 100 m upstream of Trib-Aout, observed to be eroding. Local surface water runoff and flows causing erosive processes. Monitoring immediately upstream of the agricultural pond area and downstream of Project activites at Trib A u/s FP did not record an exceedance.	Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.	Failling outlet structure was addressed with the construction of a berm breach at the final stage of Trib A realignmnet works in October 2022.	
26-May-22	2.4	2.52	**38.40**	4.75	5.05	**19.70**	**19.60**	-	Existing agricultural pond failed outlet structure and berms, 100 m upstream of Trib-Aout, observed to be eroding. Local surface water runoff and flows causing erosive processes. Monitoring immediately upstream of the agricultural pond area and downstream of Project activites at Trib A u/s FP did not record an exceedance.	Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.	Failling outlet structure was addressed with the construction of a berm breach at the final stage of Trib A realignmnet works in October 2022.	
30-May-22	0	9.54	10.10	**36.6****	5.57	**22.90**	-	-	Due to very low water level at Trib A u/s FP, some sediments from stream bed likely to have entered sample.	Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.		
02-Jun-22	0	NTM*	**28.50**	-	4.28	**13.70**	**17.00**	-	Existing agricultural pond failed outlet structure and berms, 100 m upstream of Trib-Aout, observed to be eroding. Local surface water runoff and flows causing erosive processes. Monitoring immediately upstream of the agricultural pond area and downstream of Project activites at Trib A u/s FP did not record an exceedance.	Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.	Failling outlet structure was addressed with the construction of a berm breach at the final stage of Trib A realignmnet works in October 2022.	
03-Jun-22	0.2	NTM*	NTM*	-	4.48	**14.30**	**18.10**	-		Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.		
06-Jun-22	9.2	NTM*	NTM*	-	3.04	**12.60**	**20.80**	-		Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.		
08-Jun-22	3.6	NTM*	**28.60**	-	6.72	**20.00**	**18.70**	-	No flow conditions- possible sediment disturbance captured in sample.	Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.		
10-Jun-22	0	NTM*	**14.80**	-	5.05	**24.50**	**29.30**	-	No flow conditions- possible sediment disturbance captured in sample.	Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.		

Table C.1.1 - 2022 Construction Turbidity Monitoring Results, Investigations and Responses
CN Milton Logistics Hub: Annual Results for the Surface Water Quality and Quantity Follow-Up Program – Construction 2022

Date	Total Precipitation (mm)	Turbidity (NTU)							Exceedance Investigation Comments		Adaptive Management Response	
		Tributary A			Indian Creek							
		Permanent Monitoring Sites		Supplemental	Permanement Monitoring Station		Supplemental					
		Trib-Ain2	Trib-Aout	Trib A u/s FP	IC-IN	IC-OUT	IC u/s Beaver Dam	IC Midpoint	Tributary A	Indian Creek	Tributary A	Indian Creek
13-Jun-22	0	NTM*	**10.10**	-	7.3	**16.70**	13.30	-	No flow conditions- possible sediment disturbance captured in sample.	Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.		
14-Jun-22	0	NTM*	NTM*	-	5.75	8.78	10.50	-				
15-Jun-22	0	NTM*	NTM*	-	5.22	11.70	11.50	4.90				
17-Jun-22	0	NTM*	NTM*	-	3.85	**18.50**	10.40	3.70		Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.		
20-Jun-22	0	NTM*	NTM*	-	3.85	9.59	**15.40**	3.71		Fish and wildlife activity was observed as the cause for the elevated reading at IC u/s Beaver Dam.		
22-Jun-22	0	NTM*	NTM*		2.75	4.43	**10.40**			Fish and wildlife activity was observed as the cause for the elevated reading at IC u/s Beaver Dam.		
23-Jun-22	0	NTM*	NTM*	-	1.54	NTM	6.61	4.91				
24-Jun-22	0	NTM*	NTM*	-	2.39	NTM	5.00	13.2				
28-Jun-22	0	NTM*	NTM*	-	32.10	NTM	7.94	3.84		Organic material on water surface at either side of the watercourse was observed.		
29-Jun-22	4.2	NTM*	NTM*	-	4.89	NTM	7.29	3.69				
06-Jul-22	0	NTM*	NTM*	-	4.08	NTM	11.60 ****	3.11				
07-Jul-22	0	NTM*	NTM*	-	3.83	NTM	7.10	4.34				
12-Jul-22	0	NTM*	NTM*	-	7.41	**34.05**	4.14	4.69		Elevated turbidity levels linked to exposed soil on the banks from which the beaver dam was removed.		Erosion control matting was used in efforts to stabilize the exposed banks at the removed beaver dam. Seed and livestakes were applied on the banks of the removed beaver dam in further efforts to stabilize the banks.
13-Jul-22	0	NTM*	NTM*	-	8.04	**36.00**	3.35	7.49		Elevated turbidity levels linked to exposed soil on the banks from which the beaver dam was removed.		Erosion control matting was used in efforts to stabilize the exposed banks at the removed beaver dam. Seed and livestakes were applied on the banks of the removed beaver dam in further efforts to stabilize the banks.
14-Jul-22	0	NTM*	NTM*	-	8.63	**34.08**	3.88	**17.07**		Elevated turbidity levels linked to: - exposed soil on the banks from which the beaver dam was removed - sediment discharge from the temporary bridge.		Erosion control matting was used in efforts to stabilize the exposed banks at the removed beaver dam. The bridge was swept of all sediment and additional rubber mats were placed to close exposed gaps.
19-Jul-22	0	NTM*	NTM*	-	8.75	**24.00**	2.61	4.84		Elevated turbidity levels linked to exposed soil on the banks from which the beaver dam was removed.		Erosion control matting was used in efforts to stabilize the exposed banks at the removed beaver dam. Seed and livestakes were applied on the banks of the removed beaver dam in further efforts to stabilize the banks.

Table C.1.1 - 2022 Construction Turbidity Monitoring Results, Investigations and Responses
CN Milton Logistics Hub: Annual Results for the Surface Water Quality and Quantity Follow-Up Program – Construction 2022

Date	Total Precipitation (mm)	Turbidity (NTU)							Exceedance Investigation Comments		Adaptive Management Response	
		Tributary A			Indian Creek							
		Permanent Monitoring Sites		Supplemental	Permanement Monitoring Station		Supplemental					
		Trib-Ain2	Trib-Aout	Trib A u/s FP	IC-IN	IC-OUT	IC u/s Beaver Dam	IC Midpoint	Tributary A	Indian Creek	Tributary A	Indian Creek
21-Jul-22	0	NTM*	NTM*	-	5.34	**43.08**	4.52	4.72		Elevated turbidity levels linked to exposed soil on the banks from which the beaver dam was removed.		Erosion control matting was used in efforts to stabilize the exposed banks at the removed beaver dam. Seed and livestakes were applied on the banks of the removed beaver dam in further efforts to stabilize the banks.
26-Jul-22	0	NTM*	NTM*	-	4.35	**20.03**	3.92	3.79		Elevated turbidity levels linked to exposed soil on the banks from which the beaver dam was removed.		Erosion control matting was used in efforts to stabilize the exposed banks at the removed beaver dam. Seed and livestakes were applied on the banks of the removed beaver dam in further efforts to stabilize the banks.
27-Jul-22	0	NTM*	NTM*	-	6.92	**16.07**	2.67	6.00		Elevated turbidity levels linked to exposed soil on the banks from which the beaver dam was removed.		Erosion control matting was used in efforts to stabilize the exposed banks at the removed beaver dam. Seed and livestakes were applied on the banks of the removed beaver dam in further efforts to stabilize the banks.
03-Aug-22	1	NTM*	NTM*	-	6.14	**19.06**	3.82	4.90		Elevated turbidity levels linked to exposed soil on the banks from which the beaver dam was removed.		Erosion control matting was used in efforts to stabilize the exposed banks at the removed beaver dam. Seed and livestakes were applied on the banks of the removed beaver dam in further efforts to stabilize the banks.
04-Aug-22	15	NTM*	NTM*	-	4.11	**23.00**	5.28	5.91		Elevated turbidity levels linked to exposed soil on the banks from which the beaver dam was removed.		Erosion control matting was used in efforts to stabilize the exposed banks at the removed beaver dam. Seed and livestakes were applied on the banks of the removed beaver dam in further efforts to stabilize the banks.
09-Aug-22	0	NTM*	NTM*	-	3.33	**23.04**	5.34	9.31		Elevated turbidity levels linked to exposed soil on the banks from which the beaver dam was removed. Fish and wildlife activity was observed as the cause for the elevated the reading at IC-OUT.		Erosion control matting was used in efforts to stabilize the exposed banks at the removed beaver dam.
10-Aug-22	0	NTM*	NTM*	-	3.59	11.09	4.86	3.99		Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.		
11-Aug-22	0	NTM*	NTM*	-	NTM	**26.07**	NTM	5.48		Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.		

Table C.1.1 - 2022 Construction Turbidity Monitoring Results, Investigations and Responses
CN Milton Logistics Hub: Annual Results for the Surface Water Quality and Quantity Follow-Up Program – Construction 2022

Date	Total Precipitation (mm)	Turbidity (NTU)							Exceedance Investigation Comments		Adaptive Management Response	
		Tributary A			Indian Creek							
		Permanent Monitoring Sites		Supplemental	Permanement Monitoring Station		Supplemental					
		Trib-Ain2	Trib-Aout	Trib A u/s FP	IC-IN	IC-OUT	IC u/s Beaver Dam	IC Midpoint	Tributary A	Indian Creek	Tributary A	Indian Creek
15-Aug-22	0	NTM*	NTM*	-	4.94	**21.08**	8.68	7.39		Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT		
16-Aug-22	0	NTM*	NTM*	-	3.48	**19.72**	7.03	6.61		Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT		
23-Aug-22	0	NTM*	NTM*	-	**OVER RANGE**	**OVER RANGE**	-	-		Samples had elevated results due to rainfall event from the previous day.		Onsite ESC was assessed for effectiveness and the contractor was informed of recommended maintenance
24-Aug-22	0	5.28	**20.2 ****	-	14.50	**25.60**	**24.00**	22.10	Low flow conditions - possible sediment disturbance captured in sample.	Fish and wildlife activity was observed as the cause for the elevated the reading at IC-OUT		
29-Aug-22	1.8	2.55 **	**17.40 ****	-	9.36	**34.40**	15.8	12.4	Low flow conditions - possible sediment disturbance captured in sample.	Fish and wildlife activity was observed as the cause for the elevated the reading at IC-OUT. There was a pump setup at the intersection between Indian Creek and Trib. B at which the water was visibly turbid.		
01-Sep-22	0	3.47 **	**18.00 ****	-	9.28	**22.00**	9.84	9.43	Low flow conditions - possible sediment disturbance captured in sample.	Carp activity was observed as the cause for the elevated the reading at IC-OUT. Pumping was stopped upon request on Aug-31.		Pumping activity was discontinued.
06-Sep-22	0	8.15 **	11.9 **	-	8.15	10.50	**OVER RANGE**	**36.1**		Water level was low on both sampling dates but still flowing; there were ongoing de-watering activities along the creek that could be impacting turbidity.		Pumping activity was discontinued.
07-Sep-22	0	6.41 **	NTM**	-	10.70	**OVER RANGE**	**OVER RANGE**	**25.10**		Water level was low on both sampling dates but still flowing; there were ongoing de-watering activities along the creek that could be impacting turbidity.		Pumping activity was discontinued.
13-Sep-22	0.4	8.74 **	NTM**	-	6.30	**25.40**	**19.50**	11.40		Water level was low but still flowing. Heavy organic presence in the watercourse.		
19-Sep-22	0.2	1.69	NTM*	-	6.41	**17.60**	**15.50**	7.22		Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.		
21-Sep-22	0	14.9	NTM*	-	6.85	**21.90**	**37.80**	**16.10**		Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.		
22-Sep-22	0.2	6.42	NTM*	-	8.83	**27.40**	**30.10**	12.40		Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.		
26-Sep-22	2.4	7.07	NTM*	-	8.37	**21.10**	**15.50**	11.00		Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.		
27-Sep-22	1.8	5.33	NTM*	-	10.10	**22.10**	**19.50**	15.30		Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.		
29-Sep-22	0	7.17	NTM*	-	9.58	16.30	15.90	11.70				
04-Oct-22	0	NTM*	NTM*	-	12.10	10.30	9.60	**40.00**		Turbidity investigation conducted along Indian Creek at 16 locations downstream from the NTU spike at IC MidPoint on Oct-4. It was determined that the spike in readings was directly related to a flock of ducks.		

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Date	Total Precipitation (mm)	Turbidity (NTU)							Exceedance Investigation Comments		Adaptive Management Response	
		Tributary A			Indian Creek							
		Permanent Monitoring Sites		Supplemental	Permanement Monitoring Station		Supplemental					
		Trib-Ain2	Trib-Aout	Trib A u/s FP	IC-IN	IC-OUT	IC u/s Beaver Dam	IC Midpoint	Tributary A	Indian Creek	Tributary A	Indian Creek
05-Oct-22	0	NTM*	NTM*	-	9.30	15.40	**17.60**	**19.80**		Turbidity investigation conducted along Indian Creek at 16 locations downstream from the NTU spike at IC MidPoint on Oct-4. It was determined that the spike in readings was directly related to a flock of ducks.		
13-Oct-22	11.4	NTM*	NTM*	-	6.32	**22.50**	**21.40**	12.90		Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.		
14-Oct-22	0.4	NTM*	NTM*	-	3.82	**13.70**	**11.90**	7.66		Fish and wildlife activity was observed as the cause for the elevated reading at IC-OUT.		
19-Oct-22	1.4	NTM*	NTM*	-	5.16	5.16	-	-				
20-Oct-22	0.6	NTM*	NTM*	-	5.48	7.04	-	-				
24-Oct-22	0	NTM*	NTM*	-	5.61	13.20	-	-				
25-Oct-22	0	NTM*	NTM*	-	6.44	10.60	-	-				
26-Oct-22	9.4	NTM*	NTM*	-	6.93	13.60	-	-				
02-Nov-22	0	NTM*	NTM*	-	7.88	15.50	-	-				
04-Nov-22	0	NTM*	NTM*	-	8.77	13.20	-	-				
07-Nov-22	0	NTM*	NTM*	-	7.62	11.80	-	-				
08-Nov-22	0	NTM*	NTM*	-	6.60	NTM	-	-				
09-Nov-22	0	NTM*	NTM*	-	6.66	8.21	-	-				
10-Nov-22	0	NTM*	NTM*	-	5.52	11.20	-	-				
11-Nov-22	9	NTM*	NTM*	-	5.62	7.69	7.38	**17**		Turbidity monitoring was conducted at various points along Indian Creek. Overall good readings except for downstream of the temporary bridge; turbidity sourced to turbid runoff directly entering Indian Creek from the Temporary Bridge.		For the ongoing work to continue Monday, Nov 14 at the Indian Creek Enhancement Area, Cambridge and DCC were reminded to install the silt soxx and other ESC measures ahead of ground disturbance. Temproary bridge swept to reduce sediment runoff.
14-Nov-22	0	1.94	NTM*	-	6.13	8.24	-	-				
17-Nov-22	0.4	5.04	NTM*	-	5.26	12.8	-	-	Readings may be comprised due to ice removal, sample process, and mallards identified at the removed beaver dam site.			
22-Nov-22	0	NTM***	NTM*	-	7.23	NTM	-	-				
23-Nov-22	0	NTM***	NTM*	-	NTM	**19.00**	-	-		Stantec water quality crew in the water, monitoring during exceedance event		
24-Nov-22	0	NTM***	NTM*	-	8.50	9.40	-	-				
25-Nov-22	0.2	NTM***	NTM*	-	7.45	6.60	-	-				
29-Nov-22	0	2.30	NTM***	-	5.90	NTM	-	-				
30-Nov-22	13	NTM	NTM***	-	11.50	9.90	-	-				
02-Dec-22	2.8	4.40	9.80	-	9.90	NTM	-	-				
06-Dec-22	0.6	NTM***	NTM***	-	10.00	NTM	-	-		Turbidity monitoring this week focused on water quality around the Indian Creek enhancement area work zone.		
07-Dec-22	0.2	NTM***	NTM***	-	5.60	9.80	-	-		Turbidity monitoring this week focused on water quality around the Indian Creek enhancement area work zone.		
08-Dec-22	0	NTM***	NTM***	-	7.80	9.90	-	-		Turbidity monitoring this week focused on water quality around the Indian Creek enhancement area work zone.		
12-Dec-22	0	NTM***	NTM***	-	7.22	6.28	-	-				
13-Dec-22	0	NTM***	NTM***	-	NTM***	NTM***	-	-				
19-Dec-22	0	3.70	3.50	-	7.00	7.42	-	-				
20-Dec-22	0	6.20	2.50	-	6.80	13.60	-	-				
22-Dec-22	9.8	3.60	5.30	-	6.90	11.20	-	-	Trib A activated at upstream end of current Culvert 2B on Dec 22; DFO was present on site for the activation.			

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Date	Total Precipitation (mm)	Turbidity (NTU)							Exceedance Investigation Comments		Adaptive Management Response	
		Tributary A			Indian Creek							
		Permanent Monitoring Sites		Supplemental	Permanement Monitoring Station		Supplemental					
		Trib-Ain2	Trib-Aout	Trib A u/s FP	IC-IN	IC-OUT	IC u/s Beaver Dam	IC Midpoint	Tributary A	Indian Creek	Tributary A	Indian Creek

Notes:

	Clear flow - Short Term; Exceedance of maximum increase of 8 NTUs from background levels for a short-term exposure (e.g., 24-h period); or
	High flow or turbid waters - Short Term; Exceedance of maximum increase of 8 NTUs from background levels at any one time when background levels are between 8 and 80 NTUs. Should not increase more than 10% of background levels when background is >80 NTUs.
NTM	No Turbidity Monitoring
*	No Observed Flow
**	Low Flow Conditions
***	Frozen
****	Ongoing fish activity observed at Indian Creek near the trailer yard inlet location
OVER RANGE	Hach 2100Q turbidimeter has an upper monitoring limit of 1000 NTU

C.1.2 Monthly Monitoring

Table
Surface Water Quality Results - IC-In
Canadian National Railway
Milton Logistics Hub

Sample Location				IC-In																																			
Sample Date				27-Jan-22	27-Jan-22	27-Jan-22		24-Feb-22	24-Feb-22			24-Mar-22	24-Mar-22			21-Apr-22	17-May-22			17-May-22	17-May-22			28-Jun-22	28-Jun-22			28-Jun-22	28-Jun-22			22-Jul-22	22-Jul-22			24-Aug-22	24-Aug-22			
Sample ID				517	517	517 Lab-Dup		IC-IN 545	IC-IN 545 Lab-Dup			IC-IN	IC-IN Lab-Dup			IC-IN	701			701 Lab-Dup	IC-IN			732	732 Lab-Dup			740	740 Lab-Dup			IC-IN 850	IC-IN 850 Lab-Dup			DUPLICATE	DUPLICATE Lab-Dup			
Sampling Company				STANTEC	STANTEC	STANTEC		STANTEC	STANTEC			STANTEC	STANTEC			STANTEC	STANTEC			STANTEC	STANTEC			STANTEC	STANTEC			STANTEC	STANTEC			STANTEC	STANTEC			STANTEC	STANTEC			
Laboratory				BV	BV	BV		BV	BV			BV	BV			BV	BV			BV	BV			BV	BV			BV	BV			BV	BV			BV	BV			
Laboratory Work Order				C223207	C223207	C223207		C249608	C249608			C278400	C278400			C2A6501	C2D3724			C2D3724	C2D3688			C2H9499	C2H9499			C2H9583	C2H9583			C2K6329	C2K6329			C2Q2396	C2Q2396			
Laboratory Sample ID				RSK986	RSK388	RSK986		RY8523	RY8523			SEJ977	SEJ977			SKP833	SQN529			SQN529	SQN269			TAK427	TAK427			TAK774	TAK774			TGD600	TGD600			TNU478	TNU478			
Sample Type	Units	SSL	CCME			Lab Replicate	RPD (%)		Lab Replicate	RPD (%)			Lab Replicate	RPD (%)			Field Duplicate	RPD (%)			Lab Replicate	RPD (%)			Field Duplicate	RPD (%)			Lab Replicate	RPD (%)			Lab Replicate	RPD (%)			Field Duplicate	RPD (%)			Lab Replicate	RPD (%)
General Chemistry																																									
Table 4.1																																									
Chloride	mg/L	n/v	640[F] 120[C]	210[C]	-	-	-	180[C]	180[C]	0%	87	-	-	220[C]	160[C]	0%	-	-	160[C]	160[C]	0%	180[C]	180[C]	0%	180[C]	0%	-	-	220[C]	-	-	140[C]	0%	140[C]	0%					
Dissolved Oxygen	mg/L	n/v	>5.5/6/6.5/9.5$_{IDE}$[C]	9.3[E]	-	9.36	nc	10.1	-	-	9.95	-	-	9.56	8.52	nc	-	-	8.74	8.75	nc	6.20	-	-	7.59	nc	-	-	8.09	-	-	9.27	nc	-	-					
Phosphorus, Total	mg/L	n/v	n/v	0.021	-	0.020	5%	0.13	-	-	0.35	-	-	0.084	0.044	11%	-	-	0.049	-	-	0.09	-	-	0.09	nc	-	-	0.088	0.073	19%	0.10	2%	-	-					
Total Suspended Solids	mg/L	n/v	sg[F]	5	-	5	0%	11	-	-	120	-	-	10	4	nc	-	-	3	-	-	33	-	-	33	0%	-	-	33	-	-	13	7%	-	-					
Temperature, Field	deg C	n/v	n/v	-0.1	-	-	-	0.5	-	-	4.1	-	-	9.2	16.9	nc	-	-	16.9	-	-	21.6	-	-	21.6	nc	-	-	24.24	-	-	23.5	nc	-	-					
Table 4.2																																									
Ammonia (as N)	mg/L	n/v	TBD[C]	0.67	-	-	-	0.65	-	-	0.19	-	-	0.04	0.06	104%	-	-	0.19	-	-	0.94[C]	-	-	2.5[C]	91%	-	-	0.16	-	-	1.5[C]	60%	-	-					
CWQG Ammonia Guideline	mg/L	n/v		1.92	-	-	-	19.0	-		1.27	-	-	0.10	0.59		-	-	0.59	-		0.41	-		0.41		-	-	0.29	-	-	0.29		-	-					
Ammonia, Un-ionized (Calculated)	mg/L	0.019[A]	0.019[C]	0.0039	-	-	-	0.0016	-	-	0.0038	-	-	0.0079	0.0037	99%	-	-	0.011	-	-	0.086[A,C]	-	-	0.23[A,C]	89%	-	-	0.0037	-	-	0.046[A,C]	63%	-	-					
Nitrate (as N)	mg/L	3.0[A]	124[B] 3.0[C]	2.2[E]	-	-	-	1.19	1.19	0%	0.88	-	-	0.71	0.69	3%	-	-	0.71	0.70	1%	<0.10	<0.10	nc	<0.10	nc	-	-	<0.10	-	-	0.12	nc	-	-					
Nitrate + Nitrite (as N)	mg/L	n/v	n/v	2.2[E]	-	-	-	1.22	1.21	1%	0.90	-	-	0.71	0.71	4%	-	-	0.74	0.73	1%	<0.10	<0.10	nc	<0.10	nc	-	-	<0.10	-	-	0.12	nc	-	-					
Nitrite (as N)	mg/L	0.06[A]	0.06[C]	0.016	-	-	-	0.029	0.027	nc	0.014	-	-	<0.010	0.024	nc	-	-	0.025	0.022	nc	<0.010	<0.010	nc	<0.010	nc	-	-	<0.010	-	-	<0.010	nc	-	-					
Other Parameters																																									
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	3.3	-	-	-	<1.0	-	-	1.3	-	-	3.2	3.7	nc	-	-	4.2	-	-	2.3	-	-	2.6	nc	-	-	1.3	-	-	<1.0	nc	-	-					
Alkalinity, Total (as CaCO3)	mg/L	n/v	n/v	280	-	-	-	130	-	-	130	-	-	220	240	0%	-	-	240	250	4%	200	-	-	200	0%	-	-	160	-	-	110	0%	-	-					
Anion Sum	me/L	n/v	n/v	13.5	-	-	-	8.43	-	-	5.75	-	-	11.7	10.4	nc	-	-	10.4	-	-	10.0	-	-	9.96	nc	-	-	11.4	-	-	9.09	nc	-	-					
Bicarbonate(as CaCO3, Calculated)	mg/L	n/v	n/v	280	-	-	-	130	-	-	130	-	-	220	240	0%	-	-	240	-	-	200	-	-	190	5%	-	-	160	-	-	110	0%	-	-					
Cation Sum	me/L	n/v	n/v	14.2	-	-	-	8.83	-	-	5.83	-	-	12.6	11.5	nc	-	-	11.0	-	-	10.5	-	-	10.4	nc	-	-	10.5	-	-	9.33	nc	-	-					
Dissolved Organic Carbon (DOC)	mg/L	n/v	n/v	3.5	-	-	-	6.2	-	-	7.2	-	-	5.5	6.7	1%	-	-	6.8	-	-	7.5	-	-	6.9	8%	-	-	7.9	-	-	8.4	4%	-	-					
Electrical Conductivity, Lab	µmhos/cm	n/v	n/v	1,400	-	-	-	950	-	-	580	-	-	1,300	1,100	0%	-	-	1,100	1,100	0%	1,200	-	-	1,100	0%	-	-	1,300	-	-	940	1%	-	-					
Hardness (as CaCO3)	mg/L	n/v	n/v	410	-	-	-	180	-	-	170	-	-	310	320	3%	-	-	310	-	-	260	-	-	260	0%	-	-	280	-	-	280	0%	-	-					
Ion Balance	%	n/v	n/v	2.5[E]	-	-	-	2.35	-	-	0.710	-	-	3.61	4.70	nc	-	-	3.07	-	-	2.46	-	-	2.41	nc	-	-	2.12	-	-	1.29	nc	-	-					
Langelier Index (at 20 C)	none	n/v	n/v	1.08	-	-	-	0.238	-	-	0.431	-	-	0.979	1.05	nc	-	-	1.10	-	-	0.714	-	-	0.761	nc	-	-	0.491	-	-	0.333	nc	-	-					
Langelier Index (at 4 C)	none	n/v	n/v	0.828	-	-	-	-0.0100	-	-	0.162	-	-	0.732	0.804	nc	-	-	0.851	-	-	0.466	-	-	0.514	nc	-	-	0.243	-	-	0.0850	nc	-	-					
Orthophosphate (as P)	mg/L	n/v	n/v	<0.010	-	-	-	0.095	0.091	4%	0.052	-	-	0.032	<0.010	nc	-	-	<0.010	<0.010	nc	0.033	0.033	nc	0.035	nc	-	-	0.039	-	-	0.066	13%	0.063	5%					
pH, Field	S.U.	n/v	6.5-9.0[C]	7.77	-	-	-	7.36	-	-	8.17	-	-	9.03[C]	8.2	nc	-	-	8.2	-	-	8.27	-	-	8.27	nc	-	-	7.55	-	-	7.71	nc	-	-					
pH, lab	S.U.	n/v	6.5-9.0[C]	8.0[E]	-	-	-	7.87	-	-	8.04	-	-	8.19	8.22	nc	-	-	8.27	8.34	nc	8.09	-	-	8.15	nc	-	-	7.96	-	-	7.90	nc	-	-					
Phenols-4AAP	mg/L	n/v	n/v	<0.0010	-	<0.0010	nc	<0.0010	-	-	<0.0010	-	-	<0.0010	<0.0010	nc	-	-	<0.0010	-	-	0.0011	-	-	<0.0020	nc	-	-	0.0013	-	-	<0.0010	nc	-	-					
Saturation pH (at 20 C)	none	n/v	n/v	7.0[E]	-	-	-	7.64	-	-	7.61	-	-	7.21	7.17	nc	-	-	7.17	-	-	7.38	-	-	7.39	nc	-	-	7.47	-	-	7.57	nc	-	-					
Saturation pH (at 4 C)	none	n/v	n/v	7.27	-	-	-	7.88	-	-	7.96	-	-	7.46	7.42	nc	-	-	7.42	-	-	7.62	-	-	7.64	nc	-	-	7.72	-	-	7.82	nc	-	-					
Sulfate	mg/L	n/v	n/v	81	-	-	-	35	35	0%	30	-	-	50	42	9%	-	-	46	46	0%	53	53	0%	51	4%	-	-	100	-	-	140	0%	140	0%					
Total Dissolved Solids, Calculated	mg/L	n/v	n/v	760	-	-	-	490	-	-	320	-	-	660	590	2%	-	-	580	-	-	560	-	-	550	2%	-	-	660	-	-	540	2%	-	-					
Turbidity, Lab	NTU	n/v	n/v	2.6	-	-	-	19	-	-	100	110	10%	6.2	4.0	25%	-	-	3.1	-	-	32	30	6%	12	91%	-	-	9.3	-	-	6.7	13%	-	-					
BTEX and Petroleum Hydrocarbons																																									
Table 4.1																																									
Benzene	µg/L	n/v	370[C]	<0.20	-	<0.20	nc	<0.20	-	-	<0.20	-	-	<0.20	<0.20	nc	<0.20	nc	<0.20	-	-	<0.20	-	-	<0.20	-	-	-	<0.20	-	-	68	-	-	-					
Toluene	µg/L	2[C]	2[C]	<0.20	-	<0.20	nc	<0.20	-	-	<0.20	-	-	<0.20	<0.20	-	<0.20	nc	<0.20	-	-	<0.20	-	-	<0.20	-	-	-	<0.20	-	-	15[C]	-	-	-					
Xylenes, Total	µg/L	n/v	n/v	<0.40	-	<0.40	nc	<0.40	-	-	<0.40	-	-	<0.40	<0.40	nc	<0.40	nc	<0.40	-	-	<0.40	-	-	<0.40	-	-	-	<0.40	-	-	220	-	-	-					
PHC F1 (C6-C10 range)	µg/L	n/v	n/v	<25	-	<25	nc	29	-	-	<25	-	-	<25	<25	nc	<25	nc	<25	-	-	<25	-	-	<25	-	-	-	<25	-	-	640	-	-	-					
PHC F2 (>C10-C16 range)	µg/L	n/v	n/v	<100	-	-	-	<100	-	-	<100	-	-	<100	<100	-	-	-	<100	-	-	<100	-	-	<100	-	-	-	<100	-	-	<100	-	<100	-					
PHC F3 (>C16-C34 range)	µg/L	n/v	n/v	<200	-	-	-	<200	-	-	<200	-	-	<200	<200	-	-	-	<200	-	-	<200	-	-	<200	-	-	-	<200	-	-	<200	-	<200	-					
Total Petroleum Hydrocarbons	µg/L	n/v	n/v	ND	-	-	-	29	-	-	ND	-	-	ND	ND	-	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	-	286	-	-	-					
Oil and Grease, Total	mg/L	n/v	n/v	<0.50	-	-	-	<0.50	-	-	0.50	-	-	0.50	0.70	nc	-	-	5.3	-	-	0.50	-	-	<0.50	-	-	-	<0.50	-	-	<0.5[C]	-	-	-					
Table 4.2																																									
Ethylbenzene	µg/L	n/v	90[C]	<0.20	-	<0.20	nc	<0.20	-	-	<0.20	-	-	<0.20	<0.20	nc	<0.20	nc	<0.20	-	-	<0.20	-	-	<0.20	nc	-	-	<0.20	-	-	51	nc	-	-					
Other Parameters																																									
Xylene, m- & p-	µg/L	n/v	n/v	<0.40	-	<0.40	nc	<0.40	-	-	<0.40	-	-	<0.40	<0.40	nc	<0.40	nc	<0.40	-	-	<0.40	-	-	<0.40	nc	-	-	<0.40	-	-	160	nc	-	-					
Xylene, o-	µg/L	n/v	n/v	<0.20	-	<0.20	nc	<0.20	-	-	<0.20	-	-	<0.20	<0.20	nc	<0.20	nc	<0.20	-	-	<0.20	-	-	<0.20	nc	-	-	<0.20	-	-	67	nc	-	-					
PHC F1 (C6-C10 range) minus BTEX	µg/L	n/v	n/v	<25	-	<25	nc	29	-	-	<25	-	-	<25	<25	nc	<25	nc	<25	-	-	<25	-	-	<25	nc	-	-	<25	-	-	290	nc	-	-					
PHC F4 (>C34-C50 range)	µg/L	n/v	n/v	<200	-	-	-	<200	-	-	<200	-	-	<200	<200	nc	-	-	<200	-	-	<200	-	-	<200	nc	-	-	<200	-	-	<200	nc	<200	nc					
Chromatogram to baseline at C50	none	n/v	n/v	YES	-	-	nc	YES	-	-	YES	-	-	YES	YES	nc	-	-	YES	-	-	YES	-	-	YES	nc	-	-	YES	-	-	YES	nc	YES	nc					
Metals, Dissolved (Not included in 4.1 or 4.2)																																									
Aluminum	µg/L	n/v	n/v	<4.9	-	-	-	29	-	-	31	-	-	7.0	<4.9	nc	-	-	<4.9	-	-	11	-	-	11	nc	11	nc	11	-	-	11	nc	-	-					
Antimony	µg/L	n/v	n/v	<0.50	-	-	-	<0.50	-	-	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	nc	<0.50	nc	<0.50	-	-	<0.50	nc	-	-					
Arsenic	µg/L	n/v	n/v	<1.0	-	-	-	<1.0	-	-	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	1.6	-	-	1.7	nc	1.7	nc	1.6	-	-	<1.0	nc	-	-					
Barium	µg/L	n/v	n/v	71	-	-	-	33	-	-	24	-	-	51	49	6%	-	-	52	-	-	36	-	-	37	3%	36	3%	49	-	-	43	2%	-	-					
Beryllium	µg/L	n/v	n/v	<0.40	-	-	-	<0.40	-	-	<0.40	-	-	<0.40	<0.40	nc	-	-	<0.40	-	-	<0.40	-	-	<0.40	nc	<0.40	nc	<0.40	-	-	<0.40	nc	-	-					
Boron	µg/L	n/v	n/v	55	-	-	-	21	-	-	19	-	-	43	48	nc	-	-	52	-	-	70	-	-	70	0%	70	0%	99	-	-	72	0%	-	-					
Cadmium	µg/L	n/v	n/v	<0.090	-	-	-	<0.090	-	-	<0.090	-	-	<0.090	<0.090	nc	-	-	<0.090	-	-	<0.090	-	-	<0.090	nc	<0.090	nc	<0.090	-	-	<0.090	nc	-	-					
Calcium	µg/L	n/v	n/v	110,000	-	-	-	53,000	-	-	51,000	-	-	97,000	95,000	1%	-	-	84,000	-	-	64,000	-	-	62,000	2%	64,000	3%	68,000	-	-	71,000	1%	-	-					
Chromium	µg/L	n/v	n/v	<5.0	-	-	-	<5.0	-	-	<5.0	-	-	<5.0	<5.0	nc	-	-	<5.0	-	-	<5.0	-	-	<5.0	nc	<5.0	nc	<5.0	-	-	<5.0	nc	-	-					
Cobalt	µg/L	n/v	n/v	<0.50	-	-	-	<0.50	-	-	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	nc	<0.50	nc	<0.50	-	-	<0.50	nc	-	-					
Copper	µg/L	n/v	n/v	1.1	-	-	-	2.5	-	-	2.2	-	-	1.5	2.1	nc	-	-	2.0	-	-	1.2	-	-	1.1	nc	1.1	nc	0.96	-	-	2.0	nc	-	-					
Iron	µg/L	n/v	n/v	<100	-	-	-	<100	-	-	<100	-	-	<100	<100	nc	-	-	<100	-	-	<100	-	-	<100	nc	<100	nc	<100	-	-	<100	nc	-	-					
Lead	µg/L	n/v	n/v	<0.50	-	-	-	<0.50	-	-	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	nc	<0.50	nc	<0.50	-	-	<0.50	nc	-	-					
Lithium	µg/L	n/v	n/v	-	-	-	-	<5.0	-	-	<5.0	-	-	<5.0	<5.0	nc	-	-	5.6	-	-	5.6	-	-	6.7	nc	6.6	nc	7.1	-	-	<5.0	nc	-	-					
Magnesium	µg/L	n/v	n/v	31,000	-	-	-	12,000	-	-	11,000	-	-	23,000	26,000	4%	-	-	25,000	-	-	26,000	-	-	26,000	4%	26,000	0%	28,000	-	-	20,000	0%	-	-					
Manganese	µg/L	n/v	R_{DT} R_{EQ}[C]	81	-	-	-	40	-	-	6.6	-	-	40	<2.0	nc	-	-	<2.0	-	-	25	-	-	27	8%	28	4%	100	-	-	<2.0	nc	-	-					
CWQG Manganese Guideline (Benchmark)	µg/L	n/v		14,881	-	-	-	11,152	-		10,607	-	-	14,881	14,881		-	-	14,881	-		14,881	-		14,881		14,881		14,881	-	-	14,881		-	-					
CWQG Manganese Guideline	µg/L	n/v		480	-	-	-	620	-		260	-	-	140	290		-	-	270	-		270	-		270		270		560	-	-	560		-	-					
Molybdenum	µg/L	n/v	n/v	1.1	-	-	-	0.59	-	-	0.56	-	-	0.70	1.2	nc	-	-	1.1	-	-	1.4	-	-	1.4	nc	1.4	nc	1.2	-	-	1.7	nc	-	-					
Nickel	µg/L	n/v	n/v	<1.0	-	-	-	<1.0	-	-	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	nc	<1.0	nc	<1.0	-	-	1.1	nc	-	-					
Phosphorus	µg/L	n/v	n/v	<100	-	-	-	180	-	-	180	-	-	140	110	nc	-	-	120	-	-	120	-	-	110	nc	110	nc	130	-	-	180	nc	-	-					
Potassium	µg/L	n/v	n/v	4,100	-	-	-	4,600	-	-	3,700	-	-	3,100	2,800	0%	-	-	2,800	-	-	2,700	-	-	2,700	0%	2,700	0%	4,500	-	-	5,200	2%	-	-					
Selenium	µg/L	n/v	n/v	<2.0	-	-	-	<2.0	-	-	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	nc	<2.0	nc	<2.0	-	-	<2.0	nc	-	-					
Silicon	µg/L	n/v	n/v	2,700	-	-	-	1,900	-	-	2,100	-	-	420	700	4%	-	-	730	-	-	560	-	-	550	2%	550	0%	1,600	-	-	2,600	0%	-	-					
Silver	µg/L	n/v	n/v	<0.090	-	-	-	<0.090	-	-	<0.090	-	-	<0.090	<0.090	nc	-	-	<0.090	-	-	<0.090	-	-	<0.090	nc	<0.090	nc	<0.090	-	-	<0.090	nc	-	-					
Sodium	µg/L	n/v	n/v	140,000	-	-	-	110,000	-	-	52,000	-	-	140,000	110,000	0%	-	-	120,000	-	-	120,000	-	-	110,000	0%	110,000	0%	140,000	-	-	99,000	1%	-	-					
Strontium	µg/L	n/v	n/v	680	-	-	-	320	-	-	250	-	-	560	610	2%	-	-	620	-	-	550	-	-	560	2%	560	0%	690	-	-	570	2%	-	-					
Thallium	µg/L	n/v	n/v	<0.050	-	-	-	<0.050	-	-	<0.050	-	-	<0.050	<0.050	nc	-	-	<0.050	-	-	<0.050	-	-	<0.050	nc	<0.050	nc	<0.050	-	-	<0.050	nc	-	-					
Tin	µg/L	n/v	n/v	-	-	-	-	<1.0	-	-	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	nc	<1.0	nc	<1.0	-	-	<1.0	nc	-	-					
Titanium	µg/L	n/v	n/v	<5.0	-	-	-	<5.0	-	-	<5.0	-	-	<5.0	<5.0	nc	-	-	<5.0	-	-	<5.0	-	-	<5.0	nc	<5.0	nc	<5.0	-	-	<5.0	nc	-	-					
Tungsten	µg/L	n/v	n/v	-	-	-	-	<1.0	-	-	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	nc	<1.0	nc	<1.0	-	-	<1.0	nc	-	-					
Uranium	µg/L	n/v	n/v	1.9	-	-	-	0.81	-	-	0.67	-	-	1.3	1.1	10%	-	-	1.0	-	-	0.75	-	-	0.77	2%	0.75	3%	0.56	-	-	0.48	nc	-	-					
Vanadium	µg/L	n/v	n/v	<0.50	-	-	-	<0.50	-	-	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	0.76	-	-	0.73	nc	0.73	nc	0.86	-	-	0.68	nc	-	-					
Zinc	µg/L	n/v	EQ^{T} EQ^{C}	<5.0	-	-	-	5.3	-	-	<5.0	-	-	<5.0	<5.0	nc	-	-	<5.0	-	-	<5.0	-	-	<5.0	nc	<5.0	nc	<5.0	-	-	<5.0	nc	-	-					
CWQG Zinc Guideline (short-term)	µg/L	n/v		343	-	-	-	198	-		196	-	-	303	326		-	-	326	-		281	-		281		281		303	-	-	290		-	-					
CWQG Zinc Guideline (long-term)	µg/L	n/v		89	-	-	-	72	-		37	-	-	29	64		-	-	64	-		52	-		52		52		103	-	-	86		-	-					

Table
Surface Water Quality Results - IC-In
Canadian National Railway
Milton Logistics Hub

Sample Location				IC-In																																			
Sample Date				27-Jan-22	27-Jan-22	27-Jan-22		24-Feb-22	24-Feb-22		24-Mar-22	24-Mar-22		21-Apr-22	17-May-22		17-May-22	17-May-22	17-May-22		28-Jun-22	28-Jun-22		28-Jun-22	28-Jun-22		22-Jul-22	22-Jul-22		24-Aug-22	24-Aug-22							
Sample ID				517	517	517 Lab-Dup		IC-IN 545	IC-IN 545 Lab-Dup		IC-IN	IC-IN Lab-Dup		IC-IN	701		701 Lab-Dup	IC-IN	IC-IN Lab-Dup		732	732 Lab-Dup		740	740 Lab-Dup		IC-IN 850	IC-IN 850 Lab-Dup		DUPLICATE	DUPLICATE Lab-Dup							
Sampling Company				STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC							
Laboratory				BV	BV	BV		BV	BV		BV	BV		BV	BV		BV	BV	BV		BV	BV		BV	BV		BV	BV		BV	BV							
Laboratory Work Order				C223207	C223207	C223207		C249608	C249608		C278400	C278400		C2A6501	C2D3724		C2D3724	C2D3688	C2D3688		C2H9499	C2H9499		C2H9583	C2H9583		C2K6329	C2K6329		C2O2396	C2O2396							
Laboratory Sample ID				RSK986	RSK988	RSK986		RYB523	RYB523		SEJ977	SEJ977		SKP833	SQN529		SQN529	SQN269	SQN269		TAK427	TAK427		TAK774	TAK774		TGD600	TGD600		TNU478	TNU478							
Sample Type	Units	SSL	CCME			Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)	Lab Replicate		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)	Field Duplicate		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)	Field Duplicate		Lab Replicate	RPD (%)						
Zirconium	µg/L	n/v	n/v	-	-	-	-	<1.0	-	-	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	nc	<1.0	nc	<1.0	-	-	<1.0	nc	-	-				

See notes on last page.

Table
Surface Water Quality Results - IC-In
Canadian National Railway
Milton Logistics Hub

Sample Location				IC-In																																			
Sample Date				27-Jan-22	27-Jan-22	27-Jan-22		24-Feb-22	24-Feb-22		24-Mar-22	24-Mar-22		21-Apr-22	17-May-22		17-May-22	17-May-22	17-May-22		28-Jun-22	28-Jun-22		28-Jun-22	28-Jun-22		22-Jul-22	22-Jul-22		24-Aug-22	24-Aug-22		24-Aug-22						
Sample ID				517	517	517 Lab-Dup		IC-IN 545	IC-IN 545 Lab-Dup		IC-IN	IC-IN Lab-Dup		IC-IN	701		701 Lab-Dup	701 Lab-Dup	IC-IN		732	732 Lab-Dup		740	740 Lab-Dup		IC-IN 850	IC-IN 850 Lab-Dup		DUPLICATE	DUPLICATE Lab-Dup		DUPLICATE Lab-Dup						
Sampling Company				STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC						
Laboratory				BV	BV	BV		BV	BV		BV	BV		BV	BV		BV	BV	BV		BV	BV		BV	BV		BV	BV		BV	BV		BV						
Laboratory Work Order				C223207	C223207	C223207		C249608	C249608		C278400	C278400		C2A6501	C2D3724		C2D3724	C2D3724	C2D3688		C2H9499	C2H9499		C2H9583	C2H9583		C2K6329	C2K6329		C2G2396	C2G2396		C2G2396						
Laboratory Sample ID				RSK986	RSK988	RSK986 Lab Replicate		RY8523	RY8523 Lab Replicate		SEJ977	SEJ977 Lab Replicate		SKP833	SQN529		SQN529 Lab Replicate	SQN529 Lab Replicate	SQN269		TAK427	TAK427 Lab Replicate		TAK774	TAK774 Lab Replicate		TGD600	TGD600 Lab Replicate		TNU478	TNU478 Field Duplicate		TNU478 Lab Replicate						
Sample Type	Units	SSL	CCME				RPD (%)			RPD (%)			RPD (%)			RPD (%)				RPD (%)			RPD (%)			RPD (%)			RPD (%)			RPD (%)						
Metals, Total																																								
Table 4.1																																								
Chromium	µg/L	n/v	n/v	<5.0	-	-	-	<5.0	-	-	6.6	-	-	<5.0	<5.0	nc	-	-	<5.0	-	-	<5.0	-	-	<5.0	nc	-	-	<5.0	-	-	<5.0	nc	-	-				
Chromium (Hexavalent)	µg/L	n/v	1[F]	<0.50	-	-	-	<0.50	-	-	0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	<0.50	nc	-	-				
Chromium (Trivalent)	µg/L	n/v	8.9[C] Equation[C]	<5	-	-	-	<5	-	-	<5	-	-	<5	<5	nc	-	-	<5	-	-	<5	-	-	<5	nc	-	-	<5	-	-	<5	nc	-	-				
Copper	µg/L	n/v	Equation[C]	1.1	-	-	-	3.6	-	-	9.0[C]	-	-	2.0	2.7	nc	-	-	2.7	-	-	3.1	-	-	2.7	nc	-	-	2.5	-	-	2.6	nc	-	-				
CWQG Copper Guideline	µg/L	n/v		4	-	-	-	3.9	-	-	3.7	-	-	4	4		-	-	4	-	-	4	-	-	4		-	-	4	-	-	4		-	-				
Iron	µg/L	n/v	300[F]	150	-	-	-	630[C]	-	-	7,200[C]	-	-	340[C]	320[C]	nc	-	-	310[C]	-	-	1,100[C]	-	-	1,100[C]	0%	-	-	1,200[C]	-	-	480[C]	nc	-	-				
Lead	µg/L	n/v	Equation[C]	<0.50	-	-	-	<0.50	-	-	3.8	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	0.83	-	-	0.81	nc	-	-	0.78	-	-	<0.50	nc	-	-				
CWQG Lead Guideline	µg/L	n/v		7	-	-	-	6.7	-	-	6.3	-	-	7	7		-	-	7	-	-	7	-	-	7		-	-	7	-	-	7		-	-				
Zinc	µg/L	n/v	n/v	<5.0	-	-	-	14	-	-	37	-	-	5.2	5.8	nc	-	-	6.0	-	-	12	-	-	13	nc	-	-	11	-	-	9.2	nc	-	-				
Other Parameters																																								
Aluminum	µg/L	n/v	100[C] pH	100[C]	-	-	-	540[C]	-	-	6,000[C]	-	-	280[C]	180[C]	5%	-	-	190[C]	-	-	700[C]	-	-	730[C]	4%	-	-	710[C]	-	-	290[C]	0%	-	-				
Antimony	µg/L	n/v	n/v	<0.50	-	-	-	<0.50	-	-	<0.50	-	-	<0.50	0.55	nc	-	-	0.56	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	<0.50	nc	-	-				
Arsenic	µg/L	n/v	5[C]	<1.0	-	-	-	<1.0	-	-	1.6	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	2.3	-	-	2.1	nc	-	-	2.2	-	-	1.0	nc	-	-				
Barium	µg/L	n/v	69	36	-	-	-	61	-	-	54	52	2%	-	-	-	-	-	53	-	-	43	-	-	45	5%	-	-	55	-	-	46	2%	-	-				
Beryllium	µg/L	n/v	n/v	<0.40	-	-	-	<0.40	-	-	<0.40	<0.40	nc	-	-	-	-	-	<0.40	-	-	<0.40	-	-	<0.40	nc	-	-	<0.40	-	-	<0.40	nc	-	-				
Bismuth	µg/L	n/v	n/v	<1.0	-	-	-	<1.0	-	-	<1.0	<1.0	nc	-	-	-	-	-	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	<1.0	nc	-	-				
Boron	µg/L	n/v	29,000[F] 1,500[C] STP, LTG	57	-	-	-	24	-	-	21	-	-	50	53	0%	-	-	53	-	-	63	-	-	67	6%	-	-	100	-	-	66	10%	-	-				
Cadmium	µg/L	n/v		<0.090	-	-	-	<0.090	-	-	<0.090	-	-	<0.090	<0.090	nc	-	-	<0.090	-	-	<0.090	-	-	<0.090	nc	-	-	<0.090	-	-	<0.090	nc	-	-				
CWQG Cadmium Guideline (STB)	µg/L	n/v		7.7	-	-	-	3.81	-	-	3.60	-	-	6.63	6.84		-	-	6.63	-	-	5.54	-	-	5.54		-	-	5.97	-	-	5.54		-	-				
CWQG Cadmium Guideline (LTG)	µg/L	n/v		0.37	-	-	-	0.26	-	-	0.25	-	-	0.37	0.37		-	-	0.37	-	-	0.35	-	-	0.35		-	-	0.37	-	-	0.35		-	-				
Calcium	µg/L	n/v	n/v	110,000	-	-	-	57,000	-	-	52,000	-	-	87,000	87,000	1%	-	-	88,000	-	-	63,000	-	-	65,000	3%	-	-	70,000	-	-	76,000	1%	-	-				
Cobalt	µg/L	n/v	n/v	<0.50	-	-	-	<0.50	-	-	2.5	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	0.53	-	-	<0.50	nc	-	-	<0.50	-	-	<0.50	nc	-	-				
Lithium	µg/L	n/v	n/v	6.0	-	-	-	<5.0	-	-	8.4	-	-	<5.0	5.0	nc	-	-	5.4	-	-	6.9	-	-	6.6	nc	-	-	7.9	-	-	<5.0	nc	-	-				
Magnesium	µg/L	n/v	n/v	30,000	-	-	-	13,000	-	-	14,000	-	-	23,000	26,000	0%	-	-	26,000	-	-	27,000	-	-	27,000	0%	-	-	29,000	-	-	22,000	5%	-	-				
Manganese	µg/L	n/v	n/v	60	-	-	-	56	-	-	140	-	-	54	47	2%	-	-	46	-	-	99	-	-	99	0%	-	-	220	-	-	110	0%	-	-				
Molybdenum	µg/L	n/v	73[C]	0.92	-	-	-	0.66	-	-	0.63	-	-	0.76	1.1	nc	-	-	1.2	-	-	1.5	-	-	1.5	nc	-	-	1.2	-	-	1.7	nc	-	-				
Nickel	µg/L	n/v	Equation[C]	<1.0	-	-	-	1.1	-	-	7.7	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	2.0	-	-	2.0	nc	-	-	1.8	-	-	1.2	nc	-	-				
CWQG Nickel Guideline	µg/L	n/v		150	-	-	-	149	-	-	143	-	-	150	150		-	-	150	-	-	150	-	-	150		-	-	150	-	-	150		-	-				
Potassium	µg/L	n/v	n/v	3,700	-	-	-	4,500	-	-	4,500	-	-	3,200	2,800	0%	-	-	2,800	-	-	2,900	-	-	3,200	10%	-	-	4,600	-	-	5,200	2%	-	-				
Selenium	µg/L	n/v	1[C]	<2.0	-	-	-	<2.0	-	-	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	<2.0	-	-	<2.0	nc	-	-				
Silicon	µg/L	n/v	n/v	2,700	-	-	-	2,700	-	-	9,400	-	-	1,000	1,100	9%	-	-	1,100	-	-	1,500	-	-	1,600	6%	-	-	2,500	-	-	3,100	7%	-	-				
Silver	µg/L	n/v	0.25[C]	<0.090	-	-	-	<0.090	-	-	<0.090	-	-	<0.090	<0.090	nc	-	-	<0.090	-	-	<0.090	-	-	<0.090	nc	-	-	<0.090	-	-	<0.090	nc	-	-				
Sodium	µg/L	n/v	n/v	120,000	-	-	-	120,000	-	-	50,000	-	-	140,000	120,000	0%	-	-	120,000	-	-	120,000	-	-	120,000	0%	-	-	140,000	-	-	94,000	1%	-	-				
Strontium	µg/L	n/v	n/v	650	-	-	-	320	-	-	250	-	-	520	590	2%	-	-	600	-	-	570	-	-	570	0%	-	-	690	-	-	610	3%	-	-				
Tellurium	µg/L	n/v	n/v	<1.0	-	-	-	<1.0	-	-	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	<1.0	nc	-	-				
Thallium	µg/L	n/v	0.8[C]	<0.050	-	-	-	<0.050	-	-	0.067	-	-	<0.050	<0.050	nc	-	-	<0.050	-	-	<0.050	-	-	<0.050	nc	-	-	<0.050	-	-	<0.050	nc	-	-				
Tin	µg/L	n/v	n/v	<1.0	-	-	-	<1.0	-	-	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	<1.0	nc	-	-				
Titanium	µg/L	n/v	n/v	<5.0	-	-	-	14	-	-	97	-	-	7.3	9.4	nc	-	-	7.6	-	-	16	-	-	17	nc	-	-	17	-	-	7.8	nc	-	-				
Tungsten	µg/L	n/v	n/v	<1.0	-	-	-	<1.0	-	-	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	<1.0	nc	-	-				
Uranium	µg/L	n/v	33[F] 15[C]	1.9	-	-	-	0.76	-	-	0.97	-	-	1.3	1.1	0%	-	-	1.1	-	-	0.84	-	-	0.83	1%	-	-	0.58	-	-	0.47	nc	-	-				
Vanadium	µg/L	n/v	n/v	0.52	-	-	-	1.3	-	-	8.9	-	-	0.92	1.0	nc	-	-	0.89	-	-	2.0	-	-	2.3	nc	-	-	2.2	-	-	1.4	nc	-	-				
Zirconium	µg/L	n/v	n/v	<1.0	-	-	-	<1.0	-	-	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	<1.0	nc	-	-				
Microbiological Parameters																																								
Table 4.2																																								
E. Coli/Fecal Coliform	cfu/100mL	n/v	n/v	2	-	-	-	NDOGT	-	-	NDOGT	-	-	78	410	nc	-	-	350	-	-	250	-	-	240	nc	-	-	120	-	-	330	nc	-	-				
Total Coliforms	cfu/100mL	n/v	n/v	25	-	-	-	NDOGT	-	-	NDOGT	-	-	2,100	2,300	nc	-	-	1,200	-	-	710	-	-	1,200	nc	-	-	6,400	-	-	8,350	nc	-	-				
Other Parameters																																								
Total Coliform Background	cfu/100mL	n/v	n/v	510	-	-	-	NDOGT	-	-	NDOGT	-	-	22,000	8,700	nc	-	-	6,000	-	-	8,500	-	-	8,100	nc	-	-	49,000	-	-	65,000	nc	-	-				
Polychlorinated Biphenyls																																								
Polychlorinated Biphenyls (PCBs)	µg/L	n/v	n/v	-	<0.05	-	-	<0.05	-	-	<0.05	-	-	<0.05	<0.05	nc	-	-	<0.05	-	-	<0.05	-	-	<0.05	nc	<0.05	nc	-	-	-	<0.05	nc	-	-				
Herbicide and Pesticide (SW8267OD)																																								
Table 4.2																																								
Aldicarb	µg/L	1[A]	1[C]	<0.10	-	-	-	<0.10	-	-	<0.10	-	-	<0.10	<0.10	nc	-	-	<0.10	-	-	<0.10	-	-	<0.10	nc	-	-	-	-	-	<0.10	nc	-	-				
Carbary	µg/L	0.2[A]	3.3[F] 0.2[C]	<0.10	-	-	-	<0.10	-	-	<0.10	-	-	<0.10	<0.10	nc	-	-	<0.10	-	-	<0.10	-	-	<0.10	nc	-	-	-	-	-	<0.10	nc	-	-				
Carbofuran	µg/L	1.8[A]	1.8[C]	<0.10	-	-	-	<0.10	-	-	<0.10	-	-	<0.10	<0.10	nc	-	-	<0.10	-	-	<0.10	-	-	<0.10	nc	-	-	-	-	-	<0.10	nc	-	-				
Cyanazine (Bladex	µg/L	2[A]	2[C]	<0.10	-	-	-	<0.10	-	-	<0.10	-	-	<0.10	<0.10	nc	-	-	<0.10	-	-	<0.10	-	-	<0.10	nc	-	-	-	-	-	<0.10	nc	-	-				
Triallate	µg/L	0.24[A]	0.24[C]	<0.050	-	-	-	<0.050	-	-	<0.050	-	-	<0.050	<0.050	nc	-	-	<0.050	-	-	<0.050	-	-	<0.050	nc	-	-	-	-	-	<0.050	nc	-	-				
Trifluralin	µg/L	0.2[A]	0.2[C]	<0.050	-	-	-	<0.050	-	-	<0.050	-	-	<0.050	<0.050	nc	-	-	<0.050	-	-	<0.050	-	-	<0.050	nc	-	-	-	-	-	<0.050	nc	-	-				
Other Parameters																																								
Endosulfan I	µg/L	n/v	n/v	<0.050	-	-	-	<0.050	-	-	<0.050	-	-	<0.050	<0.050	nc	-	-	<0.050	-	-	<0.050	-	-	<0.050	nc	-	-	-	-	-	<0.050	nc	-	-				
Endosulfan II	µg/L	n/v	n/v	<0.050	-	-	-	<0.050	-	-	<0.050	-	-	<0.050	<0.050	nc	-	-	<0.050	-	-	<0.050	-	-	<0.050	nc	-	-	-	-	-	<0.050	nc	-	-				
Endosulfan Sulfate	µg/L	n/v	n/v	<0.050	-	-	-	<0.050	-	-	<0.050	-	-	<0.050	<0.050	nc	-	-	<0.050	-	-	<0.050	-	-	<0.050	nc	-	-	-	-	-	<0.050	nc	-	-				

See notes on last page.

Table
Surface Water Quality Results - IC-In
Canadian National Railway
Milton Logistics Hub

Sample Location				IC-In																																					
Sample Date				27-Jan-22	27-Jan-22	27-Jan-22		24-Feb-22	24-Feb-22		24-Mar-22	24-Mar-22		21-Apr-22	17-May-22		17-May-22	17-May-22	17-May-22		28-Jun-22	28-Jun-22		28-Jun-22	28-Jun-22		22-Jul-22	22-Jul-22		24-Aug-22	24-Aug-22		24-Aug-22								
Sample ID				517	517	517 Lab-Dup		IC-IN 545	IC-IN 545 Lab-Dup		IC-IN	IC-IN Lab-Dup		IC-IN	701		701 Lab-Dup	IC-IN	IC-IN Lab-Dup		732	732 Lab-Dup		740	740 Lab-Dup		IC-IN 850	IC-IN 850 Lab-Dup		DUPLICATE	DUPLICATE Lab-Dup		DUPLICATE Lab-Dup								
Sampling Company				STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC								
Laboratory				BV	BV	BV		BV	BV		BV	BV		BV	BV		BV	BV	BV		BV	BV		BV	BV		BV	BV		BV	BV		BV								
Laboratory Work Order				C223207	C223207	C223207		C249608	C249608		C278400	C278400		C2A6501	C2D3724		C2D3724	C2D3688	C2D3688		C2H9499	C2H9499		C2H9583	C2H9583		C2K6329	C2K6329		C2Q2396	C2Q2396		C2Q2396								
Laboratory Sample ID				RSK986	RSK988	RSK986		RY8523	RY8523		SEJ977	SEJ977		SKP833	SQN529		SQN529	SQN269	SQN269		TAK427	TAK427		TAK774	TAK774		TGD600	TGD600		TNU478	TNU478		TNU478								
Sample Type	Units	SSL	CCME			Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)	Lab Replicate		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)	Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)	Lab Replicate	RPD (%)							
Herbicide and Pesticide																																										
Table 4.2																																										
2,4,5-TP (Silvex)	µg/L	n/v	n/v	<0.50	-	-	-	<0.50	<0.50	nc	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	-	-	-	-	<0.50	-	-	-					
2,4-D (SEE)	µg/L	n/v	n/v	<0.50	-	-	-	<0.50	<0.50	nc	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	-	-	-	-	<0.50	-	-	-					
2,4-DB	µg/L	n/v	n/v	<0.50	-	-	-	<0.50	<0.50	nc	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	-	-	-	-	<0.50	-	-	-					
Aldicarb	µg/L	4_{L}[A]	1[C]	**<5.0**	-	**<5.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Atrazine	µg/L	1.8_{T}[A]	1.8[C]	<1.0	-	<1.0	-	<1.0	-	-	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	-	-	-	-	<1.0	-	-	-					
Azinphos-methyl (Guthion)	n/v	n/v	n/v	<1.0	-	<1.0	-	<1.0	-	-	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	-	-	-	-	<1.0	-	-	-					
Bendiocarb	µg/L	n/v	n/v	<2.0	-	<2.0	-	<2.0	-	-	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	-	-	-	-	<2.0	-	-	-					
Bromoxynil acid (MCPB)	µg/L	n/v	n/v	<0.50	-	-	-	<0.50	<0.50	nc	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	-	-	-	-	<0.50	-	-	-					
Carbary	µg/L	0.2_{L}[A]	3.3^{M} 0.2[C]	**<5.0**	-	**<5.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Carbofuran	µg/L	1.8_{T}[A]	1.8[C]	**<5.0**	-	**<5.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Chlorpyrifos	µg/L	0.002$_{T}$[A]	0.02[M] 0.002[C]	**<2.0**	-	**<2.0**	-	**<2.0**	-	-	**<2.0**	-	-	**<2.0**	**<2.0**	nc	-	-	**<2.0**	-	-	**<2.0**	-	-	**<2.0**	nc	-	-	-	-	-	-	**<2.0**	-	-	-					
Cyanazine (Bladex)	µg/L	2_{L}[A]	2[C]	**<5.0**	-	**<5.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
DDVP (Dichlorvos)	n/v	n/v	n/v	<2.0	-	<2.0	-	<2.0	-	-	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	-	-	-	-	<2.0	-	-	-					
Demeton	n/v	n/v	n/v	<2.0	-	<2.0	-	<2.0	-	-	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	-	-	-	-	<2.0	-	-	-					
Diazinon	n/v	n/v	n/v	<2.0	-	<2.0	-	<2.0	-	-	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	-	-	-	-	<2.0	-	-	-					
Dicamba	µg/L	10_{L}[A]	10[C]	<0.50	-	-	-	<0.50	<0.50	nc	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	-	-	-	-	<0.50	-	-	-					
Dichlorophenoxy acetic acid, 2,4- (2,4-D)	µg/L	4_{L}[A]	4[C]	<0.50	-	-	-	<0.50	<0.50	nc	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	-	-	-	-	<0.50	-	-	-					
Dichlorprop (2,4-DP)	n/v	n/v	n/v	<0.50	-	-	-	<0.50	<0.50	nc	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	-	-	-	-	<0.50	-	-	-					
Dimethoate	µg/L	6.2_{L}[A]	6.2[C]	<2.0	-	<2.0	-	<2.0	-	-	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	-	-	-	-	<2.0	-	-	-					
Ethion	n/v	n/v	n/v	<1.0	-	<1.0	-	<1.0	-	-	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	-	-	-	-	<1.0	-	-	-					
Fenchlorphos (Ronnel)	µg/L	n/v	n/v	<2.0	-	<2.0	-	<2.0	-	-	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	-	-	-	-	<2.0	-	-	-					
Fenthion	µg/L	n/v	n/v	<1.0	-	<1.0	-	<1.0	-	-	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	-	-	-	-	<1.0	-	-	-					
Fonofos	µg/L	n/v	n/v	<2.0	-	<2.0	-	<2.0	-	-	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	-	-	-	-	<2.0	-	-	-					
Imidan (Phosmet)	µg/L	n/v	n/v	<2.0	-	<2.0	-	<2.0	-	-	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	-	-	-	-	<2.0	-	-	-					
Malathion	µg/L	n/v	n/v	<2.0	-	<2.0	-	<2.0	-	-	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	-	-	-	-	<2.0	-	-	-					
MCPA (2-Methyl-4-Chlorophenoxyacetic Acid)	µg/L	2.6_{L}[A]	2.6[C]	<0.50	-	-	-	<0.50	<0.50	nc	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	-	-	-	-	<0.50	-	-	-					
MCPP (2-(2-Methyl-4-chlorophenoxy) propionic acid)	µg/L	n/v	n/v	<0.50	-	-	-	<0.50	<0.50	nc	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	-	-	-	-	<0.50	-	-	-					
Methyl Parathion	n/v	n/v	n/v	<2.0	-	<2.0	-	<2.0	-	-	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	-	-	-	-	<2.0	-	-	-					
Metolachlor (Dual)	µg/L	7.8_{L}[A]	7.8[C]	<5.0	-	<5.0	-	<5.0	-	-	<5.0	-	-	<5.0	<5.0	nc	-	-	<5.0	-	-	<5.0	-	-	<5.0	nc	-	-	-	-	-	-	<5.0	-	-	-					
Mevinphos (Phosdrin)	µg/L	n/v	n/v	<2.0	-	<2.0	-	<2.0	-	-	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	-	-	-	-	<2.0	-	-	-					
Parathion (Ethyl Parathion)	µg/L	n/v	n/v	<2.0	-	<2.0	-	<2.0	-	-	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	-	-	-	-	<2.0	-	-	-					
Phorate (Thimet)	µg/L	n/v	n/v	<1.0	-	<1.0	-	<1.0	-	-	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	-	-	-	-	<1.0	-	-	-					
Picloram	µg/L	29_{L}[A]	29[C]	<0.50	-	-	-	<0.50	<0.50	nc	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	-	-	-	-	<0.50	-	-	-					
Prometryn	n/v	n/v	n/v	<1.0	-	<1.0	-	<1.0	-	-	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	-	-	-	-	<1.0	-	-	-					
Simazine	µg/L	10_{L}[A]	10[C]	<2.0	-	<2.0	-	<2.0	-	-	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	-	-	-	-	<2.0	-	-	-					
Terbufos	µg/L	n/v	n/v	<1.0	-	<1.0	-	<1.0	-	-	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	-	-	-	-	<1.0	-	-	-					
Trichlorophenoxy acetic acid, 2,4,5- (2,4,5-T)	µg/L	n/v	n/v	<0.50	-	-	-	<0.50	<0.50	nc	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	-	-	-	-	<0.50	-	-	-					
Trifluralin	µg/L	0.2_{L}[A]	0.2[C]	**<5.0**	-	**<5.0**	-	**<5.0**	-	-	**<5.0**	-	-	**<5.0**	**<5.0**	nc	-	-	**<5.0**	-	-	**<5.0**	-	-	**<5.0**	nc	-	-	-	-	-	-	**<5.0**	-	-	-					

See notes on last page

Table
Surface Water Quality Results - IC-In
Canadian National Railway
Milton Logistics Hub

Sample Location				IC-In																																					
Sample Date				24-Aug-22	24-Aug-22		24-Aug-22	24-Aug-22		27-Sep-22	27-Sep-22		27-Sep-22	27-Sep-22		25-Oct-22	25-Oct-22		25-Oct-22	25-Oct-22		24-Nov-22	24-Nov-22		24-Nov-22	24-Nov-22		13-Dec-22	13-Dec-22		13-Dec-22	13-Dec-22									
Sample ID				IC-IN	IC-IN Lab-Dup		IC-IN	DUPLICATE		892	892 Lab-Dup		IC-IN	DUPLICATE 2		IC-IN	IC-IN Lab-Dup		IC-IN	DUPLICATE 2		995	995 Lab-Dup		1024	1024 Lab-Dup		1028	1028 Lab-Dup		IC-IN	DUPLICATE-1									
Sampling Company				STANTEC	STANTEC		ALS	ALS		STANTEC	STANTEC		ALS	ALS		STANTEC	BV		ALS	ALS		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		ALS	STANTEC									
Laboratory				BV	BV		L2736251	L2736251		BV	BV		L2734680	L2734680		C2V1209	C2V1209		L2737944	L2737944		C2Y5885	C2Y5885		C2Y5868	C2Y5868		C2AF926	C2AF926		L2743119	L2743119									
Laboratory Work Order				C2O2331	C2O2331		L2736251	L2736251		C2R9794	C2R9794		L2734680	L2734680		UCL884	UCL884		L2737944-1	L2737944		UKC143	UKC143		UKC648	UKC648		UCQ713	UCQ713		L2743119-1	L2743119									
Laboratory Sample ID				TNJ059	TNJ059		L2736251-1	L2736251-3		TVW015	TVW015		L2734680-1	L2734680-4		UCL884	UCL884		UCL884	UCL884		UKC143	UKC143		UKC648	UKC648		UCQ713	UCQ713		L2743119-1	L2743119-3									
Sample Type	Units	SSL	CCME		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)		Lab Replicate	RPD (%)			Field Duplicate	RPD (%)									
General Chemistry																																										
Table 4.1																																										
Chloride	mg/L	n/v	640[I] 120[C]	140[C]	-	-	-	-	-	140[C]	-	-	-	-	-	130[C]	-	-	-	-	-	160[C]	-	-	150[C]	6%	-	-	210[C]	-	-	-	-	-							
Dissolved Oxygen	mg/L	n/v	>5.5/6/6.5/9.5$_{(early)}$[C]	8.19	-	-	-	-	-	8.90	8.91	nc	-	-	-	8.92	8.93	nc	-	-	-	10.4	-	-	10.1	nc	10.2	nc	9.83	-	-	-	-	-							
Phosphorus, Total	mg/L	n/v	n/v	0.096	-	-	-	-	-	0.063	-	-	-	-	-	0.066	-	-	-	-	-	0.027	-	-	0.029	7%	-	-	0.030	-	-	-	-	-							
Total Suspended Solids	mg/L	n/v	5[F]	16	-	-	-	-	-	4	-	-	-	-	-	5	-	-	-	-	-	4	-	-	4	nc	-	-	7	-	-	-	-	-							
Temperature, Field	deg C	n/v	n/v	23.5	-	-	-	-	-	13.6	-	-	-	-	-	11.4	-	-	-	-	-	1.6	-	-	1.6	nc	-	-	1.4	-	-	-	-	-							
Table 4.2																																										
Ammonia (as N)	mg/L	n/v	TBD[C]	2.8[C]	-	-	-	-	-	0.04	-	-	-	-	-	0.14	0.13	7%	-	-	-	0.14	0.14	0%	0.15	7%	-	-	-	-	-	-	-	-	-							
CWQG Ammonia Guideline	mg/L	n/v		0.29	-		-	-		0.59	-		-	-		0.86	-		-	-		1.92	-		1.92		-		-	-												
Ammonia, Un-ionized (Calculated)	mg/L	0.019$_{(T)}$[A]	0.019[C]	0.088[XC]	-	-	-	-	-	0.00078	-	-	-	-	-	0.0024	-	-	-	-	-	0.0019	-	-	0.0021	nc	-	-	-	-	-	-	-	-							
Nitrate (as N)	mg/L	3.0$_{(T)}$[A]	124[B] 3.0[C]	0.12	-	-	-	-	-	<0.10	-	-	-	-	-	<0.10	-	-	-	-	-	0.35	-	-	0.38	nc	-	-	0.69	-	-	-	-	-							
Nitrate + Nitrite (as N)	mg/L	n/v	n/v	0.12	-	-	-	-	-	<0.10	-	-	-	-	-	<0.10	-	-	-	-	-	0.36	-	-	0.39	nc	-	-	0.71	-	-	-	-	-							
Nitrite (as N)	mg/L	0.06$_{(T)}$[A]	0.06[C]	<0.010	-	-	-	-	-	<0.010	-	-	-	-	-	<0.010	-	-	-	-	-	0.010	-	-	0.011	nc	-	-	0.020	-	-	-	-	-							
Other Parameters																																										
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	<1.0	-	-	-	-	-	3.0	-	-	-	-	-	2.5	-	-	-	-	-	2.0	-	-	2.0	nc	-	-	2.1	-	-	-	-	-							
Alkalinity, Total (as CaCO3)	mg/L	n/v	n/v	110	-	-	-	-	-	200	-	-	-	-	-	160	-	-	-	-	-	180	-	-	180	0%	-	-	190	-	-	-	-	-							
Anion Sum	me/L	n/v	n/v	9.28	-	-	-	-	-	9.77	-	-	-	-	-	8.84	-	-	-	-	-	9.96	-	-	9.73	nc	-	-	11.5	-	-	-	-	-							
Bicarbonate(as CaCO3, Calculated)	mg/L	n/v	n/v	110	-	-	-	-	-	200	-	-	-	-	-	160	-	-	-	-	-	180	-	-	180	0%	-	-	180	-	-	-	-	-							
Cation Sum	me/L	n/v	n/v	9.42	-	-	-	-	-	9.72	-	-	-	-	-	9.46	-	-	-	-	-	10.6	-	-	10.5	nc	-	-	12.9	-	-	-	-	-							
Dissolved Organic Carbon (DOC)	mg/L	n/v	n/v	8.7	-	-	-	-	-	7.1	-	-	-	-	-	6.1	-	-	-	-	-	5.0	-	-	4.3	0%	-	-	4.3	-	-	-	-	-							
Electrical Conductivity, Lab	µmhos/cm	n/v	n/v	930	-	-	-	-	-	980	-	-	-	-	-	920	-	-	-	-	-	1,000	-	-	1,100	10%	-	-	1,300	-	-	-	-	-							
Hardness (as CaCO3)	mg/L	n/v	n/v	260	-	-	-	-	-	280	-	-	-	-	-	270	-	-	-	-	-	290	-	-	330	0%	-	-	330	-	-	-	-	-							
Ion Balance	%	n/v	n/v	0.770	-	-	-	-	-	2.11	-	-	-	-	-	3.4	-	-	-	-	-	3.05	-	-	3.91	nc	-	-	5.57	-	-	-	-	-							
Langelier Index (at 20 C)	none	n/v	n/v	0.312	-	-	-	-	-	0.664	-	-	-	-	-	0.792	-	-	-	-	-	0.721	-	-	0.731	nc	-	-	0.782	-	-	-	-	-							
Langelier Index (at 4 C)	none	n/v	n/v	0.0640	-	-	-	-	-	0.637	-	-	-	-	-	0.545	-	-	-	-	-	0.473	-	-	0.484	nc	-	-	0.535	-	-	-	-	-							
Orthophosphate (as P)	mg/L	n/v	n/v	0.060	-	-	-	-	-	0.026	-	-	-	-	-	0.017	-	-	-	-	-	<0.010	-	-	<0.010	nc	-	-	<0.010	-	-	-	-	-							
pH, Field	S.U.	n/v	6.5-9.0[C]	7.71	-	-	-	-	-	7.82	-	-	-	-	-	7.85	-	-	-	-	-	8.06	-	-	8.06	nc	-	-	8.54	-	-	-	-	-							
pH, lab	S.U.	n/v	6.5-9.0[C]	7.88	-	-	-	-	-	8.21	-	-	-	-	-	8.18	-	-	-	-	-	8.07	-	-	8.07	nc	-	-	8.08	-	-	-	-	-							
Phenols-4AAP	mg/L	n/v	n/v	<0.0010	-	-	-	-	-	<0.0010	-	-	-	-	-	<0.0010	-	-	-	-	-	<0.0010	-	-	<0.0010	nc	-	-	<0.0010	-	-	-	-	-							
Saturation pH (at 20 C)	none	n/v	n/v	7.56	-	-	-	-	-	7.33	-	-	-	-	-	7.39	-	-	-	-	-	7.35	-	-	7.34	nc	-	-	7.30	-	-	-	-	-							
Saturation pH (at 4 C)	none	n/v	n/v	7.81	-	-	-	-	-	7.58	-	-	-	-	-	7.63	-	-	-	-	-	7.60	-	-	7.59	nc	-	-	7.54	-	-	-	-	-							
Sulfate	mg/L	n/v	n/v	140	-	-	-	-	-	82	-	-	-	-	-	68	-	-	-	-	-	91	-	-	91	0%	-	-	93	-	-	-	-	-							
Total Dissolved Solids, Calculated	mg/L	n/v	n/v	550	-	-	-	-	-	550	-	-	-	-	-	500	-	-	-	-	-	570	-	-	560	2%	-	-	660	-	-	-	-	-							
Turbidity, Lab	NTU	n/v	n/v	7.6	-	-	-	-	-	4.1	-	-	-	-	-	3.7	-	-	-	-	-	4.0	-	-	3.7	8%	-	-	5.4	-	-	-	-	-							
BTEX and Petroleum Hydrocarbons																																										
Table 4.1																																										
Benzene	µg/L	n/v	370[C]	<0.20	-	-	-	-	-	<0.20	-	-	-	-	-	<0.20	-	-	-	-	-	<0.20	-	-	<0.20	-	-	-	<0.20	-	-	-	-	-							
Toluene	µg/L	n/v	2[C]	<0.20	-	-	-	-	-	<0.20	-	-	-	-	-	<0.20	-	-	-	-	-	<0.20	-	-	<0.20	-	-	-	<0.20	-	-	-	-	-							
Xylenes, Total	µg/L	n/v	n/v	<0.40	-	-	-	-	-	<0.40	-	-	-	-	-	<0.40	-	-	-	-	-	<0.40	-	-	<0.40	-	-	-	<0.40	-	-	-	-	-							
PHC F1 (C6-C10 range)	µg/L	n/v	n/v	<25	-	-	-	-	-	<25	-	-	-	-	-	<25	-	-	-	-	-	<25	-	-	<25	-	-	-	<25	-	-	-	-	-							
PHC F2 (>C10-C16 range)	µg/L	n/v	n/v	<100	<100	-	-	-	-	<100	-	-	-	-	-	<100	-	-	-	-	-	<100	-	-	<100	nc	-	-	<100	-	-	-	-	-							
PHC F3 (>C16-C34 range)	µg/L	n/v	n/v	<200	<200	-	-	-	-	<200	-	-	-	-	-	<200	-	-	-	-	-	<200	-	-	<200	nc	-	-	<200	-	-	-	-	-							
Total Petroleum Hydrocarbons	mg/L	n/v	n/v	ND	-	-	-	-	-	ND	-	-	-	-	-	ND	-	-	-	-	-	ND	-	-	ND	-	-	-	-	-	-	-	-	-							
Oil and Grease, Total	mg/L	n/v	n/v	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	1.6	-	-	-	-	-	1.5	-	-	1.1	-	-	-	<0.50	-	-	-	-	-							
Table 4.2																																										
Ethylbenzene	µg/L	n/v	90[C]	<0.20	-	-	-	-	-	<0.20	-	-	-	-	-	<0.20	-	-	-	-	-	<0.20	-	-	<0.20	nc	-	-	<0.20	-	-	-	-	-							
Other Parameters																																										
Xylene, m & p-	µg/L	n/v	n/v	<0.40	-	-	-	-	-	<0.40	-	-	-	-	-	<0.40	-	-	-	-	-	<0.40	-	-	<0.40	nc	-	-	<0.40	-	-	-	-	-							
Xylene, o-	µg/L	n/v	n/v	<0.20	-	-	-	-	-	<0.20	-	-	-	-	-	<0.20	-	-	-	-	-	<0.20	-	-	<0.20	nc	-	-	<0.20	-	-	-	-	-							
PHC F1 (C6-C10 range) minus BTEX	µg/L	n/v	n/v	<25	-	-	-	-	-	<25	-	-	-	-	-	<25	-	-	-	-	-	<25	-	-	<25	nc	-	-	<25	-	-	-	-	-							
PHC F4 (>C34-C50 range)	µg/L	n/v	n/v	<200	<200	nc	-	-	-	<200	-	-	-	-	-	<200	-	-	-	-	-	<200	-	-	<200	nc	-	-	<200	-	-	-	-	-							
Chromatogram to baseline at C50	none	n/v	n/v	YES	YES	nc	-	-	-	YES	-	-	-	-	-	YES	-	-	-	-	-	YES	-	-	YES	nc	-	-	-	-	-	-	-	-							
Metals, Dissolved (Not included in 4.1 or 4.2)																																										
Aluminum	µg/L	n/v	n/v	11	-	-	-	-	-	140	-	-	-	-	-	9.2	8.6	nc	-	-	-	5.6	-	-	99	nc	-	-	6.7	6	nc	-	-	-							
Antimony	µg/L	n/v	n/v	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	0.72	<0.50	nc	-	-	-	0.55	-	-	<0.50	nc	-	-	<0.50	<0.50	nc	-	-	-							
Arsenic	µg/L	n/v	n/v	<1.0	-	-	-	-	-	<1.0	-	-	-	-	-	<1.0	<1.0	nc	-	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	<1.0	nc	-	-	-							
Barium	µg/L	n/v	n/v	42	-	-	-	-	-	51	-	-	-	-	-	46	47	2%	-	-	-	49	-	-	49	0%	-	-	52	53	2%	-	-	-							
Beryllium	µg/L	n/v	n/v	<0.40	-	-	-	-	-	<0.40	-	-	-	-	-	<0.40	<0.40	nc	-	-	-	<0.40	-	-	<0.40	nc	-	-	<0.40	<0.40	nc	-	-	-							
Boron	µg/L	n/v	n/v	72	-	-	-	-	-	71	-	-	-	-	-	85	84	1%	-	-	-	83	-	-	78	6%	-	-	73	74	1%	-	-	-							
Cadmium	µg/L	n/v	n/v	<0.090	-	-	-	-	-	<0.090	-	-	-	-	-	<0.090	<0.090	nc	-	-	-	<0.090	-	-	<0.090	nc	-	-	<0.090	<0.090	nc	-	-	-							
Calcium	µg/L	n/v	n/v	72,000	-	-	-	-	-	71,000	-	-	-	-	-	66,000	66,000	0%	-	-	-	75,000	-	-	76,000	1%	-	-	86,000	87,000	1%	-	-	-							
Chromium	µg/L	n/v	n/v	<5.0	-	-	-	-	-	<5.0	-	-	-	-	-	<5.0	<5.0	nc	-	-	-	<5.0	-	-	<5.0	nc	-	-	<5.0	<5.0	nc	-	-	-							
Cobalt	µg/L	n/v	n/v	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	<0.50	<0.50	nc	-	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	<0.50	nc	-	-	-							
Copper	µg/L	n/v	n/v	2.0	-	-	-	-	-	0.98	-	-	-	-	-	1.0	0.98	nc	-	-	-	0.99	-	-	<0.90	nc	-	-	1.3	1.1	nc	-	-	-							
Iron	µg/L	n/v	n/v	<100	-	-	-	-	-	210	-	-	-	-	-	<100	<100	nc	-	-	-	<100	-	-	110	nc	-	-	<100	<100	nc	-	-	-							
Lead	µg/L	n/v	n/v	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	<0.50	<0.50	nc	-	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	<0.50	nc	-	-	-							
Lithium	µg/L	n/v	n/v	<5.0	-	-	-	-	-	6.3	-	-	-	-	-	7.3	7.4	nc	-	-	-	7.4	-	-	6.6	nc	-	-	6.6	6.4	nc	-	-	-							
Magnesium	µg/L	n/v	n/v	20,000	-	-	-	-	-	27,000	-	-	-	-	-	25,000	25,000	0%	-	-	-	26,000	-	-	26,000	nc	-	-	27,000	27,000	0%	-	-	-							
Manganese	µg/L	n/v	$_{EQA}T_{EQ}$[C]	<2.0	-	-	-	-	-	26	-	-	-	-	-	36	39	3%	-	-	-	4.7	-	-	3.6	nc	-	-	6.3	5.9	nc	-	-	-							
CWQG Manganese Guideline (Benchmark)	µg/L	n/v		14,881	-		-	-		14,881	-		-	-		14,881	-		-	-		14,881	-		14,881		-		14,881	-												
CWQG Manganese Guideline	µg/L	n/v		560	-		-	-		430	-		-	-		430	-		-	-		270	-		270		-		260	-												
Molybdenum	µg/L	n/v	n/v	1.6	-	-	-	-	-	1.4	-	-	-	-	-	1.2	1.3	nc	-	-	-	1.4	-	-	1.2	nc	-	-	1.2	1.2	nc	-	-	-							
Nickel	µg/L	n/v	n/v	<1.0	-	-	-	-	-	<1.0	-	-	-	-	-	<1.0	<1.0	nc	-	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	<1.0	nc	-	-	-							
Phosphorus	µg/L	n/v	n/v	190	-	-	-	-	-	110	-	-	-	-	-	160	150	nc	-	-	-	100	-	-	<100	nc	-	-	110	110	nc	-	-	-							
Potassium	µg/L	n/v	n/v	5,100	-	-	-	-	-	6,000	-	-	-	-	-	4,600	4,700	2%	-	-	-	4,500	-	-	4,300	5%	-	-	4,400	4,400	0%	-	-	-							
Selenium	µg/L	n/v	n/v	<2.0	-	-	-	-	-	<2.0	-	-	-	-	-	<2.0	<2.0	nc	-	-	-	<2.0	-	-	<2.0	nc	-	-	<2.0	<2.0	nc	-	-	-							
Silicon	µg/L	n/v	n/v	2,600	-	-	-	-	-	1,700	-	-	-	-	-	710	700	1%	-	-	-	1,000	-	-	1,000	18%	-	-	960	990	3%	-	-	-							
Silver	µg/L	n/v	n/v	<0.090	-	-	-	-	-	<0.090	-	-	-	-	-	<0.090	<0.090	nc	-	-	-	<0.090	-	-	<0.090	nc	-	-	<0.090	<0.090	nc	-	-	-							
Sodium	µg/L	n/v	n/v	98,000	-	-	-	-	-	98,000	-	-	-	-	-	91,000	93,000	2%	-	-	-	110,000	-	-	100,000	10%	-	-	140,000	140,000	0%	-	-	-							
Strontium	µg/L	n/v	n/v	580	-	-	-	-	-	680	-	-	-	-	-	710	710	0%	-	-	-	750	-	-	760	1%	-	-	810	800	1%	-	-	-							
Thallium	µg/L	n/v	n/v	<0.050	-	-	-	-	-	<0.050	-	-	-	-	-	<0.050	<0.050	nc	-	-	-	<0.050	-	-	<0.050	nc	-	-	<0.050	<0.050	nc	-	-	-							
Tin	µg/L	n/v	n/v	<1.0	-	-	-	-	-	<1.0	-	-	-	-	-	<1.0	<1.0	nc	-	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	<1.0	nc	-	-	-							
Titanium	µg/L	n/v	n/v	<5.0	-	-	-	-	-	<5.0	-	-	-	-	-	<5.0	<5.0	nc	-	-	-	<5.0	-	-	<5.0	nc	-	-	<5.0	<5.0	nc	-	-	-							
Tungsten	µg/L	n/v	n/v	<1.0	-	-	-	-	-	<1.0	-	-	-	-	-	<1.0	<1.0	nc	-	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	<1.0	nc	-	-	-							
Uranium	µg/L	n/v	n/v	0.48	-	-	-	-	-	0.98	-	-	-	-	-	1.3	1.3	0%	-	-	-	1.6	-	-	1.6	0%	-	-	1.7	1.7	0%	-	-	-							
Vanadium	µg/L	n/v	n/v	0.69	-	-	-	-	-	0.85	-	-	-	-	-	<0.50	<0.50	nc	-	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	<0.50	nc	-	-	-							
Zinc	µg/L	n/v	$_{EQA}T_{EQ}$[C]	5.0	-	-	-	-	-	6.1	-	-	-	-	-	6.5	6.4	nc	-	-	-	<5.0	-	-	<5.0	nc	-	-	6.6	5.7	nc	-	-	-							
CWQG Zinc Guideline (short-term)	µg/L	n/v		290	-		-	-		305	-		-	-		277	-		-	-		280	-		280		-		301	-												
CWQG Zinc Guideline (long-term)	µg/L	n/v		86	-		-	-		82	-		-	-		70	-		-	-		57	-		57		-		42	-												

Table
Surface Water Quality Results - IC-In
Canadian National Railway
Milton Logistics Hub

Sample Location				IC-In																																			
Sample Date				24-Aug-22	24-Aug-22		24-Aug-22	24-Aug-22		27-Sep-22	27-Sep-22		27-Sep-22	27-Sep-22		25-Oct-22	25-Oct-22		25-Oct-22	25-Oct-22		24-Nov-22	24-Nov-22		24-Nov-22	24-Nov-22		13-Dec-22	13-Dec-22		13-Dec-22	13-Dec-22							
Sample ID				IC-IN	IC-IN Lab-Dup		IC-IN	DUPLICATE		892	892 Lab-Dup		IC-IN	DUPLICATE 2		IC-IN	IC-IN Lab-Dup		IC-IN	DUPLICATE 2		995	995 Lab-Dup		1024	1024 Lab-Dup		1028	1028 Lab-Dup		IC-IN	DUPLICATE-1							
Sampling Company				STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC							
Laboratory				BV	BV		ALS	ALS		BV	BV		ALS	ALS		BV	BV		ALS	ALS		BV	BV		BV	BV		BV	BV		ALS	ALS							
Laboratory Work Order				C2O2331	C2O2331		L2736251	L2736251		C2R9794	C2R9794		L2734680	L2734680		C2V1209	C2V1209		L2737944	L2737944		C2Y5885	C2Y5885		C2Y5868	C2Y5868		C2AF926	C2AF926		L2743119	L2743119							
Laboratory Sample ID				TNJ059	TNJ059		L2736251-1	L2736251-3		TVW915	TVW915		L2734680-1	L2734680-4		UCL804	UCL804		L2737944-1	L2737944-4		UKC143	UKC143		UKC048	UKC048		UCQ713	UCQ713		L2743119-1	L2743119-3							
Sample Type	Units	SSL	CCME		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)		Lab Replicate	RPD (%)			Field Duplicate	RPD (%)							
Zirconium	µg/L	n/v	n/v	<1.0	-	-	-	-	-	<1.0	-	-	-	-	-	<1.0	<1.0	nc	-	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	<1.0	nc	-	-	-					

See notes on last page.

Table
Surface Water Quality Results - IC-In
Canadian National Railway
Milton Logistics Hub

Sample Location				IC-In																																			
Sample Date				24-Aug-22	24-Aug-22		24-Aug-22	24-Aug-22		27-Sep-22	27-Sep-22		27-Sep-22	27-Sep-22		25-Oct-22	25-Oct-22		25-Oct-22	25-Oct-22		24-Nov-22	24-Nov-22		24-Nov-22			24-Nov-22			13-Dec-22	13-Dec-22		13-Dec-22	13-Dec-22				
Sample ID				IC-IN	IC-IN Lab-Dup		IC-IN	DUPLICATE		892	892 Lab-Dup		IC-IN	DUPLICATE 2		IC-IN	IC-IN Lab-Dup		IC-IN	DUPLICATE 2		995	995 Lab-Dup		1024			1024 Lab-Dup			1028	1028 Lab-Dup		IC-IN	DUPLICATE-1				
Sampling Company				STANTEC	STANTEC		ALS	STANTEC		STANTEC	STANTEC		ALS	STANTEC		STANTEC	STANTEC		ALS	STANTEC		STANTEC	STANTEC		STANTEC			STANTEC			STANTEC	STANTEC		STANTEC	STANTEC				
Laboratory				BV	BV		ALS	ALS		BV	BV		ALS	ALS		BV	BV		ALS	ALS		BV	BV		BV			BV			BV	BV		ALS	ALS				
Laboratory Work Order				C2O2331	C2O2331		L2736251	L2736251		C2R9794	C2R9794		L2734680	L2734680		C2V1209	C2V1209		L2737944	L2737944		C2Y5885	C2Y5885		C2Y5868			C2Y5868			C2AF926	C2AF926		L2743119	L2743119				
Laboratory Sample ID				TNJ059	TNJ059		L2736251-1	L2736251-3		TVW015	TVW015		L2734680-1	L2734680-4		UCL884	UCL804		L2737944-1	L2737944-4		UKC143	UKC143		UKC048			UKC048			UOQ713	UOQ713		L2743119-1	L2743119-3				
Sample Type	Units	SSL	CCME		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)				
Metals, Total																																								
Table 4.1																																								
Chromium	µg/L	n/v	n/v	<5.0	-	-	-	-	-	<5.0	-	-	-	-	-	<5.0	<5.0	-	-	-	-	<5.0	-	-	<5.0	nc	-	-	<5.0	<5.0	nc	-	-	-				
Chromium (Hexavalent)	µg/L	n/v	1[C]	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	-	-	-				
Chromium (Trivalent)	µg/L	n/v	8.9[C]	<5	-	-	-	-	-	<5	-	-	-	-	-	<5	-	-	-	-	-	<5	-	-	<5	nc	-	-	<5	-	-	-	-	-				
Copper	µg/L	n/v	Equation[C]	2.5	-	-	-	-	-	1.5	-	-	-	-	-	1.4	1.5	nc	-	-	-	1.3	-	-	1.3	nc	-	-	1.7	1.7	nc	-	-	-				
CWQG Copper Guideline	µg/L	n/v		4	-	-	-	-	-	4	-	-	-	-	-	4	-	-	-	-	-	4	-	-	4	-	-	-	4	-	-	-	-	-				
Iron	µg/L	n/v	300[F]	460[C]	-	-	-	-	-	340[C]	-	-	-	-	-	380[C]	390[C]	nc	-	-	-	290	-	-	260	nc	-	-	270	270	nc	-	-	-				
Lead	µg/L	n/v	Equation[C]	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	<0.50	-	nc	-	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	<0.50	nc	-	-	-				
CWQG Lead Guideline	µg/L	n/v		7	-	-	-	-	-	7	-	-	-	-	-	7	-	-	-	-	-	7	-	-	7	-	-	-	7	-	-	-	-	-				
Zinc	µg/L	n/v	n/v	8.3	-	-	-	-	-	16	-	-	-	-	-	14	14	nc	-	-	-	7.6	-	-	7.5	nc	-	-	8.1	8.2	nc	-	-	-				
Other Parameters																																								
Aluminum	µg/L	n/v	100_{Diss}[C]	290[C]	-	-	-	-	-	180[C]	-	-	-	-	-	250[C]	250[C]	0%	-	-	-	190[C]	-	-	160[C]	17%	-	-	190[C]	180[C]	5%	-	-	-				
Antimony	µg/L	n/v	n/v	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	<0.50	<0.50	nc	-	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	<0.50	nc	-	-	-				
Arsenic	µg/L	n/v	5[C]	1.1	-	-	-	-	-	1.0	-	-	-	-	-	<1.0	<1.0	nc	-	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	<1.0	nc	-	-	-				
Barium	µg/L	n/v	n/v	45	-	-	-	-	-	50	-	-	-	-	-	49	51	4%	-	-	-	49	-	-	48	2%	-	-	52	53	2%	-	-	-				
Beryllium	µg/L	n/v	n/v	<0.40	-	-	-	-	-	<0.40	-	-	-	-	-	<0.40	<0.40	nc	-	-	-	<0.40	-	-	<0.40	nc	-	-	<0.40	<0.40	nc	-	-	-				
Bismuth	µg/L	n/v	n/v	<1.0	-	-	-	-	-	<1.0	-	-	-	-	-	<1.0	<1.0	nc	-	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	<1.0	nc	-	-	-				
Boron	µg/L	n/v	29,000[B] 1,500[C]	73	-	-	-	-	-	70	-	-	-	-	-	82	83	1%	-	-	-	92	-	-	89	3%	-	-	73	72	1%	-	-	-				
Cadmium	µg/L	n/v	$_{STB\ LTG}$[C]	<0.090	-	-	-	-	-	<0.090	-	-	-	-	-	<0.090	<0.090	nc	-	-	-	<0.090	-	-	<0.090	nc	-	-	<0.090	<0.090	nc	-	-	-				
CWQG Cadmium Guideline (STB)	µg/L	n/v		5.54	-	-	-	-	-	6.19	-	-	-	-	-	5.76	-	-	-	-	-	6.19	-	-	6.19	-	-	-	7.06	-	-	-	-	-				
CWQG Cadmium Guideline (LTG)	µg/L	n/v		0.35	-	-	-	-	-	0.37	-	-	-	-	-	0.36	-	-	-	-	-	0.37	-	-	0.37	-	-	-	0.37	-	-	-	-	-				
Calcium	µg/L	n/v	n/v	75,000	-	-	-	-	-	69,000	-	-	-	-	-	69,000	67,000	3%	-	-	-	75,000	-	-	75,000	0%	-	-	86,000	87,000	1%	-	-	-				
Cobalt	µg/L	n/v	n/v	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	<0.50	<0.50	nc	-	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	<0.50	nc	-	-	-				
Lithium	µg/L	n/v	n/v	<5.0	-	-	-	-	-	6.9	-	-	-	-	-	7.3	7.6	nc	-	-	-	7.5	-	-	7.5	nc	-	-	6.9	6.7	nc	-	-	-				
Magnesium	µg/L	n/v	n/v	21,000	-	-	-	-	-	26,000	-	-	-	-	-	25,000	25,000	0%	-	-	-	24,000	-	-	24,000	0%	-	-	27,000	26,000	4%	-	-	-				
Manganese	µg/L	n/v	n/v	110	-	-	-	-	-	61	-	-	-	-	-	65	67	3%	-	-	-	16	-	-	17	6%	-	-	18	18	0%	-	-	-				
Molybdenum	µg/L	n/v	73[C]	1.6	-	-	-	-	-	1.4	-	-	-	-	-	1.1	1.3	nc	-	-	-	1.3	-	-	1.2	nc	-	-	1.2	1.2	nc	-	-	-				
Nickel	µg/L	n/v	Equation[C]	1.3	-	-	-	-	-	1.1	-	-	-	-	-	1.1	<1.0	nc	-	-	-	<1.0	-	-	<1.0	nc	-	-	1.1	<1.0	nc	-	-	-				
CWQG Nickel Guideline	µg/L	n/v		150	-	-	-	-	-	150	-	-	-	-	-	150	-	-	-	-	-	150	-	-	150	-	-	-	150	-	-	-	-	-				
Potassium	µg/L	n/v	n/v	5,100	-	-	-	-	-	5,600	-	-	-	-	-	4,700	4,600	2%	-	-	-	4,300	-	-	4,100	5%	-	-	4,200	4,200	0%	-	-	-				
Selenium	µg/L	n/v	1[C]	<2.0	-	-	-	-	-	<2.0	-	-	-	-	-	<2.0	<2.0	nc	-	-	-	<2.0	-	-	<2.0	nc	-	-	<2.0	<2.0	nc	-	-	-				
Silicon	µg/L	n/v	n/v	2,900	-	-	-	-	-	1,600	-	-	-	-	-	1,200	1,100	9%	-	-	-	1,300	-	-	1,200	8%	-	-	1,300	1,300	0%	-	-	-				
Silver	µg/L	n/v	0.25[C]	<0.090	-	-	-	-	-	<0.090	-	-	-	-	-	<0.090	<0.090	nc	-	-	-	<0.090	-	-	<0.090	nc	-	-	<0.090	<0.090	nc	-	-	-				
Sodium	µg/L	n/v	n/v	93,000	-	-	-	-	-	92,000	-	-	-	-	-	92,000	94,000	2%	-	-	-	100,000	-	-	100,000	0%	-	-	130,000	140,000	7%	-	-	-				
Strontium	µg/L	n/v	n/v	590	-	-	-	-	-	670	-	-	-	-	-	690	690	0%	-	-	-	750	-	-	720	4%	-	-	770	770	0%	-	-	-				
Tellurium	µg/L	n/v	n/v	<1.0	-	-	-	-	-	<1.0	-	-	-	-	-	<1.0	<1.0	nc	-	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	<1.0	nc	-	-	-				
Thallium	µg/L	n/v	0.8[C]	<0.050	-	-	-	-	-	<0.050	-	-	-	-	-	<0.050	<0.050	nc	-	-	-	<0.050	-	-	<0.050	nc	-	-	<0.050	<0.050	nc	-	-	-				
Tin	µg/L	n/v	n/v	<1.0	-	-	-	-	-	<1.0	-	-	-	-	-	<1.0	<1.0	nc	-	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	<1.0	nc	-	-	-				
Titanium	µg/L	n/v	n/v	8.0	-	-	-	-	-	9.2	-	-	-	-	-	11	9.5	nc	-	-	-	6.4	-	-	5.5	nc	-	-	6.1	7.1	nc	-	-	-				
Tungsten	µg/L	n/v	n/v	<1.0	-	-	-	-	-	<1.0	-	-	-	-	-	<1.0	<1.0	nc	-	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	<1.0	nc	-	-	-				
Uranium	µg/L	n/v	33[F] 15[C]	0.47	-	-	-	-	-	1.2	-	-	-	-	-	1.3	1.3	0%	-	-	-	1.5	-	-	1.5	0%	-	-	1.7	1.6	6%	-	-	-				
Vanadium	µg/L	n/v	n/v	1.4	-	-	-	-	-	1.1	-	-	-	-	-	1.0	1.1	nc	-	-	-	0.65	-	-	0.61	nc	-	-	0.55	0.58	nc	-	-	-				
Zirconium	µg/L	n/v	n/v	<1.0	-	-	-	-	-	<1.0	-	-	-	-	-	<1.0	<1.0	nc	-	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	<1.0	nc	-	-	-				
Microbiological Parameters																																								
Table 4.2																																								
E. Coli/Fecal Coliform	cfu/100mL	n/v	n/v	280	-	-	-	-	-	330	-	-	-	-	-	13	-	-	-	-	-	18	-	-	9	nc	-	-	-	-	-	-	-	-				
Total Coliforms	cfu/100mL	n/v	n/v	5,700	-	-	-	-	-	2,400	-	-	-	-	-	360	-	-	-	-	-	99	-	-	2,400	nc	-	-	-	-	-	-	-	-				
Other Parameters																																								
Total Coliform Background	cfu/100mL	n/v	n/v	46,000	-	-	-	-	-	42,000	-	-	-	-	-	2,300	-	-	-	-	-	10,000	-	-	6,400	nc	-	-	-	-	-	-	-	-				
Polychlorinated Biphenyls																																								
Polychlorinated Biphenyls (PCBs)	µg/L	n/v	n/v	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Herbicide and Pesticide (SW8267OD)																																								
Table 4.2																																								
Aldicarb	µg/L	1_{Δ}[A]	1[C]	<0.10	-	-	-	-	-	<0.10	-	-	-	-	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Carbary	µg/L	0.2_{Δ}[A]	$3.3^{[I]}$ 0.2[C]	<0.10	-	-	-	-	-	<0.10	-	-	-	-	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Carbofuran	µg/L	1.8_{Δ}[A]	1.8[C]	<0.10	-	-	-	-	-	<0.10	-	-	-	-	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Cyanazine (Bladex	µg/L	2_{Δ}[A]	2[C]	<0.10	-	-	-	-	-	<0.10	-	-	-	-	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Triallate	µg/L	0.24_{Δ}[A]	0.24[C]	<0.050	-	-	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Trifluralin	µg/L	0.2_{Δ}[A]	0.2[C]	<0.050	-	-	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Other Parameters																																								
Endosulfan I	µg/L	n/v	n/v	<0.050	-	-	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Endosulfan II	µg/L	n/v	n/v	<0.050	-	-	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Endosulfan Sulfate	µg/L	n/v	n/v	<0.050	-	-	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				

See notes on last page.

Table
Surface Water Quality Results - IC-In
Canadian National Railway
Milton Logistics Hub

Sample Location				IC-In														
Sample Date				24-Aug-22	24-Aug-22		24-Aug-22	24-Aug-22		27-Sep-22	27-Sep-22		27-Sep-22	27-Sep-22		25-Oct-22	25-Oct-22	
Sample ID				IC-IN	IC-IN Lab-Dup		IC-IN	DUPLICATE		892	892 Lab-Dup		IC-IN	DUPLICATE 2		IC-IN	IC-IN Lab-Dup	
Sampling Company				STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	
Laboratory				BV	BV		ALS	ALS		BV	BV		ALS	ALS		BV	BV	
Laboratory Work Order				C2O2331	C2O2331		L2730251	L2730251		C2R9794	C2R9794		L2734680	L2734680		C2V1209	C2V1209	
Laboratory Sample ID				TNU059	TNU059	RPD	L2730251-1	L2730251-3	RPD	TVW015	TVW015	RPD	L2734680-1	L2734680-4	RPD	UCL804	UCL804	RPD
Sample Type	Units	SSL	CCME		Lab Replicate	(%)		Field Duplicate	(%)		Lab Replicate	(%)		Field Duplicate	(%)		Lab Replicate	(%)
Herbicide and Pesticide																		
Table 4.2																		
2,4,5-TP (Silvex)	µg/L	n/v	n/v	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	<0.50	-	-
2,4-D (BEE)	µg/L	n/v	n/v	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	<0.50	-	-
2,4-DB	µg/L	n/v	n/v	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	<0.50	-	-
Aldicarb	µg/L	1_{LT}^{A}	1^{C}	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Atrazine	µg/L	1.8_{LT}^{A}	1.8^{C}	<1.0	-	-	-	-	-	<1.0	-	-	-	-	-	<1.0	-	-
Azinphos-methyl (Guthion)	µg/L	n/v	n/v	<1.0	-	-	-	-	-	<1.0	-	-	-	-	-	<1.0	-	-
Bendiocarb	µg/L	n/v	n/v	<2.0	-	-	-	-	-	<2.0	-	-	-	-	-	<2.0	-	-
Butanoic acid (MCPB)	µg/L	n/v	n/v	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	<0.50	-	-
Carbaryl	µg/L	0.2_{LT}^{A}	3.3^{B} 0.2^{C}	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbofuran	µg/L	1.8_{LT}^{A}	1.8^{C}	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos	µg/L	0.002_{LT}^{A}	0.02^{B} 0.002^{C}	***<2.0***	-	-	0.000028 M J R	<0.000014	nc	***<2.0***	-	-	0.0000158 M J	<0.000018 M	nc	***<2.0***	-	-
Cyanazine (Bladex)	µg/L	2_{LT}^{A}	2^{C}	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DDVP (Dichlorvos)	µg/L	n/v	n/v	<2.0	-	-	-	-	-	<2.0	-	-	-	-	-	<2.0	-	-
Demeton	µg/L	n/v	n/v	<2.0	-	-	-	-	-	<2.0	-	-	-	-	-	<2.0	-	-
Diazinon	µg/L	n/v	n/v	<2.0	-	-	-	-	-	<2.0	-	-	-	-	-	<2.0	-	-
Dicamba	µg/L	10_{LT}^{A}	10^{C}	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	<0.50	-	-
Dichlorophenoxy acetic acid, 2,4- (2,4-D)	µg/L	4_{LT}^{A}	4^{C}	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	<0.50	-	-
Dichlorprop (2,4-DP)	µg/L	n/v	n/v	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	<0.50	-	-
Dimethoate	µg/L	6.2_{LT}^{A}	6.2^{C}	<2.0	-	-	-	-	-	<2.0	-	-	-	-	-	<2.0	-	-
Ethion	µg/L	n/v	n/v	<1.0	-	-	-	-	-	<1.0	-	-	-	-	-	<1.0	-	-
Fenchlorphos (Ronnel)	µg/L	n/v	n/v	<2.0	-	-	-	-	-	<2.0	-	-	-	-	-	<2.0	-	-
Fenthion	µg/L	n/v	n/v	<1.0	-	-	-	-	-	<1.0	-	-	-	-	-	<1.0	-	-
Fonofos	µg/L	n/v	n/v	<2.0	-	-	-	-	-	<2.0	-	-	-	-	-	<2.0	-	-
Imidan (Phosmet)	µg/L	n/v	n/v	<2.0	-	-	-	-	-	<2.0	-	-	-	-	-	<2.0	-	-
Malathion	µg/L	n/v	n/v	<2.0	-	-	-	-	-	<2.0	-	-	-	-	-	<2.0	-	-
MCPA (2-Methyl-4-Chlorophenoxyacetic Acid)	µg/L	2.6_{LT}^{A}	2.6^{C}	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	<0.50	-	-
MCPP (2-(2-Methyl-4-chlorophenoxy) propionic acid)	µg/L	n/v	n/v	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	<0.50	-	-
Methyl Parathion	µg/L	n/v	n/v	<2.0	-	-	-	-	-	<2.0	-	-	-	-	-	<2.0	-	-
Metolachlor (Dual)	µg/L	n/v	7.8^{C}	<5.0	-	-	-	-	-	<5.0	-	-	-	-	-	<5.0	-	-
Mevinphos (Phosdrin)	µg/L	n/v	n/v	<2.0	-	-	-	-	-	<2.0	-	-	-	-	-	<2.0	-	-
Parathion (Ethyl Parathion)	µg/L	n/v	n/v	<2.0	-	-	-	-	-	<2.0	-	-	-	-	-	<2.0	-	-
Phorate (Thimet)	µg/L	n/v	n/v	<1.0	-	-	-	-	-	<1.0	-	-	-	-	-	<1.0	-	-
Picloram	µg/L	29_{LT}^{A}	29^{C}	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	<0.50	-	-
Prometryn	µg/L	n/v	n/v	<1.0	-	-	-	-	-	<1.0	-	-	-	-	-	<1.0	-	-
Simazine	µg/L	10_{LT}^{A}	10^{C}	<2.0	-	-	-	-	-	<2.0	-	-	-	-	-	<2.0	-	-
Terbufos	µg/L	n/v	n/v	<1.0	-	-	-	-	-	<1.0	-	-	-	-	-	<1.0	-	-
Trichlorophenoxy acetic acid, 2,4,5- (2,4,5-T)	µg/L	n/v	n/v	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	<0.50	-	-
Trifluralin	µg/L	0.2_{LT}^{A}	0.2^{C}	***<5.0***	-	-	-	-	-	***<5.0***	-	-	-	-	-	***<5.0***	-	-

Sample Location	IC-In															
Sample Date	25-Oct-22	25-Oct-22		24-Nov-22	24-Nov-22		24-Nov-22		24-Nov-22		13-Dec-22	13-Dec-22		13-Dec-22	13-Dec-22	
Sample ID	IC-IN	DUPLICATE 2		995	995 Lab-Dup		1024		1024 Lab-Dup		1028	1028 Lab-Dup		IC-IN	DUPLICATE-1	
Sampling Company	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC		STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	
Laboratory	ALS	ALS		BV	BV		BV		BV		BV	BV		ALS	ALS	
Laboratory Work Order	L2737944	L2737944		C2Y5885	C2Y5885		C2Y5868		C2Y5868		C2AF926	C2AF926		L2743119	L2743119	
Laboratory Sample ID	L2737944-1	L2737944-4	RPD	UKC143	UKC143	RPD	UKC048	RPD	UKC048	RPD	UOQ713	UOQ713	RPD	L2743119-1	L2743119-3	RPD
Sample Type		Field Duplicate	(%)		Lab Replicate	(%)	Field Duplicate	(%)	Lab Replicate	(%)		Lab Replicate	(%)		Field Duplicate	(%)
Herbicide and Pesticide																
Table 4.2																
2,4,5-TP (Silvex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-D (BEE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-DB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aldicarb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Atrazine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Azinphos-methyl (Guthion)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bendiocarb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Butanoic acid (MCPB)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbaryl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbofuran	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos	<0.000034	<0.000072	nc	-	-	-	-	-	-	-	-	-	-	<0.000038	<0.000023	nc
Cyanazine (Bladex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DDVP (Dichlorvos)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Demeton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diazinon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dicamba	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorophenoxy acetic acid, 2,4- (2,4-D)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorprop (2,4-DP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dimethoate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fenchlorphos (Ronnel)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fenthion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fonofos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Imidan (Phosmet)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malathion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MCPA (2-Methyl-4-Chlorophenoxyacetic Acid)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MCPP (2-(2-Methyl-4-chlorophenoxy) propionic acid)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Parathion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metolachlor (Dual)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mevinphos (Phosdrin)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parathion (Ethyl Parathion)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phorate (Thimet)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Picloram	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prometryn	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Simazine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Terbufos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichlorophenoxy acetic acid, 2,4,5- (2,4,5-T)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trifluralin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

SSL Site Specific Limits
A Indian Creek - In, SW Limits
CCME Canadian Council of Ministers of the Environment
B Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Short Term
C Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Long Term
6.5^{A} Concentration exceeds the indicated standard.
15.2 Measured concentration did not exceed the indicated standard.
<0.50 Laboratory reporting limit was greater than the applicable standard.
<0.03 Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v No standard/guideline value.
\- Parameter not analyzed / not available.
CWQG Canadian Water Quality Guideline
Equation* The CWQG for copper is related to water hardness. When the water hardness is 0 to < 82 mg/L, the CWQG is 2 µg/L. At hardness =82 to =180 mg/L the CWQG is calculated using this equation:
CWQG (µg/L) = 0.2 * e{0.8545[ln(hardness)]-1.465}. At hardness >180 mg/L, the CWQG is 4 µg/L. If the hardness is unknown, the CWQG is 2 µg/L (Using average Hardness per event)
Equation# The CWQG for lead is related to water hardness. When the hardness is 0 to = 60 mg/L, the CWQG is 1 µg/L. At hardness >60 to = 180 mg/L the CWQG is calculated using this equation:
CWQG (µg/L)= e{1.273[ln(hardness)]-4.705}. At hardness >180 mg/L, the CWQG is 7 µg/L. If the hardness is unknown, the CWQG is 1 µg/L (Using average Hardness per event)
Equation** The CWQG for nickel is related to water hardness. When the water hardness is 0 to = 60 mg/L, the CWQG is 25 µg/L. At hardness > 60 to = 180 mg/L the CWQG is calculated using this equation:
CWQG (µg/L) = e{0.76[ln(hardness)]+1.06}. At hardness >180 mg/L, the CWQG is 150 µg/L. If the hardness is unknown, the CWQG is 25 µg/L (Using average Hardness per event)
EQ1 The short-term benchmark is for dissolved zinc and is calculated using the following equation: Benchmark = exp(0.833[ln(hardness mg·L-1)] + 0.240[ln(DOC mg·L-1)] + 0.526). The value in the table is for surface water of 50 mg CaCO3·L−1 hardness and 0.5 mg·L−1 dissolved organic carbon (DOC). The benchmark equation is valid between hardness 13.8 and 250.5 mg CaCO3·L−1 and DOC 0.3 and 17.3 mg·L−1. (Using average Hardness per event)
EQ2 The long-term CWQG is for dissolved zinc and is calculated using the following equation: CWQG = exp(0.947[ln(hardness mg·L-1)] - 0.815[pH] + 0.398[ln(DOC mg·L-1)] + 4.625). The value in the table is for surface water of 50 mg CaCO3·L−1 hardness, pH of 7.5 and 0.5 mg·L−1 DOC. The CWQG equation is valid between hardness 23.4 and 399 mg CaCO3·L−1, pH 6.5 and 8.13 and DOC 0.3 to 22.9 mg·L−1. (Using average Hardness per event)
EQ3 The short-term benchmark is calculated using the benchmark calculator in Appendix B of the Scientific Criteria Document for the Development of the Canadian Water Quality Guidelines for the Protection of Aquatic Life: Manganese or the following equation: Benchmark = exp(0.878[ln(hardness)] + 4.76) where the benchmark is expressed in dissolved manganese concentration (µg/L), and hardness is measured as CaCO3 equivalents in mg/L. The value in the table is for surface water of 50 mg/L hardness. The benchmark equation is valid between hardness 25 and 250 mg/L. (Using averages per event)
EQ4 The long-term CWQG is found using the look-up table (see Table 5) or the CWQG and benchmark calculator is Appendix B of CCME (20´9). The value in the table is for surface water of 50 mg/L hardness and pH of 7.5. The CWQG table is valid between hardness 25 and 670 mg/L and pH 5.8 and 8.4. (Using averages per event)
LT CWQG Guideline (long-term)
LTG The CWQG for cadmium (i.e. long-term guideline) of 0.09 µg·L-1 is for waters of 50 mg CaCO3·L-1 hardness. The CWQG for cadmium is related to water hardness (as CaCO3): When the water hardness is > 0 to < 17 mg/L, the CWQG is 0.04 µg/L; at hardness ≥ 17 to ≤ 280 mg/L, the CWQG is calculated using this equation (CWQG (µg/L) = 10^{0.83(log[hardness]) − 2.46 }); At hardness > 280 mg/L, the CWQG is 0.37 µg/L. (Using average Hardness per event)
SN see Narrative
STB The short-term benchmark concentration of 1.0 µg·L-1 is for waters of 50 mg CaCO3·L-1 hardness. The short-term benchmark for cadmium is related to water hardness (as CaCO3): When the water hardness is 0 to < 5.3 mg/L, the short-term benchmark is 0.11 µg/L, At hardness ≥ 5.3 to ≤ 360 mg/L, the short-term benchmark is calculated using this equation (Short-term benchmark (µg/L) = 10^{1.016(log[hardness]) − 1.71 }); At hardness > 360 mg/L, the short-term benchmark is 7.7 µg/L. (Using average Hardness per event)
TBC2 Ammonia guideline to be calculated (equation, resulting in guidelines in mg/L NH3), then converted to mg/L total ammonia-N by multiplying the corresponding guideline value by 0.8224.
VAR Lowest acceptable dissolved oxygen concentration: for warm water biota: early life stages = 6000 µg/L; for warm water biota: other life stages = 5500 µg/L; for cold water biota: early life stages = 9500 µg/L; for cold water biota: other life stages = 6500 µg/L
VAR1 Variable, 5 µg/L if pH < 6.5 and 100 µg/L if pH > 6.5
M J A peak has been manually integrated, and the analyte was detected below the calibrated range but above the EDL.
M J R A peak has been manually integrated, the analyte was detected below the calibrated range but above the EDL, and the ion abundance ratio(s) did not meet the acceptance criteria. Value is an estimated maximum.
ND Not detected.
NDOGT No data due to overgrowth. Total coliforms and / or E.coli detected
RPD Relative Percent Difference.
__61%__ RPD exceeds data quality objective of 40%.
nc RPD is not calculated if one or more values is non detect or if one or more values is less than five times the reportable detection limit.

Table
Surface Water Quality Results - IC-Out (formerly IC3)
Canadian National Railway
Milton Logistics Hub

Sample Location				IC-out (formerly IC3)																												
Sample Date				27-Jan-22	27-Jan-22		24-Feb-22	24-Feb-22		24-Feb-22		24-Feb-22			24-Mar-22	24-Mar-22		21-Apr-22	17-May-22	17-May-22		28-Jun-22	28-Jun-22		22-Jul-22	22-Jul-22		24-Aug-22	24-Aug-22			
Sample ID				IC-OUT	IC-OUT Lab-Dup		IC-OUT 546	IC-OUT 546 Lab-Dup		DUP-1 550		DUP-1 550 Lab-Dup			IC-OUT (FORMERLY IC3)	IC-OUT (FORMERLY IC3) Lab-Dup		IC-OUT (FORMERLY IC3)	IC-OUT (FORMERLY IC3)	IC-OUT (FORMERLY IC3) Lab-Dup		733	733 Lab-Dup		IC-OUT (FOMERLY IC3) 851	IC-OUT (FOMERLY IC3) 851 Lab-Dup		IC-OUT	IC-OUT Lab-Dup			
Sampling Company				STANTEC BV	STANTEC BV		STANTEC BV	STANTEC BV		STANTEC BV		STANTEC BV			STANTEC BV	STANTEC BV		STANTEC BV	STANTEC BV	STANTEC BV		STANTEC BV	STANTEC BV		STANTEC BV	STANTEC BV		STANTEC BV	STANTEC BV			
Laboratory				C223352	C223352		C249583	C249583		C249616		C249616			C278388	C278388		C2A6498	C2D3664	C2D3664		C2H9574	C2H9574		C2K6337	C2K6337		C2Q2343	C2Q2343			
Laboratory Work Order				RSL819	RSL819		RYB385	RYB385		RYB558		RYB558			SEJ916	SEJ916		SKP823	SQN196	SQN196		TAK725	TAK725		TGD648	TGD648		TNU141	TNU141			
Laboratory Sample ID					Lab Replicate	RPD (%)		Lab Replicate	RPD (%)	Field Duplicate	RPD (%)	Lab Replicate	RPD (%)			Lab Replicate	RPD (%)			Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		
Sample Type	Units	SSL	CCME																													
General Chemistry																																
Table 4.1																																
Chloride	mg/L	145_{ST}[A]	640^{I} 120^{C}	220[AC]	-	-	180[AC]	-	-	180[AC]	0%	-	-	-	91	-	-	200[AC]	150[AC]	-	-	140[C]	-	-	200[AC]	-	-	140[C]	-	-		
Dissolved Oxygen	mg/L	$<=6_{ST}$[A]	$>5.5/6/6.5/9.5_{VAR}$[C]	9.63	-	-	9.96	9.98	nc	10.4	nc	-	-	-	10.1	10.0	nc	9.90	8.26	8.27	nc	7.90	-	-	8.26	-	-	9.08	9.09	nc		
Phosphorus, Total	mg/L	0.17^{A}	n/v	0.038	-	-	0.12	0.12	0%	0.12	0%	-	-	-	0.42[A]	-	-	0.046	0.073	-	-	0.07	-	-	0.059	-	-	0.11	-	-		
Total Suspended Solids	mg/L	44.1_{ST}[A]	^{V} SR	15	-	-	19	-	-	19	0%	-	-	-	160[A]	-	-	13	14	-	-	16	-	-	38	-	-	13	-	-		
Temperature, Field	deg C	26^{A}	n/v	0	-	-	0.1	-	-	0.1	nc	-	-	-	5.0	-	-	9.9	16.1	-	-	21.4	-	-	23.5	-	-	24.2	-	-		
Table 4.2																																
Ammonia (as N)	mg/L	CCME[A]	TBD[C]	0.34	-	-	0.51	-	-	0.65	24%	-	-	-	0.14	-	-	0.08	0.07	-	-	0.91	-	-	0.76	0.65	16%	0.20	-	-		
CWQG Ammonia Guideline	mg/L			19.0	-		19.0	-		19.0		-			12.6	-		0.86	5.74	-		0.41	-		2.77	-		0.29	-			
Ammonia, Un-ionized (Calculated)	mg/L	0.019_{ST}[A]	0.019^{C}	<0.00061	-	-	0.0012	-	-	0.0015	nc	-	-	-	<0.00061	-	-	0.0023	<0.00061	-	-	0.017	-	-	0.014	-	-	0.0087	-	-		
Nitrate (as N)	mg/L	3.0_{ST}[A]	124^{I} 3.0^{C}	2.12	-	-	0.85	-	-	0.85	0%	-	-	-	0.67	-	-	0.56	0.51	-	-	<0.10	-	-	<0.10	-	-	0.13	-	-		
Nitrate + Nitrite (as N)	mg/L	n/v	n/v	2.14	-	-	0.86	-	-	0.88	0%	-	-	-	0.68	-	-	0.56	0.54	-	-	<0.10	-	-	<0.10	-	-	0.13	-	-		
Nitrite (as N)	mg/L	0.06_{ST}[A]	0.06^{C}	0.023	-	-	0.025	-	-	0.026	nc	-	-	-	0.012	-	-	<0.010	0.023	-	-	<0.010	-	-	<0.010	-	-	<0.010	-	-		
Other Parameters																																
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	2.7	-	-	1.0	-	-	1.0	nc	-	-	-	1.5	-	-	3.3	4.1	-	-	1.8	-	-	1.5	-	-	<1.0	-	-		
Alkalinity, Total (as CaCO3)	mg/L	n/v	n/v	280	-	-	130	-	-	130	0%	-	-	-	130	-	-	220	230	-	-	160	-	-	160	-	-	110	-	-		
Anion Sum	me/L	n/v	n/v	13.7	-	-	8.35	-	-	8.32	nc	-	-	-	5.68	-	-	11.0	9.91	-	-	10.0	-	-	11.0	-	-	9.23	-	-		
Bicarbonate(as CaCO3, Calculated)	mg/L	n/v	n/v	280	-	-	130	-	-	130	0%	-	-	-	130	-	-	220	230	-	-	160	-	-	160	-	-	110	-	-		
Cation Sum	me/L	n/v	n/v	14.0	-	-	8.61	-	-	8.71	nc	-	-	-	5.69	-	-	12.2	10.4	-	-	10.1	-	-	11.3	-	-	9.16	-	-		
Dissolved Organic Carbon (DOC)	mg/L	n/v	n/v	3.4	3.5	3%	5.9	-	-	5.7	3%	-	-	-	7.8	-	-	5.6	6.1	-	-	7.9	-	-	8.1	-	-	8.2	-	-		
Electrical Conductivity, Lab	µmhos/cm	n/v	n/v	1,400	-	-	940	-	-	930	1%	-	-	-	580	-	-	1,200	1,100	-	-	1,000	-	-	1,200	-	-	940	-	-		
Hardness (as CaCO3)	mg/L	n/v	n/v	390	-	-	190	-	-	180	5%	-	-	-	170	-	-	310	290	-	-	300	-	-	280	-	-	260	-	-		
Ion Balance	%	n/v	n/v	1.10	-	-	2.45	-	-	2.30	nc	-	-	-	1.68	-	-	5.10	2.34	-	-	0.440	-	-	1.39	-	-	0.570	-	-		
Langelier Index (at 20 C)	none	n/v	n/v	0.972	-	-	0.304	-	-	0.304	nc	-	-	-	0.471	-	-	0.996	1.06	-	-	0.655	-	-	0.528	-	-	0.375	-	-		
Langelier Index (at 4 C)	none	n/v	n/v	0.727	-	-	0.0560	-	-	0.0560	nc	-	-	-	0.222	-	-	0.748	0.814	-	-	0.407	-	-	0.281	-	-	0.127	-	-		
Orthophosphate (as P)	mg/L	n/v	n/v	<0.010	-	-	0.075	-	-	0.080	6%	-	-	-	0.054	-	-	<0.010	<0.010	-	-	0.012	-	-	0.044	-	-	0.057	-	-		
pH, Field	S.U.	6.5-9.0[C]	n/v	6.78	-	-	7.37	-	-	7.37	nc	-	-	-	6.96	-	-	8.28	7.21	-	-	7.54	-	-	7.47	-	-	7.83	-	-		
pH, Lab	S.U.	6.5-9.0[C]	n/v	8.01	-	-	7.92	-	-	7.93	nc	-	-	-	8.09	-	-	8.20	8.28	-	-	8.07	-	-	7.99	-	-	7.93	-	-		
Phenols 4AAP	mg/L	0.005^{A}	n/v	<0.0010	-	-	<0.0010	-	-	<0.0010	nc	-	-	-	<0.0010	-	-	<0.0010	<0.0010	-	-	<0.0010	-	-	<0.0010	-	-	<0.0010	<0.0010	nc		
Saturation pH (at 20 C)	none	n/v	n/v	7.04	-	-	7.61	-	-	7.63	nc	-	-	-	7.62	-	-	7.20	7.22	-	-	7.41	-	-	7.46	-	-	7.56	-	-		
Saturation pH (at 4 C)	none	n/v	n/v	7.29	-	-	7.86	-	-	7.87	nc	-	-	-	7.67	-	-	7.45	7.47	-	-	7.66	-	-	7.71	-	-	7.81	-	-		
Sulfate	mg/L	n/v	n/v	77	-	-	35	-	-	35	0%	-	-	-	30	-	-	46	46	-	-	130	-	-	100	-	-	140	-	-		
Total Dissolved Solids, Calculated	mg/L	n/v	n/v	770	-	-	490	-	-	490	0%	-	-	-	320	-	-	630	590	-	-	630	-	-	540	-	-	540	-	-		
Turbidity, Lab	NTU	n/v	n/v	9.3	-	-	9.3	-	-	9.5	2%	-	-	-	120	-	-	4.8	15	-	-	12	-	-	11	-	-	8.6	-	-		
BTEX and Petroleum Hydrocarbons																																
Table 4.1																																
Benzene	µg/L	1^{A}	370^{C}	<0.20	-	-	<0.20	<0.20	-	<0.20	-	-	-	-	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	-	<0.20	-	-	<0.20	-	-		
Toluene	µg/L	1^{A}	2^{C}	<0.20	-	-	<0.20	<0.20	-	<0.20	nc	-	-	-	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	-	<0.20	-	-	<0.20	-	-		
Xylenes, Total	µg/L	2^{A}	n/v	<0.40	-	-	<0.40	<0.40	-	<0.40	-	-	-	-	<0.40	-	-	<0.40	<0.40	-	-	<0.40	-	-	<0.40	-	-	<0.40	-	-		
PHC F1 (C6-C10 range)	µg/L	125^{A}	n/v	<25	-	-	<25	<25	-	<25	nc	-	-	-	<25	-	-	<25	<25	-	-	<25	-	-	<25	-	-	<25	-	-		
PHC F2 (>C10-C16 range)	µg/L	500^{A}	n/v	<100	-	-	<100	-	-	<100	-	-	-	-	<100	-	-	<100	<100	-	-	<100	-	-	<100	-	-	<100	-	-		
PHC F3 (>C16-C34 range)	µg/L	$1,000^{A}$	n/v	<200	-	-	<200	-	-	<200	-	-	-	-	<200	-	-	<200	<200	-	-	<200	-	-	<200	-	-	<200	-	-		
Total Petroleum Hydrocarbons	µg/L	$1,620_{ALL}$[A]	n/v	ND	-	-	ND	-	-	ND	-	-	-	-	ND	-	-	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-		
Oil and Grease, Total	mg/L	2.5^{A}	n/v	<0.50	-	-	<0.50	-	-	<0.50	-	-	-	-	0.90	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	-		
Table 4.2																																
Ethylbenzene	µg/L	1^{A}	90^{C}	<0.20	-	-	<0.20	<0.20	nc	<0.20	nc	-	-	-	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	-	<0.20	-	-	<0.20	-	-		
Other Parameters																																
Xylene, m & p-	µg/L	n/v	n/v	<0.40	-	-	<0.40	<0.40	nc	<0.40	nc	-	-	-	<0.40	-	-	<0.40	<0.40	-	-	<0.40	-	-	<0.40	-	-	<0.40	-	-		
Xylene, o-	µg/L	n/v	n/v	<0.20	-	-	<0.20	<0.20	nc	<0.20	nc	-	-	-	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	-	<0.20	-	-	<0.20	-	-		
PHC F1 (C6-C10 range) minus BTEX	µg/L	n/v	n/v	<25	-	-	<25	<25	nc	<25	nc	-	-	-	<25	-	-	<25	<25	-	-	<25	-	-	<25	-	-	<25	-	-		
PHC F4 (>C34-C50 range)	µg/L	$1,000^{A}$	n/v	<200	-	-	<200	-	-	<200	nc	-	-	-	<200	-	-	<200	<200	-	-	<200	-	-	<200	-	-	<200	-	-		
Chromatogram to baseline at C50	none	n/v	n/v	YES	-	-	YES	-	-	YES	nc	-	-	-	YES	-	-	YES	YES	-	-	YES	-	-	YES	-	-	YES	-	-		
Metals, Dissolved (Not included in 4.1 or 4.2)																																
Aluminum	µg/L	n/v	n/v	<4.9	<4.9	nc	35	-	-	33	6%	-	-	-	8.2	-	-	6.2	6.9	-	-	8.6	-	-	8.3	-	-	12	-	-		
Antimony	µg/L	n/v	n/v	<0.50	<0.50	nc	<0.50	-	-	<0.50	nc	-	-	-	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	-		
Arsenic	µg/L	n/v	n/v	<1.0	<1.0	nc	<1.0	-	-	<1.0	nc	-	-	-	<1.0	-	-	<1.0	<1.0	-	-	1.7	-	-	1.6	-	-	<1.0	-	-		
Barium	µg/L	n/v	n/v	70	70	0%	32	-	-	32	0%	-	-	-	23	-	-	48	50	-	-	48	-	-	47	-	-	48	-	-		
Beryllium	µg/L	n/v	n/v	<0.40	<0.40	nc	<0.40	-	-	<0.40	nc	-	-	-	<0.40	-	-	<0.40	<0.40	-	-	<0.40	-	-	<0.40	-	-	<0.40	-	-		
Boron	µg/L	n/v	n/v	57	57	0%	22	-	-	22	nc	-	-	-	16	-	-	43	51	-	-	70	-	-	97	-	-	71	-	-		
Cadmium	µg/L	n/v	n/v	<0.090	<0.090	nc	<0.090	-	-	<0.090	nc	-	-	-	<0.090	-	-	<0.090	<0.090	-	-	<0.090	-	-	<0.090	-	-	<0.090	-	-		
Calcium	µg/L	n/v	n/v	110,000	110,000	0%	54,000	-	-	53,000	2%	-	-	-	49,000	-	-	87,000	78,000	-	-	72,000	-	-	67,000	-	-	72,000	-	-		
Chromium	µg/L	n/v	n/v	<5.0	<5.0	nc	<5.0	-	-	<5.0	nc	-	-	-	<5.0	-	-	<5.0	<5.0	-	-	<5.0	-	-	<5.0	-	-	<5.0	-	-		
Cobalt	µg/L	n/v	n/v	<0.50	<0.50	nc	<0.50	-	-	<0.50	nc	-	-	-	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	-		
Copper	µg/L	n/v	n/v	<0.90	<0.90	nc	2.1	-	-	2.1	nc	-	-	-	2.1	-	-	1.6	1.8	-	-	1.2	-	-	<0.90	-	-	2.0	-	-		
Iron	µg/L	n/v	n/v	<100	<100	nc	<100	-	-	<100	nc	-	-	-	<100	-	-	<100	<100	-	-	<100	-	-	<100	-	-	<100	-	-		
Lead	µg/L	n/v	n/v	<0.50	<0.50	nc	<0.50	-	-	<0.50	nc	-	-	-	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	-		
Lithium	µg/L	n/v	n/v	-	-	-	<5.0	-	-	<5.0	nc	-	-	-	<5.0	-	-	<5.0	5.5	-	-	<5.0	-	-	6.6	-	-	<5.0	-	-		
Magnesium	µg/L	n/v	n/v	31,000	30,000	3%	13,000	-	-	12,000	8%	-	-	-	11,000	-	-	23,000	23,000	-	-	28,000	-	-	28,000	-	-	20,000	-	-		
Manganese	µg/L	n/v	^{H} EQL EQL[C]	110	110	0%	41	-	-	42	2%	-	-	-	7.0	-	-	37	<2.0	-	-	120	-	-	170	-	-	<2.0	-	-		
CWQG Manganese Guideline (Benchmark)	µg/L	n/v		14,881	-		11,695	-		11,152		-			10,607	-		14,881	14,881	-		14,881	-		14,881	-		14,881	-			
CWQG Manganese Guideline	µg/L	n/v		940	-		620	-		620		-			750	-		2,960	760	-		710	-		640	-		430	-			
Molybdenum	µg/L	n/v	n/v	1.0	0.94	nc	0.70	-	-	0.54	nc	-	-	-	0.59	-	-	0.81	1.2	-	-	1.5	-	-	1.0	-	-	1.7	-	-		
Nickel	µg/L	n/v	n/v	<1.0	<1.0	nc	<1.0	-	-	<1.0	nc	-	-	-	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-		
Phosphorus	µg/L	n/v	n/v	<100	<100	nc	170	-	-	180	nc	-	-	-	180	-	-	<100	120	-	-	<100	-	-	120	-	-	160	-	-		
Potassium	µg/L	n/v	n/v	3,700	3,700	0%	4,400	-	-	4,400	0%	-	-	-	3,900	-	-	3,600	2,600	-	-	3,100	-	-	4,800	-	-	5,300	-	-		
Selenium	µg/L	n/v	n/v	<2.0	<2.0	nc	<2.0	-	-	<2.0	nc	-	-	-	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	-		
Silicon	µg/L	n/v	n/v	2,400	2,500	4%	2,000	-	-	1,900	5%	-	-	-	2,100	-	-	470	250	-	-	680	-	-	1,700	-	-	2,600	-	-		
Silver	µg/L	n/v	n/v	<0.090	<0.090	nc	<0.090	-	-	<0.090	nc	-	-	-	<0.090	-	-	<0.090	<0.090	-	-	<0.090	-	-	<0.090	-	-	<0.090	-	-		
Sodium	µg/L	n/v	n/v	140,000	140,000	0%	110,000	-	-	110,000	0%	-	-	-	52,000	-	-	130,000	100,000	-	-	93,000	-	-	130,000	-	-	86,000	-	-		
Strontium	µg/L	n/v	n/v	700	690	1%	310	-	-	310	0%	-	-	-	230	-	-	560	570	-	-	650	-	-	670	-	-	580	-	-		
Thallium	µg/L	n/v	n/v	<0.050	<0.050	nc	<0.050	-	-	<0.050	nc	-	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	-	<0.050	-	-	<0.050	-	-		
Tin	µg/L	n/v	n/v	-	-	-	<1.0	-	-	<1.0	nc	-	-	-	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-		
Titanium	µg/L	n/v	n/v	<5.0	<5.0	nc	<5.0	-	-	<5.0	nc	-	-	-	<5.0	-	-	<5.0	<5.0	-	-	<5.0	-	-	<5.0	-	-	<5.0	-	-		
Tungsten	µg/L	n/v	n/v	-	-	-	<1.0	-	-	<1.0	nc	-	-	-	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-		
Uranium	µg/L	n/v	n/v	1.9	1.8	5%	0.70	-	-	0.74	6%	-	-	-	0.64	-	-	1.5	1.1	-	-	0.63	-	-	0.50	-	-	0.50	-	-		

Table
Surface Water Quality Results - IC-Out (formerly IC3)
Canadian National Railway
Milton Logistics Hub

Sample Location				IC-out (formerly IC3)																												
Sample Date				27-Jan-22	27-Jan-22		24-Feb-22	24-Feb-22		24-Feb-22		24-Feb-22		24-Mar-22	24-Mar-22		21-Apr-22	17-May-22	17-May-22		28-Jun-22	28-Jun-22		22-Jul-22	22-Jul-22		24-Aug-22	24-Aug-22				
Sample ID				IC-OUT	IC-OUT Lab-Dup		IC-OUT 546	IC-OUT 546 Lab-Dup		DUP-1 550		DUP-1 550 Lab-Dup		IC-OUT (FORMERLY IC3)	IC-OUT (FORMERLY IC3) Lab-Dup		IC-OUT (FORMERLY IC3)	IC-OUT (FORMERLY IC3)	IC-OUT (FORMERLY IC3) Lab-Dup		733	733 Lab-Dup		IC-OUT (FOMERLY IC3) 851	IC-OUT (FOMERLY IC3) 851 Lab-Dup		IC-OUT	IC-OUT Lab-Dup				
Sampling Company				STANTEC	STANTEC		STANTEC	STANTEC		STANTEC		STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC				
Laboratory				BV	BV		BV	BV		BV		BV		BV	BV		BV	BV	BV		BV	BV		BV	BV		BV	BV				
Laboratory Work Order				C223352	C223352		C249583	C249583		C249616		C249616		C278388	C278388		C2A6498	C2D3664	C2D3664		C2H9574	C2H9574		C2K6337	C2K6337		C2Q2343	C2Q2343				
Laboratory Sample ID				RSL819	RSL819		RYB385	RYB385		RYB558		RYB558		SEJ916	SEJ916		SKP823	SQN196	SQN196		TAK725	TAK725		TGD648	TGD648		TNU141	TNU141				
Sample Type	Units	SSL	CCME		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)	Field Duplicate	RPD (%)	Lab Replicate	RPD (%)		Lab Replicate	RPD (%)			Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)				
Vanadium	µg/L	n/v	n/v	<0.50	<0.50	nc	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	<0.50	<0.50	-	-	0.60	-	-	0.82	-	-	0.72	-	-			
Zinc	µg/L	n/v	[redacted]	<5.0	<5.0	nc	<5.0	-	-	<5.0	nc	-	-	<5.0	-	-	<5.0	<5.0	-	-	<5.0	-	-	<5.0	-	-	<5.0	-	-			
CWQG Zinc Guideline (short-term)	µg/L	n/v		326.9	-		204.9	-		194.3		-		199.8	-		304.3	293.8	-		321.6	-		305.5	-		288.0	-				
CWQG Zinc Guideline (long-term)	µg/L	n/v		188.0	-		73.2	-		68.6		-		102.9	-		54.3	126.2	-		110.4	-		110.6	-		77.2	-				
Zirconium	µg/L	n/v	n/v	-	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-			

See notes on last page.

Table
Surface Water Quality Results - IC-Out (formerly IC3)
Canadian National Railway
Milton Logistics Hub

Sample Location				IC-out (formerly IC3)																													
Sample Date				27-Jan-22	27-Jan-22		24-Feb-22	24-Feb-22		24-Feb-22		24-Feb-22		24-Mar-22	24-Mar-22		21-Apr-22	17-May-22	17-May-22		28-Jun-22	28-Jun-22		22-Jul-22	22-Jul-22		24-Aug-22	24-Aug-22					
Sample ID				IC-OUT	IC-OUT Lab-Dup		IC-OUT 546	IC-OUT 546 Lab-Dup		DUP-1 550		DUP-1 550 Lab-Dup		IC-OUT (FORMERLY IC3)	IC-OUT (FORMERLY IC3) Lab-Dup		IC-OUT (FORMERLY IC3)	IC-OUT (FORMERLY IC3)	IC-OUT (FORMERLY IC3) Lab-Dup		733	733 Lab-Dup		IC-OUT (FOMERLY IC3) 851	IC-OUT (FOMERLY IC3) 851 Lab-Dup		IC-OUT	IC-OUT Lab-Dup					
Sampling Company				STANTEC BV	STANTEC BV		STANTEC BV	STANTEC BV		STANTEC BV		STANTEC BV		STANTEC BV	STANTEC BV		STANTEC BV	STANTEC BV	STANTEC BV		STANTEC BV	STANTEC BV		STANTEC BV	STANTEC BV		STANTEC BV	STANTEC BV					
Laboratory				C223352	C223352		C249583	C249583		C249616		C249616		C278388	C278388		C2A6498	C2D3664	C2D3664		C2H9574	C2H9574		C2K6337	C2K6337		C2Q2343	C2Q2343					
Laboratory Work Order				RSL819	RSL819		RYB385	RYB385		RYB558		RYB558		SEJ916	SEJ916		SKP823	SQN196	SQN196		TAK725	TAK725		TGD648	TGD648		TNU141	TNU141					
Laboratory Sample ID				Lab Replicate			Lab Replicate			Field Duplicate		Lab Replicate			Lab Replicate				Lab Replicate			Lab Replicate			Lab Replicate			Lab Replicate				
Sample Type	Units	SSL	CCME			RPD (%)			RPD (%)		RPD (%)		RPD (%)			RPD (%)				RPD (%)			RPD (%)			RPD (%)			RPD (%)			
Metals, Total																																	
Table 4.1																																	
Chromium	µg/L	4.24[A]	n/v	<5.0	-	-	<5.0	-	-	<5.0	nc	-	-	8.2[A]	-	-	<5.0	<5.0	-	-	<5.0	-	-	<5.0	-	-	<5.0	-	-				
Chromium (Hexavalent)	µg/L	n/v	f	<0.50	-	-	0.58	-	-	<0.50	nc	-	-	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	-				
Chromium (Trivalent)	µg/L	n/v	8.9[C]	<5	-	-	<5	-	-	<5	nc	-	-	<5	-	-	<5	<5	-	-	<5	-	-	<5	-	-	<5	-	-				
Copper	µg/L	7.63[A]	Equation[C]	1.5	-	-	3.3	-	-	3.1	nc	-	-	11[AC]	-	-	2.2	2.5	-	-	2.3	-	-	2.2	-	-	2.8	-	-				
CWQG Copper Guideline	µg/L	n/v		4	-		4	-		3.91		-		3.72	-		4	4	-		4	-		4	-		4	-					
Iron	µg/L	3,413[A]	300[C]	440[C]	-	-	720[C]	-	-	690[C]	4%	-	-	8,800[AC]	-	-	470[C]	630[C]	-	-	760[C]	-	-	1,100[C]	-	-	660[C]	-	-				
Lead	µg/L	2.18[A]	Equation[C]	<0.50	-	-	0.51	-	-	<0.50	nc	-	-	4.5[A]	-	-	<0.50	<0.50	-	-	0.58	-	-	0.66	-	-	<0.50	-	-				
CWQG Lead Guideline	µg/L	n/v		7	-		7	-		6.72		-		6.25	-		7	7	-		7	-		7	-		7	-					
Zinc	µg/L	25[A]	n/v	5.7	-	-	8.6	-	-	8.0	nc	-	-	44[A]	-	-	6.3	5.5	-	-	8.0	-	-	8.4	-	-	5.9	-	-				
Other Parameters																																	
Aluminum	µg/L	n/v	100 pH≥6.5[f]	290[C]	-	-	540[C]	-	-	530[C]	2%	-	-	6,800[C]	-	-	360[C]	470[C]	-	-	390[C]	-	-	580[C]	-	-	400[C]	-	-				
Antimony	µg/L	n/v	n/v	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	-				
Arsenic	µg/L	n/v	5[C]	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	1.9	-	-	<1.0	1.0	-	-	2.0	-	-	2.4	-	-	1.1	-	-				
Barium	µg/L	n/v	72	34	-	-	37	-	-	36	3%	-	-	65	-	-	50	52	-	-	53	-	-	51	-	-	51	-	-				
Beryllium	µg/L	n/v	n/v	<0.40	-	-	<0.40	-	-	<0.40	nc	-	-	<0.40	-	-	<0.40	<0.40	-	-	<0.40	-	-	<0.40	-	-	<0.40	-	-				
Bismuth	µg/L	n/v	n/v	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-				
Boron	µg/L	n/v	29,000[B] 1,500[C] STB LTG	58	-	-	54	-	-	54	nc	-	-	22	-	-	44	51	-	-	64	-	-	90	-	-	66	-	-				
Cadmium	µg/L	n/v	Equation[C]	<0.090	-	-	<0.090	-	-	<0.090	nc	-	-	0.094	-	-	<0.090	<0.090	-	-	<0.090	-	-	<0.090	-	-	<0.090	-	-				
CWQG Cadmium Guideline (STB)	µg/L	n/v		7.7	-		4.05	-		3.81		-		3.60	-		6.63	6.19	-		6.41	-		5.97	-		5.54	-					
CWQG Cadmium Guideline (LTG)	µg/L	n/v		0.37	-		0.27	-		0.26		-		0.25	-		0.37	0.37	-		0.37	-		0.37	-		0.35	-					
Calcium	µg/L	n/v	n/v	110,000	-	-	56,000	-	-	55,000	2%	-	-	49,000	-	-	85,000	85,000	-	-	76,000	-	-	66,000	-	-	75,000	-	-				
Cobalt	µg/L	n/v	n/v	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	3.0	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	-				
Lithium	µg/L	n/v	n/v	6.3	-	-	<5.0	-	-	<5.0	nc	-	-	10	-	-	<5.0	5.6	-	-	6.0	-	-	7.1	-	-	<5.0	-	-				
Magnesium	µg/L	n/v	n/v	30,000	-	-	13,000	-	-	13,000	0%	-	-	13,000	-	-	23,000	25,000	-	-	29,000	-	-	28,000	-	-	21,000	-	-				
Manganese	µg/L	n/v	n/v	150	-	-	65	-	-	62	5%	-	-	180	-	-	72	82	-	-	300	-	-	270	-	-	120	-	-				
Molybdenum	µg/L	n/v	73[C]	0.97	-	-	0.74	-	-	0.74	nc	-	-	0.62	-	-	0.81	1.3	-	-	1.5	-	-	1.1	-	-	1.6	-	-				
Nickel	µg/L	n/v	Equation[C]	1.0	-	-	1.1	-	-	1.1	nc	-	-	8.5	-	-	<1.0	1.2	-	-	1.7	-	-	1.5	-	-	1.5	-	-				
CWQG Nickel Guideline	µg/L	n/v		150	-		150	-		149		-		143	-		150	150	-		150	-		150	-		150	-					
Potassium	µg/L	n/v	n/v	3,900	-	-	4,700	-	-	4,600	2%	-	-	5,000	-	-	3,600	2,900	-	-	3,500	-	-	4,900	-	-	5,300	-	-				
Selenium	µg/L	n/v	f	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	-				
Silicon	µg/L	n/v	n/v	3,100	-	-	2,700	-	-	2,600	4%	-	-	11,000	-	-	1,000	1,100	-	-	1,300	-	-	2,500	-	-	3,200	-	-				
Silver	µg/L	n/v	0.25[C]	<0.090	-	-	<0.090	-	-	<0.090	nc	-	-	<0.090	-	-	<0.090	<0.090	-	-	<0.090	-	-	<0.090	-	-	<0.090	-	-				
Sodium	µg/L	n/v	n/v	140,000	-	-	120,000	-	-	110,000	9%	-	-	50,000	-	-	130,000	110,000	-	-	92,000	-	-	130,000	-	-	89,000	-	-				
Strontium	µg/L	n/v	n/v	670	-	-	320	-	-	320	0%	-	-	230	-	-	520	570	-	-	660	-	-	650	-	-	590	-	-				
Tellurium	µg/L	n/v	n/v	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-				
Thallium	µg/L	n/v	0.8[C]	<0.050	-	-	<0.050	-	-	<0.050	nc	-	-	0.079	-	-	<0.050	<0.050	-	-	<0.050	-	-	<0.050	-	-	<0.050	-	-				
Tin	µg/L	n/v	n/v	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-				
Titanium	µg/L	n/v	n/v	9.7	-	-	13	-	-	13	nc	-	-	120	-	-	11	13	-	-	9.9	-	-	16	-	-	12	-	-				
Tungsten	µg/L	n/v	n/v	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-				
Uranium	µg/L	n/v	33[B] 15[C]	1.9	-	-	0.83	-	-	0.76	9%	-	-	1.0	-	-	1.4	1.2	-	-	0.67	-	-	0.49	-	-	0.50	-	-				
Vanadium	µg/L	n/v	n/v	0.97	-	-	1.3	-	-	1.3	nc	-	-	11	-	-	1.0	1.5	-	-	1.7	-	-	2.2	-	-	1.6	-	-				
Zirconium	µg/L	n/v	n/v	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-				
Microbiological Parameters																																	
Table 4.2																																	
E. Coli/Fecal Coliform	cfu/100mL	n/v	n/v	NDOGT	-	-	NDOGT	-	-	NDOGT	nc	-	-	NDOGT	-	-	120	560	-	-	290	-	-	310	-	-	360	-	-				
Total Coliforms	cfu/100mL	n/v	n/v	NDOGT	-	-	NDOGT	-	-	NDOGT	nc	-	-	NDOGT	-	-	460	3,200	-	-	2,300	-	-	2,800	-	-	6,300	-	-				
Other Parameters																																	
Total Coliform Background	cfu/100mL	n/v	n/v	NDOGT	-	-	NDOGT	-	-	NDOGT	nc	-	-	NDOGT	-	-	4,200	13,000	-	-	8,900	-	-	44,000	-	-	54,000	-	-				
Polychlorinated Biphenyls																																	
Polychlorinated Biphenyls (PCBs)	µg/L	n/v	n/v	<0.05	-	-	<0.05	-	-	<0.05	nc	<0.05	nc	<0.05	-	-	<0.05	<0.05	-	-	<0.05	-	-	-	-	-	<0.05	-	-				
Herbicide and Pesticide (SW82670D)																																	
Table 4.2																																	
Aldicarb	µg/L	1_{LT}[A]	f[C]	<0.10	-	-	<0.10	-	-	<0.10	nc	-	-	<0.10	-	-	<0.10	<0.10	-	-	<0.10	-	-	-	-	-	<0.10	-	-				
Carbaryl	µg/L	0.2_{LT}[A]	3.2[B] 0.2[C]	<0.10	-	-	<0.10	-	-	<0.10	nc	-	-	<0.10	-	-	<0.10	<0.10	-	-	<0.10	-	-	-	-	-	<0.10	-	-				
Carbofuran	µg/L	1.8_{LT}[A]	1.8[C]	<0.10	-	-	<0.10	-	-	<0.10	nc	-	-	<0.10	-	-	<0.10	<0.10	-	-	<0.10	-	-	-	-	-	<0.10	-	-				
Cyanazine (Bladex)	µg/L	2_{LT}[A]	2[C]	<0.10	-	-	<0.10	-	-	<0.10	nc	-	-	<0.10	-	-	<0.10	<0.10	-	-	<0.10	-	-	-	-	-	<0.10	-	-				
Triallate	µg/L	0.24_{LT}[A]	0.24[C]	<0.050	-	-	<0.050	-	-	<0.050	nc	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	<0.050	nc	-	-	-	<0.050	-	-				
Trifluralin	µg/L	0.2_{LT}[A]	0.2[C]	<0.050	-	-	<0.050	-	-	<0.050	nc	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	<0.050	nc	-	-	-	<0.050	-	-				
Other Parameters																																	
Endosulfan I	µg/L	n/v	n/v	<0.050	-	-	<0.050	-	-	<0.050	nc	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	<0.050	nc	-	-	-	<0.050	-	-				
Endosulfan II	µg/L	n/v	n/v	<0.050	-	-	<0.050	-	-	<0.050	nc	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	<0.050	nc	-	-	-	<0.050	-	-				
Endosulfan Sulfate	µg/L	n/v	n/v	<0.050	-	-	<0.050	-	-	<0.050	nc	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	<0.050	nc	-	-	-	<0.050	-	-				

See notes on last page.

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Surface Water Quality Results - IC-Out (formerly IC3)
Canadian National Railway
Milton Logistics Hub

Sample Location				IC-out (formerly IC3)																												
Sample Date				27-Jan-22	27-Jan-22		24-Feb-22	24-Feb-22		24-Feb-22		24-Feb-22		24-Mar-22	24-Mar-22		21-Apr-22	17-May-22	17-May-22		28-Jun-22	28-Jun-22		22-Jul-22	22-Jul-22		24-Aug-22	24-Aug-22				
Sample ID				IC-OUT	IC-OUT Lab-Dup		IC-OUT 546	IC-OUT 546 Lab-Dup		DUP-1 550		DUP-1 550 Lab-Dup		IC-OUT (FORMERLY IC3)	IC-OUT (FORMERLY IC3) Lab-Dup		IC-OUT (FORMERLY IC3)	IC-OUT (FORMERLY IC3)	IC-OUT (FORMERLY IC3) Lab-Dup		733	733 Lab-Dup		IC-OUT (FOMERLY IC3) 851	IC-OUT (FOMERLY IC3) 851 Lab-Dup		IC-OUT	IC-OUT Lab-Dup				
Sampling Company				STANTEC	STANTEC		STANTEC	STANTEC		STANTEC		STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC				
Laboratory				BV	BV		BV	BV		BV		BV		BV	BV		BV	BV	BV		BV	BV		BV	BV		BV	BV				
Laboratory Work Order				C223352	C223352		C249583	C249583		C249616		C249616		C278388	C278388		C2A6498	C2D3664	C2D3664		C2H9574	C2H9574		C2K6337	C2K6337		C2Q2343	C2Q2343				
Laboratory Sample ID				RSL819	RSL819		RYB385	RYB385		RYB558		RYB558		SEJ916	SEJ916		SKP823	SQN196	SQN196		TAK725	TAK725		TGD64	TGD648		TNU141	TNU141				
Sample Type	Units	SSL	CCME		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)	Field Duplicate	RPD (%)	Lab Replicate	RPD (%)		Lab Replicate	RPD (%)			Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)				
Herbicide and Pesticide																																
Table 4.2																																
2,4,5-TP (Silvex)	µg/L	n/v	n/v	<0.50	-	-	<0.50	-	-	<0.50	-	-	-	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	-	-	-	<0.50	-	-			
2,4-D (EEE)	µg/L	n/v	n/v	<0.50	-	-	<0.50	-	-	<0.50	-	-	-	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	-	-	-	<0.50	-	-			
2,4-DB	µg/L	n/v	n/v	<0.50	-	-	<0.50	-	-	<0.50	-	-	-	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	-	-	-	<0.50	-	-			
Aldicarb	µg/L	1[E]	1[C]	**<5.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Atrazine	µg/L	1.8[A]	1.8[C]	<1.0	-	-	<1.0	-	-	<1.0	-	-	-	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	-	-	-	<1.0	-	-			
Azinphos-methyl (Guthion)	n/v	n/v	n/v	<1.0	-	-	<1.0	-	-	<1.0	-	-	-	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	-	-	-	<1.0	-	-			
Bendiocarb	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	-	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	-	-	-	<2.0	-	-			
Butanoic acid (MCPB)	µg/L	n/v	n/v	<0.50	-	-	<0.50	-	-	<0.50	-	-	-	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	-	-	-	<0.50	-	-			
Carbaryl	µg/L	0.2[A]	3.3[B] 0.2[C]	**<5.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Carbofuran	µg/L	1.8[A]	1.8[C]	**<5.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Chlorpyrifos	µg/L	0.002[A]	0.02[B] 0.002[C]	**<2.0**	-	-	**<2.0**	-	-	**<2.0**	-	-	-	**<2.0**	-	-	**<2.0**	**<2.0**	-	-	**<2.0**	-	-	-	-	-	**<2.0**	-	-			
Cyanazine (Bladex)	µg/L	2[A]	2[C]	**<5.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
DDVP (Dichlorvos)	n/v	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	-	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	-	-	-	<2.0	-	-			
Demeton	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	-	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	-	-	-	<2.0	-	-			
Diazinon	n/v	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	-	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	-	-	-	<2.0	-	-			
Dicamba	µg/L	10[A]	10[C]	<0.50	-	-	<0.50	-	-	<0.50	-	-	-	<0.50	-	-	<0.50	<0.50	-	-	0.63	-	-	-	-	-	<0.50	-	-			
Dichlorophenoxy acetic acid, 2,4- (2,4-D)	µg/L	4[A]	4[C]	<0.50	-	-	<0.50	-	-	<0.50	-	-	-	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	-	-	-	<0.50	-	-			
Dichlorprop (2,4-DP)	µg/L	n/v	n/v	<0.50	-	-	<0.50	-	-	<0.50	-	-	-	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	-	-	-	<0.50	-	-			
Dimethoate	µg/L	6.2[A]	6.2[C]	<2.0	-	-	<2.0	-	-	<2.0	-	-	-	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	-	-	-	<2.0	-	-			
Ethion	µg/L	n/v	n/v	<1.0	-	-	<1.0	-	-	<1.0	-	-	-	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	-	-	-	<1.0	-	-			
Fenchlorphos (Ronnel)	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	-	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	-	-	-	<2.0	-	-			
Fenthion	µg/L	n/v	n/v	<1.0	-	-	<1.0	-	-	<1.0	-	-	-	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	-	-	-	<1.0	-	-			
Fenofos	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	-	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	-	-	-	<2.0	-	-			
Imidan (Phosmet)	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	-	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	-	-	-	<2.0	-	-			
Malathion	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	-	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	-	-	-	<2.0	-	-			
MCPA (2-Methyl-4-Chlorophenoxyacetic Acid)	µg/L	2.6[A]	2.6[C]	<0.50	-	-	<0.50	-	-	<0.50	-	-	-	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	-	-	-	<0.50	-	-			
MCPP (2-(2-Methyl-4-chlorophenoxy) propionic acid)	µg/L	n/v	n/v	<0.50	-	-	<0.50	-	-	<0.50	-	-	-	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	-	-	-	<0.50	-	-			
Methyl Parathion	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	-	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	-	-	-	<2.0	-	-			
Metolachlor (Dual)	µg/L	7.8[E]	7.8[C]	<5.0	-	-	<5.0	-	-	<5.0	-	-	-	<5.0	-	-	<5.0	<5.0	-	-	<5.0	-	-	-	-	-	<5.0	-	-			
Mevinphos (Phosdrin)	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	-	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	-	-	-	<2.0	-	-			
Parathion (Ethyl Parathion)	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	-	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	-	-	-	<2.0	-	-			
Phorate (Thimet)	µg/L	n/v	n/v	<1.0	-	-	<1.0	-	-	<1.0	-	-	-	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	-	-	-	<1.0	-	-			
Picloram	µg/L	29[A]	29[C]	<0.50	-	-	<0.50	-	-	<0.50	-	-	-	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	-	-	-	<0.50	-	-			
Prometryn	n/v	n/v	n/v	<1.0	-	-	<1.0	-	-	<1.0	-	-	-	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	-	-	-	<1.0	-	-			
Simazine	µg/L	10[A]	10[C]	<2.0	-	-	<2.0	-	-	<2.0	-	-	-	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	-	-	-	<2.0	-	-			
Terbufos	n/v	n/v	n/v	<1.0	-	-	<1.0	-	-	<1.0	-	-	-	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	-	-	-	<1.0	-	-			
Trichlorophenoxy acetic acid, 2,4,5- (2,4,5-T)	µg/L	n/v	n/v	<0.50	-	-	<0.50	-	-	<0.50	-	-	-	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	-	-	-	<0.50	-	-			
Trifluralin	µg/L	0.2[A]	0.2[C]	**<5.0**	-	-	**<5.0**	-	-	**<5.0**	-	-	-	**<5.0**	-	-	**<5.0**	**<5.0**	-	-	**<5.0**	-	-	-	-	-	**<5.0**	-	-			

See notes on last page.

Table
Surface Water Quality Results - IC-Out (formerly IC3)
Canadian National Railway
Milton Logistics Hub

Sample Location				IC-out (formerly IC3)																															
Sample Date				27-Jan-22	27-Jan-22		24-Feb-22	24-Feb-22		24-Feb-22		24-Feb-22		24-Mar-22	24-Mar-22		21-Apr-22	17-May-22	17-May-22		28-Jun-22	28-Jun-22		22-Jul-22	22-Jul-22		24-Aug-22	24-Aug-22							
Sample ID				IC-OUT	IC-OUT Lab-Dup		IC-OUT 546	IC-OUT 546 Lab-Dup		DUP-1 550		DUP-1 550 Lab-Dup		IC-OUT (FORMERLY IC3)	IC-OUT (FORMERLY IC3) Lab-Dup		IC-OUT (FORMERLY IC3)	IC-OUT (FORMERLY IC3)	IC-OUT (FORMERLY IC3) Lab-Dup		733	733 Lab-Dup		IC-OUT (FOMERLY IC3) 851	IC-OUT (FOMERLY IC3) 851 Lab-Dup		IC-OUT	IC-OUT Lab-Dup							
Sampling Company				STANTEC	STANTEC		STANTEC	STANTEC		STANTEC		STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC							
Laboratory				BV	BV		BV	BV		BV		BV		BV	BV		BV	BV	BV		BV	BV		BV	BV		BV	BV							
Laboratory Work Order				C223352	C223352		C249583	C249583		C249616		C249616		C278388	C278388		C2A6498	C2D3664	C2D3664		C2H9574	C2H9574		C2K6337	C2K6337		C2O2343	C2O2343							
Laboratory Sample ID				RSL819	RSL819		RYB385	RYB385		RYB558		RYB558		SEJ916	SEJ916		SKP823	SQN196	SQN196		TAK725	TAK725		TGD648	TGD648		TNU141	TNU141							
Sample Type	Units	SSL	CCME		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)	Field Duplicate	RPD (%)	Lab Replicate	RPD (%)		Lab Replicate	RPD (%)			Lab Replicate	RPD (%)		Lab Replicate	RPD (%)			Lab Replicate	RPD (%)		Lab Replicate	RPD (%)						

Table
Surface Water Quality Results - IC-Out (formerly IC3)
Canadian National Railway
Milton Logistics Hub

Sample Location				IC-out (formerly IC3)																										
Sample Date				24-Aug-22	27-Sep-22	27-Sep-22		27-Sep-22		27-Sep-22		27-Sep-22	27-Sep-22		25-Oct-22	25-Oct-22	25-Oct-22		24-Nov-22	24-Nov-22		13-Dec-22	13-Dec-22		13-Dec-22	13-Dec-22		
Sample ID				IC-OUT	893	893 Lab-Dup		927		927 Lab-Dup		IC-OUT	DUPLICATE 1		923	IC-OUT	DUPLICATE 1		996	996 Lab-Dup		1029	1029 Lab-Dup		IC-OUT	DUPLICATE-2		
Sampling Company				STANTEC	STANTEC	STANTEC		STANTEC		STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		
Laboratory				ALS	BV	BV		BV		BV		ALS	ALS		BV	ALS	ALS		BV	BV		BV	BV		ALS	ALS		
Laboratory Work Order				L2730251	C2R9836	C2R9836		C2R9847		C2R9847		L2734680	L2734680		C2V1247	L2737944	L2737944		C2Y5892	C2Y5892		C2AF864	C2AF864		L2743119	L2743119		
Laboratory Sample ID				L2730251-2	TVW216	TVW216		TVW257		TVW257		L2734680-2	L2734680-3		UCL968	L2737944-2	L2737944-3		UKC158	UKC158		UOQ474	UOQ474		L2743119-2	L2743119-4		
Sample Type	Units	SSL	CCME			Lab Replicate	RPD (%)	Field Duplicate	RPD (%)	Lab Replicate	RPD (%)		Field Duplicate	RPD (%)			Field Duplicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)			Field Duplicate	RPD (%)
General Chemistry																														
Table 4.1																														
Chloride	mg/L	145[A]	640[B] 120[C]	-	140[C]	-	-	140[C]	0%	140[C]	0%	-	-	-	140[C]	-	-	-	160[AC]	-	-	220[AC]	220[AC]	0%	-	-	-
Dissolved Oxygen	mg/L	<=6[A]	>5.5/6/6.5/9.5[AR][C]	-	8.70	-	-	8.64	nc	-	-	-	-	-	9.02	-	-	-	10.2	-	-	9.38	9.39	nc	-	-	-
Phosphorus, Total	mg/L	0.17[A]	n/v	-	0.058	-	-	0.053	9%	-	-	-	-	-	0.073	-	-	-	0.033	-	-	0.028	-	-	-	-	-
Total Suspended Solids	mg/L	44.1[A]	[C]	-	8	-	-	16	67%	-	-	-	-	-	7	-	-	-	9	-	-	6	-	-	-	-	-
Temperature, Field	deg C	26[A]	n/v	-	13.3	-	-	13.3	nc	-	-	-	-	-	10.4	-	-	-	1.0	-	-	0.4	-	-	-	-	-
Table 4.2																														
Ammonia (as N)	mg/L	[CCME][A]	[BC][C]	-	0.24	-	-	0.04	nc	0.06	nc	-	-	-	0.13	-	-	-	0.32	-	-	-	-	-	-	-	-
CWQG Ammonia Guideline	mg/L			-	0.86	-		0.86		-		-	-		0.86	-	-		1.92	-		-	-				
Ammonia, Un-ionized (Calculated)	mg/L	0.019[A]	0.019[C]	-	0.0047	-	-	0.00076	nc	-	-	-	-	-	0.0026	-	-	-	0.0017	-	-	-	-	-	-	-	-
Nitrate (as N)	mg/L	3.0[A]	124[B] 3.0[C]	-	<0.10	-	-	<0.10	nc	-	-	-	-	-	<0.10	-	-	-	0.30	-	-	0.58	-	-	-	-	-
Nitrate + Nitrite (as N)	mg/L	n/v	n/v	-	<0.10	-	-	<0.10	nc	-	-	-	-	-	<0.10	-	-	-	0.31	-	-	0.59	-	-	-	-	-
Nitrite (as N)	mg/L	0.06[A]	0.06[C]	-	<0.010	-	-	<0.010	nc	-	-	-	-	-	<0.010	-	-	-	0.010	-	-	0.017	-	-	-	-	-
Other Parameters																														
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	-	2.6	-	-	2.4	nc	-	-	-	-	-	2.7	-	-	-	1.9	-	-	1.9	-	-	-	-	-
Alkalinity, Total (as CaCO3)	mg/L	n/v	n/v	-	170	170	0%	170	0%	-	-	-	-	-	180	-	-	-	180	180	0%	180	180	0%	-	-	-
Anion Sum	me/L	n/v	n/v	-	9.12	-	-	9.15	nc	-	-	-	-	-	8.97	-	-	-	10.1	-	-	11.7	-	-	-	-	-
Bicarbonate(as CaCO3, Calculated)	mg/L	n/v	n/v	-	170	-	-	170	0%	-	-	-	-	-	180	-	-	-	180	-	-	180	-	-	-	-	-
Cation Sum	me/L	n/v	n/v	-	10.2	-	-	10.2	nc	-	-	-	-	-	9.57	-	-	-	10.7	-	-	13.3	-	-	-	-	-
Dissolved Organic Carbon [DOC]	mg/L	n/v	n/v	-	7.2	-	-	7.3	1%	-	-	-	-	-	6.3	-	-	-	4.9	-	-	4.7	-	-	-	-	-
Electrical Conductivity, Lab	µmhos/cm	n/v	n/v	-	990	990	0%	990	0%	-	-	-	-	-	930	-	-	-	1,100	1,100	0%	1,300	1,300	0%	-	-	-
Hardness (as CaCO3)	mg/L	n/v	n/v	-	280	-	-	280	0%	-	-	-	-	-	270	-	-	-	330	-	-	330	-	-	-	-	-
Ion Balance	%	n/v	n/v	-	5.63	-	-	5.60	nc	-	-	-	-	-	3.23	-	-	-	3.04	-	-	6.20	-	-	-	-	-
Langelier Index (at 20 C)	none	n/v	n/v	-	0.816	-	-	0.791	nc	-	-	-	-	-	0.623	-	-	-	0.695	-	-	0.739	-	-	-	-	-
Langelier Index (at 4 C)	none	n/v	n/v	-	0.569	-	-	0.543	nc	-	-	-	-	-	0.575	-	-	-	0.447	-	-	0.492	-	-	-	-	-
Orthophosphate (as P)	mg/L	n/v	n/v	-	0.022	-	-	0.012	nc	0.013	nc	-	-	-	0.012	-	-	-	<0.010	-	-	<0.010	<0.010	nc	-	-	-
pH, Field	S.U.	n/v	6.5-9.0[C]	-	7.83	-	-	7.83	nc	-	-	-	-	-	7.96	-	-	-	7.70	-	-	7.79	-	-	-	-	-
pH, Lab	S.U.	n/v	6.5-9.0[C]	-	8.22	8.24	nc	8.19	nc	-	-	-	-	-	8.21	-	-	-	8.05	8.10	nc	8.05	8.10	nc	-	-	-
Phenols 4AAP	mg/L	0.003[A]	n/v	-	<0.0010	-	-	<0.0010	nc	-	-	-	-	-	<0.0010	-	-	-	<0.0010	-	-	<0.0010	-	-	-	-	-
Saturation pH (at 20 C)	none	n/v	n/v	-	7.40	-	-	7.39	nc	-	-	-	-	-	7.38	-	-	-	7.35	-	-	7.31	-	-	-	-	-
Saturation pH (at 4 C)	none	n/v	n/v	-	7.65	-	-	7.64	nc	-	-	-	-	-	7.63	-	-	-	7.60	-	-	7.55	-	-	-	-	-
Sulfate	mg/L	n/v	n/v	-	91	-	-	91	0%	81	0%	-	-	-	70	-	-	-	97	-	-	94	95	1%	-	-	-
Total Dissolved Solids, Calculated	mg/L	n/v	n/v	-	530	-	-	530	0%	-	-	-	-	-	510	-	-	-	580	-	-	690	-	-	-	-	-
Turbidity, Lab	NTU	n/v	n/v	-	5.7	5.8	2%	6.1	7%	-	-	-	-	-	5.8	-	-	-	4.3	-	-	6.6	-	-	-	-	-
BTEX and Petroleum Hydrocarbons																														
Table 4.1																														
Benzene	µg/L	1[A]	370[C]	-	<0.20	-	-	<0.20	-	<0.20	-	-	-	-	<0.20	-	-	-	<0.20	-	-	<0.20	-	-	-	-	-
Toluene	µg/L	1[A]	2[C]	-	<0.20	-	-	<0.20	-	<0.20	-	-	-	-	<0.20	-	-	-	<0.20	-	-	<0.20	-	-	-	-	-
Xylenes, Total	µg/L	2[A]	n/v[C]	-	<0.40	-	-	<0.40	-	<0.40	-	-	-	-	<0.40	-	-	-	<0.40	-	-	<0.40	-	-	-	-	-
PHC F1 (C6-C10 range)	µg/L	125[A]	n/v	-	<25	-	-	<25	nc	-	-	-	-	-	<25	-	-	-	<25	-	-	<25	-	-	-	-	-
PHC F2 (>C10-C16 range)	µg/L	500[A]	n/v	-	<100	-	-	<100	-	<100	-	-	-	-	<100	-	-	-	<100	<100	nc	<100	-	-	-	-	-
PHC F3 (>C16-C34 range)	µg/L	1,000[A]	n/v	-	<200	-	-	<200	-	<200	-	-	-	-	<200	-	-	-	<200	<200	nc	<200	-	-	-	-	-
Total Petroleum Hydrocarbons	µg/L	1,620[AU][A]	n/v	-	ND	-	-	ND	-	ND	-	-	-	-	ND	-	-	-	ND	-	-	-	-	-	-	-	-
Oil and Grease, Total	mg/L	2.8[A]	n/v	-	<0.50	-	-	<0.50	nc	-	-	-	-	-	1.1	-	-	-	0.50	-	-	<0.50	-	-	-	-	-
Table 4.2																														
Ethylbenzene	µg/L	1[A]	90[C]	-	<0.20	-	-	<0.20	nc	<0.20	nc	-	-	-	<0.20	-	-	-	<0.20	-	-	<0.20	-	-	-	-	-
Other Parameters																														
Xylene, m & p-	µg/L	n/v	n/v	-	<0.40	-	-	<0.40	nc	<0.40	nc	-	-	-	<0.40	-	-	-	<0.40	-	-	<0.40	-	-	-	-	-
Xylene, o-	µg/L	n/v	n/v	-	<0.20	-	-	<0.20	nc	<0.20	nc	-	-	-	<0.20	-	-	-	<0.20	-	-	<0.20	-	-	-	-	-
PHC F1 (C6-C10 range) minus BTEX	µg/L	n/v	n/v	-	<25	-	-	<25	nc	<25	nc	-	-	-	<25	-	-	-	<25	-	-	<25	-	-	-	-	-
PHC F4 (>C34-C50 range)	µg/L	1,000[A]	n/v	-	<200	-	-	<200	nc	<200	nc	-	-	-	<200	-	-	-	<200	<200	nc	<200	-	-	-	-	-
Chromatogram to baseline at C50	none	n/v	n/v	-	YES	-	-	YES	nc	YES	nc	-	-	-	YES	-	-	-	YES	YES	nc	YES	-	-	-	-	-
Metals, Dissolved (Not included in 4.1 or 4.2)																														
Aluminum	µg/L	n/v	n/v	-	170	-	-	8.8	nc	8.9	nc	-	-	-	9.4	-	-	-	6.7	11	nc	8.7	-	-	-	-	-
Antimony	µg/L	n/v	n/v	-	<0.50	-	-	<0.50	nc	<0.50	nc	-	-	-	0.79	-	-	-	<0.50	<0.50	nc	<0.50	-	-	-	-	-
Arsenic	µg/L	n/v	n/v	-	<1.0	-	-	<1.0	nc	<1.0	nc	-	-	-	<1.0	-	-	-	<1.0	<1.0	nc	<1.0	-	-	-	-	-
Barium	µg/L	n/v	n/v	-	52	-	-	50	4%	49	2%	-	-	-	48	-	-	-	49	51	4%	53	-	-	-	-	-
Beryllium	µg/L	n/v	n/v	-	<0.40	-	-	<0.40	nc	<0.40	nc	-	-	-	<0.40	-	-	-	<0.40	<0.40	nc	<0.40	-	-	-	-	-
Boron	µg/L	n/v	n/v	-	64	-	-	63	2%	65	3%	-	-	-	61	-	-	-	82	80	2%	72	-	-	-	-	-
Cadmium	µg/L	n/v	n/v	-	<0.090	-	-	<0.090	nc	<0.090	nc	-	-	-	<0.090	-	-	-	<0.090	<0.090	nc	<0.090	-	-	-	-	-
Calcium	µg/L	n/v	n/v	-	70,000	-	-	70,000	0%	70,000	0%	-	-	-	67,000	-	-	-	76,000	79,000	4%	88,000	-	-	-	-	-
Chromium	µg/L	n/v	n/v	-	<5.0	-	-	<5.0	nc	<5.0	nc	-	-	-	<5.0	-	-	-	<5.0	<5.0	nc	<5.0	-	-	-	-	-
Cobalt	µg/L	n/v	n/v	-	<0.50	-	-	<0.50	nc	<0.50	nc	-	-	-	<0.50	-	-	-	<0.50	<0.50	nc	<0.50	-	-	-	-	-
Copper	µg/L	n/v	n/v	-	1.3	-	-	1.1	nc	1.1	nc	-	-	-	1.3	-	-	-	0.96	1.1	nc	1.3	-	-	-	-	-
Iron	µg/L	n/v	n/v	-	220	-	-	<100	nc	<100	nc	-	-	-	<100	-	-	-	<100	<100	nc	<100	-	-	-	-	-
Lead	µg/L	n/v	n/v	-	<0.50	-	-	<0.50	nc	<0.50	nc	-	-	-	<0.50	-	-	-	<0.50	<0.50	nc	<0.50	-	-	-	-	-
Lithium	µg/L	n/v	n/v	-	5.3	-	-	6.3	nc	6.4	nc	-	-	-	7.1	-	-	-	7.3	7.1	nc	6.6	-	-	-	-	-
Magnesium	µg/L	n/v	n/v	-	26,000	-	-	27,000	4%	27,000	0%	-	-	-	25,000	-	-	-	26,000	27,000	4%	28,000	-	-	-	-	-
Manganese	µg/L	n/v	[D] [C] EQ[C] TG[C]	-	31	-	-	8.8	nc	9.3	nc	-	-	-	26	-	-	-	3.0	3.6	nc	5.2	-	-	-	-	-
CWQG Manganese Guideline (Benchmark)	µg/L		n/v	-	14,881	-		14,881		-		-	-		14,881	-	-		14,881[E]	-		14,881					
CWQG Manganese Guideline	µg/L		n/v	-	430	-		430		-		-	-		430	-	-		560	-		560					
Molybdenum	µg/L	n/v	n/v	-	1.7	-	-	1.5	nc	1.5	nc	-	-	-	1.5	-	-	-	1.6	1.7	nc	1.2	-	-	-	-	-
Nickel	µg/L	n/v	n/v	-	1.1	-	-	1.3	nc	1.2	nc	-	-	-	1.0	-	-	-	<1.0	<1.0	nc	1.8	-	-	-	-	-
Phosphorus	µg/L	n/v	n/v	-	<100	-	-	110	nc	120	nc	-	-	-	150	-	-	-	110	<100	nc	<100	-	-	-	-	-
Potassium	µg/L	n/v	n/v	-	5,300	-	-	5,200	2%	5,200	0%	-	-	-	4,600	-	-	-	4,400	4,700	7%	4,400	-	-	-	-	-
Selenium	µg/L	n/v	n/v	-	<2.0	-	-	<2.0	nc	<2.0	nc	-	-	-	<2.0	-	-	-	<2.0	<2.0	nc	<2.0	-	-	-	-	-
Silicon	µg/L	n/v	n/v	-	1,100	-	-	830	28%	850	2%	-	-	-	630	-	-	-	850	870	2%	810	-	-	-	-	-
Silver	µg/L	n/v	n/v	-	<0.090	-	-	<0.090	nc	<0.090	nc	-	-	-	<0.090	-	-	-	<0.090	<0.090	nc	<0.090	-	-	-	-	-
Sodium	µg/L	n/v	n/v	-	100,000	-	-	100,000	0%	100,000	0%	-	-	-	93,000	-	-	-	110,000	110,000	0%	150,000	-	-	-	-	-
Strontium	µg/L	n/v	n/v	-	660	-	-	690	4%	660	4%	-	-	-	700	-	-	-	760	790	4%	830	-	-	-	-	-
Thallium	µg/L	n/v	n/v	-	<0.050	-	-	<0.050	nc	<0.050	nc	-	-	-	<0.050	-	-	-	<0.050	<0.050	nc	<0.050	-	-	-	-	-
Tin	µg/L	n/v	n/v	-	<1.0	-	-	<1.0	nc	<1.0	nc	-	-	-	<1.0	-	-	-	<1.0	<1.0	nc	<1.0	-	-	-	-	-
Titanium	µg/L	n/v	n/v	-	5.9	-	-	<5.0	nc	<5.0	nc	-	-	-	<5.0	-	-	-	<5.0	<5.0	nc	<5.0	-	-	-	-	-
Tungsten	µg/L	n/v	n/v	-	<1.0	-	-	<1.0	nc	<1.0	nc	-	-	-	<1.0	-	-	-	<1.0	<1.0	nc	<1.0	-	-	-	-	-
Uranium	µg/L	n/v	n/v	-	0.97	-	-	1.1	13%	1.1	0%	-	-	-	1.3	-	-	-	1.6	1.6	0%	1.6	-	-	-	-	-

Table
Surface Water Quality Results - IC-Out (formerly IC3)
Canadian National Railway
Milton Logistics Hub

Sample Location				IC-out (formerly IC3)																							
Sample Date				24-Aug-22	27-Sep-22	27-Sep-22		27-Sep-22		27-Sep-22		27-Sep-22	27-Sep-22		25-Oct-22	25-Oct-22	25-Oct-22		24-Nov-22	24-Nov-22		13-Dec-22	13-Dec-22		13-Dec-22	13-Dec-22	
Sample ID				IC-OUT	893	893 Lab-Dup		927		927 Lab-Dup		IC-OUT	DUPLICATE 1		923	IC-OUT	DUPLICATE 1		996	996 Lab-Dup		1029	1029 Lab-Dup		IC-OUT	DUPLICATE-2	
Sampling Company				STANTEC	STANTEC	STANTEC		STANTEC		STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	
Laboratory				ALS	BV	BV		BV		BV		ALS	ALS		BV	ALS	ALS		BV	BV		BV	BV		ALS	ALS	
Laboratory Work Order				L2730251	C2R9836	C2R9836		C2R9847		C2R9847		L2734680	L2734680		C2V1247	L2737944	L2737944		C2Y5892	C2Y5892		C2AF864	C2AF864		L2743119	L2743119	
Laboratory Sample ID				L2730251-2	TVW216	TVW216	RPD	TVW257	RPD	TVW257	RPD	L2734680-2	L2734680-3	RPD	UCL968	L2737944-2	L2737944-3	RPD	UKC158	UKC158	RPD	UOQ474	UOQ474	RPD	L2743119-2	L2743119-4	RPD
Sample Type	Units	SSL	CCME			Lab Replicate	(%)	Field Duplicate	(%)	Lab Replicate	(%)		Field Duplicate	(%)			Field Duplicate	(%)		Lab Replicate	(%)		Lab Replicate	(%)		Field Duplicate	(%)
Vanadium	µg/L	n/v	n/v	-	0.93	-	-	0.54	nc	0.51	nc	-	-	-	<0.50	-	-	-	<0.50	<0.50	nc	<0.50	-	-	-	-	-
Zinc	µg/L	n/v	EQ1[B] EQ2[C]	-	<5.0	-	-	<5.0	nc	<5.0	nc	-	-	-	<5.0	-	-	-	<5.0	<5.0	nc	<5.0	-	-	-	-	-
CWQG Zinc Guideline (short-term)	µg/L	n/v		-	296.9	-		297.9		-		-	-		279.0	-	-		278.8	-		307	-				
CWQG Zinc Guideline (long-term)	µg/L	n/v		-	78.7	-		79.1		-		-	-		64.8	-	-		77.6	-		80.0	-				
Zirconium	µg/L	n/v	n/v	-	<1.0	-	-	<1.0	nc	<1.0	nc	-	-	-	<1.0	-	-	-	<1.0	<1.0	nc	<1.0	-	-	-	-	-

See notes on last page.

Table
Surface Water Quality Results - IC-Out (formerly IC3)
Canadian National Railway
Milton Logistics Hub

Sample Location				IC-out (formerly IC3)																											
Sample Date				24-Aug-22	27-Sep-22	27-Sep-22		27-Sep-22		27-Sep-22		27-Sep-22	27-Sep-22		25-Oct-22	25-Oct-22	25-Oct-22		24-Nov-22	24-Nov-22		13-Dec-22	13-Dec-22		13-Dec-22	13-Dec-22						
Sample ID				IC-OUT	893	893 Lab-Dup		927		927 Lab-Dup		IC-OUT	DUPLICATE 1		923	IC-OUT	DUPLICATE 1		996	996 Lab-Dup		1029	1029 Lab-Dup		IC-OUT	DUPLICATE-2						
Sampling Company				STANTEC	STANTEC	STANTEC		STANTEC		STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC						
Laboratory				ALS	BV	BV		BV		BV		ALS	ALS		ALS	ALS	ALS		BV	BV		BV	BV		ALS	ALS						
Laboratory Work Order				L2730251	C2R9836	C2R9836		C2R9847		C2R9847		L2734680	L2734680		C2V1247	L2737944	L2737944		C2Y5892	C2Y5892		C2AF864	C2AF864		L2743119	L2743119						
Laboratory Sample ID				L2730251-2	TVW216	TVW216		TVW257		TVW257		L2734680-2	L2734680-3		UCL968	L2737944-2	L2737944-3		UKC158	UKC158		UOQ474	UOQ474		L2743119-2	L2743119-4						
Sample Type	Units	SSL	CCME			Lab Replicate	RPD (%)	Field Duplicate	RPD (%)	Lab Replicate	RPD (%)		Field Duplicate	RPD (%)				RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)						
Metals, Total																															
Table 4.1																															
Chromium	µg/L	4.24[A]	n/v	-	<5.0	-	-	<5.0	nc	-	-	-	-	-	<5.0	-	-	-	<5.0	-	-	<5.0	-	-	-	-	-					
Chromium (Hexavalent)	µg/L	n/v	1[F]	-	<0.50	-	-	<0.50	nc	-	-	-	-	-	<0.50	-	-	-	<0.50	-	-	<0.50	-	-	-	-	-					
Chromium (Trivalent)	µg/L	n/v	8.9[F]	-	<5	-	-	<5	nc	-	-	-	-	-	<5	-	-	-	<5	-	-	<5	-	-	-	-	-					
Copper	µg/L	7.63[A]	Equation[C]	-	1.5	-	-	1.6	nc	-	-	-	-	-	1.9	-	-	-	1.7	-	-	1.7	-	-	-	-	-					
CWQG Copper Guideline	µg/L	n/v		-	4	-	-	4		-	-	-	-	-	4	-	-	-	4	-	-	4										
Iron	µg/L	3,413[A]	300[C]	-	610[C]	-	-	610[C]	0%	-	-	-	-	-	560[C]	-	-	-	440[C]	-	-	320[C]	-	-	-	-	-					
Lead	µg/L	2.18[A]	Equation[C]	-	<0.50	-	-	<0.50	nc	-	-	-	-	-	<0.50	-	-	-	<0.50	-	-	<0.50	-	-	-	-	-					
CWQG Lead Guideline	µg/L	n/v		-	7	-	-	7		-	-	-	-	-	7	-	-	-	7	-	-	7										
Zinc	µg/L	25[A]	n/v	-	<5.0	-	-	<5.0	nc	-	-	-	-	-	6.0	-	-	-	6.5	-	-	<5.0	-	-	-	-	-					
Other Parameters																															
Aluminum	µg/L	n/v	$100_{pH<6.5}$[F]	-	300[C]	-	-	310[C]	3%	-	-	-	-	-	360[C]	-	-	-	320[C]	-	-	210[C]	-	-	-	-	-					
Antimony	µg/L	n/v	n/v	-	<0.50	-	-	<0.50	nc	-	-	-	-	-	<0.50	-	-	-	<0.50	-	-	<0.50	-	-	-	-	-					
Arsenic	µg/L	n/v	5[F]	-	<1.0	-	-	1.0	nc	-	-	-	-	-	<1.0	-	-	-	<1.0	-	-	<1.0	-	-	-	-	-					
Barium	µg/L	n/v	50	-	50	-	-	53	6%	-	-	-	-	-	52	-	-	-	50	-	-	53	-	-	-	-	-					
Beryllium	µg/L	n/v	n/v	-	<0.40	-	-	<0.40	nc	-	-	-	-	-	<0.40	-	-	-	<0.40	-	-	<0.40	-	-	-	-	-					
Bismuth	µg/L	n/v	n/v	-	<1.0	-	-	<1.0	nc	-	-	-	-	-	<1.0	-	-	-	<1.0	-	-	<1.0	-	-	-	-	-					
Boron	µg/L	n/v	$29,000^{B}$ $1,500^{C}$ $_{STB\ LTG}$	-	66	-	-	66	3%	-	-	-	-	-	110	-	-	-	54	-	-	71	-	-	-	-	-					
Cadmium	µg/L	n/v	$_{STB\ LTG}^{B\ C}$	-	<0.090	-	-	<0.090	nc	-	-	-	-	-	<0.090	-	-	-	<0.090	-	-	<0.090	-	-	-	-	-					
CWQG Cadmium Guideline (STB)	µg/L	n/v		-	5.97	-		5.97		-		-	-		5.76	-	-		6.19	-		7.06										
CWQG Cadmium Guideline (LTG)	µg/L	n/v		-	0.37	-		0.37		-		-	-		0.36	-	-		0.37	-		0.37										
Calcium	µg/L	n/v	n/v	-	63,000	-	-	66,000	5%	-	-	-	-	-	71,000	-	-	-	76,000	-	-	85,000	-	-	-	-	-					
Cobalt	µg/L	n/v	n/v	-	<0.50	-	-	<0.50	nc	-	-	-	-	-	<0.50	-	-	-	<0.50	-	-	<0.50	-	-	-	-	-					
Lithium	µg/L	n/v	n/v	-	6.6	-	-	7.0	nc	-	-	-	-	-	7.9	-	-	-	7.5	-	-	7.1	-	-	-	-	-					
Magnesium	µg/L	n/v	n/v	-	25,000	-	-	26,000	4%	-	-	-	-	-	26,000	-	-	-	25,000	-	-	27,000	-	-	-	-	-					
Manganese	µg/L	n/v	n/v	-	73	-	-	73	0%	-	-	-	-	-	68	-	-	-	29	-	-	23	-	-	-	-	-					
Molybdenum	µg/L	n/v	73[F]	-	1.5	-	-	1.5	nc	-	-	-	-	-	1.4	-	-	-	1.4	-	-	1.2	-	-	-	-	-					
Nickel	µg/L	n/v	Equation[C]	-	1.3	-	-	1.3	nc	-	-	-	-	-	1.3	-	-	-	1.4	-	-	<1.0	-	-	-	-	-					
CWQG Nickel Guideline	µg/L	n/v		-	150	-		150		-		-	-		150	-	-		-	-		150										
Potassium	µg/L	n/v	n/v	-	5,000	-	-	5,100	2%	-	-	-	-	-	4,900	-	-	-	4,300	-	-	4,200	-	-	-	-	-					
Selenium	µg/L	n/v	1[F]	-	<2.0	-	-	<2.0	nc	-	-	-	-	-	<2.0	-	-	-	<2.0	-	-	<2.0	-	-	-	-	-					
Silicon	µg/L	n/v	n/v	-	1,200	-	-	1,400	15%	-	-	-	-	-	1,400	-	-	-	1,400	-	-	1,000	-	-	-	-	-					
Silver	µg/L	n/v	0.25[F]	-	<0.090	-	-	<0.090	nc	-	-	-	-	-	<0.090	-	-	-	<0.090	-	-	<0.090	-	-	-	-	-					
Sodium	µg/L	n/v	n/v	-	93,000	-	-	96,000	3%	-	-	-	-	-	98,000	-	-	-	100,000	-	-	150,000	-	-	-	-	-					
Strontium	µg/L	n/v	n/v	-	650	-	-	670	3%	-	-	-	-	-	750	-	-	-	750	-	-	790	-	-	-	-	-					
Tellurium	µg/L	n/v	n/v	-	<1.0	-	-	<1.0	nc	-	-	-	-	-	<1.0	-	-	-	<1.0	-	-	<1.0	-	-	-	-	-					
Thallium	µg/L	n/v	0.8[F]	-	<0.050	-	-	<0.050	nc	-	-	-	-	-	<0.050	-	-	-	<0.050	-	-	<0.050	-	-	-	-	-					
Tin	µg/L	n/v	n/v	-	<1.0	-	-	<1.0	nc	-	-	-	-	-	<1.0	-	-	-	<1.0	-	-	<1.0	-	-	-	-	-					
Titanium	µg/L	n/v	n/v	-	9.9	-	-	13	nc	-	-	-	-	-	8.8	-	-	-	11	-	-	8.1	-	-	-	-	-					
Tungsten	µg/L	n/v	n/v	-	<1.0	-	-	<1.0	nc	-	-	-	-	-	<1.0	-	-	-	<1.0	-	-	<1.0	-	-	-	-	-					
Uranium	µg/L	n/v	33[I] 15[F]	-	1.2	-	-	1.3	8%	-	-	-	-	-	1.4	-	-	-	1.6	-	-	1.6	-	-	-	-	-					
Vanadium	µg/L	n/v	n/v	-	1.5	-	-	1.5	nc	-	-	-	-	-	1.2	-	-	-	0.91	-	-	0.67	-	-	-	-	-					
Zirconium	µg/L	n/v	n/v	-	<1.0	-	-	<1.0	nc	-	-	-	-	-	<1.0	-	-	-	<1.0	-	-	<1.0	-	-	-	-	-					
Microbiological Parameters																															
Table 4.2																															
E. Coli/Fecal Coliform	cfu/100mL	n/v	n/v	-	340	-	-	33	nc	-	-	-	-	-	62	-	-	-	13	-	-	-	-	-	-	-	-					
Total Coliforms	cfu/100mL	n/v	n/v	-	2,300	-	-	960	nc	-	-	-	-	-	640	-	-	-	2,900	-	-	-	-	-	-	-	-					
Other Parameters																															
Total Coliform Background	cfu/100mL	n/v	n/v	-	9,800	-	-	9,900	nc	-	-	-	-	-	2,900	-	-	-	5,800	-	-	-	-	-	-	-	-					
Polychlorinated Biphenyls																															
Polychlorinated Biphenyls (PCBs)	µg/L	n/v	n/v	-	<0.05	-	-	<0.05	nc	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-					
Herbicide and Pesticide (SW82670D)																															
Table 4.2																															
Aldicarb	µg/L	1_{LT}[J]	1[F]	-	-	-	-	<0.10	-	-	-	-	-	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-					
Carbaryl	µg/L	0.2_{LT}[A]	3.8^{B} 0.2^{C}	-	-	-	-	<0.10	-	-	-	-	-	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-					
Carbofuran	µg/L	1.8_{LT}[A]	1.8[C]	-	-	-	-	<0.10	-	-	-	-	-	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-					
Cyanazine (Bladex)	µg/L	2_{LT}[A]	2[C]	-	-	-	-	<0.10	-	-	-	-	-	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-					
Triallate	µg/L	0.24_{LT}[A]	0.24[C]	-	<0.050	-	-	<0.050	nc	-	-	-	-	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-					
Trifluralin	µg/L	0.2_{LT}[A]	0.2[C]	-	<0.050	-	-	<0.050	nc	-	-	-	-	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-					
Other Parameters																															
Endosulfan I	µg/L	n/v	n/v	-	<0.050	-	-	<0.050	nc	-	-	-	-	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-					
Endosulfan II	µg/L	n/v	n/v	-	<0.050	-	-	<0.050	nc	-	-	-	-	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-					
Endosulfan Sulfate	µg/L	n/v	n/v	-	<0.050	-	-	<0.050	nc	-	-	-	-	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-					

See notes on last page.

Table
Surface Water Quality Results - IC-Out (formerly IC3)
Canadian National Railway
Milton Logistics Hub

Sample Location				IC-out (formerly IC3)																									
Sample Date				24-Aug-22	27-Sep-22	27-Sep-22		27-Sep-22		27-Sep-22		27-Sep-22	27-Sep-22		25-Oct-22	25-Oct-22	25-Oct-22		24-Nov-22	24-Nov-22		13-Dec-22	13-Dec-22		13-Dec-22	13-Dec-22	
Sample ID				IC-OUT	893	893 Lab-Dup		927		927 Lab-Dup		IC-OUT	DUPLICATE 1		923	IC-OUT	DUPLICATE 1		996	996 Lab-Dup		1029	1029 Lab-Dup		IC-OUT	DUPLICATE-2	
Sampling Company				STANTEC	STANTEC	STANTEC		STANTEC		STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	
Laboratory				ALS	BV	BV		BV		BV		ALS	ALS		BV	ALS	ALS		BV	BV		BV	BV		ALS	ALS	
Laboratory Work Order				L2730251	C2R9836	C2R9836		C2R9847		C2R9847		L2734680	L2734680		C2V1247	L2737944	L2737944		C2Y5892	C2Y5892		C2AF864	C2AF864		L2743119	L2743119	
Laboratory Sample ID				L2730251-2	TVW216	TVW216		TVW257		TVW257		L2734680-2	L2734680-3		UCL968	L2737944-2	L2737944-3		UKC158	UKC158		UOQ474	UOQ474		L2743119-2	L2743119-4	
Sample Type	Units	SSL	CCME			Lab Replicate	RPD (%)	Field Duplicate	RPD (%)	Lab Replicate	RPD (%)		Field Duplicate	RPD (%)			Field Duplicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)			Field Duplicate	RPD (%)
Herbicide and Pesticide																													
Table 4.2																													
2,4,5-TP (Silvex)	µg/L	n/v	n/v	-	<0.50	-	-	<0.50	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-D (EE)	µg/L	n/v	n/v	-	<0.50	-	-	<0.50	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-DB	µg/L	n/v	n/v	-	<0.50	-	-	<0.50	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	-	-	-	-	-	-
Aldicarb	µg/L	1_L[A]	1[C]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Atrazine	µg/L	1.8_{LT}[A]	1.8[C]	-	<1.0	-	-	<1.0	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Azinphos-methyl (Guthion)	n/v	n/v	n/v	-	<1.0	-	-	<1.0	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Bendiocarb	µg/L	n/v	n/v	-	<2.0	-	-	<2.0	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Butanoic acid (MCPB)	µg/L	n/v	n/v	-	<0.50	-	-	<0.50	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbaryl	µg/L	0.2_{LT}[A]	3.8[B] 0.2[C]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbofuran	µg/L	1.8_{LT}[A]	1.8[C]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos	µg/L	0.002_{LT}[A]	0.02[B] 0.002[C]	0.0000161 M J	**<2.0**	-	-	**<2.0**	-	-	-	<0.000023	0.000016 M J	nc	**<2.0**	<0.000056	<0.000060	nc	-	-	-	-	-	-	<0.000021	<0.000045	nc
Cyanazine (Bladex)	µg/L	2_{LT}[A]	2[C]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DDVP (Dichlorvos)	n/v	n/v	n/v	-	<2.0	-	-	<2.0	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Demeton	µg/L	n/v	n/v	-	<2.0	-	-	<2.0	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Diazinon	µg/L	n/v	n/v	-	<2.0	-	-	<2.0	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Dicamba	µg/L	10_{LT}[A]	10[C]	-	<0.50	-	-	<0.50	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorophenoxy acetic acid, 2,4- (2,4-D)	µg/L	4_{LT}[A]	4[C]	-	<0.50	-	-	<0.50	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorprop (2,4-DP)	µg/L	n/v	n/v	-	<0.50	-	-	<0.50	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	-	-	-	-	-	-
Dimethoate	µg/L	6.2_{LT}[A]	6.2[C]	-	<2.0	-	-	<2.0	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethion	n/v	n/v	n/v	-	<1.0	-	-	<1.0	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Fenchlorphos (Ronnel)	µg/L	n/v	n/v	-	<2.0	-	-	<2.0	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Fenthion	µg/L	n/v	n/v	-	<1.0	-	-	<1.0	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Fonofos	µg/L	n/v	n/v	-	<2.0	-	-	<2.0	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Imidan (Phosmet)	µg/L	n/v	n/v	-	<2.0	-	-	<2.0	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Malathion	µg/L	n/v	n/v	-	<2.0	-	-	<2.0	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
MCPA (2-Methyl-4-Chlorophenoxyacetic Acid)	µg/L	2.6_{LT}[A]	2.6[C]	-	<0.50	-	-	<0.50	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	-	-	-	-	-	-
MCPP (2-(2-Methyl-4-chlorophenoxy) propionic acid)	µg/L	n/v	n/v	-	<0.50	-	-	<0.50	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Parathion	µg/L	n/v	n/v	-	<2.0	-	-	<2.0	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Metolachlor (Dual)	µg/L	n/v	7.8[C]	-	<5.0	-	-	<5.0	-	-	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Mevinphos (Phosdrin)	µg/L	n/v	n/v	-	<2.0	-	-	<2.0	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Parathion (Ethyl Parathion)	µg/L	n/v	n/v	-	<2.0	-	-	<2.0	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Phorate (Thimet)	µg/L	n/v	n/v	-	<1.0	-	-	<1.0	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Picloram	µg/L	29_{LT}[A]	29[C]	-	<0.50	-	-	<0.50	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	-	-	-	-	-	-
Prometryn	µg/L	n/v	n/v	-	<1.0	-	-	<1.0	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Simazine	µg/L	10_{LT}[A]	10[C]	-	<2.0	-	-	<2.0	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Terbufos	µg/L	n/v	n/v	-	<1.0	-	-	<1.0	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichlorophenoxy acetic acid, 2,4,5- (2,4,5-T)	µg/L	n/v	n/v	-	<0.50	-	-	<0.50	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	-	-	-	-	-	-
Trifluralin	µg/L	0.2_{LT}[A]	0.2[C]	-	**<5.0**	-	-	**<5.0**	-	-	-	-	-	-	**<5.0**	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

SSL	Site Specific Limits
A	Indian Creek - Out, SW Limits
CCME	Canadian Council of Ministers of the Environment
B	Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Short Term
C	Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Long Term
6.5[A]	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / n/c available.
CWQG	Canadian Water Quality Guideline
Equation*	The CWQG for copper is related to water hardness. When the water hardness is 0 to < 82 mg/L, the CWQG is 2 µg/L. At hardness =82 to =180 mg/L the CWQG is calculated using this equation: CWQG (µg/L) = 0.2 * e(0.8545[ln(hardness)]-1.465). At hardness >180 mg/L, the CWQG is 4 µg/L. If the hardness is unknown, the CWQG is 2 µg/L. (Using average Hardness per event)
Equation#	The CWQG for lead is related to water hardness. When the hardness is 0 to = 60 mg/L, the CWQG is 1 µg/L. At hardness >60 to = 180 mg/L the CWQG is calculated using this equation: CWQG (µg/L)= e(1.273[ln(hardness)]-4.705). At hardness >180 mg/L, the CWQG is 7 µg/L. If the hardness is unknown, the CWQG is 1 µg/L. (Using average Hardness per event)
Equation**	The CWQG for nickel is related to water hardness. When the water hardness is 0 to = 60 mg/L, the CWQG is 25 µg/L. At hardness > 60 to = 180 mg/L the CWQG is calculated using this equation: CWQG (µg/L) = e(0.76[ln(hardness)]+1.06). At hardness >180 mg/L, the CWQG is 150 µg/L. If the hardness is unknown, the CWQG is 25 µg/L. (Using average Hardness per event)
CAS	Total Petroleum Hydrocarbons is calculated using the following method: Tot Purge Hydrocarbon C6-C10 (F1) + Tot Extr Hydrocarbons C10-C16 (F2) + Tot Extr Hydrocarbons C16-C34 (F3) - Benzene – Toluene - Ethylbenzene – Xylenes
COMI	Total Ammonia is a table based parameter dependent on field pH and field water temperature.
EQ1	The short-term benchmark is for dissolved zinc and is calculated using the following equation: Benchmark = exp(0.833[ln(hardness mg·L-1)] + 0.240[ln(DOC mg·L-1)] + 0.526). The value in he table is for surface water of 50 mg CaCO3·L-1 hardness and 0.5 mg·L-1 dissolved organic carbon (DOC). The benchmark equation is valid between hardness 13.8 and 250.5 mg CaCO3·L-1 and DOC 0.3 and 17.3 mg·L-1. (Using average Hardness per event)
EQ2	The long-term CWQG is for dissolved zinc and is calculated using the following equation: CWQG = exp(0.947[ln(hardness mg·L-1)] - 0.815[pH] + 0.398[ln(DOC mg·L-1)] + 4.625). The value in the table is for surface water of 50 mg CaCO3·L-1 hardness, pH of 7.5 and 0.5 mg·L-1 DOC. The CWQG equation is valid between hardness 23.4 and 399 mg CaCO3·L-1, pH 6.5 and 8.13 and DOC 0.3 to 22.9 mg·L-1. (Using average Hardness per event)
EQ3	The short-term benchmark is calculated using the benchmark calculator in Appendix B of the Scientific Criteria Document for the Development of the Canadian Water Quality Guidelines for the Protection of Aquatic Life: Manganese or the following equation: Benchmark = exp(0.678[ln(hardness)] + 4.76) where the benchmark is expressed in dissolved manganese concentration (µg/L) and hardness is measured as CaCO3 equivalents in mg/L. The value in the table is for surface water of 50 mg/L hardness. The benchmark equation is valid between hardness 25 and 250 mg/L. (Using averages per event)
EQ4	The long-term CWQG is found using the lookup table (see Table 9) or the CWQG and benchmark calculator is Appendix B of CCME (2016). The value in the table is for surface water of 50 mg/L hardness and pH of 7.5. The CWQG table is valid between hardness 25 and 670 mg/L and pH 5.8 and 8.4. (Using averages per event)
FP	CWQG for Ponds
LT	CWQG Guideline (long-term)
LTG	The CWQG for cadmium (i.e. long-term guideline) of 0.09 µg·L-1 is for waters of 50 mg CaCO3·L-1 hardness. The CWQG for cadmium is related to water hardness (as CaCO3): When the water hardness is > 0 to < 17 mg/L, the CWQG is 0.04 µg/L; at hardness ≥ 17 to ≤ 280 mg/L, the CWQG is calculated using this equation (CWQG (µg/L) = 10^(0.83(log[hardness]) – 2.46)); At hardness > 280 mg/L, the CWQG is 0.37 µg/L. (Using average Hardness per event)
SN	see Narrative
STG	The short-term benchmark concentration of 1.0 µg·L-1 is for waters of 50 mg CaCO3·L-1 hardness. The short-term benchmark for cadmium is related to water hardness (as CaCO3): When the water hardness is 0 to < 5.3 mg/L, the short-term benchmark is 0.11 µg/L. At hardness ≥ 5.3 to ≤ 360 mg/L, the short-term benchmark is calculated using this equation (Short-term benchmark (µg/L) = 10^(1.016(log[hardness]) – 1.71)). At hardness > 360 mg/L, the short-term benchmark is 7.7 µg/L. (Using average Hardness per event)
TEQ	Ammonia guideline to be calculated (equation, resulting in guidelines in mg/L NH3), then converted to mg/L total ammonia-N by multiplying the corresponding guideline value by 0.8224.
WR	Lowest acceptable dissolved oxygen concentration: for warm water biota: early life stages = 6000 µg/L; for warm water biota: other life stages = 5500 µg/L; for cold water biota: early life stages = 9500 µg/L; for cold water biota: otherlife stages = 6500 µg/L
WR1	Variable, 5 µg/L if pH < 6.5 and 100 µg/L if pH > 6.5
M-J	A peak has been manually integrated, and theanalyte was detected below the calibrated range but above the EDL.
ND	Not detected.
NOOGT	No data due to overgrowth. Total coliforms and / or E.coli detected
RPD	Relative Percent Difference.
61%	RPD exceeds data quality objective of 40%.

Table
Surface Water Quality Results - IC-Out (formerly IC3)
Canadian National Railway
Milton Logistics Hub

Sample Location				IC-out (formerly IC3)																												
Sample Date				24-Aug-22	27-Sep-22	27-Sep-22		27-Sep-22		27-Sep-22		27-Sep-22	27-Sep-22		25-Oct-22	25-Oct-22	25-Oct-22		24-Nov-22	24-Nov-22		13-Dec-22	13-Dec-22		13-Dec-22	13-Dec-22						
Sample ID				IC-OUT	893	893 Lab-Dup		927		927 Lab-Dup		IC-OUT	DUPLICATE 1		923	IC-OUT	DUPLICATE 1		996	996 Lab-Dup		1029	1029 Lab-Dup		IC-OUT	DUPLICATE-2						
Sampling Company				STANTEC	STANTEC	STANTEC		STANTEC		STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC						
Laboratory				ALS	BV	BV		BV		BV		ALS	ALS		BV	ALS	ALS		BV	BV		BV	BV		ALS	ALS						
Laboratory Work Order				L2730251	C2R9836	C2R9836		C2R9847		C2R9847		L2734680	L2734680		C2V1247	L2737944	L2737944		C2Y5892	C2Y5892		C2AF864	C2AF864		L2743119	L2743119						
Laboratory Sample ID				L2730251-2	TVW216	TVW216	RPD	TVW257	RPD	TVW257	RPD	L2734680-2	L2734680-3	RPD	UCL968	L2737944-2	L2737944-3	RPD	UKC158	UKC158	RPD	UOQ474	UOQ474	RPD	L2743119-2	L2743119-4	RPD					
Sample Type	Units	SSL	CCME			Lab Replicate	(%)	Field Duplicate	(%)	Lab Replicate	(%)		Field Duplicate	(%)			Field Duplicate	(%)		Lab Replicate	(%)		Lab Replicate	(%)			Field Duplicate	(%)					

nc RPD is not calculated if one or more values is non detect or if one or more values is less than five times the reportable detection limit.

Table
Surface Water Quality Results - Trib-Ain
Canadian National Railway
Milton Logistics Hub

Sample Location				Trib-Ain																		
Sample Date				23-Feb-22	23-Feb-22		24-Mar-22	24-Mar-22		24-Mar-22		21-Apr-22	21-Apr-22		17-May-22	17-May-22		25-Aug-22	25-Aug-22		25-Aug-22
Sample ID				TRIB-AIN 542	TRIB-AIN 542 Lab-Dup		TRIB-AIN	DUPLICATE		DUPLICATE Lab-Dup		TRIB-AIN	TRIB-AIN Lab-Dup		TRIB-AIN	TRIB-AIN Lab-Dup		TRIB-AIN	TRIB-AIN Lab-Dup		TRIB-A IN
Sampling Company				STANTEC	STANTEC		STANTEC	STANTEC		STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC
Laboratory				BV	BV		BV	BV		BV		BV	BV		BV	BV		BV	BV		ALS
Laboratory Work Order				C248206	C248206		C278415	C278408		C278408		C2A6467	C2A6467		C2D3654	C2D3654		C2O3990	C2O3990		L2730251
Laboratory Sample ID				RXT720	RXT720		SEK090	SEK074		SEK074		SKP748	SKP748		SQN153	SQN153		TOC527	TOC527		L2730251-5
Sample Type	Units	SSL	CCME		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)	Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)	
General Chemistry																						
Table 4.1																						
Chloride	mg/L	n/v	640[B] 120[C]	120	-	-	120	120	0%	-	-	320[C]	-	-	310[C]	-	-	110	-	-	-
Dissolved Oxygen	mg/L	n/v	>5.5/6/6.5/9.5$_{LIFE}$[C]	11.3	-	-	9.70	10.1	nc	-	-	8.82	-	-	8.67	-	-	8.66	-	-	-
Phosphorus, Total	mg/L	n/v	n/v	0.11	-	-	0.097	0.095	2%	-	-	0.084	-	-	0.09	-	-	0.065	-	-	-
Total Suspended Solids	mg/L	n/v	SL[C]	23	-	-	26	28	7%	-	-	32	-	-	32	-	-	3	-	-	-
Temperature, Field	deg C	n/v	n/v	0.1	-	-	6.5	6.5	nc	-	-	11.3	-	-	15.9	-	-	21.3	-	-	-
Table 4.2																						
Ammonia (as N)	mg/L	n/v	$_{TBD}$[C]	0.13	-	-	0.55	0.39	34%	0.35	11%	0.26[C]	-	-	0.11	-	-	0.39	-	-	-
CWQG Ammonia Guideline	mg/L	n/v		0.21	-		12.6	12.6		-		0.10	-		0.59	-		3.96	-		-
Ammonia, Un-ionized (Calculated)	mg/L	0.019$_{LT}$[A]	0.019[C]	0.0046	-	-	0.00074	<0.00061	nc	-	-	0.048[AC]	-	-	0.0073	-	-	0.0034	-	-	-
Nitrate (as N)	mg/L	3.0$_{LT}$[A]	124[B] 3.0[C]	0.45	-	-	0.32	0.32	nc	-	-	0.14	-	-	<0.10	-	-	<0.10	-	-	-
Nitrate + Nitrite (as N)	mg/L	n/v	n/v	0.47	-	-	0.34	0.34	nc	-	-	0.14	-	-	<0.10	-	-	<0.10	-	-	-
Nitrite (as N)	mg/L	0.06$_{LT}$[A]	0.06[C]	0.019	-	-	0.025	0.022	nc	-	-	<0.010	-	-	<0.010	-	-	<0.010	-	-	-
Other Parameters																						
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	<1.0	-	-	1.4	1.6	nc	-	-	1.2	-	-	3.7	-	-	1.1	-	-	-
Alkalinity, Total (as CaCO3)	mg/L	n/v	n/v	86	-	-	130	130	0%	-	-	130	-	-	200	-	-	150	-	-	-
Anion Sum	me/L	n/v	n/v	6.28	-	-	7.46	7.54	nc	-	-	13.7	-	-	16.1	-	-	9.68	-	-	-
Bicarbonate(as CaCO3, Calculated)	mg/L	n/v	n/v	87	-	-	130	130	0%	-	-	130	-	-	240	-	-	140	-	-	-
Cation Sum	me/L	n/v	n/v	6.31	-	-	8.01	7.75	nc	-	-	14.3	-	-	16.6	-	-	9.41	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	n/v	n/v	4.5	-	-	5.8	5.7	2%	-	-	9.4	-	-	12	-	-	10	-	-	-
Electrical Conductivity, Lab	µmhos/cm	n/v	n/v	680	-	-	800	800	0%	-	-	1,600	-	-	1,700	-	-	950	-	-	-
Hardness (as CaCO3)	mg/L	n/v	n/v	150	-	-	220	210	5%	-	-	260	-	-	410	-	-	300	-	-	-
Ion Balance	%	n/v	n/v	0.300	-	-	3.55	1.37	nc	-	-	2.19	-	-	1.38	-	-	1.42	-	-	-
Langelier Index (at 20 C)	none	n/v	n/v	0.0480	-	-	0.523	0.543	nc	-	-	0.434	-	-	1.09	-	-	0.530	-	-	-
Langelier Index (at 4 C)	none	n/v	n/v	-0.201	-	-	0.275	0.295	nc	-	-	0.188	-	-	0.845	-	-	0.282	-	-	-
Orthophosphate (as P)	mg/L	n/v	n/v	0.013	-	-	0.010	0.011	nc	-	-	<0.010	-	-	<0.010	-	-	0.036	-	-	-
pH, Field	S.U.	n/v	6.5-9.0[C]	8.57	-	-	6.90	6.90	nc	-	-	8.94	-	-	8.3	-	-	7.21	-	-	-
pH, lab	S.U.	n/v	6.5-9.0[C]	7.92	-	-	8.08	8.12	nc	-	-	7.98	-	-	8.20	-	-	7.92	-	-	-
Phenols-4AAP	mg/L	n/v	n/v	0.0011	-	-	<0.0010	<0.0010	nc	-	-	0.0014	-	-	<0.0010	<0.0010	nc	0.0013	-	-	-
Saturation pH (at 20 C)	none	n/v	n/v	7.87	-	-	7.58	7.57	nc	-	-	7.55	-	-	7.11	-	-	7.39	-	-	-
Saturation pH (at 4 C)	none	n/v	n/v	8.12	-	-	7.81	7.82	nc	-	-	7.79	-	-	7.36	-	-	7.64	-	-	-
Sulfate	mg/L	n/v	n/v	47	-	-	67	69	3%	-	-	97	-	-	120	-	-	160	-	-	-
Total Dissolved Solids, Calculated	mg/L	n/v	n/v	368	-	-	440	430	2%	-	-	800	-	-	920	-	-	570	-	-	-
Turbidity, Lab	NTU	n/v	n/v	62	-	-	52	48	8%	-	-	36	36	0%	53	-	-	3.0	-	-	-
BTEX and Petroleum Hydrocarbons																						
Table 4.1																						
Benzene	µg/L	n/v	370[C]	<0.20	-	-	<0.20	<0.20	-	-	-	<0.20	-	-	<0.20	<0.20	-	<0.20	-	-	-
Toluene	µg/L	n/v	2[C]	<0.20	-	-	<0.20	<0.20	-	-	-	<0.20	-	-	<0.20	<0.20	-	<0.20	-	-	-
Xylenes, Total	µg/L	n/v	n/v	<0.40	-	-	<0.40	<0.40	-	-	-	<0.40	-	-	<0.40	<0.40	-	<0.40	-	-	-
PHC F1 (C6-C10 range)	µg/L	n/v	n/v	<25	-	-	<25	<25	nc	-	-	<25	-	-	<25	<25	-	<25	-	-	-
PHC F2 (>C10-C16 range)	µg/L	n/v	n/v	<100	-	-	<100	<100	-	-	-	<100	-	-	<100	-	-	<100	-	-	-
PHC F3 (>C16-C34 range)	µg/L	n/v	n/v	<200	-	-	<200	<200	nc	-	-	<200	-	-	<200	-	-	<200	-	-	-
Total Petroleum Hydrocarbons	µg/L	n/v	n/v	ND	-	-	ND	ND	-	-	-	ND	-	-	ND	-	-	ND	-	-	-
Oil and Grease, Total	mg/L	n/v	n/v	0.80	-	-	1.1	<0.50	nc	-	-	<0.50	-	-	1.2	-	-	1.8	-	-	-
Table 4.2																						
Ethylbenzene	µg/L	n/v	90[C]	<0.20	-	-	<0.20	<0.20	nc	-	-	<0.20	-	-	<0.20	<0.20	nc	<0.20	-	-	-
Other Parameters																						
Xylene, m & p-	µg/L	n/v	n/v	<0.40	-	-	<0.40	<0.40	nc	-	-	<0.40	-	-	<0.40	<0.40	nc	<0.40	-	-	-
Xylene, o-	µg/L	n/v	n/v	<0.20	-	-	<0.20	<0.20	nc	-	-	<0.20	-	-	<0.20	<0.20	nc	<0.20	-	-	-
PHC F1 (C6-C10 range) minus BTEX	µg/L	n/v	n/v	<25	-	-	<25	<25	nc	-	-	<25	-	-	<25	<25	nc	<25	-	-	-
PHC F4 (>C34-C50 range)	µg/L	n/v	n/v	<200	-	-	<200	<200	nc	-	-	<200	-	-	<200	-	-	<200	-	-	-
Chromatogram to baseline at C50	none	n/v	n/v	YES	-	-	YES	YES	nc	-	-	YES	-	-	YES	-	-	YES	-	-	-
Metals, Dissolved (Not included in 4.1 or 4.2)																						
Aluminum	µg/L	n/v	n/v	28	22	nc	13	19	nc	-	-	16	17	nc	5.9	-	-	5.9	-	-	-
Antimony	µg/L	n/v	n/v	<0.50	<0.50	nc	<0.50	<0.50	nc	-	-	<0.50	<0.50	nc	<0.50	-	-	<0.50	-	-	-
Arsenic	µg/L	n/v	n/v	<1.0	<1.0	nc	<1.0	<1.0	nc	-	-	<1.0	<1.0	nc	<1.0	-	-	<1.0	-	-	-
Barium	µg/L	n/v	n/v	16	16	0%	22	21	5%	-	-	29	28	4%	35	-	-	35	-	-	-
Beryllium	µg/L	n/v	n/v	<0.40	<0.40	nc	<0.40	<0.40	nc	-	-	<0.40	<0.40	nc	<0.40	-	-	<0.40	-	-	-
Boron	µg/L	n/v	n/v	17	17	nc	20	23	nc	-	-	44	45	nc	91	-	-	120	-	-	-
Cadmium	µg/L	n/v	n/v	<0.090	<0.090	nc	<0.090	<0.090	nc	-	-	<0.090	<0.090	nc	<0.090	-	-	<0.090	-	-	-
Calcium	µg/L	n/v	n/v	42,000	42,000	0%	62,000	59,000	5%	-	-	72,000	70,000	3%	110,000	-	-	84,000	-	-	-
Chromium	µg/L	n/v	n/v	<5.0	<5.0	nc	<5.0	<5.0	nc	-	-	<5.0	<5.0	nc	<5.0	-	-	<5.0	-	-	-
Cobalt	µg/L	n/v	n/v	<0.50	<0.50	nc	<0.50	<0.50	nc	-	-	<0.50	<0.50	nc	<0.50	-	-	<0.50	-	-	-
Copper	µg/L	n/v	n/v	1.8	1.7	nc	1.6	1.6	nc	-	-	2.4	2.5	nc	2.0	-	-	2.1	-	-	-
Iron	µg/L	n/v	n/v	<100	<100	nc	<100	<100	nc	-	-	<100	<100	nc	<100	-	-	<100	-	-	-
Lead	µg/L	n/v	n/v	<0.50	<0.50	nc	<0.50	<0.50	nc	-	-	<0.50	<0.50	nc	<0.50	-	-	<0.50	-	-	-
Lithium	µg/L	n/v	n/v	<5.0	<5.0	nc	<5.0	<5.0	nc	-	-	<5.0	<5.0	nc	7.5	-	-	<5.0	-	-	-
Magnesium	µg/L	n/v	n/v	9,900	10,000	1%	15,000	15,000	0%	-	-	20,000	21,000	5%	35,000	-	-	23,000	-	-	-
Manganese	µg/L	n/v	$_{EQB}$ $_{EQC}$[C]	140[C]	140	0%	110	110	0%	-	-	57	59	3%	<2.0	-	-	11	-	-	-
CWQG Manganese Guideline (Benchmark)	µg/L	n/v		9,503	-		13,301	12,769		-		14,881	-		14,881	-		14,881	-		-
CWQG Manganese Guideline	µg/L	n/v		130	-		130	130		-		130	-		140	-		140	-		-
Molybdenum	µg/L	n/v	n/v	0.83	0.82	nc	1.1	1.0	nc	-	-	1.1	1.1	nc	2.1	-	-	2.0	-	-	-
Nickel	µg/L	n/v	n/v	<1.0	<1.0	nc	<1.0	<1.0	nc	-	-	<1.0	<1.0	nc	1.1	-	-	<1.0	-	-	-
Phosphorus	µg/L	n/v	n/v	110	<100	nc	120	<100	nc	-	-	110	<100	nc	110	-	-	<100	-	-	-
Potassium	µg/L	n/v	n/v	3,600	3,600	0%	3,700	3,600	3%	-	-	3,600	3,600	0%	5,200	-	-	5,200	-	-	-
Selenium	µg/L	n/v	n/v	<2.0	<2.0	nc	<2.0	<2.0	nc	-	-	<2.0	<2.0	nc	<2.0	-	-	<2.0	-	-	-
Silicon	µg/L	n/v	n/v	1,500	1,500	0%	1,600	1,600	0%	-	-	800	800	0%	1,200	-	-	1,200	-	-	-
Silver	µg/L	n/v	n/v	<0.090	<0.090	nc	<0.090	<0.090	nc	-	-	<0.090	<0.090	nc	<0.090	-	-	<0.090	-	-	-
Sodium	µg/L	n/v	n/v	76,000	75,000	1%	81,000	80,000	1%	-	-	210,000	200,000	5%	190,000	-	-	73,000	-	-	-
Strontium	µg/L	n/v	n/v	300	300	0%	450	430	5%	-	-	790	780	1%	1,600	-	-	980	-	-	-
Thallium	µg/L	n/v	n/v	<0.050	<0.050	nc	<0.050	<0.050	nc	-	-	<0.050	<0.050	nc	<0.050	-	-	<0.050	-	-	-
Tin	µg/L	n/v	n/v	<1.0	<1.0	nc	<1.0	<1.0	nc	-	-	<1.0	<1.0	nc	<1.0	-	-	<1.0	-	-	-
Titanium	µg/L	n/v	n/v	<5.0	<5.0	nc	<5.0	<5.0	nc	-	-	<5.0	<5.0	nc	<5.0	-	-	<5.0	-	-	-
Tungsten	µg/L	n/v	n/v	<1.0	<1.0	nc	<1.0	<1.0	nc	-	-	<1.0	<1.0	nc	<1.0	-	-	<1.0	-	-	-
Uranium	µg/L	n/v	n/v	0.74	0.75	1%	1.3	1.3	0%	-	-	1.4	1.3	7%	1.9	-	-	0.75	-	-	-
Vanadium	µg/L	n/v	n/v	<0.50	<0.50	nc	<0.50	<0.50	nc	-	-	<0.50	<0.50	nc	<0.50	-	-	<0.50	-	-	-
Zinc	µg/L	n/v	$_{EQB}$ $_{EQC}$[C]	<5.0	<5.0	nc	<5.0	<5.0	nc	-	-	20	20	nc	7.8	-	-	10	-	-	-
CWQG Zinc Guideline (short-term)	µg/L	n/v		158	-		231	221		-		298	-		461	-		340	-		-

Table
Surface Water Quality Results - Trib-Ain
Canadian National Railway
Milton Logistics Hub

Sample Location				Trib-Ain																				
Sample Date				23-Feb-22	23-Feb-22		24-Mar-22	24-Mar-22		24-Mar-22		21-Apr-22	21-Apr-22		17-May-22	17-May-22		25-Aug-22	25-Aug-22		25-Aug-22
Sample ID				TRIB-AIN 542	TRIB-AIN 542 Lab-Dup		TRIB-AIN	DUPLICATE		DUPLICATE Lab-Dup		TRIB-AIN	TRIB-AIN Lab-Dup		TRIB-AIN	TRIB-AIN Lab-Dup		TRIB-AIN	TRIB-AIN Lab-Dup		TRIB-A IN
Sampling Company				STANTEC	STANTEC		STANTEC	STANTEC		STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC
Laboratory				BV	BV		BV	BV		BV		BV	BV		BV	BV		BV	BV		ALS
Laboratory Work Order				C248206	C248206		C278415	C278408		C278408		C2A6467	C2A6467		C2D3654	C2D3654		C2O3990	C2O3990		L2730251
Laboratory Sample ID				RXT720	RXT720		SEK090	SEK074		SEK074		SKP748	SKP748		SQN153	SQN153		TOC527	TOC527		L2730251-5
Sample Type	Units	SSL	CCME		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)	Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)	
CWQG Zinc Guideline (long-term)	ug/L	n/v		19.8	-		123	117		-		33.0	-		94.3	-		159	-		-
Zirconium	ug/L	n/v	n/v	<1.0	<1.0	nc	<1.0	<1.0	nc	-	-	<1.0	<1.0	nc	<1.0	-	-	<1.0	-	-	-

See notes on last page.

Table
Surface Water Quality Results - Trib-Ain
Canadian National Railway
Milton Logistics Hub

Sample Location				Trib-Ain																				
Sample Date				23-Feb-22	23-Feb-22		24-Mar-22	24-Mar-22		24-Mar-22		21-Apr-22	21-Apr-22		17-May-22	17-May-22		25-Aug-22	25-Aug-22		25-Aug-22
Sample ID				TRIB-AIN 542	TRIB-AIN 542 Lab-Dup		TRIB-AIN	DUPLICATE		DUPLICATE Lab-Dup		TRIB-AIN	TRIB-AIN Lab-Dup		TRIB-AIN	TRIB-AIN Lab-Dup		TRIB-AIN	TRIB-AIN Lab-Dup		TRIB-A IN
Sampling Company				STANTEC	STANTEC		STANTEC	STANTEC		STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC
Laboratory				BV	BV		BV	BV		BV		BV	BV		BV	BV		BV	BV		ALS
Laboratory Work Order				C248206	C248206		C278415	C278408		C278408		C2A6467	C2A6467		C2D3654	C2D3654		C2O3990	C2O3990		L2730251
Laboratory Sample ID				RXT720	RXT720		SEK090	SEK074		SEK074		SKP748	SKP748		SQN153	SQN153		TOC527	TOC527		L2730251-5
Sample Type	Units	SSL	CCME		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)	Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)	
Metals, Total																						
Table 4.1																						
Chromium	µg/L	n/v	n/v	<5.0	-	-	<5.0	<5.0	nc	-	-	<5.0	-	-	<5.0	-	-	<5.0	-	-	-	
Chromium (Hexavalent)	µg/L	n/v	1[C]	<0.50	-	-	<0.50	0.52	nc	-	-	0.58	-	-	<0.50	-	-	<0.50	-	-	-	
Chromium (Trivalent)	µg/L	n/v	8.9[C]	<5	-	-	<5	<5	nc	-	-	<5	-	-	<5	-	-	<5	-	-	-	
Copper	µg/L	n/v	5.9[C] Equation[C]	5.9[C]	-	-	3.7	3.8	nc	-	-	4.9[C]	-	-	3.3	-	-	2.7	-	-	-	
CWQG Copper Guideline	µg/L			3.34	-		4	4		-		4	-		4	-		4	-		-	
Iron	µg/L	n/v	300[C]	3,000[C]	-	-	1,900[C]	1,900[C]	0%	-	-	1,700[C]	-	-	1,400[C]	-	-	200	-	-	-	
Lead	µg/L	n/v	Equation[C]	1.3	-	-	0.82	0.85	nc	-	-	1.4	-	-	0.94	-	-	<0.50	-	-	-	
CWQG Lead Guideline	µg/L	n/v		5.33	-		7	7		-		7	-		7	-		7	-		-	
Zinc	µg/L	n/v	n/v	19	-	-	14	16	nc	-	-	49	-	-	42	-	-	13	-	-	-	
Other Parameters																						
Aluminum	µg/L	n/v	100$_{(pH<6.5)}$[C]	2,000[C]	-	-	1,500[C]	1,300[C]	14%	-	-	1,200[C]	-	-	770[C]	-	-	110[C]	-	-	-	
Antimony	µg/L	n/v	n/v	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	-	-	
Arsenic	µg/L	n/v	5[C]	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	1.1	-	-	<1.0	-	-	-	
Barium	µg/L	n/v	n/v	28	-	-	28	28	0%	-	-	35	-	-	41	-	-	37	-	-	-	
Beryllium	µg/L	n/v	n/v	<0.40	-	-	<0.40	<0.40	nc	-	-	<0.40	-	-	<0.40	-	-	<0.40	-	-	-	
Bismuth	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-	-	
Boron	µg/L	n/v	29,000[B] 1,500[C]	17	-	-	23	22	nc	-	-	46	-	-	95	-	-	120	-	-	-	
Cadmium	µg/L	n/v	n/v[C] STB[C] LTG[C]	<0.090	-	-	<0.090	<0.090	nc	-	-	<0.090	-	-	<0.090	-	-	<0.090	-	-	-	
CWQG Cadmium Guideline (STB)	µg/L	n/v		3.17	-		4.68	4.46		-		5.54	-		7.70	-		6.41	-		-	
CWQG Cadmium Guideline (LTG)	µg/L	n/v		0.22	-		0.30	0.29		-		0.35	-		0.37	-		0.37	-		-	
Calcium	µg/L	n/v	n/v	42,000	-	-	59,000	61,000	3%	-	-	71,000	-	-	110,000	-	-	84,000	-	-	-	
Cobalt	µg/L	n/v	n/v	0.57	-	-	0.67	0.69	nc	-	-	0.70	-	-	0.60	-	-	<0.50	-	-	-	
Lithium	µg/L	n/v	n/v	<5.0	-	-	<5.0	<5.0	nc	-	-	<5.0	-	-	8.1	-	-	<5.0	-	-	-	
Magnesium	µg/L	n/v	n/v	9,600	-	-	15,000	15,000	0%	-	-	20,000	-	-	36,000	-	-	22,000	-	-	-	
Manganese	µg/L	n/v	n/v	160	-	-	140	140	0%	-	-	99	-	-	350	-	-	99	-	-	-	
Molybdenum	µg/L	n/v	73[C]	0.91	-	-	0.98	1.0	nc	-	-	1.2	-	-	2.0	-	-	2.0	-	-	-	
Nickel	µg/L	n/v	Equation[C]	2.9	-	-	2.5	2.2	nc	-	-	2.6	-	-	2.3	-	-	<1.0	-	-	-	
CWQG Nickel Guideline	µg/L	n/v		130	-		150	150		-		150	-		150	-		150	-		-	
Potassium	µg/L	n/v	n/v	3,700	-	-	3,700	3,700	0%	-	-	3,900	-	-	5,300	-	-	5,000	-	-	-	
Selenium	µg/L	n/v	1[C]	**<2.0**	-	-	**<2.0**	**<2.0**	nc	-	-	**<2.0**	-	-	**<2.0**	-	-	**<2.0**	-	-	-	
Silicon	µg/L	n/v	n/v	4,500	-	-	3,600	3,500	3%	-	-	2,500	-	-	2,300	-	-	3,200	-	-	-	
Silver	µg/L	n/v	0.25[C]	<0.090	-	-	<0.090	<0.090	nc	-	-	<0.090	-	-	<0.090	-	-	<0.090	-	-	-	
Sodium	µg/L	n/v	n/v	67,000	-	-	78,000	79,000	1%	-	-	200,000	-	-	200,000	-	-	71,000	-	-	-	
Strontium	µg/L	n/v	n/v	300	-	-	420	430	2%	-	-	750	-	-	1,600	-	-	1,000	-	-	-	
Tellurium	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-	-	
Thallium	µg/L	n/v	0.8[C]	<0.050	-	-	<0.050	<0.050	nc	-	-	<0.050	-	-	<0.050	-	-	<0.050	-	-	-	
Tin	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-	-	
Titanium	µg/L	n/v	n/v	48	-	-	29	29	0%	-	-	36	-	-	20	-	-	6.5	-	-	-	
Tungsten	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-	-	
Uranium	µg/L	n/v	33[B] 15[C]	0.79	-	-	1.3	1.4	7%	-	-	1.4	-	-	2.1	-	-	0.82	-	-	-	
Vanadium	µg/L	n/v	n/v	3.8	-	-	2.4	2.3	nc	-	-	3.2	-	-	2.1	-	-	0.73	-	-	-	
Zirconium	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-	-	
Microbiological Parameters																						
Table 4.2																						
E. Coli/Fecal Coliform	cfu/100mL	n/v	n/v	NDOGT	-	-	NDOGT	NDOGT	nc	-	-	84	-	-	510	-	-	200	-	-	-	
Total Coliforms	cfu/100mL	n/v	n/v	NDOGT	-	-	NDOGT	NDOGT	nc	-	-	1,100	-	-	10,000	-	-	20,000	-	-	-	
Other Parameters																						
Total Coliform Background	cfu/100mL	n/v	n/v	NDOGT	-	-	NDOGT	NDOGT	nc	-	-	7,200	-	-	31,000	-	-	40,000	-	-	-	
Polychlorinated Biphenyls																						
Polychlorinated Biphenyls (PCBs)	µg/L	n/v	n/v	<0.05	-	-	<0.05	<0.05	nc	-	-	<0.05	-	-	<0.05	-	-	<0.05	<0.05	nc	-	
Herbicide and Pesticide (SW8270D)																						
Table 4.2																						
Aldicarb	µg/L	1$_{IT}$[A]	1[C]	<0.10	-	-	<0.10	<0.10	nc	-	-	<0.10	-	-	<0.10	-	-	<0.10	-	-	-	
Carbaryl	µg/L	0.9$_{LT}$[A]	3.8[B] 0.2[C]	<0.10	-	-	<0.10	<0.10	nc	-	-	<0.10	-	-	<0.10	-	-	<0.10	-	-	-	
Carbofuran	µg/L	1.8$_{LT}$[A]	1.8[C]	<0.10	-	-	<0.10	<0.10	nc	-	-	<0.10	-	-	<0.10	-	-	<0.10	-	-	-	
Cyanazine (Bladex)	µg/L	2$_{LT}$[A]	2[C]	<0.10	-	-	<0.10	<0.10	nc	-	-	<0.10	-	-	<0.10	-	-	<0.10	-	-	-	
Triallate	µg/L	0.24$_{LT}$[A]	0.24[C]	<0.050	-	-	<0.050	<0.050	nc	-	-	<0.050	-	-	<0.050	-	-	<0.050	-	-	-	
Trifluralin	µg/L	0.9$_{LT}$[A]	0.2[C]	<0.050	-	-	<0.050	<0.050	nc	-	-	<0.050	-	-	<0.050	-	-	<0.050	-	-	-	
Other Parameters																						
Endosulfan I	µg/L	n/v	n/v	<0.050	-	-	<0.050	<0.050	nc	-	-	<0.050	-	-	<0.050	-	-	<0.050	-	-	-	
Endosulfan II	µg/L	n/v	n/v	<0.050	-	-	<0.050	<0.050	nc	-	-	<0.050	-	-	<0.050	-	-	<0.050	-	-	-	
Endosulfan Sulfate	µg/L	n/v	n/v	<0.050	-	-	<0.050	<0.050	nc	-	-	<0.050	-	-	<0.050	-	-	<0.050	-	-	-	

See notes on last page.

Table
Surface Water Quality Results - Trib-Ain
Canadian National Railway
Milton Logistics Hub

Sample Location				Trib-Ain																				
Sample Date				23-Feb-22	23-Feb-22		24-Mar-22	24-Mar-22		24-Mar-22		21-Apr-22	21-Apr-22		17-May-22	17-May-22		25-Aug-22	25-Aug-22		25-Aug-22
Sample ID				TRIB-AIN 542	TRIB-AIN 542 Lab-Dup		TRIB-AIN	DUPLICATE		DUPLICATE Lab-Dup		TRIB-AIN	TRIB-AIN Lab-Dup		TRIB-AIN	TRIB-AIN Lab-Dup		TRIB-AIN	TRIB-AIN Lab-Dup		TRIB-A IN
Sampling Company				STANTEC	STANTEC		STANTEC	STANTEC		STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC
Laboratory				BV	BV		BV	BV		BV		BV	BV		BV	BV		BV	BV		ALS
Laboratory Work Order				C248206	C248206		C278415	C278408		C278408		C2A6467	C2A6467		C2D3654	C2D3654		C2O3990	C2O3990		L2730251
Laboratory Sample ID				RXT720	RXT720		SEK090	SEK074		SEK074		SKP748	SKP748		SQN153	SQN153		TOC527	TOC527		L2730251-5
Sample Type	Units	SSL	CCME		Lab Replicate	RPD (%)		Field Duplicate	RPD (%)	Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)	
Herbicide and Pesticide																						
Table 4.2																						
2,4,5-TP (Silvex)	µg/L	n/v	n/v	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	-	-
2,4 D (BEE)	µg/L	n/v	n/v	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	-	-
2,4 DB	µg/L	n/v	n/v	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	-	-
Atrazine	µg/L	1.8 $_{LT}$ [A]	1.8[C]	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-	-
Azinphos-methyl (Guthion)	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-	-
Bendiocarb	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	-	-
Butanoic acid (MCPB)	µg/L	n/v	n/v	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	-	-
Chlorpyrifos	µg/L	0.002 $_{LT}$ [A]	0.02[B] 0.002[C]	**<2.0**	-	-	**<2.0**	**<2.0**	nc	-	-	**<2.0**	-	-	**<2.0**	-	-	**<2.0**	-	-	0.00000151 M,J
DDVP (Dichlorvos)	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	-	-
Demeton	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	-	-
Diazinon	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	-	-
Dicamba	µg/L	10 $_{LT}$ [A]	10[C]	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	-	-
Dichlorophenoxy acetic acid, 2,4- (2,4-D)	µg/L	4 $_{LT}$ [A]	4[C]	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	-	-
Dichlorprop (2,4-DP)	µg/L	n/v	n/v	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	-	-
Dimethoate	µg/L	6.2 $_{LT}$ [A]	6.2[C]	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	-	-
Ethion	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-	-
Fenchlorphos (Ronnel)	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	-	-
Fenthion	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-	-
Fonofos	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	-	-
Imidan (Phosmet)	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	-	-
Malathion	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	-	-
MCPA (2-Methyl-4-Chlorophenoxyacetic Acid)	µg/L	2.6 $_{LT}$ [A]	2.6[C]	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	-	-
MCPP (2-(2-Methyl-4-chlorophenoxy) propionic acid)	µg/L	n/v	n/v	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	-	-
Methyl Parathion	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	-	-
Metolachlor (Dual)	µg/L	n/v	7.8[C]	<5.0	-	-	<5.0	<5.0	nc	-	-	<5.0	-	-	<5.0	-	-	<5.0	-	-	-
Mevinphos (Phosdrin)	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	-	-
Parathion (Ethyl Parathion)	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	-	-
Phorate (Thimet)	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-	-
Picloram	µg/L	29 $_{LT}$ [A]	29[C]	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	-	-
Prometryn	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-	-
Simazine	µg/L	10 $_{LT}$ [A]	10[C]	<2.0	-	-	<2.0	<2.0	nc	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	-	-
Terbufos	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	nc	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	-	-
Trichlorophenoxy acetic acid, 2,4,5- (2,4,5-T)	µg/L	n/v	n/v	<0.50	-	-	<0.50	<0.50	nc	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	-	-
Trifluralin	µg/L	0.2 $_{LT}$ [A]	0.2[C]	**<5.0**	-	-	**<5.0**	**<5.0**	nc	-	-	**<5.0**	-	-	**<5.0**	-	-	**<5.0**	-	-	-

Notes:

SSL	Site Specific Limits
A	Trib-Ain, SW Limits
CCME	Canadian Council of Ministers of the Environment
B	Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Short Term
C	Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Long Term
6.5[A]	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
CWQG	Canadian Water Quality Guideline
Equation*	The CWQG for copper is related to water hardness. When the water hardness is 0 to < 82 mg/L, the CWQG is 2 µg/L. At hardness =82 to =180 mg/L the CWQG is calculated using this equation: CWQG (µg/L) = 0.2 * e(0.8545[ln(hardness)]-1465). At hardness >180 mg/L, the CWQG is 4 µg/L. If the hardness is unknown, the CWQG is 2 µg/L. (Using average Hardness per event)
Equation#	The CWQG for lead is related to water hardness. When the hardness is 0 to = 60 mg/L, the CWQG is 1 µg/L. At hardness >60 to = 180 mg/L the CWQG is calculated using this equation: CWQG (µg/L)= e(1.273[ln(hardness)]-4.705). At hardness >180 mg/L, the CWQG is 7 µg/L. If the hardness is unknown, the CWQG is 1 µg/L. (Using average Hardness per event)
Equation**	The CWQG for nickel is related to water hardness. When the water hardness is 0 to = 60 mg/L, the CWQG is 25 µg/L. At hardness > 60 to = 180 mg/L the CWQG is calculated using this equation: CWQG (µg/L) = e(0.76[ln(hardness)]+1.06). At hardness >180 mg/L, the CWQG is 150 µg/L. If the hardness is unknown, the CWQG is 25 µg/L. (Using average Hardness per event)
CALC	Total Petroleum hydrocarbons is calculated using the following method: Tot Purge Hydrocarbon C6-C10 (F1) + Tot.Extr Hydrocarbons C10-C16 (F2) + Tot.Extr Hydrocarbons C16-C34 (F3) - Benzene – Toluene - Ethylbenzene – Xylenes
CAME	Total Ammonia is a table based parameter dependent on field pH and field water temperature.
EQ1	The short-term benchmark is for dissolved zinc and is calculated using the following equation: Benchmark = exp(0.833[ln(hardness mg·L-1)] + 0.240[ln(DOC mg·L-1)] + 0.526). The value in the table is for surface water of 50 mg CaCO3·L−1 hardness and 0.5 mg·L−1 dissolved organic carbon (DOC). The benchmark equation is valid between hardness 13.8 and 250.5 mg CaCO3·L−1 and DOC 0.3 and 17.3 mg·L−1. (Using average Hardness per event)
EQ2	The long-term CWQG is for dissolved zinc and is calculated using the following equation: CWQG = exp(0.947[ln(hardness mg·L-1)] - 0.815[pH] + 0.398[ln(DOC mg·L-1)] + 4.625). The value in the table is for surface water of 50 mg CaCO0·L−1 hardness, pH of 7.5 and 0.5 mg·L−1 DOC. The CWQG equation is valid between hardness 23.4 and 399 mg CaCO3·L−1, pH 6.5 and 8.13 and DOC 0.3 to 22.9 mg·L−1. (Using average Hardness per event)
EQ3	The short-term benchmark is calculated using the benchmark calculator in Appendix B of the Scientific Criteria Document for the Development of the Canadian Water Quality Guidelines for the Protection of Aquatic Life: Manganese or the following equation: Benchmark = exp(0.87[ln(hardness)] + 4.76) where the benchmark is expressed in dissolved manganese concentration (µg/L), and hardness is measured as CaCO3 equivalents in mg/L. The value in the table is for surface water of 50 mg/L hardness. The benchmark equation is valid between hardness 25 and 250 mg/L. (Using averages per event)
EQ4	The long-term CWQG is found using the lookup table (see Table 5) or the CWQG and benchmark calculator is Appendix B of CCME (2018). The value in the table is for surface water of 50 mg/L hardness and pH of 7.5. The CWQG table is valid between hardness 25 and 670 mg/L and pH 5.8 and 8.4. (Using averages per event)
LT	CWQG Guideline (long-term)
LTG	The CWQG for cadmium (i.e. long-term guideline) of 0.09 µg·L-1 is for waters of 50 mg CaCO3·L-1 hardness. The CWQG for cadmium is related to water hardness (as CaCO3). When the water hardness is > 0 to < 17 mg/L, the CWQG is 0.04 µg/L, at hardness ≥ 17 to ≤ 280 mg/L, the CWQG is calculated using this equation (CWQG (µg/L) = 10^(0.83(log[hardness]) – 2.46)); At hardness > 280 mg/L, the CWQG is 0.37 µg/L. (Using average Hardness per event)
SN	see Narrative
STG	The short-term benchmark concentration of 1.0 µg·L-1 is for waters of 50 mg CaCO3·L-1 hardness. The short-term benchmark for cadmium is related to water hardness (as CaCO3). When the water hardness is 0 to < 5.3 mg/L, the short-term benchmark is 0.11 µg/L. At hardness ≥ 5.3 to ≤ 360 mg/L, the short-term benchmark is calculated using this equation (Short-term benchmark (µg/L) = 10^(1.016(log[hardness]) – 1.71)); At hardness > 360 mg/L, the short-term benchmark is 7.7 µg/L. (Using average Hardness per event)
TEC2	Ammonia guideline to be calculated (equation, resulting in guidelines in mg/L NH3), then converted to mg/L total ammonia-N by multiplying the corresponding guideline value by 0.8224.
VAR	Lowest acceptable dissolved oxygen concentration: for warm water biota: early life stages = 6000 µg/L; for warm water biota: other life stages = 5500 µg/L; for cold water biota: early life stages = 9500 µg/L; for cold water biota: other life stages = 6500 µg/L
VAR1	Variable, 5 µg/L if pH < 6.5 and 100 µg/L if pH > 6.5
M,J	A peak has been manually integrated, and the analyte was detected below the calibrated range but above the EDL.
ND	Not detected.
NDOGT	No data due to overgrowth. Total coliforms and / or E.coli detected
RPD	Relative Percent Difference.
61%	RPD exceeds data quality objective of 40%.
nc	RPD is not calculated if one or more values is non detect or if one or more values is less than five times the reportable detection limit.

Table
Surface Water Quality Results - Trib-Ain2
Canadian National Railway
Milton Logistics Hub

Sample Location										Trib-AIN2								
Sample Date				23-Feb-22	23-Feb-22		24-Mar-22	24-Mar-22		21-Apr-22	21-Apr-22		17-May-22	25-Aug-22	25-Aug-22	25-Aug-22	
Sample ID				TRIB-AIN2 543	TRIB-AIN2 543 Lab-Dup		TRIB-AIN2	TRIB-AIN2 Lab-Dup		TRIB-AIN2	TRIB-AIN2 Lab-Dup		TRIB-AIN2	TRIB-A IN 2	TRIB-AIN2	TRIB-AIN2 Lab-Dup	
Sampling Company				STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	STANTEC	STANTEC	
Laboratory				BV	BV		BV	BV		BV	BV		BV	ALS	BV	BV	
Laboratory Work Order				C248232	C248232		C278390	C278390		C2A6461	C2A6461		C2D3656	L2730251	C2O4053	C2O4053	
Laboratory Sample ID				RXT890	RXT890		SEJ920	SEJ920		SKP727	SKP727		SQN173	L2730251-6	TOC796	TOC796	
Sample Type	Units	SSL	CCME		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)				Lab Replicate	RPD (%)
General Chemistry																	
Table 4.1																	
Chloride	mg/L	n/v	640[B] 120[C]	110	110	0%	63	-	-	180[C]	180[C]	0%	140[C]	-	96	-	-
Dissolved Oxygen	mg/L	n/v	>5.5/6/6.5/9.5$_{(A/B)}$[C]	11.4	-	-	9.74	-	-	9.89	-	-	8.09	-	9.58	-	-
Phosphorus, Total	mg/L	n/v	n/v	0.11	-	-	0.26	-	-	0.12	-	-	0.17	-	0.11	0.11	0%
Total Suspended Solids	mg/L	n/v	sn[C]	21	-	-	76	-	-	19	-	-	6	-	4	-	-
Temperature, Field	deg C	n/v	n/v	0.1	-	-	5.8	-	-	12.4	-	-	17.6	-	21.5	-	-
Table 4.2																	
Ammonia (as N)	mg/L	n/v	$_{TEC}$[C]	0.09	-	-	2.2	-	-	0.05	-	-	0.10	-	0.48	-	-
CWQG Ammonia Guideline	mg/L	n/v		1.92	-		12.6	-		0.10	-		0.41	-	3.96	-	
Ammonia, Un-ionized (Calculated)	mg/L	0.019$_{LT}$[A]	0.019[C]	<0.00061	-	-	0.0025	-	-	0.010	-	-	0.0030	-	0.0030	-	-
Nitrate (as N)	mg/L	3.0$_{LT}$[A]	124[B] 3.0[C]	0.41	-	-	0.26	-	-	<0.10	-	-	<0.10	-	<0.10	-	-
Nitrate + Nitrite (as N)	mg/L	n/v	n/v	0.43	-	-	0.26	-	-	<0.10	-	-	<0.10	-	<0.10	-	-
Nitrite (as N)	mg/L	0.06[A]	0.06[C]	0.018	-	-	<0.010	-	-	<0.010	-	-	<0.010	-	<0.010	-	-
Other Parameters																	
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	<1.0	-	-	<1.0	-	-	1.4	-	-	3.3	-	<1.0	-	-
Alkalinity, Total (as CaCO3)	mg/L	n/v	n/v	69	-	-	110	-	-	170	-	-	250	-	120	-	-
Anion Sum	me/L	n/v	n/v	5.11	-	-	4.81	-	-	9.81	-	-	9.66	-	8.98	-	-
Bicarbonate(as CaCO3, Calculated)	mg/L	n/v	n/v	69	-	-	110	-	-	170	-	-	250	-	120	-	-
Cation Sum	me/L	n/v	n/v	4.84	-	-	4.90	-	-	10.3	-	-	10.6	-	9.13	-	-
Dissolved Organic Carbon (DOC)	mg/L	n/v	n/v	6.7	-	-	8.2	-	-	11	-	-	15	-	12	13	8%
Electrical Conductivity, Lab	µmhos/cm	n/v	n/v	560	-	-	500	-	-	1,100	-	-	1,000	-	900	-	-
Hardness (as CaCO3)	mg/L	n/v	n/v	110	-	-	150	-	-	270	-	-	300	-	290	-	-
Ion Balance	%	n/v	n/v	2.74	-	-	0.880	-	-	2.40	-	-	4.44	-	0.670	-	-
Langelier Index (at 20 C)	none	n/v	n/v	-0.364	-	-	0.170	-	-	0.572	-	-	0.579	-	0.319	-	-
Langelier Index (at 4 C)	none	n/v	n/v	-0.613	-	-	-0.0790	-	-	0.324	-	-	0.732	-	0.0710	-	-
Orthophosphate (as P)	mg/L	n/v	n/v	0.018	0.025	nc	0.018	-	-	0.025	0.025	nc	0.11	-	0.064	-	-
pH, Field	S.U.	n/v	6.5-9.0[C]	7.8	-	-	6.85	-	-	9.00	-	-	7.86	-	7.06	-	-
pH, Lab	S.U.	n/v	6.5-9.0[C]	7.72	-	-	7.93	-	-	7.95	-	-	8.15	-	7.80	-	-
Phenols-4AAP	mg/L	n/v	n/v	0.0010	-	-	<0.0010	-	-	<0.0010	-	-	<0.0010	-	0.0012	-	-
Saturation pH (at 20 C)	none	n/v	n/v	8.09	-	-	7.76	-	-	7.38	-	-	7.17	-	7.48	-	-
Saturation pH (at 4 C)	none	n/v	n/v	8.33	-	-	8.01	-	-	7.63	-	-	7.42	-	7.72	-	-
Sulfide	mg/L	n/v	n/v	34	34	0%	42	-	-	73	72	1%	55	-	100	-	-
Total Dissolved Solids, Calculated	mg/L	n/v	n/v	290	-	-	270	-	-	580	-	-	540	-	540	-	-
Turbidity, Lab	NTU	n/v	n/v	50	49	2%	220	-	-	22	-	-	4.0	-	1.8	-	-
BTEX and Petroleum Hydrocarbons																	
Table 4.1																	
Benzene	µg/L	n/v	370[C]	<0.20	-	-	<0.20	-	-	<0.20	-	-	<0.20	-	<0.20	-	-
Toluene	µg/L	n/v	2[C]	<0.20	-	-	<0.20	-	-	<0.20	-	-	<0.20	-	<0.20	-	-
Xylenes, Total	µg/L	n/v	n/v	<0.40	-	-	<0.40	-	-	<0.40	-	-	<0.40	-	<0.40	-	-
PHC F1 (C6-C10 range)	µg/L	n/v	n/v	<25	-	-	<25	-	-	<25	-	-	<25	-	<25	-	-
PHC F2 (>C10-C16 range)	µg/L	n/v	n/v	<100	<100	nc	<100	<100	nc	<100	-	-	<100	-	<100	-	-
PHC F3 (>C16-C34 range)	µg/L	n/v	n/v	<200	<200	nc	200	650	nc	<200	-	-	<200	-	<200	-	-
Total Petroleum Hydrocarbons	µg/L	n/v	n/v	ND	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-
Oil and Grease, Total	mg/L	n/v	n/v	0.90	-	-	0.80	-	-	<0.50	-	-	1.1	-	0.60	-	-
Table 4.2																	
Ethylbenzene	µg/L	n/v	90[C]	<0.20	-	-	<0.20	-	-	<0.20	-	-	<0.20	-	<0.20	-	-
Other Parameters																	
Xylene, m & p-	µg/L	n/v	n/v	<0.40	-	-	<0.40	-	-	<0.40	-	-	<0.40	-	<0.40	-	-
Xylene, o-	µg/L	n/v	n/v	<0.20	-	-	<0.20	-	-	<0.20	-	-	<0.20	-	<0.20	-	-
PHC F1 (C6-C10 range) minus BTEX	µg/L	n/v	n/v	<25	-	-	<25	-	-	<25	-	-	<25	-	<25	-	-
PHC F4 (>C34-C50 range)	µg/L	n/v	n/v	<200	<200	nc	<200	350	nc	<200	-	-	<200	-	<200	-	-
Chromatogram to baseline at C50	none	n/v	n/v	YES	YES	nc	YES	YES	nc	YES	-	-	YES	-	YES	-	-
Metals, Dissolved (Not included in 4.1 or 4.2)																	
Aluminum	µg/L	n/v	n/v	66	-	-	90	-	-	24	-	-	<4.9	-	8.7	8.9	nc
Antimony	µg/L	n/v	n/v	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	0.52	0.54	nc
Arsenic	µg/L	n/v	n/v	<1.0	-	-	<1.0	-	-	<1.0	-	-	1.2	-	<1.0	<1.0	nc
Barium	µg/L	n/v	n/v	14	-	-	16	-	-	23	-	-	12	-	33	33	0%
Beryllium	µg/L	n/v	n/v	<0.40	-	-	<0.40	-	-	<0.40	-	-	<0.40	-	<0.40	<0.40	nc
Boron	µg/L	n/v	n/v	16	-	-	17	-	-	33	-	-	29	-	99	100	1%
Cadmium	µg/L	n/v	n/v	<0.090	-	-	<0.090	-	-	<0.090	-	-	<0.090	-	<0.090	<0.090	nc
Calcium	µg/L	n/v	n/v	31,000	-	-	42,000	-	-	75,000	-	-	81,000	-	80,000	78,000	3%
Chromium	µg/L	n/v	n/v	<5.0	-	-	<5.0	-	-	<5.0	-	-	<5.0	-	<5.0	<5.0	nc
Cobalt	µg/L	n/v	n/v	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	<0.50	<0.50	nc
Copper	µg/L	n/v	n/v	2.2	-	-	1.7	-	-	2.0	-	-	1.0	-	3.6	3.3	nc
Iron	µg/L	n/v	n/v	<100	-	-	<100	-	-	<100	-	-	<100	-	<100	<100	nc
Lead	µg/L	n/v	n/v	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	<0.50	<0.50	nc
Lithium	µg/L	n/v	n/v	<5.0	-	-	-	-	-	<5.0	-	-	<5.0	-	<5.0	<5.0	nc
Magnesium	µg/L	n/v	n/v	7,400	-	-	11,000	-	-	21,000	-	-	24,000	-	21,000	21,000	0%
Manganese	µg/L	n/v	$_{EQT,EQI}$[B,C]	63	-	-	23	-	-	<2.0	-	-	<2.0	-	24	24	0%
CWQG Manganese Guideline (Benchmark)	µg/L	n/v		7,237	-		9,503	-		14,881	-		14,881	-	14,881	-	
CWQG Manganese Guideline	µg/L	n/v		370	-		750	-		130	-		460	-	130	-	
Molybdenum	µg/L	n/v	n/v	0.62	-	-	0.63	-	-	0.68	-	-	1.2	-	2.0	1.9	nc
Nickel	µg/L	n/v	n/v	<1.0	-	-	<1.0	-	-	1.1	-	-	1.0	-	1.3	1.1	nc
Phosphorus	µg/L	n/v	n/v	100	-	-	<100	-	-	<100	-	-	180	-	190	160	nc
Potassium	µg/L	n/v	n/v	3,700	-	-	3,400	-	-	4,000	-	-	3,700	-	6,200	6,200	0%
Selenium	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	<2.0	<2.0	nc
Silicon	µg/L	n/v	n/v	1,500	-	-	2,300	-	-	1,600	-	-	1,400	-	4,500	4,400	2%
Silver	µg/L	n/v	n/v	<0.090	-	-	<0.090	-	-	<0.090	-	-	<0.090	-	<0.090	<0.090	nc
Sodium	µg/L	n/v	n/v	59,000	-	-	38,000	-	-	110,000	-	-	100,000	-	73,000	72,000	1%
Strontium	µg/L	n/v	n/v	210	-	-	290	-	-	590	-	-	650	-	680	680	0%
Thallium	µg/L	n/v	n/v	<0.050	-	-	<0.050	-	-	<0.050	-	-	<0.050	-	<0.050	<0.050	nc
Tin	µg/L	n/v	n/v	<1.0	-	-	-	-	-	<1.0	-	-	<1.0	-	<1.0	<1.0	nc
Titanium	µg/L	n/v	n/v	<5.0	-	-	<5.0	-	-	<5.0	-	-	<5.0	-	<5.0	<5.0	nc
Tungsten	µg/L	n/v	n/v	<1.0	-	-	-	-	-	<1.0	-	-	<1.0	-	<1.0	<1.0	nc
Uranium	µg/L	n/v	n/v	0.35	-	-	0.69	-	-	1.2	-	-	1.2	-	0.35	0.36	nc
Vanadium	µg/L	n/v	n/v	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	0.53	0.51	nc
Zinc	µg/L	n/v	$_{EQT,EQI}$[B,C]	<5.0	-	-	<5.0	-	-	<5.0	-	-	<5.0	-	13	13	nc
CWQG Zinc Guideline (short-term)	µg/L	n/v		134	-		182	-		319	-		375	-	346	-	

Table
Surface Water Quality Results - Trib-Ain2
Canadian National Railway
Milton Logistics Hub

Sample Location				Trib-AIN2															
Sample Date				23-Feb-22	23-Feb-22		24-Mar-22	24-Mar-22		21-Apr-22	21-Apr-22		17-May-22	25-Aug-22	25-Aug-22	25-Aug-22		
Sample ID				TRIB-AIN2 543	TRIB-AIN2 543 Lab-Dup		TRIB-AIN2	TRIB-AIN2 Lab-Dup		TRIB-AIN2	TRIB-AIN2 Lab-Dup		TRIB-AIN2	TRIB-A IN 2	TRIB-AIN2	TRIB-AIN2 Lab-Dup		
Sampling Company				STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	STANTEC	STANTEC		
Laboratory				BV	BV		BV	BV		BV	BV		BV	ALS	BV	BV		
Laboratory Work Order				C248232	C248232		C278390	C278390		C2A6461	C2A6461		C2D3656	L2730251	C2O4053	C2O4053		
Laboratory Sample ID				RXT890	RXT890		SEJ920	SEJ920		SKP727	SKP727		SQN173	L2730251-6	TOC796	TOC796		
Sample Type	Units	SSL	CCME		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)				Lab Replicate	RPD (%)	
CWQG Zinc Guideline (long-term)	µg/L	n/v		32	-		102	-		35	-		110		187	-		
Zirconium	µg/L	n/v	n/v	<1.0	-	-	-	-	-	<1.0	-	-	<1.0	-	<1.0	<1.0		nc

*See notes on last page.

Table
Surface Water Quality Results - Trib-Ain2
Canadian National Railway
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Sample Location				Trib-AIN2															
Sample Date				23-Feb-22	23-Feb-22		24-Mar-22	24-Mar-22		21-Apr-22	21-Apr-22		17-May-22	25-Aug-22	25-Aug-22	25-Aug-22		
Sample ID				TRIB-AIN2 543	TRIB-AIN2 543 Lab-Dup		TRIB-AIN2	TRIB-AIN2 Lab-Dup		TRIB-AIN2	TRIB-AIN2 Lab-Dup		TRIB-AIN2	TRIB-A IN 2	TRIB-AIN2	TRIB-AIN2 Lab-Dup		
Sampling Company				STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	STANTEC	STANTEC		
Laboratory				BV	BV		BV	BV		BV	BV		BV	ALS	BV	BV		
Laboratory Work Order				C248232	C248232		C278390	C278390		C2A6461	C2A6461		C2D3656	L2730251	C2O4053	C2O4053		
Laboratory Sample ID				RXT890	RXT890		SEJ920	SEJ920		SKP727	SKP727		SQN173	L2730251-6	TOC796	TOC796		
Sample Type	Units	SSL	CCME		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)				Lab Replicate	RPD (%)	
Metals, Total																		
Table 4.1																		
Chromium	µg/L	n/v	n/v	<5.0	<5.0	nc	7.3	-	-	<5.0	-	-	<5.0	-	<5.0	-	-	
Chromium (Hexavalent)	µg/L	n/v	1[C]	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	<0.50	-	-	
Chromium (Trivalent)	µg/L	n/v	8.9[C]	<5	-	-	<5	-	-	<5	-	-	<5	-	<5	-	-	
Copper	µg/L	n/v	Equation[C]	3.9[C]	3.9	nc	8.1[C]	-	-	3.1	-	-	1.3	-	4.2[C]	-	-	
CWQG Copper Guideline	µg/L	n/v		2.57	-		3.34	-		4	-		4	-	4	-		
Iron	µg/L	n/v	300[C]	1,800[C]	1,800[C]	0%	7,300[C]	-	-	1,300[C]	-	-	690[C]	-	200	-	-	
Lead	µg/L	n/v	Equation[2,C]	0.91	0.93	nc	3.5	-	-	0.74	-	-	<0.50	-	<0.50	-	-	
CWQG Lead Guideline	µg/L	n/v		3.59	-		5.33	-		7	-		7	-	7	-		
Zinc	µg/L	n/v	n/v	11	11	nc	33	-	-	11	-	-	10	-	11	-	-	
Other Parameters																		
Aluminum	µg/L	n/v	$100_{pH6.5}$[C]	1,500[C]	1,600[C]	6%	6,300[C]	-	-	1,500[C]	-	-	160[C]	-	71	-	-	
Antimony	µg/L	n/v	n/v	<0.50	<0.50	nc	<0.50	-	-	<0.50	-	-	<0.50	-	0.67	-	-	
Arsenic	µg/L	n/v	5[C]	<1.0	<1.0	nc	1.3	-	-	<1.0	-	-	1.6	-	<1.0	-	-	
Barium	µg/L	n/v	n/v	20	21	5%	51	-	-	29	-	-	16	-	34	-	-	
Beryllium	µg/L	n/v	n/v	<0.40	<0.40	nc	<0.40	-	-	<0.40	-	-	<0.40	-	<0.40	-	-	
Bismuth	µg/L	n/v	n/v	<1.0	<1.0	nc	<1.0	-	-	<1.0	-	-	<1.0	-	<1.0	-	-	
Boron	µg/L	n/v	29,000[4],1,500[C]	16	15	nc	22	-	-	37	-	-	41	-	94	-	-	
Cadmium	µg/L	n/v	$_{STB,LTA}$[C]	<0.090	<0.090	nc	<0.090	-	-	<0.090	-	-	<0.090	-	<0.090	-	-	
CWQG Cadmium Guideline (STB)	µg/L	n/v		2.31	-		3.17	-		5.76	-		6.41	-	6.19	-		
CWQG Cadmium Guideline (LTG)	µg/L	n/v		0.17	-		0.22	-		0.36	-		0.37	-	0.37	-		
Calcium	µg/L	n/v	n/v	30,000	31,000	3%	43,000	-	-	76,000	-	-	81,000	-	81,000	-	-	
Cobalt	µg/L	n/v	n/v	0.66	0.65	nc	2.2	-	-	<0.50	-	-	<0.50	-	<0.50	-	-	
Lithium	µg/L	n/v	n/v	<5.0	<5.0	nc	7.5	-	-	<5.0	-	-	<5.0	-	<5.0	-	-	
Magnesium	µg/L	n/v	n/v	7,500	7,500	0%	13,000	-	-	21,000	-	-	24,000	-	21,000	-	-	
Manganese	µg/L	n/v	n/v	80	81	1%	100	-	-	50	-	-	490	-	36	-	-	
Molybdenum	µg/L	n/v	73[C]	0.62	0.58	nc	1.0	-	-	0.69	-	-	1.1	-	1.9	-	-	
Nickel	µg/L	n/v	Equation[C]	2.0	2.0	nc	7.7	-	-	2.1	-	-	1.4	-	1.4	-	-	
CWQG Nickel Guideline	µg/L	n/v		103	-		130	-		150	-		150	-	150	-		
Potassium	µg/L	n/v	n/v	3,800	3,800	0%	4,500	-	-	4,300	-	-	3,800	-	6,000	-	-	
Selenium	µg/L	n/v	1[C]	***<2.0***	***<2.0***	nc	***<2.0***	-	-	***<2.0***	-	-	***<2.0***	-	***<2.0***	-	-	
Silicon	µg/L	n/v	n/v	3,400	3,400	0%	10,000	-	-	4,000	-	-	1,700	-	4,400	-	-	
Silver	µg/L	n/v	0.25[C]	<0.090	<0.090	nc	<0.090	-	-	<0.090	-	-	<0.090	-	<0.090	-	-	
Sodium	µg/L	n/v	n/v	57,000	57,000	0%	38,000	-	-	110,000	-	-	100,000	-	71,000	-	-	
Strontium	µg/L	n/v	n/v	200	200	0%	260	-	-	570	-	-	660	-	700	-	-	
Tellurium	µg/L	n/v	n/v	<1.0	<1.0	nc	<1.0	-	-	<1.0	-	-	<1.0	-	<1.0	-	-	
Thallium	µg/L	n/v	0.8[C]	<0.050	<0.050	nc	0.068	-	-	<0.050	-	-	<0.050	-	<0.050	-	-	
Tin	µg/L	n/v	<1.0	<1.0	<1.0	nc	<1.0	-	-	<1.0	-	-	<1.0	-	<1.0	-	-	
Titanium	µg/L	n/v	n/v	34	34	0%	120	-	-	41	-	-	7.0	-	5.5	-	-	
Tungsten	µg/L	n/v	n/v	<1.0	<1.0	nc	<1.0	-	-	<1.0	-	-	<1.0	-	<1.0	-	-	
Uranium	µg/L	n/v	33[5],15[C]	0.44	0.39	nc	0.82	-	-	1.2	-	-	1.1	-	0.35	-	-	
Vanadium	µg/L	n/v	n/v	2.4	2.5	nc	9.3	-	-	2.8	-	-	0.97	-	0.89	-	-	
Zirconium	µg/L	n/v	n/v	<1.0	<1.0	nc	2.0	-	-	<1.0	-	-	<1.0	-	<1.0	-	-	
Microbiological Parameters																		
Table 4.2																		
E. Coli/Fecal Coliform	cfu/100mL	n/v	n/v	NDOGT	-	-	NDOGT	-	-	260	-	-	85	-	200	-	-	
Total Coliforms	cfu/100mL	n/v	n/v	NDOGT	-	-	NDOGT	-	-	2,100	-	-	2,400	-	16,000	-	-	
Other Parameters																		
Total Coliform Background	cfu/100mL	n/v	n/v	NDOGT	-	-	NDOGT	-	-	12,000	-	-	7,400	-	30,000	-	-	
Polychlorinated Biphenyls																		
Polychlorinated Biphenyls (PCBs)	µg/L	n/v	n/v	<0.05	-	-	<0.05	-	-	<0.05	-	-	<0.05	-	<0.05	-	-	
Herbicide and Pesticide (SW8270D)																		
Table 4.2																		
Aldicarb	µg/L	1[1,A]	1[C]	<0.10	-	-	<0.10	-	-	<0.10	-	-	<0.10	-	<0.10	-	-	
Carbaryl	µg/L	0.2[1,A]	3.3[8],0.2[C]	<0.10	-	-	<0.10	-	-	<0.10	-	-	<0.10	-	<0.10	-	-	
Carbofuran	µg/L	1.8[1,A]	1.8[C]	<0.10	-	-	<0.10	-	-	<0.10	-	-	<0.10	-	<0.10	-	-	
Cyanazine (Bladex)	µg/L	2[1,A]	2[C]	<0.10	-	-	<0.10	-	-	<0.10	-	-	<0.10	-	<0.10	-	-	
Triallate	µg/L	0.24[1,A]	0.24[C]	<0.050	-	-	<0.050	-	-	<0.050	-	-	<0.050	-	<0.050	-	-	
Trifluralin	µg/L	0.2[1,A]	0.2[C]	<0.050	-	-	<0.050	-	-	<0.050	-	-	<0.050	-	<0.050	-	-	
Other Parameters																		
Endosulfan I	µg/L	n/v	n/v	<0.050	-	-	<0.050	-	-	<0.050	-	-	<0.050	-	<0.050	-	-	
Endosulfan II	µg/L	n/v	n/v	<0.050	-	-	<0.050	-	-	<0.050	-	-	<0.050	-	<0.050	-	-	
Endosulfan Sulfate	µg/L	n/v	n/v	<0.050	-	-	<0.050	-	-	<0.050	-	-	<0.050	-	<0.050	-	-	

See notes on last page.

Table
Surface Water Quality Results - Trib-Ain2
Canadian National Railway
Milton Logistics Hub

Sample Location				Trib-AIN2														
Sample Date				23-Feb-22	23-Feb-22		24-Mar-22	24-Mar-22		21-Apr-22	21-Apr-22		17-May-22	25-Aug-22	25-Aug-22	25-Aug-22	
Sample ID				TRIB-AIN2 543	TRIB-AIN2 543 Lab-Dup		TRIB-AIN2	TRIB-AIN2 Lab-Dup		TRIB-AIN2	TRIB-AIN2 Lab-Dup		TRIB-AIN2	TRIB-A IN 2	TRIB-AIN2	TRIB-AIN2	
Sampling Company				STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	STANTEC	STANTEC	
Laboratory				BV	BV		BV	BV		BV	BV		BV	ALS	BV	BV	
Laboratory Work Order				C248232	C248232		C278390	C278390		C2A6461	C2A6461		C2D3656	L2730251	C2O4053	C2O4053	
Laboratory Sample ID				RXT890	RXT890		SEJ920	SEJ920		SKP727	SKP727		SQN173	L2730251-6	TOC796	TOC796	
Sample Type	Units	SSL	CCME		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)		Lab Replicate	RPD (%)				Lab Replicate	RPD (%)
Herbicide and Pesticide																	
Table 4.2																	
2,4,5-TP (Silvex)	µg/L	n/v	n/v	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	<0.50	-	-
2,4-D (EE)	µg/L	n/v	n/v	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	<0.50	-	-
2,4-DB	µg/L	n/v	n/v	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	<0.50	-	-
Aldicarb	µg/L	1_T[A]	1[C]	-	-	-	**<5.0**	-	-	-	-	-	-	-	-	-	-
Atrazine	µg/L	1.8_A[A]	1.8[C]	<1.0	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	<1.0	-	-
Azinphos-methyl (Guthion)	µg/L	n/v	n/v	<1.0	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	<1.0	-	-
Bendiocarb	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	<2.0	-	-
Butanoic acid (MCPB)	µg/L	n/v	n/v	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	<0.50	-	-
Carbaryl	µg/L	0.2_T[A]	3.2[B] 0.2[C]	-	-	-	**<5.0**	-	-	-	-	-	-	-	-	-	-
Carbofuran	µg/L	1.8_T[A]	1.8[C]	-	-	-	**<5.0**	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos	µg/L	0.002$_A$[A]	0.2[B] 0.002[C]	**<2.0**	-	-	**<2.0**	-	-	**<2.0**	-	-	**<2.0**	<0.000012	**<2.0**	-	-
Cyanazine (Bladex)	µg/L	2_T[A]	2[C]	-	-	-	**<5.0**	-	-	-	-	-	-	-	-	-	-
DDVP (Dichlorvos)	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	<2.0	-	-
Demeton	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	<2.0	-	-
Diazinon	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	<2.0	-	-
Dicamba	µg/L	10_A[A]	10[C]	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	<0.50	-	-
Dichlorophenoxy acetic acid, 2,4- (2,4-D)	µg/L	4_T[A]	4[C]	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	<0.50	-	-
Dichlorprop (2,4-DP)	µg/L	n/v	n/v	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	<0.50	-	-
Dimethoate	µg/L	6.2_A[A]	6.2[C]	<2.0	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	<2.0	-	-
Ethion	µg/L	n/v	n/v	<1.0	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	<1.0	-	-
Fenchlorphos (Ronnel)	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	<2.0	-	-
Fenthion	µg/L	n/v	n/v	<1.0	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	<1.0	-	-
Fonofos	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	<2.0	-	-
Imidan (Phosmet)	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	<2.0	-	-
Malathion	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	<2.0	-	-
MCPA (2-Methyl-4-Chlorophenoxyacetic Acid)	µg/L	2.6_T[A]	2.6[C]	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	<0.50	-	-
MCPP (2-(2-Methyl-4-chlorophenoxy) propionic acid)	µg/L	n/v	n/v	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	<0.50	-	-
Methyl Parathion	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	<2.0	-	-
Metolachlor (Dual)	µg/L	n/v	7.8[C]	<5.0	-	-	<5.0	-	-	<5.0	-	-	<5.0	-	<5.0	-	-
Mevinphos (Phosdrin)	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	<2.0	-	-
Parathion (Ethyl Parathion)	µg/L	n/v	n/v	<2.0	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	<2.0	-	-
Phorate (Thimet)	µg/L	n/v	n/v	<1.0	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	<1.0	-	-
Picloram	µg/L	29_A[A]	29[C]	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	<0.50	-	-
Prometryn	µg/L	n/v	n/v	<1.0	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	<1.0	-	-
Simazine	µg/L	10_A[A]	10[C]	<2.0	-	-	<2.0	-	-	<2.0	-	-	<2.0	-	<2.0	-	-
Terbufos	µg/L	n/v	n/v	<1.0	-	-	<1.0	-	-	<1.0	-	-	<1.0	-	<1.0	-	-
Trichlorophenoxy acetic acid, 2,4,5- (2,4,5-T)	µg/L	n/v	n/v	<0.50	-	-	<0.50	-	-	<0.50	-	-	<0.50	-	<0.50	-	-
Trifluralin	µg/L	0.2_T[A]	0.2[C]	**<5.0**	-	-	**<5.0**	-	-	**<5.0**	-	-	**<5.0**	-	**<5.0**	-	-

Notes:

SSL	Site Specific Limits
A	Trib-Ain2, SW Limits
CCME	Canadian Council of Ministers of the Environment
B	Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Short Term
C	Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Long Term
6.5[A]	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value
-	Parameter not analyzed / not available.
CWQG	Canadian Water Quality Guideline
Equation*	The CWQG for copper is related to water hardness. When the water hardness is 0 to < 82 mg/L, the CWQG is 2 µg/L. At hardness =82 to =180 mg/L the CWQG is calculated using this equation: CWQG (µg/L) = 0.2 * e(0.8545[ln(hardness)]-1.465). At hardness >180 mg/L, the CWQG is 4 µg/L. If the hardness is unknown, the CWQG is 2 µg/L. (Using average Hardness per event)
Equation#	The CWQG for lead is related to water hardness. When the hardness is 0 to = 60 mg/L, the CWQG is 1 µg/L. At hardness >60, to = 180 mg/L, the CWQG is calculated using this equation: CWQG (µg/L) = e([1.273[ln(hardness)]-4.705). At hardness >180 mg/L, the CWQG is 7 µg/L. If the hardness is unknown, the CWQG is 1 µg/L. (Using average Hardness per event)
Equation**	The CWQG for nickel is related to water hardness. When the water hardness is 0 to = 60 mg/L, the CWQG is 25 µg/L. At hardness > 60 to = 180 mg/L the CWQG is calculated using thisequation: CWQG (µg/L) = e(0.76[ln(hardness)]+1.06). At hardness >180 mg/L, the CWQG is 150 µg/L. If the hardness is unknown, the CWQG is 25 µg/L. (Using average Hardness per event)
CALC	Total Petroleum hydrocarbons is calculated using the following method: Tot.Purge Hydrocarbon C6-C10 (F1) – Tot.Extr Hydrocarbons C10-C16 (F2) – Tot.Extr Hydrocarbons C16-C34 (F3) - Benzene – Toluene - Ethylbenzene – Xylenes
CCME	Total Ammonia is a table based parameter dependent on field pH and field water temperature.
EQ1	The short-term benchmark is for dissolved zinc and is calculated using the following equation: Benchmark = exp(0.833[ln(hardness mg·L-1)] + 0.240[ln(DOC mg·L-1)] + 0.526). The value in the table is for surface water of 50 mg CaCO3·L−1 hardness and 0.5 mg·L−1 dissolved organic carbon (DOC). The benchmark equation is valid between hardness 13.8 and 250.5 mg CaCO3·L−1 and DOC 0.3 and 17.3 mg·L−1. (Using average Hardness per event)
EQ2	The long-term CWQG is for dissolved zinc and is calculated using the following equation: CWQG = exp(0.947[ln(hardness mg·L-1)] - 0.815[pH] + 0.398[ln(DOC mg·L-1)] + 4.625). The value in the table is for surface water of 50 mg CaCO3·L−1 hardness, pH of 7.5 and 0.5 mg·L−1 DOC. The CWQG equation is valid between hardness 23.4 and 399 mg CaCO3·L−1, pH 6.5 and 8.13 and DOC 0.3 to 22.9 mg·L−1. (Using average Hardness per event)
EQ3	The short-term benchmark is calculated using the benchmark calculator in Appendix B of the Scientific Criteria Document for the Development of the Canadian Water Quality Guidelines for the Protection of Aquatic Life: Manganese or the following equation: Benchmark = exp(0.87[ln(hardness)] + 4.76) where the benchmark is expressed in dissolved manganese concentration (µg/L), and hardness is measured as CaCO3 equivalents in mg/L. The value in the table is for surface water of 50 mg/L hardness. The benchmark equation is valid between hardness 25 and 250 mg/L. (Using averages per event)
EQ4	The long-term CWQG is found using the look-up table (see Table 5) or the CWQG and benchmark calculator in Appendix B of CCME (2019). The value in the table is for surface water of 50 mg/L hardness and pH of 7.5. The CWQG table is valid between hardness 25 and 670 mg/L and pH 5.8 and 8.4. (Using averages per event)
LT	CWQG Guideline (long-term)
LTG	The CWQG for cadmium (i.e. long-term guideline) of 0.09 µg·L-1 is for waters of 50 mg CaCO3·L-1 hardness. The CWQG for cadmium is related to water hardness (as CaCO3). When the water hardness is > 0 to < 17 mg/L, the CWQG is 0.04 µg/L at hardness ≥ 17 to ≤ 280 mg/L, the CWQG is calculated using this equation (CWQG (µg/L) = 10^(0.83[log[hardness]) – 2.46)); At hardness > 280 mg/L, the CWQG is 0.37 µg/L. (Using average Hardness per event)
SN	see Narrative
STB	The short-term benchmark concentration of 1.0 µg·L-1 is for waters of 50 mg CaCO3·L-1 hardness. The short-term benchmark for cadmium is related to water hardness (as CaCO3). When the water hardness is 0 to < 5.3 mg/L, the short-term benchmark is 0.11 µg/L. At hardness ≥ 5.3 to ≤ 360 mg/L, the short-term benchmark is calculated using this equation (Short-term benchmark (µg/L) = 10^(1.016[log[hardness]) – 1.71)); At hardness > 360 mg/L, the short-term benchmark is 7.7 µg/L. (Using average Hardness per event)
TBC2	Ammonia guideline to be calculated (equation, resulting in guidelines in mg/L NH3), then converted to mg/L total ammonia-N by multiplying the corresponding guideline value by 0.8224.
VAR	Lowest acceptable dissolved oxygen concentration: for warm water biota: early life stages =6000 µg/L; for warm water biota: other life stages = 5500 µg/L; for cold water biota: early life stages = 9500 µg/L; for cold water biota: other life stages = 6500 µg/L
VAR1	Variable, 5 µg/L if pH < 6.5 and 100 µg/L if pH > 6.5
ND	Not detected.
NDOGT	No data due to overgrowth. Total coliforms and / or E.coli detected
RPD	Relative Percent Difference.
61%	RPD exceeds data quality objective of 40%.
nc	RPD is not calculated if one or more values is non detect or if one or more values is less than five times the reportable detection limit.

Table
Surface Water Quality Results -Trib-Aout (formerly Trib A)
Canadian National Railway
Milton Logistics Hub

Sample Location				Trib-Aout (formerly Trib A)																						
Sample Date				27-Jan-22	27-Jan-22		24-Feb-22	24-Mar-22	24-Mar-22		21-Apr-22	21-Apr-22		21-Apr-22	21-Apr-22			17-May-22	17-May-22			25-Aug-22	25-Aug-22	25-Aug-22		
Sample ID				TRIP-AOUT	TRIP-AOUT Lab-Dup		TRIB-AOUT 544	TRIB-AOUT (FORMERLY TRIB A)	TRIB-AOUT (FORMERLY TRIB A) Lab-Dup		TRIB-AOUT(FORMERLY TRIB A)	TRIB-AOUT(FORMERLY TRIB A) Lab-Dup		DUPLICATE	DUPLICATE Lab-Dup			TRIB-AOUT(FORMERLY TRIB A)	TRIB-AOUT(FORMERLY TRIB A) Lab-Dup			TRIB-A OUT	TRIB-AOUT(FORMERLY TRIB A)	TRIB-AOUT(FORMERLY TRIB A) Lab-Dup		
Sampling Company				STANTEC	STANTEC		STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC			STANTEC	STANTEC			ALS	STANTEC	STANTEC		
Laboratory				BV	BV		BV	BV	BV		BV	BV		BV	BV			BV	BV			BV	BV	BV		
Laboratory Work Order				C223215	C223215		C249631	C278396	C278396		C2A6485	C2A6485		C2A6502	C2A6502			C2D3719	C2D3719			L2730251	C2D3974	C2D3974		
Laboratory Sample ID				RSL029	RSL029 Lab Replicate	RPD (%)	RYB649	SEJ947	SEJ947 Lab Replicate	RPD (%)	SKP792	SKP792 Lab Replicate	RPD (%)	SKP832 Field Duplicate	SKP832 Lab Replicate	RPD (%)	RPD (%)	SQN494	SQN494 Lab Replicate	RPD (%)	RPD (%)	L2730251-4	TOC464	TOC464 Lab Replicate	RPD (%)	
Sample Type	Units	SSL	CCME																							
General Chemistry																										
Table 4.1																										
Chloride	mg/L	181[H,A]	640[B] 120[F]	200[XC]	210[XC]	5%	110	68	-	-	190[XC]	-	-	190[XC]	0%	-	-	140[C]	-	-	-	83	-	-		
Dissolved Oxygen	mg/L	<=6[A]	>5.5/6/6.5/9.5$_{(A,E)}$[C]	8.55	-	-	10.2	9.31	9.30	nc	8.81	-	-	9.29	nc	-	-	7.58	-	-	-	8.67	-	-		
Phosphorus, Total	mg/L	0.2[A]	n/v	0.10	-	-	0.09	0.53[A]	-	-	0.060	-	-	0.056	7%	-	-	0.16	0.16	0%	-	0.13	-	-		
Total Suspended Solids	mg/L	34[G,A]	25[C]	23	-	-	21	150[A]	-	-	8	-	-	8	0%	-	-	13	-	-	-	7	-	-		
Temperature, Field	deg C	23.2[A]	n/v	-0.1	-	-	0.2	3.6	-	-	10.4	-	-	10.4	nc	-	-	20.3	-	-	-	23.8	-	-		
Table 4.2																										
Ammonia (as N)	mg/L	CCME[A]	TBD[C]	1.1	-	-	0.17	1.3	-	-	0.07	0.07	0%	0.06	15%	-	-	0.06	-	-	-	0.10	0.10	0%		
CWQG Ammonia Guideline	mg/L			6.0	-		19.0	12.6	-		0.86	-		0.86		-		0.41	-			2.77	-			
Ammonia, Un-ionized (Calculated)	mg/L	0.019[A]	0.019[C]	0.0028	-	-	<0.00061	0.00074	-	-	0.0048	-	-	0.0038	23%	-	-	0.0015	-	-	-	0.0011	-	-		
Nitrate (as N)	mg/L	3.0[A]	124[B] 3.0[C]	0.20	-	-	0.30	0.34	-	-	<0.10	-	-	<0.10	nc	-	-	<0.10	-	-	-	<0.10	-	-		
Nitrate + Nitrite (as N)	mg/L	n/v	n/v	0.20	-	-	0.33	0.38	-	-	<0.10	-	-	<0.10	nc	-	-	<0.10	-	-	-	<0.10	-	-		
Nitrite (as N)	mg/L	0.06[A]	0.06[C]	<0.010	-	-	0.030	0.016	-	-	<0.010	-	-	<0.010	nc	-	-	<0.010	-	-	-	<0.010	-	-		
Other Parameters																										
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	2.7	-	-	<1.0	<1.0	-	-	2.7	-	-	2.1	nc	-	-	4.1	-	-	-	<1.0	-	-		
Alkalinity, Total (as CaCO3)	mg/L	n/v	n/v	440	450	2%	85	91	-	-	200	-	-	200	0%	-	-	260	-	-	-	110	-	-		
Anion Sum	me/L	n/v	n/v	17.0	-	-	5.48	4.59	-	-	10.8	-	-	10.8	nc	-	-	9.94	-	-	-	8.60	-	-		
Bicarbonate(as CaCO3, Calculated)	mg/L	n/v	n/v	440	-	-	85	91	-	-	200	-	-	200	0%	-	-	260	-	-	-	110	-	-		
Cation Sum	me/L	n/v	n/v	15.0	-	-	5.42	4.46	-	-	11.8	-	-	11.6	nc	-	-	10.7	-	-	-	8.69	-	-		
Dissolved Organic Carbon (DOC)	mg/L	n/v	n/v	13	-	-	6.8	8.7	-	-	9.4	-	-	9.3	1%	-	-	15	-	-	-	12	-	-		
Electrical Conductivity, Lab	µmhos/cm	n/v	n/v	1,600	1,600	0%	580	470	-	-	1,200	-	-	1,200	0%	-	-	1,000	-	-	-	870	-	-		
Hardness (as CaCO3)	mg/L	n/v	n/v	510	-	-	190	140	-	-	310	-	-	320	3%	-	-	310	-	-	-	290	-	-		
Ion Balance	%	n/v	n/v	6.56	-	-	0.520	1.39	-	-	4.11	-	-	3.76	nc	-	-	3.86	-	-	-	0.490	-	-		
Langelier Index (at 20 C)	none	n/v	n/v	1.08	-	-	-0.143	-0.0660	-	-	0.908	-	-	0.810	nc	-	-	1.09	-	-	-	0.223	-	-		
Langelier Index (at 4 C)	none	n/v	n/v	0.835	-	-	-0.392	-0.316	-	-	0.661	-	-	0.562	nc	-	-	0.844	-	-	-	-0.0290	-	-		
Orthophosphate (as P)	mg/L	n/v	n/v	<0.010	<0.010	nc	0.018	0.026	-	-	0.013	-	-	<0.010	nc	-	-	0.062	-	-	-	0.068	-	-		
pH, Field	S.U.	n/v	6.5-9.0[C]	7.4	-	-	6.92	6.62	-	-	8.47	-	-	8.47	nc	-	-	7.74	-	-	-	7.22	-	-		
pH, lab	S.U.	n/v	6.5-9.0[C]	7.82	7.84	nc	7.77	7.79	-	-	8.16	-	-	8.06	nc	-	-	8.22	-	-	-	7.74	-	-		
Phenols 4AAP	mg/L	0.005[A]	n/v	0.0020	-	-	<0.0010	<0.0010	-	-	<0.0010	-	-	<0.0010	nc	-	-	<0.0010	-	-	-	0.0011	-	-		
Saturation pH (at 20 C)	none	n/v	n/v	6.74	-	-	7.92	7.85	-	-	7.25	-	-	7.25	nc	-	-	7.13	-	-	-	7.52	-	-		
Saturation pH (at 4 C)	none	n/v	n/v	6.98	-	-	8.17	8.10	-	-	7.50	-	-	7.50	nc	-	-	7.38	-	-	-	7.77	-	-		
Sulfide	mg/L	n/v	n/v	120	110	9%	35	39	-	-	76	-	-	77	1%	-	-	35	-	-	-	200	-	-		
Total Dissolved Solids, Calculated	mg/L	n/v	n/v	890	-	-	310	260	-	-	620	-	-	620	0%	-	-	550	-	-	-	530	-	-		
Turbidity, Lab	NTU	n/v	n/v	9.2	-	-	29	240	-	-	8.1	-	-	4.8	51%	-	-	15	-	-	-	3.1	-	-		
BTEX and Petroleum Hydrocarbons																										
Table 4.1																										
Benzene	µg/L	1[A]	370[C]	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	-	<0.20	-	-	-	<0.20	-	-	-	<0.20	-	-		
Toluene	µg/L	1[A]	2[C]	0.25	-	-	<0.20	<0.20	-	-	<0.20	-	-	<0.20	-	-	-	<0.20	-	-	-	<0.20	-	-		
Xylenes, Total	µg/L	2[A]	n/v	<0.40	-	-	<0.40	<0.40	-	-	<0.40	-	-	<0.40	-	-	-	<0.40	-	-	-	<0.40	-	-		
PHC F1 (C6-C10 range)	µg/L	125[A]	n/v	<25	-	-	<25	<25	-	-	<25	-	-	<25	nc	-	-	<25	-	-	-	<25	-	-		
PHC F2 (>C10-C16 range)	µg/L	500[A]	n/v	<100	-	-	<100	<100	-	-	<100	-	-	<100	-	-	-	<100	-	-	-	<100	-	-		
PHC F3 (>C16-C34 range)	µg/L	1,000[A]	n/v	<200	-	-	<200	<200	-	-	<200	-	-	<200	-	-	-	<200	-	-	-	<200	-	-		
Total Petroleum Hydrocarbons	µg/L	1,620$_{(A,C)}$[A]	n/v	ND	-	-	ND	ND	-	-	ND	-	-	ND	-	-	-	ND	-	-	-	ND	-	-		
Oil and Grease, Total	mg/L	2.5[A]	n/v	<0.50	-	-	<0.50	1.2	-	-	<0.50	-	-	<0.50	nc	-	-	0.80	-	-	-	<0.50	-	-		
Table 4.2																										
Ethylbenzene	µg/L	1[A]	90[C]	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	-	<0.20	nc	-	-	<0.20	-	-	-	<0.20	-	-		
Other Parameters																										
Xylenes, m & p-	µg/L	n/v	n/v	<0.40	-	-	<0.40	<0.40	-	-	<0.40	-	-	<0.40	nc	-	-	<0.40	-	-	-	<0.40	-	-		
Xylene, o-	µg/L	n/v	n/v	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	-	<0.20	nc	-	-	<0.20	-	-	-	<0.20	-	-		
PHC F1 (C6-C10 range) minus BTEX	µg/L	n/v	n/v	<25	-	-	<25	<25	-	-	<25	-	-	<25	nc	-	-	<25	-	-	-	<25	-	-		
PHC F4 (>C34-C50 range)	µg/L	1,000[A]	n/v	<200	-	-	<200	<200	-	-	<200	-	-	<200	nc	-	-	<200	-	-	-	<200	-	-		
Chromatogram to baseline at C50	none	n/v	n/v	YES	-	-	YES	YES	-	-	YES	-	-	YES	nc	-	-	YES	-	-	-	YES	-	-		
Metals, Dissolved (Not included in 4.1 or 4.2)																										
Aluminum	µg/L	n/v	n/v	<4.9	-	-	69	9.3	-	-	9.0	-	-	7.5	nc	-	-	<4.9	-	-	-	8.0	-	-		
Antimony	µg/L	n/v	n/v	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	-	<0.50	-	-		
Arsenic	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	1.2	-	-	-	<1.0	-	-		
Barium	µg/L	n/v	n/v	52	-	-	16	13	-	-	26	-	-	26	0%	-	-	22	-	-	-	30	-	-		
Beryllium	µg/L	n/v	n/v	<0.40	-	-	<0.40	<0.40	-	-	<0.40	-	-	<0.40	nc	-	-	<0.40	-	-	-	<0.40	-	-		
Boron	µg/L	n/v	n/v	31	-	-	16	13	-	-	30	-	-	30	nc	-	-	56	-	-	-	96	-	-		
Cadmium	µg/L	n/v	n/v	<0.090	-	-	<0.090	<0.090	-	-	<0.090	-	-	<0.090	nc	-	-	<0.090	-	-	-	<0.090	-	-		
Calcium	µg/L	n/v	n/v	140,000	-	-	38,000	39,000	-	-	88,000	-	-	86,000	0%	-	-	85,000	-	-	-	82,000	-	-		
Chromium	µg/L	n/v	n/v	<5.0	-	-	<5.0	<5.0	-	-	<5.0	-	-	<5.0	nc	-	-	<5.0	-	-	-	<5.0	-	-		
Cobalt	µg/L	n/v	n/v	1.2	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	-	<0.50	-	-		
Copper	µg/L	n/v	n/v	<0.90	-	-	2.1	2.1	-	-	1.4	-	-	1.3	nc	-	-	1.0	-	-	-	3.1	-	-		
Iron	µg/L	n/v	n/v	<100	-	-	<100	<100	-	-	<100	-	-	<100	nc	-	-	<100	-	-	-	<100	-	-		
Lead	µg/L	n/v	n/v	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	-	<0.50	-	-		
Lithium	µg/L	n/v	n/v	-	-	-	<5.0	<5.0	-	-	<5.0	-	-	<5.0	nc	-	-	<5.0	-	-	-	<5.0	-	-		
Magnesium	µg/L	n/v	n/v	37,000	-	-	9,100	9,200	-	-	23,000	-	-	24,000	4%	-	-	25,000	-	-	-	21,000	-	-		
Manganese	µg/L	n/v	$_{EQL}^{B}$ $_{EQL}^{C}$	3,300[C]	-	-	56	<2.0	-	-	32	-	-	33	3%	-	-	<2.0	-	-	-	78	-	-		
CWQG Manganese Guideline (Benchmark)	µg/L	n/v		14,881	-		8,381	8,944	-		14,881	-		14,881		-		14,881	-			14,881	-			
CWQG Manganese Guideline	µg/L	n/v		770	-		710	710	-		140	-		260		-		610	-			760	-			
Molybdenum	µg/L	n/v	n/v	0.81	-	-	0.56	0.51	-	-	0.70	-	-	0.85	nc	-	-	1.3	-	-	-	1.6	-	-		
Nickel	µg/L	n/v	n/v	1.1	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	1.1	-	-	-	1.2	-	-		
Phosphorus	µg/L	n/v	n/v	<100	-	-	160	140	-	-	110	-	-	110	nc	-	-	170	-	-	-	190	-	-		
Potassium	µg/L	n/v	n/v	6,900	-	-	4,100	2,900	-	-	3,800	-	-	3,900	3%	-	-	3,800	-	-	-	5,900	-	-		
Selenium	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	<2.0	-	-	-	<2.0	-	-		
Silicon	µg/L	n/v	n/v	2,100	-	-	1,900	2,000	-	-	1,400	-	-	1,400	0%	-	-	910	-	-	-	4,200	-	-		
Silver	µg/L	n/v	n/v	<0.090	-	-	<0.090	<0.090	-	-	<0.090	-	-	<0.090	nc	-	-	<0.090	-	-	-	<0.090	-	-		
Sodium	µg/L	n/v	n/v	100,000	-	-	61,000	37,000	-	-	120,000	-	-	120,000	0%	-	-	100,000	-	-	-	82,000	-	-		
Strontium	µg/L	n/v	n/v	990	-	-	240	190	-	-	640	-	-	640	0%	-	-	680	-	-	-	610	-	-		
Thallium	µg/L	n/v	n/v	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	-	<0.050	nc	-	-	<0.050	-	-	-	<0.050	-	-		
Tin	µg/L	n/v	n/v	-	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	-	<1.0	-	-		
Titanium	µg/L	n/v	n/v	<5.0	-	-	5.2	<5.0	-	-	<5.0	-	-	<5.0	nc	-	-	<5.0	-	-	-	<5.0	-	-		
Tungsten	µg/L	n/v	n/v	-	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	-	<1.0	-	-		
Uranium	µg/L	n/v	n/v	1.9	-	-	0.41	0.49	-	-	1.3	-	-	1.3	0%	-	-	1.0	-	-	-	0.21	-	-		
Vanadium	µg/L	n/v	n/v	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	-	0.54	-	-		

Table
Surface Water Quality Results -Trib-Aout (formerly Trib A)
Canadian National Railway
Milton Logistics Hub

Sample Location				Trib-Aout (formerly Trib A)																					
Sample Date				27-Jan-22	27-Jan-22		24-Feb-22	24-Mar-22	24-Mar-22		21-Apr-22	21-Apr-22		21-Apr-22			17-May-22	17-May-22			25-Aug-22	25-Aug-22	25-Aug-22		
Sample ID				TRIP-AOUT	TRIP-AOUT Lab-Dup		TRIB-AOUT 544	TRIB-AOUT (FORMERLY TRIB A)	TRIB-AOUT (FORMERLY TRIB A) Lab-Dup		TRIB-AOUT(FORMERLY TRIB A)	TRIB-AOUT(FORMERLY TRIB A) Lab-Dup		DUPLICATE	DUPLICATE Lab-Dup		TRIB-AOUT(FORMERLY TRIB A)	TRIB-AOUT(FORMERLY TRIB A) Lab-Dup			TRIB-A OUT	TRIB-AOUT(FORMERLY TRIB A)	TRIB-AOUT(FORMERLY TRIB A) Lab-Dup		
Sampling Company				STANTEC	STANTEC		STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC			STANTEC	STANTEC	STANTEC		
Laboratory				BV	BV		BV	BV	BV		BV	BV		BV	BV		BV	BV			ALS	BV	BV		
Laboratory Work Order				C223215	C223215		C249631	C278396	C278396		C2A6485	C2A6485		C2A6502	C2A6502		C2D3719	C2D3719			L2730251	C2D3974	C2D3974		
Laboratory Sample ID				RSL029	RSL029		RYB649	SEJ947	SEJ947		SKP792	SKP792		SKP832	SKP832		SQN494	SQN494			L2730251-4	TOC464	TOC464		
Sample Type	Units	SSL	CCME		Lab Replicate	RPD (%)			Lab Replicate	RPD (%)		Lab Replicate	RPD (%)	Field Duplicate	RPD (%)	Lab Replicate	RPD (%)		Lab Replicate	RPD (%)				Lab Replicate	RPD (%)
Zinc	µg/L	n/v	[B] [C]	17	-	-	<5.0	<5.0	-	-	<5.0	-	-	<5.0	nc	-	-	<5.0	-	-	-	17	-	-
CWQG Zinc Guideline (short-term)	µg/L	n/v		564	-		155	174	-		345	-		353		-		385	-		-	346	-	
CWQG Zinc Guideline (long-term)	µg/L	n/v		249	-		78.1	118	-		57.2	-		58.7		-		125	-		-	164	-	
Zirconium	µg/L	n/v	n/v	-	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	-	<1.0	-	-

See notes on last page.

Table
Surface Water Quality Results -Trib-Aout (formerly Trib A)
Canadian National Railway
Milton Logistics Hub

Sample Location				Trib-Aout (formerly Trib A)																							
Sample Date				27-Jan-22	27-Jan-22		24-Feb-22	24-Mar-22	24-Mar-22		21-Apr-22	21-Apr-22		21-Apr-22	21-Apr-22			17-May-22	17-May-22		25-Aug-22	25-Aug-22	25-Aug-22			
Sample ID				TRIP-AOUT	TRIP-AOUT Lab-Dup		TRIB-AOUT 544	TRIB-AOUT (FORMERLY TRIB A)	TRIB-AOUT (FORMERLY TRIB A) Lab-Dup		TRIB-AOUT(FORMERLY TRIB A)	TRIB-AOUT(FORMERLY TRIB A) Lab-Dup		DUPLICATE	DUPLICATE Lab-Dup			TRIB-AOUT(FORMERLY TRIB A)	TRIB-AOUT(FORMERLY TRIB A) Lab-Dup		TRIB-A OUT	TRIB-AOUT(FORMERLY TRIB A)	TRIB-AOUT(FORMERLY TRIB A) Lab-Dup			
Sampling Company				STANTEC	STANTEC		STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC			STANTEC	STANTEC		ALS	STANTEC	STANTEC			
Laboratory				BV	BV		BV	BV	BV		BV	BV		BV	BV			BV	BV		BV	BV	BV			
Laboratory Work Order				C223215	C223215		C249631	C278396	C278396		C2A6485	C2A6485		C2A6502	C2A6502			C2D3719	C2D3719		L2730251	C2D3974	C2D3974			
Laboratory Sample ID				RSL029	RSL029		RYB649	SEJ947	SEJ947		SKP792	SKP792		SKP832	SKP832			SQN494	SQN494		L2730251-4	TOC464	TOC464			
Sample Type	Units	SSL	CCME		Lab Replicate	RPD (%)			Lab Replicate	RPD (%)		Lab Replicate	RPD (%)	Field Duplicate	Lab Replicate	RPD (%)			Lab Replicate	RPD (%)			Lab Replicate	RPD (%)			
Metals, Total																											
Table 4.1																											
Chromium	µg/L	5.74[A]	n/v	<5.0	-	-	<5.0	11[A]	-	-	<5.0	-	-	<5.0	nc	<5.0	nc	<5.0	-	-	-	<5.0	-	-			
Chromium (Hexavalent)	µg/L	n/v	1[C]	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	-	<0.50	-	-			
Chromium (Trivalent)	µg/L	n/v	8.9[C]	<5	-	-	<5	<5	-	-	<5	-	-	<5	nc	-	-	<5	-	-	-	<5	-	-			
Copper	µg/L	6.19[A]	Equation[C]	1.3	-	-	5.3[C]	10[AC]	-	-	1.9	-	-	2.9	nc	1.9	nc	1.3	-	-	-	3.9	-	-			
CWQG Copper Guideline	µg/L	n/v		4	-		2.96	3.15	-		4	-		4		-		4	-		-	4	-				
Iron	µg/L	4,145[A]	300[C]	3,000[C]	-	-	1,800[C]	11,000[AC]	-	-	460[C]	-	-	430[C]	nc	450[C]	nc	1,100[C]	-	-	-	330[C]	-	-			
Lead	µg/L	1.89[A]	Equation[C]	<0.50	-	-	0.84	5.5[A]	-	-	<0.50	-	-	<0.50	nc	<0.50	nc	<0.50	-	-	-	<0.50	-	-			
CWQG Lead Guideline	µg/L	n/v		7	-		4.44	4.88	-		7	-		7		-		7	-		-	7	-				
Zinc	µg/L	19[A]	n/v	35	-	-	9.8	49[A]	-	-	5.4	-	-	5.2	nc	<5.0	nc	<5.0	-	-	-	16	-	-			
Other Parameters																											
Aluminum	µg/L	n/v	$100_{(pH\geq6.5)}$[C]	270[C]	-	-	1,400[C]	9,700[C]	-	-	310[C]	-	-	260[C]	18%	280[C]	7%	400[C]	-	-	-	140[C]	-	-			
Antimony	µg/L	n/v	n/v	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	nc	<0.50	nc	<0.50	-	-	-	0.56	-	-			
Arsenic	µg/L	n/v	5[C]	1.3	-	-	<1.0	1.7	-	-	<1.0	-	-	<1.0	nc	<1.0	nc	1.8	-	-	-	<1.0	-	-			
Barium	µg/L	n/v	n/v	66	-	-	22	68	-	-	27	-	-	29	7%	29	0%	28	-	-	-	31	-	-			
Beryllium	µg/L	n/v	n/v	<0.40	-	-	<0.40	0.43	-	-	<0.40	-	-	<0.40	nc	<0.40	nc	<0.40	-	-	-	<0.40	-	-			
Bismuth	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	nc	<1.0	nc	<1.0	-	-	-	<1.0	-	-			
Boron	µg/L	n/v	29,000[F],1,500[C]	37	-	-	18	17	-	-	30	-	-	32	nc	22	nc	46	-	-	-	100	-	-			
Cadmium	µg/L	n/v	$_{STB}^{n}$ 1.15[C]	<0.090	-	-	<0.090	0.14	-	-	<0.090	-	-	<0.090	nc	<0.090	nc	<0.090	-	-	-	<0.090	-	-			
CWQG Cadmium Guideline (STB)	µg/L	n/v		7.7	-		2.74	2.95	-		6.63	-		6.84		-		6.63	-		-	6.19	-				
CWQG Cadmium Guideline (LTG)	µg/L	n/v		0.37	-		0.20	0.21	-		0.37	-		0.37		-		0.37	-		-	0.37	-				
Calcium	µg/L	n/v	n/v	180,000	-	-	37,000	40,000	-	-	88,000	-	-	90,000	2%	88,000	2%	86,000	-	-	-	84,000	-	-			
Cobalt	µg/L	n/v	n/v	1.8	-	-	0.63	3.5	-	-	<0.50	-	-	<0.50	nc	<0.50	nc	<0.50	-	-	-	<0.50	-	-			
Lithium	µg/L	n/v	n/v	<5.0	-	-	<5.0	10	-	-	<5.0	-	-	<5.0	nc	<5.0	nc	<5.0	-	-	-	<5.0	-	-			
Magnesium	µg/L	n/v	n/v	45,000	-	-	9,300	12,000	-	-	23,000	-	-	23,000	0%	22,000	4%	25,000	-	-	-	21,000	-	-			
Manganese	µg/L	n/v	n/v	4,100	-	-	77	120	-	-	51	-	-	51	0%	51	0%	320	-	-	-	130	-	-			
Molybdenum	µg/L	n/v	73[C]	0.57	-	-	0.57	0.62	-	-	0.73	-	-	0.76	nc	0.72	nc	1.1	-	-	-	1.6	-	-			
Nickel	µg/L	n/v	Equation[C]	2.6	-	-	2.0	11	-	-	1.2	-	-	1.3	nc	1.2	nc	1.5	-	-	-	1.5	-	-			
CWQG Nickel Guideline	µg/L	n/v		150			117	123			150			150		-		-				150					
Potassium	µg/L	n/v	n/v	8,200	-	-	4,300	4,400	-	-	3,900	-	-	3,800	3%	3,800	0%	3,700	-	-	-	5,900	-	-			
Selenium	µg/L	n/v	1[C]	**<2.0**	-	-	**<2.0**	**<2.0**	-	-	**<2.0**	-	-	**<2.0**	nc	**<2.0**	nc	**<2.0**	-	-	-	**<2.0**	-	-			
Silicon	µg/L	n/v	n/v	3,000	-	-	3,700	14,000	-	-	2,000	-	-	1,800	11%	1,800	0%	1,500	-	-	-	4,400	-	-			
Silver	µg/L	n/v	0.25[C]	<0.090	-	-	<0.090	<0.090	-	-	<0.090	-	-	<0.090	nc	<0.090	nc	<0.090	-	-	-	<0.090	-	-			
Sodium	µg/L	n/v	n/v	130,000	-	-	59,000	36,000	-	-	120,000	-	-	110,000	9%	110,000	0%	100,000	-	-	-	61,000	-	-			
Strontium	µg/L	n/v	n/v	1,200	-	-	230	210	-	-	660	-	-	610	2%	610	0%	660	-	-	-	620	-	-			
Tellurium	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	nc	<1.0	nc	<1.0	-	-	-	<1.0	-	-			
Thallium	µg/L	n/v	0.8[C]	<0.050	-	-	<0.050	0.10	-	-	<0.050	-	-	<0.050	nc	<0.050	nc	<0.050	-	-	-	<0.050	-	-			
Tin	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	nc	<1.0	nc	<1.0	-	-	-	<1.0	-	-			
Titanium	µg/L	n/v	17	32	-	-	32	160	-	-	15	-	-	9.8	nc	7.8	nc	15	-	-	-	6.4	-	-			
Tungsten	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	nc	<1.0	nc	<1.0	-	-	-	<1.0	-	-			
Uranium	µg/L	n/v	33[B],15[C]	2.3	-	-	0.45	0.85	-	-	1.3	-	-	1.4	7%	1.3	7%	1.0	-	-	-	0.22	-	-			
Vanadium	µg/L	n/v	n/v	0.85	-	-	2.5	15	-	-	0.91	-	-	0.87	nc	0.87	nc	1.6	-	-	-	0.98	-	-			
Zirconium	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	nc	<1.0	nc	<1.0	-	-	-	<1.0	-	-			
Microbiological Parameters																											
Table 4.2																											
E. Coli/Fecal Coliform	cfu/100mL	n/v	n/v	NDOGT	-	-	NDOGT	NDOGT	-	-	47	-	-	54	nc	-	-	250	-	-	-	100	-	-			
Total Coliforms	cfu/100mL	n/v	n/v	NDOGT	-	-	NDOGT	NDOGT	-	-	380	-	-	740	nc	-	-	960	-	-	-	20,000	-	-			
Other Parameters																											
Total Coliform Background	cfu/100mL	n/v	n/v	NDOGT	-	-	NDOGT	NDOGT	-	-	2,600	-	-	2,200	nc	-	-	3,400	-	-	-	70,000	-	-			
Polychlorinated Biphenyls																											
Polychlorinated Biphenyls (PCBs)	µg/L	n/v	n/v	<0.05	-	-	<0.05	<0.05	-	-	<0.05	-	-	<0.05	nc	-	-	<0.05	-	-	-	<0.05	-	-			
Herbicide and Pesticide (SW8270D)																											
Table 4.2																											
Aldicarb	µg/L	$1_{(T)}$[A]	1[C]	<0.10	-	-	<0.10	<0.10	-	-	<0.10	-	-	<0.10	nc	-	-	<0.10	-	-	-	<0.10	-	-			
Carbaryl	µg/L	$0.4_{(T)}$[A]	3.2[B],0.2[C]	<0.10	-	-	<0.10	<0.10	-	-	<0.10	-	-	<0.10	nc	-	-	<0.10	-	-	-	<0.10	-	-			
Carbofuran	µg/L	$1.8_{(T)}$[A]	1.8[C]	<0.10	-	-	<0.10	<0.10	-	-	<0.10	-	-	<0.10	nc	-	-	<0.10	-	-	-	<0.10	-	-			
Cyanazine (Bladex)	µg/L	$3_{(T)}$[A]	2[C]	<0.10	-	-	<0.10	<0.10	-	-	<0.10	-	-	<0.10	nc	-	-	<0.10	-	-	-	<0.10	-	-			
Triallate	µg/L	$0.24_{(T)}$[A]	0.24[C]	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	-	<0.050	nc	-	-	<0.050	-	-	-	<0.050	-	-			
Trifluralin	µg/L	$0.3_{(T)}$[A]	0.2[C]	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	-	<0.050	nc	-	-	<0.050	-	-	-	<0.050	-	-			
Other Parameters																											
Endosulfan I	µg/L	n/v	n/v	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	-	<0.050	nc	-	-	<0.050	-	-	-	<0.050	-	-			
Endosulfan II	µg/L	n/v	n/v	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	-	<0.050	nc	-	-	<0.050	-	-	-	<0.050	-	-			
Endosulfan Sulfate	µg/L	n/v	n/v	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	-	<0.050	nc	-	-	<0.050	-	-	-	<0.050	-	-			

See notes on last page.

Table
Surface Water Quality Results -Trib-Aout (formerly Trib A)
Canadian National Railway
Milton Logistics Hub

Sample Location				Trib-Aout (formerly Trib A)																					
Sample Date				27-Jan-22	27-Jan-22		24-Feb-22	24-Mar-22	24-Mar-22		21-Apr-22	21-Apr-22		21-Apr-22		21-Apr-22		17-May-22	17-May-22		25-Aug-22	25-Aug-22	25-Aug-22	
Sample ID				TRIP-AOUT	TRIP-AOUT Lab-Dup		TRIB-AOUT 544	TRIB-AOUT (FORMERLY TRIB A)	TRIB-AOUT (FORMERLY TRIB A) Lab-Dup		TRIB-AOUT(FORMERLY TRIB A)	TRIB-AOUT(FORMERLY TRIB A) Lab-Dup		DUPLICATE		DUPLICATE Lab-Dup		TRIB-AOUT(FORMERLY TRIB A)	TRIB-AOUT(FORMERLY TRIB A) Lab-Dup		TRIB-A OUT	TRIB-AOUT(FORMERLY TRIB A)	TRIB-AOUT(FORMERLY TRIB A) Lab-Dup	
Sampling Company				STANTEC	STANTEC		STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC		STANTEC		STANTEC	STANTEC		ALS	STANTEC	STANTEC	
Laboratory				BV	BV		BV	BV	BV		BV	BV		BV		BV		BV	BV		BV	BV	BV	
Laboratory Work Order				C223215	C223215		C249631	C278396	C278396		C2A6485	C2A6485		C2A6502		C2A6502		C2D3719	C2D3719		L2730251	C2D3974	C2D3974	
Laboratory Sample ID				RSL029	RSL029 Lab Replicate	RPD (%)	RYB649	SEJ947	SEJ947 Lab Replicate	RPD (%)	SKP792	SKP792 Lab Replicate	RPD (%)	SKP832 Field Duplicate	RPD (%)	SKP832 Lab Replicate	RPD (%)	SQN494	SQN494 Lab Replicate	RPD (%)	L2730251-4	TOC464	TOC464 Lab Replicate	RPD (%)
Sample Type	Units	SSL	CCME																					
Herbicide and Pesticide																								
Table 4.2																								
2,4,5-TP (Silvex)	µg/L	n/v	n/v	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	-	<0.50	-	-
2,4-D (BEE)	µg/L	n/v	n/v	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	-	<0.50	-	-
2,4-DB	µg/L	n/v	n/v	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	-	<0.50	-	-
Aldicarb	µg/L	1_A	1^C	**<5.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Atrazine	µg/L	1.8_A	1.8^C	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	-	<1.0	-	-
Azinphos-methyl (Guthion)	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	-	<1.0	-	-
Bendiocarb	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	<2.0	-	-	-	<2.0	-	-
Butanoic acid (MCPB)	µg/L	n/v	n/v	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	-	<0.50	-	-
Carbaryl	µg/L	0.4_A	3.3^B 0.2^C	**<5.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbofuran	µg/L	1.8_A	1.8^C	**<5.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos	µg/L	0.002_A	0.02^B 0.002^C	**<2.0**	-	-	**<2.0**	**<2.0**	-	-	**<2.0**	-	-	**<2.0**	nc	-	-	**<2.0**	-	-	0.000015 M J	**<2.0**	-	-
Cyanazine (Bladex)	µg/L	2_A	2^C	**<5.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DDVP (Dichlorvos)	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	<2.0	-	-	-	<2.0	-	-
Demeton	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	<2.0	-	-	-	<2.0	-	-
Diazinon	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	<2.0	-	-	-	<2.0	-	-
Dicamba	µg/L	10_A	10^C	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	-	<0.50	-	-
Dichlorophenoxy acetic acid, 2,4- (2,4-D)	µg/L	4_A	4^C	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	-	<0.50	-	-
Dichlorprop (2,4-DP)	µg/L	n/v	n/v	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	-	<0.50	-	-
Dimethoate	µg/L	6.2_A	6.2^C	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	<2.0	-	-	-	<2.0	-	-
Ethion	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	-	<1.0	-	-
Fenchlorphos (Ronnel)	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	<2.0	-	-	-	<2.0	-	-
Fenthion	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	-	<1.0	-	-
Fonofos	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	<2.0	-	-	-	<2.0	-	-
Imidan (Phosmet)	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	<2.0	-	-	-	<2.0	-	-
Malathion	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	<2.0	-	-	-	<2.0	-	-
MCPA (2-Methyl-4 Chlorophenoxyacetic Acid)	µg/L	2.6_A	2.6^C	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	-	<0.50	-	-
MCPP (2-(2-Methyl-4-chlorophenoxy) propionic acid)	µg/L	n/v	n/v	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	-	<0.50	-	-
Methyl Parathion	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	<2.0	-	-	-	<2.0	-	-
Metolachlor (Dual)	µg/L	n/v	7.8^C	<5.0	-	-	<5.0	<5.0	-	-	<5.0	-	-	<5.0	nc	-	-	<5.0	-	-	-	<5.0	-	-
Mevinphos (Phosdrin)	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	<2.0	-	-	-	<2.0	-	-
Parathion (Ethyl Parathion)	µg/L	n/v	n/v	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	<2.0	-	-	-	<2.0	-	-
Phorate (Thimet)	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	-	<1.0	-	-
Picloram	µg/L	29_A	29^C	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	-	<0.50	-	-
Prometryn	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	-	<1.0	-	-
Simazine	µg/L	10_A	10^C	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	-	<2.0	nc	-	-	<2.0	-	-	-	<2.0	-	-
Terbufos	µg/L	n/v	n/v	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	-	<1.0	nc	-	-	<1.0	-	-	-	<1.0	-	-
Triallate	µg/L	0.24_A	0.24^C	-	-	-	**<5.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichlorophenoxy acetic acid, 2,4,5- (2,4,5-T)	µg/L	n/v	n/v	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	-	<0.50	nc	-	-	<0.50	-	-	-	<0.50	-	-
Trifluralin	µg/L	0.2_A	0.2^C	**<5.0**	-	-	**<5.0**	**<5.0**	-	-	**<5.0**	-	-	**<5.0**	nc	-	-	**<5.0**	-	-	-	**<5.0**	-	-

Notes:

SSL	Site Specific Limits
A	Trib-Aout (formerly Trib A), SW Limits
CCME	Canadian Council of Ministers of the Environment.
B	Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Short Term
C	Canadian Environmental Quality Guidelines, Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater Aquatics Long Term
6.6^	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
CWQG	Canadian Water Quality Guideline
Equation*	The CWQG for copper is related to water hardness. When the water hardness is 0 to < 82 mg/L, the CWQG is 2 µg/L. At hardness =82 to =180 mg/L the CWQG is calculated using this equation: CWQG (µg/L) = 0.2 * e(0.8545[ln(hardness)]-1465). At hardness >180 mg/L, the CWQG is 4 µg/L. If the hardness is unknown, the CWQG is 2 µg/L. (Using average Hardness per event)
Equation#	The CWQG for lead is related to water hardness. When the hardness is 0 to = 60 mg/L, the CWQG is 1 µg/L. At hardness >60 to = 180 mg/L the CWQG is calculated using this equation: CWQG (µg/L)= e(1.273[ln(hardness)]-4.705). At hardness >180 mg/L, the CWQG is 7 µg/L. If the hardness is unknown, the CWQG is 1 µg/L (Using average Hardness per event)
Equation**	The CWQG for nickel is related to water hardness. When the water hardness is 0 to = 60 mg/L, the CWQG is 25 µg/L. At hardness >60 to = 180 mg/L the CWQG is calculated using thisequation: CWQG (µg/L) = e(0.76[ln(hardness)]+1.06). At hardness >180 mg/L, the CWQG is 150 µg/L. If the hardness is unknown, the CWQG is 25 µg/L. (Using average Hardness per event)
CALC	Total Petroleum Hydrocarbons is calculated using the following method: Tot Purge Hydrocarbon C6-C10 (F1) + Tot Extr Hydrocarbons C10-C16 (F2) + Tot Extr Hydrocarbons C16-C34 (F3) - Benzene – Toluene - Ethylbenzene – Xylenes
CCME	Total Ammonia is a table based parameter dependent on field pH and field water temperature.
EQI	The short-term benchmark is for dissolved zinc and is calculated using the following equation: Benchmark = exp(0.833[ln(hardness mg·L-1)] − 0.240[ln(DOC mg·L-1)] + 0.526). The value in the table is for surface water of 50 mg CaCO3·L-1 hardness and 0.5 mg·L-1 dissolved organic carbon (DOC). The benchmark equation is valid between hardness 13.8 and 250.5 mg CaCO3·L-1 and DOC 0.3 and 17.3 mg·L-1. (Using average Hardness per event)
EQI	The long-term CWQG is for dissolved zinc and is calculated using the following equation. CWQG = exp(0.947[ln(hardness mg·L-1)] - 0.815[pH] + 0.398[ln(DOC mg·L-1)] + 4.625). The value in the table is for surface water of 50 mg CaCO3·L-1 hardness, pH of 7.5 and 0.5 mg·L-1 DOC. The CWQG equation is valid between hardness 23.4 and 399 mg CaCO3·L-1, pH 6.5 and 8.13 and DOC 0.3 to 22.9 mg·L-1. (Using average Hardness per event)
EQI	The short-term benchmark is calculated using the benchmark calculator in Appendix B of the Scientific Criteria Document for the Development of the Canadian Water Quality Guidelines for the Protection of Aquatic Life: Manganese or the following equation: Benchmark = exp(0.878[ln(hardness)] + 4.76) where the benchmark is expressed in dissolved manganese concentration (µg/L) and hardness is measured as CaCO3 equivalents in mg/L. The value in the table is for surface water of 50 mg/L hardness. The benchmark equation is valid between hardness 25 and 250 mg/L. (Using averages per event)
EQI	The long-term CWQG is found using the lookup table (see Table 5) or the CWQG and benchmark calculator is Appendix B of CCME (2019). The value in the table is for surface water of 50 mg/L hardness and pH of 7.5. The CWQG table is valid between hardness 25 and 670 mg/L and pH 5.8 and 8.4. (Using averages per event)
FP	CWQG for Ponds
LT	CWQG Guideline (long-term)
LTG	The CWQG for cadmium (i.e. long-term guideline) of 0.09 µg·L-1 is for waters of 50 mg CaCO3·L-1 hardness. The CWQG for cadmium is related to water hardness (as CaCO3): When the water hardness is > 0 to < 17 mg/L, the CWQG is 0.04 µg/L; at hardness ≥ 17 to ≤ 280 mg/L, the CWQG is calculated using this equation (CWQG (µg/L) = 10^(0.83[log(hardness)] – 2.46)); At hardness > 280 mg/L, the CWQG is 0.37 µg/L. (Using average Hardness per event)
SN	see Narrative
STB	The short-term benchmark concentration of 10 µg·L-1 is for waters of 50 mg CaCO3·L-1 hardness. The short-term benchmark for cadmium is related to water hardness (as CaCO3): When the water hardness is 0 to < 5.3 mg/L, the short-term benchmark is 0.11 µg/L. At hardness ≥ 5.3 to ≤ 360 mg/L, the short-term benchmark is calculated using this equation (Short-term benchmark (µg/L) = 10^(1.016[log(hardness)] – 1.71)); At hardness > 360 mg/L, the short-term benchmark is 7.7 µg/L. (Using average Hardness per event)
TEQ	Ammonia guideline to be calculated (equation, resulting in guidelines in mg/L NH3), then converted to mg/L total ammonia-N by multiplying the corresponding guideline value by 0.8224.
VAR	Lowest acceptable dissolved oxygen concentration: for warm water biota: early life stages = 6000 µg/L; for warm water biota: other life stages = 5500 µg/L. for cold water biota: early life stages = 9500 µg/L; for cold water biota: other life stages = 6500 µg/L
VAR1	Variable, 5 µg/L if pH < 6.5 and 100 µg/L if pH > 6.5
M J	A peak has been manually integrated, and the analyte was detected below the calibrated range but above the EDL.
ND	Not detected.
NDOGT	No data due to overgrowth. Total coliforms and / or E.coli detected
RPD	Relative Percent Difference.
61%	RPD exceeds data quality objective of 40%.

Table
Surface Water Quality Results -Trib-Aout (formerly Trib A)
Canadian National Railway
Milton Logistics Hub

Sample Location				Trib-Aout (formerly Trib A)																						
Sample Date				27-Jan-22	27-Jan-22		24-Feb-22	24-Mar-22	24-Mar-22		21-Apr-22	21-Apr-22		21-Apr-22	21-Apr-22		17-May-22	17-May-22		25-Aug-22	25-Aug-22	25-Aug-22				
Sample ID				TRIP-AOUT	TRIP-AOUT Lab-Dup		TRIB-AOUT 544	TRIB-AOUT (FORMERLY TRIB A)	TRIB-AOUT (FORMERLY TRIB A) Lab-Dup		TRIB-AOUT(FORMERLY TRIB A)	TRIB-AOUT(FORMERLY TRIB A) Lab-Dup		DUPLICATE	DUPLICATE Lab-Dup		TRIB-AOUT(FORMERLY TRIB A)	TRIB-AOUT(FORMERLY TRIB A) Lab-Dup		TRIB-A OUT	TRIB-AOUT(FORMERLY TRIB A)	TRIB-AOUT(FORMERLY TRIB A) Lab-Dup				
Sampling Company				STANTEC	STANTEC		STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC	STANTEC				
Laboratory				BV	BV		BV	BV	BV		BV	BV		BV	BV		BV	BV		ALS	BV	BV				
Laboratory Work Order				C223215	C223215		C249631	C278396	C278396		C2A6485	C2A6485		C2A6502	C2A6502		C2D3719	C2D3719		L2730251	C2D3974	C2D3974				
Laboratory Sample ID				RSL029	RSL029	RPD	RYB649	SEJ947	SEJ947	RPD	SKP792	SKP792	RPD	SKP832	SKP832	RPD	SQN494	SQN494	RPD	L2730251-4	TOC464	TOC464	RPD			
Sample Type	Units	SSL	CCME		Lab Replicate	(%)			Lab Replicate	(%)		Lab Replicate	(%)	Field Duplicate	Lab Replicate	(%)		Lab Replicate	(%)			Lab Replicate	(%)				

nc RPD is not calculated if one or more values is non detect or if one of more values is less than five times the reportable detection limit.

C.1.3 Water Quantity

Daily Flow Level Data IC-IN Summary

Date	Daily Water Level (m)	Avg. Daily Flow (m^3/s)	Comments
2022-01-01	0.750		
2022-01-02	0.702		
2022-01-03	0.688		
2022-01-04	0.644		
2022-01-05	0.656		
2022-01-06	0.678		
2022-01-07	0.644		
2022-01-08	0.619		
2022-01-09	0.618		
2022-01-10	0.624		
2022-01-11	0.603		
2022-01-12	0.595		
2022-01-13	0.606		
2022-01-14	0.610		
2022-01-15	0.598		
2022-01-16	0.574		
2022-01-17	0.591		
2022-01-18	0.597		
2022-01-19	0.610		
2022-01-20	0.630		
2022-01-21	0.653		
2022-01-22	0.638		
2022-01-23	0.640		
2022-01-24	0.653		
2022-01-25	0.657		
2022-01-26	0.653		
2022-01-27	0.645		
2022-01-28	0.642		
2022-01-29	0.640		
2022-01-30	0.628		
2022-01-31	0.624		
2022-02-01	0.621		
2022-02-02	0.631		
2022-02-03	0.653		
2022-02-04	0.691		
2022-02-05	0.753		
2022-02-06	0.721		
2022-02-07	0.705		
2022-02-08	0.689		
2022-02-09	0.681		
2022-02-10	0.692		
2022-02-11	0.710		
2022-02-12	0.839		
2022-02-13	0.860		
2022-02-14	0.800		
2022-02-15	0.741		
2022-02-16	0.805		
2022-02-17	1.354		
2022-02-18	1.083		
2022-02-19	0.952		
2022-02-20	0.876		
2022-02-21	0.829		
2022-02-22	0.901		
2022-02-23	1.283		
2022-02-24	1.003		
2022-02-25	0.842		
2022-02-26	0.782		
2022-02-27	0.747		
2022-02-28	0.732		
2022-03-01	0.723		
2022-03-02	0.754		
2022-03-03	0.809		
2022-03-04	0.745		
2022-03-05	0.711		
2022-03-06	1.041		
2022-03-07	1.148		
2022-03-08	0.967		
2022-03-09	0.874	0.327	
2022-03-10	0.828	0.193	
2022-03-11	0.799	0.141	
2022-03-12	0.747	0.075	
2022-03-13	0.722	0.058	
2022-03-14	0.714	0.052	
2022-03-15	0.793	0.130	
2022-03-16	0.840	0.449	
2022-03-17	1.001	1.192	
2022-03-18	0.977	0.924	
2022-03-19	0.979	0.993	
2022-03-20	0.976	0.972	
2022-03-21	0.840	0.225	
2022-03-22	0.850	0.279	
2022-03-23	0.901	0.479	
2022-03-24	1.359	6.229	
2022-03-25	1.058	2.004	
2022-03-26	0.962	0.776	
2022-03-27	0.907	0.446	
2022-03-28	0.856	0.268	
2022-03-29	0.835	0.218	
2022-03-30	0.824	0.182	
2022-03-31	0.881	0.351	
2022-04-01	0.878	0.335	
2022-04-02	0.829	0.193	
2022-04-03	0.811	0.157	
2022-04-04	0.797	0.134	
2022-04-05	0.793	0.128	
2022-04-06	0.787	0.119	
2022-04-07	0.825	0.186	
2022-04-08	0.812	0.160	
2022-04-09	0.790	0.123	
2022-04-10	0.773	0.101	
2022-04-11	0.761	0.088	

Average Manual Water Level and Flow Measurements

Date	Avg. Water Level (m)	Avg. Flow (m^3/s)	Comment
9/30/2021	0.67	0.104	
11/25/2021	0.62	0.055	
12/10/2021	0.73	0.169	
1/28/2022	0.62	0.210	Ice covered conditions
3/22/2022	0.91	0.538	
4/20/2022	0.86	0.332	
5/16/2022	0.75	0.085	
6/27/2022	0.69	0.013	
7/21/2022	0.68	0.018	
8/31/2022	0.68	0.032	
9/26/2022	0.64	0.008	
9/27/2022	0.67	0.010	
10/24/2022	0.68	0.001	High discharge calculation uncertainty for FlowTracker2 measurments
11/22/2022	0.72	0.032	Ice covered conditions
12/12/2022	0.70	0.030	Ice covered conditions

2022-04-12	0.759	0.085	
2022-04-13	0.756	0.082	
2022-04-14	0.764	0.090	
2022-04-15	0.752	0.078	
2022-04-16	0.763	0.090	
2022-04-17	0.754	0.080	
2022-04-18	0.746	0.073	
2022-04-19	0.821	0.196	
2022-04-20	0.856	0.265	
2022-04-21	0.866	0.341	
2022-04-22	0.887	0.374	
2022-04-23	0.822	0.178	
2022-04-24	0.801	0.140	
2022-04-25	0.793	0.127	
2022-04-26	0.853	0.251	
2022-04-27	0.814	0.163	
2022-04-28	0.789	0.122	
2022-04-29	0.774	0.102	
2022-04-30	0.762	0.088	
2022-05-01	0.753	0.079	
2022-05-02	0.792	0.127	
2022-05-03	0.797	0.139	
2022-05-04	1.348	4.878	
2022-05-05	1.074	2.523	
2022-05-06	0.922	0.526	
2022-05-07	0.861	0.275	
2022-05-08	0.827	0.189	
2022-05-09	0.806	0.148	
2022-05-10	0.792	0.125	
2022-05-11	0.780	0.109	
2022-05-12	0.773	0.100	
2022-05-13	0.765	0.092	
2022-05-14	0.760	0.086	
2022-05-15	0.755	0.081	
2022-05-16	0.753	0.079	
2022-05-17	0.759	0.085	
2022-05-18	0.734	0.063	
2022-05-19	0.733	0.061	
2022-05-20	0.731	0.060	
2022-05-21	0.725	0.056	
2022-05-22	0.727	0.057	
2022-05-23	0.719	0.051	
2022-05-24	0.716	0.049	
2022-05-25	0.714	0.048	
2022-05-26	0.713	0.047	
2022-05-27	0.720	0.052	
2022-05-28	0.721	0.053	
2022-05-29	0.708	0.044	
2022-05-30	0.700	0.040	
2022-05-31	0.695	0.037	
2022-06-01	0.689	0.035	
2022-06-02	0.693	0.037	
2022-06-03	0.691	0.036	
2022-06-04	0.689	0.035	
2022-06-05	0.688	0.034	
2022-06-06	0.688	0.034	
2022-06-07	0.727	0.059	
2022-06-08	0.766	0.092	
2022-06-09	0.756	0.082	
2022-06-10	0.753	0.079	
2022-06-11	0.739	0.067	
2022-06-12	0.800	0.143	
2022-06-13	0.779	0.109	
2022-06-14	0.755	0.081	
2022-06-15	0.736	0.064	
2022-06-16	0.735	0.063	
2022-06-17	0.721	0.053	
2022-06-18	0.706	0.044	
2022-06-19	0.699	0.040	
2022-06-20	0.695	0.038	
2022-06-21	0.715	0.050	
2022-06-22	0.727	0.058	
2022-06-23	0.691	0.036	
2022-06-24	0.687	0.034	
2022-06-25	0.684	0.033	
2022-06-26	0.678	0.030	
2022-06-27	0.681	0.031	
2022-06-28	0.683	0.032	
2022-06-29	0.681	0.031	
2022-06-30	0.692	0.036	
2022-07-01	0.691	0.035	
2022-07-02	0.689	0.035	
2022-07-03	0.686	0.033	
2022-07-04	0.681	0.031	
2022-07-05	0.681	0.031	
2022-07-06	0.690	0.035	
2022-07-07	0.686	0.033	
2022-07-08	0.679	0.030	
2022-07-09	0.672	0.028	
2022-07-10	0.671	0.027	
2022-07-11	0.668	0.026	
2022-07-12	0.669	0.026	
2022-07-13	0.666	0.025	
2022-07-14	0.666	0.025	
2022-07-15	0.665	0.025	
2022-07-16	0.662	0.024	
2022-07-17	0.662	0.024	
2022-07-18	0.685	0.033	
2022-07-19	0.727	0.057	
2022-07-20	0.718	0.051	
2022-07-21	0.693	0.037	
2022-07-22	0.678	0.030	
2022-07-23	0.676	0.029	
2022-07-24	0.674	0.028	
2022-07-25	0.679	0.030	

2022-07-26	0.684	0.032	
2022-07-27	0.684	0.032	
2022-07-28	0.692	0.036	
2022-07-29	0.689	0.035	
2022-07-30	0.692	0.036	
2022-07-31	0.697	0.040	
2022-08-01	0.697	0.039	
2022-08-02	0.717		
2022-08-03	0.761		
2022-08-04	0.784		
2022-08-05	0.806		
2022-08-06	0.828		
2022-08-07	0.841		
2022-08-08	0.848		
2022-08-09	0.836		
2022-08-10	0.852		
2022-08-11	0.858		
2022-08-12	0.840		
2022-08-13	0.837		
2022-08-14	0.857		
2022-08-15	0.864		
2022-08-16	0.862		
2022-08-17	0.875		
2022-08-18	0.948		
2022-08-19	0.955		
2022-08-20	0.962		
2022-08-21	0.995		
2022-08-22	1.073		
2022-08-23	1.218		
2022-08-24	1.169		
2022-08-25	1.154		
2022-08-26	1.153		
2022-08-27	1.107		
2022-08-28	1.108		
2022-08-29	1.151		
2022-08-30	1.157		
2022-08-31	1.128		
2022-09-01	1.103		
2022-09-02	1.128		
2022-09-03	1.168		
2022-09-04	1.159		
2022-09-05	1.154		
2022-09-06	1.176		
2022-09-07	1.188		
2022-09-08	1.181		
2022-09-09	1.174		
2022-09-10	1.174		
2022-09-11	1.202		
2022-09-12	1.251		
2022-09-13	1.187		
2022-09-14	1.176		
2022-09-15	1.138		
2022-09-16	1.162		
2022-09-17	1.208		
2022-09-18	1.253		
2022-09-19	1.260		
2022-09-20	1.214		
2022-09-21	1.245		
2022-09-22	1.169		
2022-09-23	1.104		
2022-09-24	1.114		
2022-09-25	1.169		
2022-09-26	1.151		
2022-09-27	1.135		
2022-09-28	1.124		
2022-09-29	1.123		
2022-09-30	1.107		
2022-10-01	1.100		
2022-10-02	1.079		
2022-10-03	1.050		
2022-10-04	1.057		
2022-10-05	1.070		
2022-10-06	1.098		
2022-10-07	1.056		
2022-10-08	1.008		
2022-10-09	1.005		
2022-10-10	1.018		
2022-10-11	1.016		
2022-10-12	1.065		
2022-10-13	1.078		
2022-10-14	1.048		
2022-10-15	1.029		
2022-10-16	1.017		
2022-10-17	1.030		
2022-10-18	1.004		
2022-10-19	0.994		
2022-10-20	0.960		
2022-10-21	0.956		
2022-10-22	0.964		
2022-10-23	0.957		
2022-10-24	0.954		
2022-10-25	0.973		
2022-10-26	0.984		
2022-10-27	0.938		
2022-10-28	0.916		
2022-10-29	0.917		
2022-10-30	0.929		
2022-10-31	0.948		
2022-11-01	0.961		
2022-11-02	0.931		
2022-11-03	0.932		
2022-11-04	0.948		
2022-11-05	0.989		
2022-11-06	0.965		
2022-11-07	0.913		

2022-11-08	0.871		
2022-11-09	0.871		
2022-11-10	0.893		
2022-11-11	0.906		
2022-11-12	0.915		
2022-11-13	0.885		
2022-11-14	0.858		
2022-11-15	0.849		
2022-11-16	0.862		
2022-11-17	0.863		
2022-11-18	0.847		
2022-11-19	0.831		
2022-11-20	0.804		
2022-11-21	0.797		
2022-11-22	0.791		
2022-11-23	0.785		
2022-11-24	0.780		
2022-11-25	0.792		
2022-11-26	0.793		
2022-11-27	0.802		
2022-11-28	0.787		
2022-11-29	0.782		
2022-11-30	0.803		
2022-12-01	0.801		
2022-12-02	0.797		
2022-12-03	0.814		
2022-12-04	0.806		
2022-12-05	0.788		
2022-12-06	0.779		
2022-12-07	0.773		
2022-12-08	0.765		
2022-12-09	0.744		
2022-12-10	0.727		
2022-12-11	0.726		
2022-12-12	0.712		
2022-12-13	0.700		
2022-12-14	0.736		
2022-12-15	0.773		
2022-12-16	0.827		
2022-12-17	0.840		
2022-12-18	0.789		
2022-12-19	0.751		
2022-12-20	0.733		
2022-12-21	0.724		
2022-12-22	0.727		
2022-12-23	0.781		
2022-12-24	0.775		
2022-12-25	0.703		
2022-12-26	0.701		
2022-12-27	0.741		
2022-12-28	0.757		
2022-12-29	0.735		
2022-12-30	0.722		
2022-12-31	0.815		

Daily Water Level Data IC-OUT Summary

Date	Water Level (m)	Comments
2022-01-01	0.778	
2022-01-02	0.748	
2022-01-03	0.719	
2022-01-04	0.692	
2022-01-05	0.697	
2022-01-06	0.718	
2022-01-07	0.686	
2022-01-08	0.653	
2022-01-09	0.651	
2022-01-10	0.654	
2022-01-11	0.622	
2022-01-12	0.605	
2022-01-13	0.621	
2022-01-14	0.618	
2022-01-15	0.592	
2022-01-16	0.558	
2022-01-17	0.558	
2022-01-18	0.564	
2022-01-19	0.576	
2022-01-20	0.592	
2022-01-21	0.602	
2022-01-22	0.595	
2022-01-23	0.594	
2022-01-24	0.595	
2022-01-25	0.596	
2022-01-26	0.595	
2022-01-27	0.586	
2022-01-28	0.583	
2022-01-29	0.578	
2022-01-30	0.564	
2022-01-31	0.560	
2022-02-01	0.557	
2022-02-02	0.559	
2022-02-03	0.569	
2022-02-04	0.581	
2022-02-05	0.611	
2022-02-06	0.635	
2022-02-07	0.636	
2022-02-08	0.633	
2022-02-09	0.628	
2022-02-10	0.631	
2022-02-11	0.651	
2022-02-12	0.834	
2022-02-13	0.841	
2022-02-14	0.793	
2022-02-15	0.735	
2022-02-16	0.800	
2022-02-17	1.604	
2022-02-18	1.099	
2022-02-19	0.982	
2022-02-20	0.880	
2022-02-21	0.820	
2022-02-22	0.886	
2022-02-23	1.310	
2022-02-24	1.067	
2022-02-25	0.914	
2022-02-26	0.791	
2022-02-27	0.750	
2022-02-28	0.738	
2022-03-01	0.723	
2022-03-02	0.748	
2022-03-03	0.804	
2022-03-04	0.747	
2022-03-05	0.707	
2022-03-06	1.058	
2022-03-07	1.170	
2022-03-08	0.992	
2022-03-09	0.909	
2022-03-10	0.846	
2022-03-11	0.824	
2022-03-12	0.782	
2022-03-13	0.752	
2022-03-14	0.749	
2022-03-15	0.822	
2022-03-16	0.856	
2022-03-17	1.006	
2022-03-18	0.987	
2022-03-19	0.984	
2022-03-20	0.994	

Manuals

Date	Water Level (m)	Comment
2022-08-31	0.66	
2022-10-24	0.54	
2022-11-22	0.61	
2022-12-13	0.66	

2022-03-21	0.869	
2022-03-22	0.810	
2022-03-23	0.795	
2022-03-24	1.261	
2022-03-25	0.925	
2022-03-26	0.834	
2022-03-27	0.787	
2022-03-28	0.743	
2022-03-29	0.714	
2022-03-30	0.711	
2022-03-31	0.761	
2022-04-01	0.767	
2022-04-02	0.728	
2022-04-03	0.715	
2022-04-04	0.715	
2022-04-05	0.725	
2022-04-06	0.722	
2022-04-07	0.760	
2022-04-08	0.760	
2022-04-09	0.758	
2022-04-10	0.766	
2022-04-11	0.761	
2022-04-12	0.768	
2022-04-13	0.771	
2022-04-14	0.778	
2022-04-15	0.776	
2022-04-16	0.784	
2022-04-17	0.782	
2022-04-18	0.773	
2022-04-19	0.821	
2022-04-20	0.837	
2022-04-21	0.833	
2022-04-22	0.849	
2022-04-23	0.804	
2022-04-24	0.789	
2022-04-25	0.783	
2022-04-26	0.828	
2022-04-27	0.804	
2022-04-28	0.783	
2022-04-29	0.770	
2022-04-30	0.757	
2022-05-01	0.748	
2022-05-02	0.784	
2022-05-03	0.788	
2022-05-04	1.216	
2022-05-05	0.954	
2022-05-06	0.842	
2022-05-07	0.804	
2022-05-08	0.782	
2022-05-09	0.765	
2022-05-10	0.751	
2022-05-11	0.742	
2022-05-12	0.734	
2022-05-13	0.722	
2022-05-14	0.715	
2022-05-15	0.715	
2022-05-16	0.719	
2022-05-17	0.726	
2022-05-18	0.696	
2022-05-19	0.690	
2022-05-20	0.683	
2022-05-21	0.683	
2022-05-22	0.691	
2022-05-23	0.678	
2022-05-24	0.669	
2022-05-25	0.663	
2022-05-26	0.665	
2022-05-27	0.678	
2022-05-28	0.679	
2022-05-29	0.659	
2022-05-30	0.640	
2022-05-31	0.617	
2022-06-01	0.595	
2022-06-02	0.595	
2022-06-03	0.595	
2022-06-04	0.590	
2022-06-05	0.594	
2022-06-06	0.601	
2022-06-07	0.635	
2022-06-08	0.745	
2022-06-09	0.739	

2022-06-10	0.742	
2022-06-11	0.733	
2022-06-12	0.767	
2022-06-13	0.760	
2022-06-14	0.737	
2022-06-15	0.713	
2022-06-16	0.706	
2022-06-17	0.693	
2022-06-18	0.662	
2022-06-19	0.633	
2022-06-20	0.623	
2022-06-21	0.641	
2022-06-22	0.677	
2022-06-23	0.599	
2022-06-24	0.589	
2022-06-25	0.554	
2022-06-26	0.540	
2022-06-27	0.557	
2022-06-28	0.557	
2022-06-29	0.562	
2022-06-30	0.578	
2022-07-01	0.633	
2022-07-02	0.628	
2022-07-03	0.656	
2022-07-04	0.660	
2022-07-05	0.630	
2022-07-06	0.630	
2022-07-07	0.656	
2022-07-08	0.661	
2022-07-09	0.630	
2022-07-10	0.603	
2022-07-11	0.601	
2022-07-12	0.587	
2022-07-13	0.574	
2022-07-14	0.575	
2022-07-15	0.581	
2022-07-16	0.572	
2022-07-17	0.558	
2022-07-18	0.603	
2022-07-19	0.673	
2022-07-20	0.676	
2022-07-21	0.663	
2022-07-22	0.649	
2022-07-23	0.646	
2022-07-24	0.629	
2022-07-25	0.635	
2022-07-26	0.637	
2022-07-27	0.619	
2022-07-28	0.608	
2022-07-29	0.584	
2022-07-30	0.575	
2022-07-31	0.559	
2022-08-01	0.551	
2022-08-02	0.558	
2022-08-03	0.636	
2022-08-04	0.651	
2022-08-05	0.662	
2022-08-06	0.664	
2022-08-07	0.652	
2022-08-08	0.635	
2022-08-09	0.635	
2022-08-10	0.636	
2022-08-11	0.614	
2022-08-12	0.595	
2022-08-13	0.572	
2022-08-14	0.556	
2022-08-15	0.530	
2022-08-16	0.507	
2022-08-17	0.512	
2022-08-18	0.641	
2022-08-19	0.640	
2022-08-20	0.623	
2022-08-21	0.646	
2022-08-22	0.695	
2022-08-23	0.831	
2022-08-24	0.789	
2022-08-25	0.753	
2022-08-26	0.739	
2022-08-27	0.724	
2022-08-28	0.695	
2022-08-29	0.681	

2022-08-30	0.669	
2022-08-31	0.669	
2022-09-01	0.642	
2022-09-02	0.628	
2022-09-03	0.618	
2022-09-04	0.608	
2022-09-05	0.604	
2022-09-06	0.599	
2022-09-07	0.576	
2022-09-08	0.543	
2022-09-09	0.534	
2022-09-10	0.521	
2022-09-11	0.518	
2022-09-12	0.527	
2022-09-13	0.546	
2022-09-14	0.549	
2022-09-15	0.532	
2022-09-16	0.523	
2022-09-17	0.519	
2022-09-18	0.523	
2022-09-19	0.523	
2022-09-20	0.514	
2022-09-21	0.507	
2022-09-22	0.494	
2022-09-23	0.494	
2022-09-24	0.497	
2022-09-25	0.498	
2022-09-26	0.538	
2022-09-27	0.580	
2022-09-28	0.608	
2022-09-29	0.630	
2022-09-30	0.609	
2022-10-01	0.590	
2022-10-02	0.574	
2022-10-03	0.556	
2022-10-04	0.547	
2022-10-05	0.540	
2022-10-06	0.531	
2022-10-07	0.516	
2022-10-08	0.510	
2022-10-09	0.505	
2022-10-10	0.504	
2022-10-11	0.500	
2022-10-12	0.496	
2022-10-13	0.515	
2022-10-14	0.561	
2022-10-15	0.567	
2022-10-16	0.564	
2022-10-17	0.562	
2022-10-18	0.558	
2022-10-19	0.581	
2022-10-20	0.573	
2022-10-21	0.573	
2022-10-22	0.568	
2022-10-23	0.561	
2022-10-24	0.555	
2022-10-25	0.549	
2022-10-26	0.549	
2022-10-27	0.558	
2022-10-28	0.573	
2022-10-29	0.566	
2022-10-30	0.559	
2022-10-31	0.558	
2022-11-01	0.579	
2022-11-02	0.579	
2022-11-03	0.570	
2022-11-04	0.561	
2022-11-05	0.556	
2022-11-06	0.558	
2022-11-07	0.565	
2022-11-08	0.557	
2022-11-09	0.545	
2022-11-10	0.541	
2022-11-11	0.546	
2022-11-12	0.580	
2022-11-13	0.608	
2022-11-14	0.595	
2022-11-15	0.585	
2022-11-16	0.592	
2022-11-17	0.608	
2022-11-18	0.612	

2022-11-19	0.602	
2022-11-20	0.592	
2022-11-21	0.583	
2022-11-22	0.604	
2022-11-23	0.614	
2022-11-24	0.609	
2022-11-25	0.612	
2022-11-26	0.617	
2022-11-27	0.614	
2022-11-28	0.629	
2022-11-29	0.640	
2022-11-30	0.654	
2022-12-01	0.700	
2022-12-02	0.701	
2022-12-03	0.702	
2022-12-04	0.713	
2022-12-05	0.703	
2022-12-06	0.693	
2022-12-07	0.686	
2022-12-08	0.676	
2022-12-09	0.663	
2022-12-10	0.657	
2022-12-11	0.653	
2022-12-12	0.653	
2022-12-13	0.654	
2022-12-14	0.641	
2022-12-15	0.658	
2022-12-16	0.738	
2022-12-17	0.774	
2022-12-18	0.750	
2022-12-19	0.728	
2022-12-20	0.714	
2022-12-21	0.702	
2022-12-22	0.694	
2022-12-23	0.716	
2022-12-24	0.765	
2022-12-25	0.736	
2022-12-26	0.712	
2022-12-27	0.698	
2022-12-28	0.691	
2022-12-29	0.695	
2022-12-30	0.716	
2022-12-31	0.862	

Daily Water Level Data Trib A In Summary

Date	Water Level (m)	Comments
2022-01-01	0.258	
2022-01-02	0.241	
2022-01-03	0.215	
2022-01-04	0.200	
2022-01-05	0.221	
2022-01-06	0.215	
2022-01-07	0.199	
2022-01-08	0.174	
2022-01-09	0.181	
2022-01-10	0.173	
2022-01-11	0.118	
2022-01-12	0.047	
2022-01-13	0.072	
2022-01-14	0.123	
2022-01-15	0.074	
2022-01-16	0.049	
2022-01-17	0.047	
2022-01-18	0.046	
2022-01-19	0.045	
2022-01-20	0.044	
2022-01-21	0.043	
2022-01-22	0.042	
2022-01-23	0.041	
2022-01-24	0.041	
2022-01-25	0.039	
2022-01-26	0.038	
2022-01-27	0.037	
2022-01-28	0.036	
2022-01-29	0.037	
2022-01-30	0.034	
2022-01-31	0.034	
2022-02-01	0.034	
2022-02-02	0.082	
2022-02-03	0.123	
2022-02-04	0.085	
2022-02-05	0.047	
2022-02-06	0.039	
2022-02-07	0.038	
2022-02-08	0.038	
2022-02-09	0.067	
2022-02-10	0.140	
2022-02-11	0.205	
2022-02-12	0.319	
2022-02-13	0.333	
2022-02-14	0.317	
2022-02-15	0.318	
2022-02-16	0.358	
2022-02-17	0.433	
2022-02-18	0.423	
2022-02-19	0.393	
2022-02-20	0.360	
2022-02-21	0.375	
2022-02-22	0.410	
2022-02-23	0.439	
2022-02-24	0.374	
2022-02-25	0.357	
2022-02-26	0.349	
2022-02-27	0.347	
2022-02-28	0.338	
2022-03-01	0.341	
2022-03-02	0.370	
2022-03-03	0.382	
2022-03-04	0.345	
2022-03-05	0.338	
2022-03-06	0.400	
2022-03-07	0.365	
2022-03-08	0.341	
2022-03-09	0.314	
2022-03-10	0.292	
2022-03-11	0.273	
2022-03-12	0.254	
2022-03-13	0.234	
2022-03-14	0.250	
2022-03-15	0.268	
2022-03-16	0.298	
2022-03-17	0.329	
2022-03-18	0.312	
2022-03-19	0.319	
2022-03-20	0.318	

Manuals

Date	Water Level (m)	Comment
2021-10-28	0.23	
2021-12-09	0.26	
2022-03-21	0.30	
2022-04-22	0.28	
2022-05-18	0.18	
2022-08-23	0.28	

2022-03-21	0.308	
2022-03-22	0.305	
2022-03-23	0.308	
2022-03-24	0.372	
2022-03-25	0.331	
2022-03-26	0.314	
2022-03-27	0.298	
2022-03-28	0.282	
2022-03-29	0.276	
2022-03-30	0.274	
2022-03-31	0.287	
2022-04-01	0.282	
2022-04-02	0.267	
2022-04-03	0.260	
2022-04-04	0.254	
2022-04-05	0.253	
2022-04-06	0.255	
2022-04-07	0.273	
2022-04-08	0.262	
2022-04-09	0.251	
2022-04-10	0.242	
2022-04-11	0.235	
2022-04-12	0.234	
2022-04-13	0.227	
2022-04-14	0.229	
2022-04-15	0.217	
2022-04-16	0.233	
2022-04-17	0.220	
2022-04-18	0.228	
2022-04-19	0.260	
2022-04-20	0.270	
2022-04-21	0.283	
2022-04-22	0.280	
2022-04-23	0.261	
2022-04-24	0.250	
2022-04-25	0.252	
2022-04-26	0.269	
2022-04-27	0.255	
2022-04-28	0.247	
2022-04-29	0.226	
2022-04-30	0.211	
2022-05-01	0.217	
2022-05-02	0.234	
2022-05-03	0.253	
2022-05-04	0.362	
2022-05-05	0.315	
2022-05-06	0.292	
2022-05-07	0.278	
2022-05-08	0.265	
2022-05-09	0.251	
2022-05-10	0.236	
2022-05-11	0.220	
2022-05-12	0.206	
2022-05-13	0.197	
2022-05-14	0.192	
2022-05-15	0.185	
2022-05-16	0.206	
2022-05-17	0.200	
2022-05-18	0.184	
2022-05-19	0.174	
2022-05-20	0.166	
2022-05-21	0.180	
2022-05-22	0.179	
2022-05-23	0.163	
2022-05-24	0.136	
2022-05-25	0.113	
2022-05-26	0.102	
2022-05-27	0.120	
2022-05-28	0.109	
2022-05-29	0.086	
2022-05-30	0.063	
2022-05-31	0.043	
2022-06-01	0.069	
2022-06-02	0.069	
2022-06-03	0.038	
2022-06-04	0.032	
2022-06-05	0.030	
2022-06-06	0.055	
2022-06-07	0.143	
2022-06-08	0.080	
2022-06-09	0.166	

2022-06-10	0.161	
2022-06-11	0.166	
2022-06-12	0.175	
2022-06-13	0.171	
2022-06-14	0.154	
2022-06-15	0.127	
2022-06-16	0.109	
2022-06-17	0.067	
2022-06-18	0.032	
2022-06-19	0.028	
2022-06-20	0.027	
2022-06-21	0.031	
2022-06-22	0.031	
2022-06-23	0.026	
2022-06-24	0.026	
2022-06-25	0.028	
2022-06-26	0.048	
2022-06-27	0.069	
2022-06-28	0.034	
2022-06-29	0.070	
2022-06-30	0.062	
2022-07-01	0.034	
2022-07-02	0.028	
2022-07-03	0.024	
2022-07-04	0.022	
2022-07-05	0.068	
2022-07-06	0.059	
2022-07-07	0.031	
2022-07-08	0.025	
2022-07-09	0.022	
2022-07-10	0.020	
2022-07-11	0.021	
2022-07-12	0.022	
2022-07-13	0.020	
2022-07-14	0.020	
2022-07-15	0.022	
2022-07-16	0.025	
2022-07-17	0.026	
2022-07-18	0.104	
2022-07-19	0.056	
2022-07-20	0.032	
2022-07-21	0.027	
2022-07-22	0.026	
2022-07-23	0.026	
2022-07-24	0.035	
2022-07-25	0.077	
2022-07-26	0.038	
2022-07-27	0.029	
2022-07-28	0.027	
2022-07-29	0.025	
2022-07-30	0.024	
2022-07-31	0.024	
2022-08-01	0.041	
2022-08-02	0.079	
2022-08-03	0.044	
2022-08-04	0.068	
2022-08-05	0.077	
2022-08-06	0.053	
2022-08-07	0.038	
2022-08-08	0.031	
2022-08-09	0.027	
2022-08-10	0.025	
2022-08-11	0.025	
2022-08-12	0.021	
2022-08-13	0.019	
2022-08-14	0.018	
2022-08-15	0.021	
2022-08-16	0.023	
2022-08-17	0.086	
2022-08-18	0.147	
2022-08-19	0.123	
2022-08-20	0.099	
2022-08-21	0.178	
2022-08-22	0.240	
2022-08-23	0.320	
2022-08-24	0.266	
2022-08-25	0.234	
2022-08-26	0.219	
2022-08-27	0.195	
2022-08-28	0.176	
2022-08-29	0.162	

2022-08-30	0.157	
2022-08-31	0.145	
2022-09-01	0.119	
2022-09-02	0.106	
2022-09-03	0.102	
2022-09-04	0.104	
2022-09-05	0.102	
2022-09-06	0.094	
2022-09-07	0.087	
2022-09-08	0.075	
2022-09-09	0.060	
2022-09-10	0.053	
2022-09-11	0.051	
2022-09-12	0.095	
2022-09-13	0.102	
2022-09-14	0.089	
2022-09-15	0.063	
2022-09-16	0.051	
2022-09-17	0.046	
2022-09-18	0.039	
2022-09-19	0.035	
2022-09-20	0.030	
2022-09-21	0.028	
2022-09-22	0.026	
2022-09-23	0.022	
2022-09-24	0.022	
2022-09-25	0.101	
2022-09-26	0.082	
2022-09-27	0.104	
2022-09-28	0.102	
2022-09-29	0.072	
2022-09-30	0.057	
2022-10-01	0.139	
2022-10-02	0.177	
2022-10-03	0.164	
2022-10-04	0.200	
2022-10-05	0.176	
2022-10-06	0.145	
2022-10-07	0.113	
2022-10-08	0.086	
2022-10-09	0.076	
2022-10-10	0.069	
2022-10-11	0.054	
2022-10-12	0.047	
2022-10-13	0.146	
2022-10-14	0.093	
2022-10-15	0.103	
2022-10-16	0.087	
2022-10-17	0.084	
2022-10-18	0.084	
2022-10-19	0.077	
2022-10-20	0.075	
2022-10-21	0.168	
2022-10-22	0.169	
2022-10-23	0.138	
2022-10-24	0.118	
2022-10-25	0.123	
2022-10-26	0.158	
2022-10-27	0.138	
2022-10-28	0.111	
2022-10-29	0.092	
2022-10-30	0.081	
2022-10-31	0.129	
2022-11-01	0.126	
2022-11-02	0.162	
2022-11-03	0.153	
2022-11-04	0.138	
2022-11-05	0.129	
2022-11-06	0.159	
2022-11-07	0.126	
2022-11-08	0.093	
2022-11-09	0.103	
2022-11-10	0.096	
2022-11-11	0.130	
2022-11-12	0.147	
2022-11-13	0.135	
2022-11-14	0.111	
2022-11-15	0.122	
2022-11-16	0.154	
2022-11-17	0.142	
2022-11-18	0.131	

2022-11-19	0.110	
2022-11-20	0.097	
2022-11-21	0.088	
2022-11-22	0.111	
2022-11-23	0.123	
2022-11-24	0.124	
2022-11-25	0.140	
2022-11-26	0.118	
2022-11-27	0.140	
2022-11-28	0.153	
2022-11-29	0.139	
2022-11-30	0.189	
2022-12-01	0.177	
2022-12-02	0.164	
2022-12-03	0.188	
2022-12-04	0.175	
2022-12-05	0.165	
2022-12-06	0.161	
2022-12-07	0.156	
2022-12-08	0.145	
2022-12-09	0.126	
2022-12-10	0.114	
2022-12-11	0.129	
2022-12-12	0.130	
2022-12-13	0.108	
2022-12-14	0.088	
2022-12-15	0.170	
2022-12-16	0.254	
2022-12-17	0.266	
2022-12-18	0.202	
2022-12-19	0.178	
2022-12-20	0.169	
2022-12-21	0.160	
2022-12-22	0.162	
2022-12-23	0.249	
2022-12-24	0.265	
2022-12-25	0.189	
2022-12-26	0.185	
2022-12-27	0.171	
2022-12-28	0.166	
2022-12-29	0.175	
2022-12-30	0.237	
2022-12-31	0.332	

Daily Flow Level Data Trib A In 2 Summary

Date	Water Level (m)	Flow (m^3/s)	Comments
2022-01-01	0.375		
2022-01-02	0.354		
2022-01-03	0.330		
2022-01-04	0.310		
2022-01-05	0.308		
2022-01-06	0.315		
2022-01-07	0.310		
2022-01-08	0.287		
2022-01-09	0.278		
2022-01-10	0.275		
2022-01-11	0.260		
2022-01-12	0.247		
2022-01-13	0.247		
2022-01-14	0.245		
2022-01-15	0.225		
2022-01-16	0.178		
2022-01-17	0.164		
2022-01-18	0.160		
2022-01-19	0.166		
2022-01-20	0.170		
2022-01-21	0.168		
2022-01-22	0.162		
2022-01-23	0.159		
2022-01-24	0.154		
2022-01-25	0.146		
2022-01-26	0.134		
2022-01-27	0.121		
2022-01-28	0.115		
2022-01-29	0.103		
2022-01-30	0.082		
2022-01-31	0.073		
2022-02-01	0.068		
2022-02-02	0.074		
2022-02-03	0.131		
2022-02-04	0.158		
2022-02-05	0.171		
2022-02-06	0.177		
2022-02-07	0.190		
2022-02-08	0.203		
2022-02-09	0.222		
2022-02-10	0.247		
2022-02-11	0.290		
2022-02-12	0.376		
2022-02-13	0.549		
2022-02-14	0.509		
2022-02-15	0.417		
2022-02-16	0.428		
2022-02-17	0.806		
2022-02-18	0.709		
2022-02-19	0.561		
2022-02-20	0.483		
2022-02-21	0.479		
2022-02-22	0.608		
2022-02-23	0.735		
2022-02-24	0.592		
2022-02-25	0.472		
2022-02-26	0.422		
2022-02-27	0.399		
2022-02-28	0.385		
2022-03-01	0.373		
2022-03-02	0.403		
2022-03-03	0.481		
2022-03-04	0.431		
2022-03-05	0.415		
2022-03-06	0.615		
2022-03-07	0.590		
2022-03-08	0.487		
2022-03-09	0.416	0.025	
2022-03-10	0.388	0.014	
2022-03-11	0.365	0.009	
2022-03-12	0.346	0.006	
2022-03-13	0.326	0.004	
2022-03-14	0.323	0.004	
2022-03-15	0.371	0.010	
2022-03-16	0.406	0.027	
2022-03-17	0.468	0.059	
2022-03-18	0.436	0.034	
2022-03-19	0.428	0.030	
2022-03-20	0.430	0.031	
2022-03-21	0.403	0.019	
2022-03-22	0.391	0.014	
2022-03-23	0.394	0.013	
2022-03-24	0.643	0.177	
2022-03-25	0.475	0.070	
2022-03-26	0.416	0.024	
2022-03-27	0.385	0.013	
2022-03-28	0.361	0.008	
2022-03-29	0.349	0.006	
2022-03-30	0.343	0.005	
2022-03-31	0.365	0.009	
2022-04-01	0.367	0.009	
2022-04-02	0.352	0.006	
2022-04-03	0.341	0.005	
2022-04-04	0.336	0.004	
2022-04-05	0.333	0.004	
2022-04-06	0.328	0.004	
2022-04-07	0.354	0.007	

Manuals

Date	Water Level (m)	Flow (m^3/s)	Comment
2021-09-30	0.32	0.001	
2021-10-28	0.44	0.025	
2021-11-25	0.32	0.005	
2021-12-09	0.38	0.015	
2022-03-21	0.43	0.030	
2022-04-22	0.34	0.012	
2022-08-30	0.28	0.001	

2022-04-08	0.347	0.006	
2022-04-09	0.335	0.004	
2022-04-10	0.326	0.004	
2022-04-11	0.320	0.003	
2022-04-12	0.318	0.003	
2022-04-13	0.316	0.003	
2022-04-14	0.315	0.003	
2022-04-15	0.309	0.002	
2022-04-16	0.309	0.002	
2022-04-17	0.307	0.002	
2022-04-18	0.303	0.002	
2022-04-19	0.344	0.006	
2022-04-20	0.358	0.007	
2022-04-21	0.368	0.010	
2022-04-22	0.348	0.006	
2022-04-23	0.319	0.003	
2022-04-24	0.309	0.002	
2022-04-25	0.311	0.003	
2022-04-26	0.337	0.005	
2022-04-27	0.316	0.003	
2022-04-28	0.304	0.002	
2022-04-29	0.297	0.002	
2022-04-30	0.290	0.001	
2022-05-01	0.284	0.001	
2022-05-02	0.299	0.002	
2022-05-03	0.311	0.003	
2022-05-04	0.588	0.110	
2022-05-05	0.457	0.055	
2022-05-06	0.380	0.012	
2022-05-07	0.349	0.006	
2022-05-08	0.331	0.004	
2022-05-09	0.318	0.003	
2022-05-10	0.308	0.002	
2022-05-11	0.303	0.002	
2022-05-12	0.298	0.002	
2022-05-13	0.295	0.002	
2022-05-14	0.296	0.002	
2022-05-15	0.295	0.002	
2022-05-16	0.294	0.002	
2022-05-17	0.296	0.002	
2022-05-18	0.292	0.002	
2022-05-19	0.288	0.001	
2022-05-20	0.286	0.001	
2022-05-21	0.286	0.001	
2022-05-22	0.285	0.001	
2022-05-23	0.286	0.001	
2022-05-24	0.279	0.001	
2022-05-25	0.274	0.001	
2022-05-26	0.272	0.001	
2022-05-27	0.272	0.001	
2022-05-28	0.267	0.001	
2022-05-29	0.262	0.001	
2022-05-30	0.256	0.001	
2022-05-31	0.244	0.000	
2022-06-01	0.234	0.000	
2022-06-02	0.225	0.000	
2022-06-03	0.212	0.000	
2022-06-04	0.198	0.000	
2022-06-05	0.182	0.000	
2022-06-06	0.172	0.000	
2022-06-07	0.191	0.000	
2022-06-08	0.195	0.000	
2022-06-09	0.198	0.000	
2022-06-10	0.189	0.000	
2022-06-11	0.180	0.000	
2022-06-12	0.180	0.000	
2022-06-13	0.221	0.000	
2022-06-14	0.274	0.001	
2022-06-15	0.270	0.001	
2022-06-16	0.266	0.001	
2022-06-17	0.249	0.000	
2022-06-18	0.223	0.000	
2022-06-19	0.201	0.000	
2022-06-20	0.181	0.000	
2022-06-21	0.166	0.000	
2022-06-22	0.140	0.000	
2022-06-23	0.095	0.000	
2022-06-24	0.052	0.000	
2022-06-25	0.016	0.000	
2022-06-26	0.009	0.000	
2022-06-27	0.013	0.000	
2022-06-28	0.003	0.000	
2022-06-29	0.002	0.000	
2022-06-30	0.002	0.000	
2022-07-01	0.001	0.000	
2022-07-02	0.002	0.000	
2022-07-03	0.003	0.000	
2022-07-04	0.003	0.000	
2022-07-05	0.001	0.000	
2022-07-06	0.002	0.000	
2022-07-07	0.002	0.000	
2022-07-08	0.002	0.000	
2022-07-09	0.002	0.000	
2022-07-10	0.003	0.000	
2022-07-11	0.004	0.000	
2022-07-12	0.002	0.000	
2022-07-13	0.002	0.000	
2022-07-14	0.003	0.000	
2022-07-15	0.003	0.000	

2022-07-16	0.004	0.000	
2022-07-17	0.002	0.000	
2022-07-18	0.001	0.000	
2022-07-19	0.004	0.000	
2022-07-20	0.003	0.000	
2022-07-21	0.002	0.000	
2022-07-22	0.004	0.000	
2022-07-23	0.003	0.000	
2022-07-24	0.002	0.000	
2022-07-25	0.002	0.000	
2022-07-26	0.002	0.000	
2022-07-27	0.002	0.000	
2022-07-28	0.002	0.000	
2022-07-29	0.002	0.000	
2022-07-30	0.002	0.000	
2022-07-31	0.003	0.000	
2022-08-01	0.003	0.000	
2022-08-02	0.002	0.000	
2022-08-03	0.003	0.000	
2022-08-04	0.002	0.000	
2022-08-05	0.003	0.000	
2022-08-06	0.004	0.000	
2022-08-07	0.005	0.000	
2022-08-08	0.002	0.000	
2022-08-09	0.001	0.000	
2022-08-10	0.003	0.000	
2022-08-11	0.002	0.000	
2022-08-12	0.003	0.000	
2022-08-13	0.003	0.000	
2022-08-14	0.003	0.000	
2022-08-15	0.003	0.000	
2022-08-16	0.006	0.000	
2022-08-17	0.005	0.000	
2022-08-18	0.004	0.000	
2022-08-19	0.005	0.000	
2022-08-20	0.005	0.000	
2022-08-21	0.004	0.000	
2022-08-22	0.026	0.000	
2022-08-23	0.437	0.040	
2022-08-24	0.399	0.017	
2022-08-25	0.375	0.011	
2022-08-26	0.352	0.007	
2022-08-27	0.334	0.004	
2022-08-28	0.322	0.003	
2022-08-29	0.313	0.003	
2022-08-30	0.304	0.002	
2022-08-31	0.297	0.002	
2022-09-01	0.290	0.001	
2022-09-02	0.288	0.001	
2022-09-03	0.286	0.001	
2022-09-04	0.283	0.001	
2022-09-05	0.279	0.001	
2022-09-06	0.274	0.001	
2022-09-07	0.269	0.001	
2022-09-08	0.266	0.001	
2022-09-09	0.256	0.001	
2022-09-10	0.245	0.000	
2022-09-11	0.237	0.000	
2022-09-12	0.236	0.000	
2022-09-13	0.230	0.000	
2022-09-14	0.219	0.000	
2022-09-15	0.204	0.000	
2022-09-16	0.193	0.000	
2022-09-17	0.184	0.000	
2022-09-18	0.177	0.000	
2022-09-19	0.167	0.000	
2022-09-20	0.150	0.000	
2022-09-21	0.137	0.000	
2022-09-22	0.124	0.000	
2022-09-23	0.104	0.000	
2022-09-24	0.089	0.000	
2022-09-25	0.095	0.000	
2022-09-26	0.094	0.000	
2022-09-27	0.085	0.000	
2022-09-28	0.095	0.000	
2022-09-29	0.080	0.000	
2022-09-30	0.063	0.000	
2022-10-01	0.048	0.000	
2022-10-02	0.030	0.000	
2022-10-03	0.012	0.000	
2022-10-04	0.005	0.000	
2022-10-05	0.003	0.000	
2022-10-06	0.003	0.000	
2022-10-07	0.001	0.000	
2022-10-08	0.004	0.000	
2022-10-09	0.002	0.000	
2022-10-10	0.002	0.000	
2022-10-11	0.003	0.000	
2022-10-12	0.003	0.000	
2022-10-13	0.003	0.000	
2022-10-14	0.003	0.000	
2022-10-15	0.005	0.000	
2022-10-16	0.004	0.000	
2022-10-17	0.004	0.000	
2022-10-18	0.006	0.000	
2022-10-19	0.006	0.000	
2022-10-20	0.007	0.000	
2022-10-21	0.005	0.000	
2022-10-22	0.003	0.000	

2022-10-23	0.003	0.000	
2022-10-24	0.005	0.000	
2022-10-25	0.027	0.000	
2022-10-26	0.138	0.000	
2022-10-27	0.173	0.000	
2022-10-28	0.176	0.000	
2022-10-29	0.221	0.000	
2022-10-30	0.250	0.000	
2022-10-31	0.264	0.001	
2022-11-01	0.273	0.001	
2022-11-02	0.270	0.001	
2022-11-03	0.273	0.001	
2022-11-04	0.279	0.001	
2022-11-05	0.288	0.001	
2022-11-06	0.286	0.001	
2022-11-07	0.278	0.001	
2022-11-08	0.277	0.001	
2022-11-09	0.278	0.001	
2022-11-10	0.277	0.001	
2022-11-11	0.279	0.001	
2022-11-12	0.282	0.001	
2022-11-13	0.282	0.001	
2022-11-14	0.279	0.001	
2022-11-15	0.274	0.001	
2022-11-16	0.276	0.001	
2022-11-17	0.274	0.001	
2022-11-18	0.278	0.001	
2022-11-19	0.276	0.001	
2022-11-20	0.270	0.001	
2022-11-21	0.269	0.001	
2022-11-22	0.268	0.001	
2022-11-23	0.262	0.001	
2022-11-24	0.252	0.001	
2022-11-25	0.256	0.001	
2022-11-26	0.255	0.001	
2022-11-27	0.256	0.001	
2022-11-28	0.262	0.001	
2022-11-29	0.265	0.001	
2022-11-30	0.278	0.001	
2022-12-01	0.282	0.001	
2022-12-02	0.286	0.001	
2022-12-03	0.285	0.001	
2022-12-04	0.285	0.001	
2022-12-05	0.284	0.001	
2022-12-06	0.279	0.001	
2022-12-07	0.275	0.001	
2022-12-08	0.271	0.001	
2022-12-09	0.265	0.001	
2022-12-10	0.262	0.001	
2022-12-11	0.260	0.001	
2022-12-12	0.259	0.001	
2022-12-13	0.256	0.001	
2022-12-14	0.247	0.000	
2022-12-15	0.258	0.001	
2022-12-16	0.322	0.004	
2022-12-17	0.344	0.005	
2022-12-18	0.345	0.006	
2022-12-19	0.321	0.003	
2022-12-20	0.307	0.002	
2022-12-21	0.295	0.002	
2022-12-22	0.288	0.001	
2022-12-23	0.319	0.003	
2022-12-24	0.344	0.006	
2022-12-25	0.314	0.003	
2022-12-26	0.301	0.002	
2022-12-27	0.292	0.002	
2022-12-28	0.290	0.001	
2022-12-29	0.293	0.002	
2022-12-30	0.319	0.003	
2022-12-31	0.450	0.066	

Daily Flow Level Data Trib A Out Summary

Date	Water Level (m)	Flow (m^3/s)	Comments
2022-01-01	0.284		
2022-01-02	0.257		
2022-01-03	0.219		
2022-01-04	0.184		
2022-01-05	0.174		
2022-01-06	0.175		
2022-01-07	0.166		
2022-01-08	0.153		
2022-01-09	0.142		
2022-01-10	0.136		
2022-01-11	0.127		
2022-01-12	0.107		
2022-01-13	0.106		
2022-01-14	0.106		
2022-01-15	0.127		
2022-01-16	0.087		
2022-01-17	0.091		
2022-01-18	0.095		
2022-01-19	0.083		
2022-01-20	0.087		
2022-01-21	0.154		
2022-01-22	0.169		
2022-01-23	0.174		
2022-01-24	0.185		
2022-01-25	0.161		
2022-01-26	0.220		
2022-01-27	0.309		
2022-01-28	0.315		
2022-01-29	0.314		
2022-01-30	0.299		
2022-01-31	0.289		
2022-02-01	0.288		
2022-02-02	0.301		
2022-02-03	0.306		
2022-02-04	0.255		
2022-02-05	0.290		
2022-02-06	0.312		
2022-02-07	0.325		
2022-02-08	0.327		
2022-02-09	0.335		
2022-02-10	0.340		
2022-02-11	0.353		
2022-02-12	0.400		
2022-02-13	0.503		
2022-02-14	0.464		
2022-02-15	0.440		
2022-02-16	0.451		
2022-02-17	1.084		
2022-02-18	0.697		
2022-02-19	0.609		
2022-02-20	0.426		
2022-02-21	0.324		
2022-02-22	0.436		
2022-02-23	0.885		
2022-02-24	0.485		
2022-02-25	0.313		
2022-02-26	0.249		
2022-02-27	0.216		
2022-02-28	0.206		
2022-03-01	0.184		
2022-03-02	0.206		
2022-03-03	0.249		
2022-03-04	0.223		
2022-03-05	0.214		
2022-03-06	0.569		
2022-03-07	0.621		
2022-03-08	0.400		
2022-03-09	0.319	0.050	
2022-03-10	0.284	0.029	
2022-03-11	0.264	0.021	
2022-03-12	0.225	0.011	
2022-03-13	0.200	0.006	
2022-03-14	0.183	0.004	
2022-03-15	0.224	0.010	
2022-03-16	0.279	0.045	
2022-03-17	0.447	0.209	
2022-03-18	0.400	0.132	
2022-03-19	0.372	0.096	
2022-03-20	0.392	0.119	
2022-03-21	0.301	0.038	
2022-03-22	0.273	0.025	
2022-03-23	0.287	0.041	
2022-03-24	0.718	1.761	
2022-03-25	0.465	0.284	
2022-03-26	0.335	0.060	
2022-03-27	0.291	0.032	
2022-03-28	0.258	0.019	
2022-03-29	0.238	0.013	
2022-03-30	0.231	0.012	
2022-03-31	0.243	0.015	
2022-04-01	0.258	0.019	
2022-04-02	0.244	0.015	
2022-04-03	0.228	0.011	
2022-04-04	0.221	0.010	
2022-04-05	0.215	0.009	
2022-04-06	0.211	0.008	
2022-04-07	0.223	0.010	

Manuals

Date	Water Level (m)	Flow (m^3/s)	Comment
2021-09-29	0.24	0.020	
2021-10-28	0.35	0.058	
2021-11-25	0.20	0.004	
2022-03-22	0.30	0.035	
2022-04-22	0.26	0.023	
2022-05-18	0.18	0.003	
2022-08-30	0.20	0.010	

2022-04-08	0.238	0.013	
2022-04-09	0.229	0.011	
2022-04-10	0.217	0.009	
2022-04-11	0.208	0.007	
2022-04-12	0.207	0.007	
2022-04-13	0.207	0.007	
2022-04-14	0.202	0.007	
2022-04-15	0.199	0.006	
2022-04-16	0.199	0.006	
2022-04-17	0.194	0.006	
2022-04-18	0.194	0.005	
2022-04-19	0.213	0.008	
2022-04-20	0.263	0.021	
2022-04-21	0.263	0.021	
2022-04-22	0.270	0.024	
2022-04-23	0.229	0.011	
2022-04-24	0.212	0.008	
2022-04-25	0.202	0.006	
2022-04-26	0.222	0.010	
2022-04-27	0.223	0.010	
2022-04-28	0.209	0.008	
2022-04-29	0.196	0.006	
2022-04-30	0.184	0.004	
2022-05-01	0.175	0.003	
2022-05-02	0.182	0.004	
2022-05-03	0.192	0.005	
2022-05-04	0.612	1.122	
2022-05-05	0.485	0.343	
2022-05-06	0.307	0.042	
2022-05-07	0.249	0.016	
2022-05-08	0.222	0.010	
2022-05-09	0.204	0.007	
2022-05-10	0.192	0.005	
2022-05-11	0.185	0.005	
2022-05-12	0.182	0.004	
2022-05-13	0.177	0.004	
2022-05-14	0.171	0.003	
2022-05-15	0.164	0.003	
2022-05-16	0.159	0.002	
2022-05-17	0.159	0.002	
2022-05-18	0.161	0.003	
2022-05-19	0.180	0.004	
2022-05-20	0.173	0.003	
2022-05-21	0.169	0.003	
2022-05-22	0.165	0.003	
2022-05-23	0.161	0.002	
2022-05-24	0.158	0.002	
2022-05-25	0.151	0.002	
2022-05-26	0.147	0.002	
2022-05-27	0.143	0.001	
2022-05-28	0.133	0.001	
2022-05-29	0.114	0.001	
2022-05-30	0.105	0.000	
2022-05-31	0.102	0.000	
2022-06-01	0.100	0.000	
2022-06-02	0.097	0.000	
2022-06-03	0.097	0.000	
2022-06-04	0.097	0.000	
2022-06-05	0.101	0.000	
2022-06-06	0.101	0.000	
2022-06-07	0.112	0.001	
2022-06-08	0.105	0.000	
2022-06-09	0.111	0.001	
2022-06-10	0.102	0.000	
2022-06-11	0.103	0.000	
2022-06-12	0.107	0.000	
2022-06-13	0.102	0.000	
2022-06-14	0.103	0.000	
2022-06-15	0.102	0.000	
2022-06-16	0.106	0.000	
2022-06-17	0.112	0.001	
2022-06-18	0.127	0.001	
2022-06-19	0.148	0.002	
2022-06-20	0.161	0.003	
2022-06-21	0.177	0.004	
2022-06-22	0.184	0.005	
2022-06-23	0.156	0.003	
2022-06-24	0.123	0.001	
2022-06-25	0.120	0.001	
2022-06-26	0.109	0.000	
2022-06-27	0.111	0.001	
2022-06-28	0.113	0.001	
2022-06-29	0.104	0.000	
2022-06-30	0.111	0.001	
2022-07-01	0.107	0.000	
2022-07-02	0.113	0.001	
2022-07-03	0.110	0.001	
2022-07-04	0.102	0.000	
2022-07-05	0.095	0.000	
2022-07-06	0.095	0.000	
2022-07-07	0.100	0.000	
2022-07-08	0.099	0.000	
2022-07-09	0.095	0.000	
2022-07-10	0.092	0.000	
2022-07-11	0.087	0.000	
2022-07-12	0.087	0.000	
2022-07-13	0.085	0.000	
2022-07-14	0.082	0.000	
2022-07-15	0.079	0.000	

2022-07-16	0.076	0.000	
2022-07-17	0.070	0.000	
2022-07-18	0.077	0.000	
2022-07-19	0.082	0.000	
2022-07-20	0.081	0.000	
2022-07-21	0.082	0.000	
2022-07-22	0.083	0.000	
2022-07-23	0.079	0.000	
2022-07-24	0.072	0.000	
2022-07-25	0.069	0.000	
2022-07-26	0.066	0.000	
2022-07-27	0.065	0.000	
2022-07-28	0.065	0.000	
2022-07-29	0.069	0.000	
2022-07-30	0.078	0.000	
2022-07-31	0.079	0.000	
2022-08-01	0.078	0.000	
2022-08-02	0.075	0.000	
2022-08-03	0.075	0.000	
2022-08-04	0.075	0.000	
2022-08-05	0.073	0.000	
2022-08-06	0.074	0.000	
2022-08-07	0.075	0.000	
2022-08-08	0.071	0.000	
2022-08-09	0.068	0.000	
2022-08-10	0.071	0.000	
2022-08-11	0.073	0.000	
2022-08-12	0.074	0.000	
2022-08-13	0.074	0.000	
2022-08-14	0.074	0.000	
2022-08-15	0.074	0.000	
2022-08-16	0.074	0.000	
2022-08-17	0.095	0.001	
2022-08-18	0.120	0.001	
2022-08-19	0.086	0.000	
2022-08-20	0.078	0.000	
2022-08-21	0.113	0.001	
2022-08-22	0.168	0.007	
2022-08-23	0.300	0.041	
2022-08-24	0.293	0.033	
2022-08-25	0.252	0.017	
2022-08-26	0.238	0.013	
2022-08-27	0.230	0.011	
2022-08-28	0.189	0.006	
2022-08-29	0.158	0.004	
2022-08-30	0.148	0.003	
2022-08-31	0.116	0.001	
2022-09-01	0.064	0.000	
2022-09-02	0.058	0.000	
2022-09-03	0.058	0.000	
2022-09-04	0.057	0.000	
2022-09-05	0.058	0.000	
2022-09-06	0.109	0.001	
2022-09-07	0.123	0.001	
2022-09-08	0.069	0.000	
2022-09-09	0.058	0.000	
2022-09-10	0.055	0.000	
2022-09-11	0.052	0.000	
2022-09-12	0.051	0.000	
2022-09-13	0.049	0.000	
2022-09-14	0.049	0.000	
2022-09-15	0.045	0.000	
2022-09-16	0.048	0.000	
2022-09-17	0.049	0.000	
2022-09-18	0.051	0.000	
2022-09-19	0.051	0.000	
2022-09-20	0.048	0.000	
2022-09-21	0.049	0.000	
2022-09-22	0.047	0.000	
2022-09-23	0.045	0.000	
2022-09-24	0.046	0.000	
2022-09-25	0.050	0.000	
2022-09-26	0.050	0.000	
2022-09-27	0.050	0.000	
2022-09-28	0.050	0.000	
2022-09-29	0.050	0.000	
2022-09-30	0.049	0.000	
2022-10-01	0.050	0.000	
2022-10-02	0.048	0.000	
2022-10-03	0.048	0.000	
2022-10-04	0.051	0.000	
2022-10-05	0.053	0.000	
2022-10-06	0.055	0.000	
2022-10-07	0.052	0.000	
2022-10-08	0.052	0.000	
2022-10-09	0.057	0.000	
2022-10-10	0.056	0.000	
2022-10-11	0.058	0.000	
2022-10-12	0.060	0.000	
2022-10-13	0.054	0.000	
2022-10-14	0.052	0.000	
2022-10-15	0.052	0.000	
2022-10-16	0.054	0.000	
2022-10-17	0.052	0.000	
2022-10-18	0.052	0.000	
2022-10-19	0.052	0.000	
2022-10-20	0.051	0.000	
2022-10-21	0.057	0.000	
2022-10-22	0.057	0.000	

2022-10-23	0.055	0.000	
2022-10-24	0.054	0.000	
2022-10-25	0.055	0.000	
2022-10-26	0.054	0.000	
2022-10-27	0.053	0.000	
2022-10-28	0.061	0.000	
2022-10-29	0.069	0.000	
2022-10-30	0.064	0.000	
2022-10-31	0.059	0.000	
2022-11-01	0.060	0.000	
2022-11-02	0.059	0.000	
2022-11-03	0.058	0.000	
2022-11-04	0.061	0.000	
2022-11-05	0.064	0.000	
2022-11-06	0.060	0.000	
2022-11-07	0.057	0.000	
2022-11-08	0.058	0.000	
2022-11-09	0.061	0.000	
2022-11-10	0.061	0.000	
2022-11-11	0.065	0.000	
2022-11-12	0.064		
2022-11-13	0.053		
2022-11-14	0.052		
2022-11-15	0.051		
2022-11-16	0.053		
2022-11-17	0.058		
2022-11-18	0.056		
2022-11-19	0.071		
2022-11-20	0.113		
2022-11-21	0.069		
2022-11-22	0.070		
2022-11-23	0.094		
2022-11-24	0.085		
2022-11-25	0.056		
2022-11-26	0.059		
2022-11-27	0.055		
2022-11-28	0.055		
2022-11-29	0.055		
2022-11-30	0.082		
2022-12-01	0.063		
2022-12-02	0.103		
2022-12-03	0.152		
2022-12-04	0.148		
2022-12-05	0.152		
2022-12-06	0.151		
2022-12-07	0.146		
2022-12-08	0.139		
2022-12-09	0.131		
2022-12-10	0.127		
2022-12-11	0.125		
2022-12-12	0.121		
2022-12-13	0.114		
2022-12-14	0.095		
2022-12-15	0.123		
2022-12-16	0.194		
2022-12-17	0.241		
2022-12-18	0.225		
2022-12-19	0.203		
2022-12-20	0.184		
2022-12-21	0.172		
2022-12-22	0.167		
2022-12-23	0.212		
2022-12-24	0.199		
2022-12-25	0.184		
2022-12-26	0.175		
2022-12-27	0.162		
2022-12-28	0.160		
2022-12-29	0.171		
2022-12-30	0.210		
2022-12-31	0.418		

Appendix D Monthly Memorandums

Stantec

Memo

To:	France Moreau CN, Montreal, QC	From:	Andrew Sinclair/Sheldon Smith Stantec, Markham
Project/File:	160960844	Date:	June 3, 2022

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – April 2022 Table 4-2 Results

As part of the reporting requirements for the CN Milton Logistics Hub Surface Water Quality and Quantity Follow-up Program (SWQQ FUP), monthly Table 4-2 parameter monitoring results are to be reported for the first six months of construction to Environment and Climate Change Canada (ECCC), Fisheries and Oceans Canada (DFO) and Conservation Halton (CH). Construction of the CN Milton Logistics Hub began in late January 2022 with monitoring events in late January, February and March. The fourth surface water quality monitoring event occurred on April 21, 2022. Water samples were submitted to Bureau Veritas Laboratories in Mississauga, ON for analysis.

Of the seven monitoring stations in the SWQQ FUP, only five were active at the time of the monitoring event as Stormwater Management Ponds (SWMPs) 1 and 2 were not constructed (see attached Figure 1). Water samples were collected using an ISCO autosampler over a 2.5 to 3 hour collection period with a 15 minute sampling frequency and *in-situ* water quality measurements were taken at Trib-Ain, Trib-Ain2, Trib-Aout, IC-IN, and IC-OUT, and a duplicate sample at Trib-Ain as per the SWQQ FUP. *In-situ* water quality measurements were conducted using a calibrated YSI ProDSS multi-parameter digital water quality meter. All stations were sampled on March 24, 2022.

The attached Table 1 presents the Table 4-2 water quality results for the April 21, 2022 monitoring event with comparison to applicable Canadian Council of the Ministers of Environment (CCME) Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CWQG-FAL). *In-situ* pH and temperature results have been added to Table 4-2 results to calculate CWQG-FAL values for total ammonia and were used by Bureau Veritas to calculate un-ionized ammonia concentrations for each monitoring station. For the April 2022 monitoring event, Bureau Veritas revised the total coliform and *E.coli* analysis to conduct three different dilutions (100:1, 10:1, 1:1), instead of the standard 1:1 (no dilution method).

The attached Table 1 results at the five monitoring stations were below the short-term and long-term CCME CWQG-FAL guideline values for the nitrogen compounds and applicable pesticides and herbicides analysed. None of the pesticide and herbicide parameter results were above the reportable detection limits at the five sites.

The nitrate and nitrite results at IC-IN were similar or higher in value than at IC-OUT with both nitrite results being below the reportable detection limit. There was a slight increase in total ammonia concentration between IC-IN and IC-OUT. The *E.coli* and total coliform results at IC-IN and IC-OUT were quantified for the April event with IC-IN have an order of magnitude higher total coliform concentration. The *E.coli* results were slightly higher at IC-OUT in comparison to IC-IN.

Reference: DRAFT CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program - April 2022 Table 4-2 Results

The nitrate and nitrite results at Trib-Ain and Trib-Ain2 were similar in value to Trib-Aout with most being below the reportable detection limit. Total ammonia (as N) was highest at Trib-Ain and exceeded the CCME CWQG-FAL long-term guideline values, including the unionized ammonia guideline. The total ammonia concentration was an order of magnitude lower Trib-Ain2 and Trib-Aout. The nitrite concentration at the Tributary A and Indian Creek sites were below the reportable detection limit. Nitrate concentrations were higher at the Indian Creek sites than at Trib-Aout. Total ammonia concentrations were similar at Trib-Aout and Indian Creek sites.

As was observed at the Indian Creek sites, *E.coli* and total coliform results were quantifiable at the Tributary A sites for the April monitoring event. Trib-Ain and Trib-Ain2 had total coliform concentrations an order of magnitude higher than Trib-Aout, while Trib-Ain2 had the highest *E.coli* concentration and Trib-Aout was the lowest value of the Tributary A sites. IC-Out had higher total coliform and *E.coli* concentrations than Trib-Aout.

STANTEC CONSULTING LTD.

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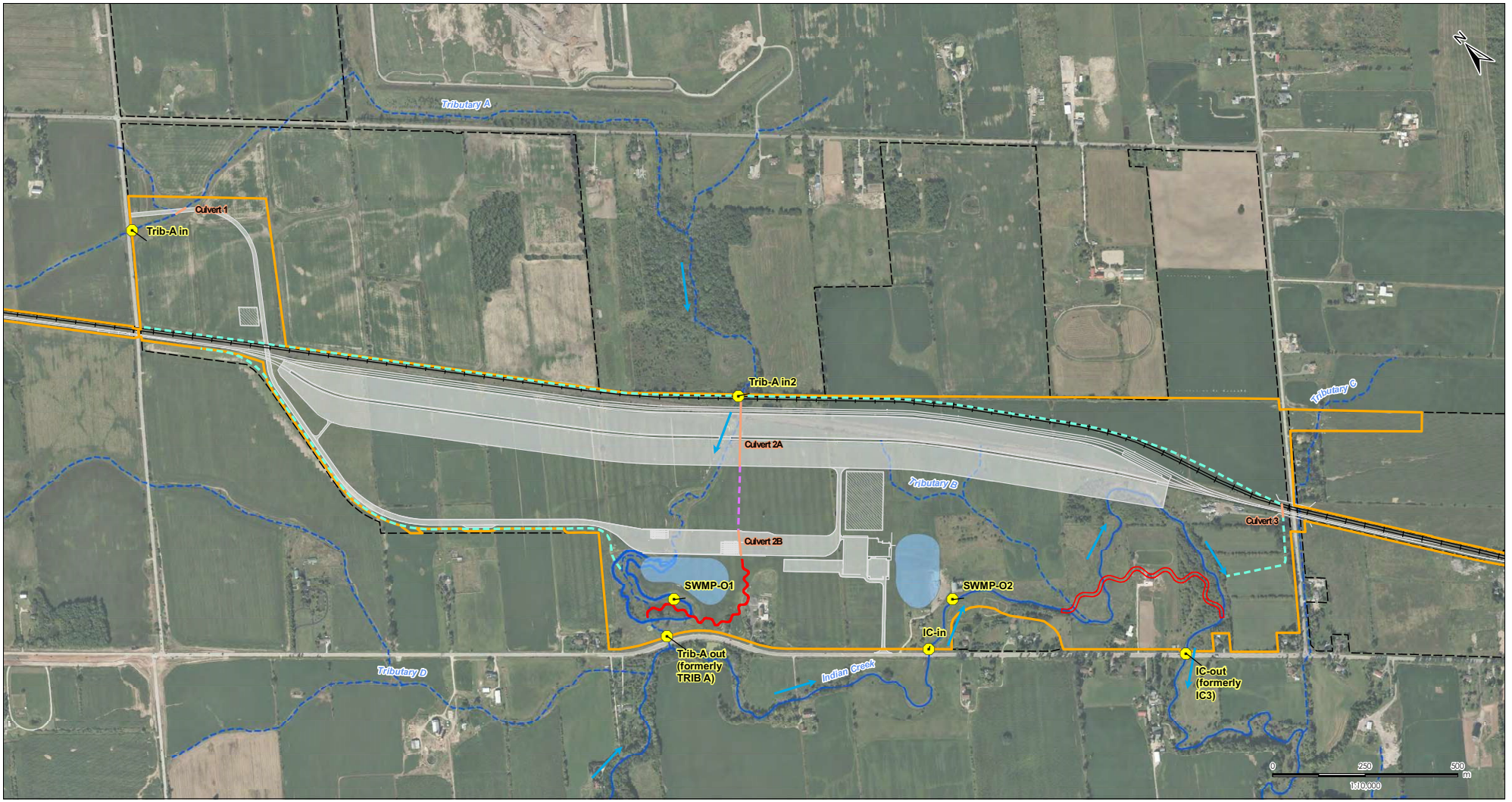
Attachments: Figure 1 - Construction and Operation Surface Water Monitoring Stations
Table 1 - CN Milton SW FUP Table 4-2 April 2022 Monitoring Results

References

Stantec Consulting Ltd. 2022. *CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program*. 160960844. Prepared for Canadian National Railway Company.



V:\01609\active\160960844\drawing\MXD\Surface_Water\Report_Figures\SurfaceWaterManagementPlan\160960844_Fig01_SurfaceWaterMonitoringLocations_Con_and_Op_20200423.mxd
Revised: 2020-05-06 By: dhanley

May 2020
160960844

Stantec

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2015. Site layout: July 10, 2015.
3. Orthoimagery © First Base Solutions, 2015. Imagery taken in 2014.

Legend

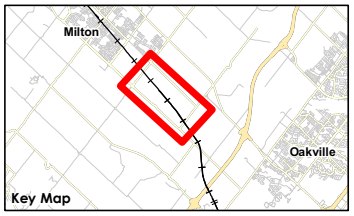
- Surface Water Monitoring Station
- SWM Pond
- Creek Realignment

Project Components

- Project Development Area
- Existing Single Track Mainline
- Existing Double Track Mainline
- Single Track - Mainline
- Double Track - Mainline
- Project Component
- CN-Owned Property

Existing Features

- Permanent Watercourse
- Intermittent Watercourse
- Waterbody
- Flow Direction
- Proposed Culvert
- Drainage Ditch
- Tributary A Regional Diversion Ditch



Client/Project
Canadian National Railway
Milton Logistics Hub
Technical Data Report - Channel Realignment (Appendix E.2)

Figure No.
1

Title
Construction and Operation Surface Water Monitoring Stations

TABLE 1 - CN Milton SW FUP Table 4-2 April 2022 Monitoring Results

Parameters	Units	Detection Limit (DL)	CWQG-FAL Guidelines		Monitoring Station Results							
					TRIB-AIN	TRIB-AIN2	TRIB-AOUT	Dup-1 (TRIB-AOUT)	IC-IN	IC-OUT	SWMP-01	SWMP-02
					21-Apr-22	21-Apr-22	21-Apr-22	21-Apr-22	21-Apr-22	21-Apr-22	Not Constructed	
			Short Term	Long Term	664	665	666		667	668		
Field pH	-	-	-	-	8.94	9.00	8.47	8.47	9.03	8.28		
Field temperature	°C	-	-	-	11.3	12.4	10.4	10.4	9.2	9.9		
Ammonia (total) (as N)	ug/L	10	-	Narrative [a]	260	50	70	60	40	60		
Ammonia (unionized, calculated)	ug/L	-	-	19	48	10	4.8	3.8	7.9	2.3		
Nitrate (as N)	ug/L	100	124,000	3,000	140	<100	<100	<100	710	560		
Nitrite (as N)	ug/L	10	-	60	<10	<10	<10	<10	<10	<10		
Coliform, total	CFU/100mL	0	-	-	1100	2100	380	740	2100	450		
E. Coli	CFU/100mL	0	-	-	84	260	47	54	78	120		
Pesticides												
Organophosphate Package												
Metolachlor	ug/L	5	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0		
Fenchlorphos (Ronnel)	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Mevinphos	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Trifluralin	ug/L	0.05	ND	0.2	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Phosmet	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Dichlorvos	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Dimethoate	ug/L	2	ND	6.2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Fonofos	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Triallate	ug/L	0.05	ND	0.24	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Demeton-S	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Atrazine	ug/L	1	ND	1.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Diazinon	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Malathion	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Parathion Ethyl	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Parathion Methyl	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Simazine	ug/L	2	ND	10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Aldicarb	ug/L	0.1	ND	1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
Bendiocarb	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Carbaryl	ug/L	0.1	3.3	0.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
Carbofuran	ug/L	0.1	ND	1.8	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
Cyanazine (Bladex)	ug/L	0.1	ND	2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
Prometryne	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Chloropryifos (Dursban)	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Terbufos	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Phorate	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Guthion (Azinophos-methyl)	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Ethion	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Fenthion	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Herbicides												
Dicamba	ug/L	0.5	ND	10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
Picloram	ug/L	0.5	ND	29	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
MCPB	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4-D(BEE)	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
MCPP	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
MCPA	ug/L	0.5	ND	2.6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4-DP (Dichloroprop)	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4-D	ug/L	0.5	ND	4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4,5-TP (Silvex)	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4,5-T	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4-DB	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		

N - nitrogen; ND – no data; NDOGT - No data due to overgrowth. Total coliforms and/or E.coli detected

[a] - Guideline for total ammonia is temperature and pH dependent. Measurements of total ammonia in the aquatic environment are often expressed as mg/L total ammonia-N. The present guideline values (mg/L NH_3) can be converted to mg/L total ammonia-N by multiplying the corresponding guideline value by 0.8224. Consult the CWQG-FAL factsheet for more details. TRIB-AIN - 113 µg/L; TRIB-AIN2 - 87 µg/L; TRIB-AOUT - 309 µg/L; Dup-1 (TRIB-AOUT) - 309 µg/L; IC-IN - 104 µg/L; IC-OUT - 539 µg/L

Stantec

Memo

To:	France Moreau CN, Montreal, QC	From:	Andrew Sinclair/Sheldon Smith Stantec, Markham
Project/File:	160960844	Date:	October 27, 2022

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – August 2022 Table 4-2 Results

As part of the reporting requirements for the CN Milton Logistics Hub Surface Water Quality and Quantity Follow-up Program (SWQQ FUP), Table 4-2 parameter monitoring results are to be reported monthly for the first six months of construction to Environment and Climate Change Canada (ECCC), Fisheries and Oceans Canada (DFO) and Conservation Halton (CH). Construction of the CN Milton Logistics Hub began in late January 2022 with monitoring events in late January, February, March, April, May, June and July. The eighth surface water quality monitoring event occurred on August 24 and 25, 2022. Water samples were submitted to Bureau Veritas Laboratories in Mississauga, ON and ALS Global in Burlington, ON for analysis.

During the week of July 25, 2022, a temporary cofferdam was installed adjacent to Tributary A where the planned channel realignment will connect with the existing channel in the agricultural pond. The main site soil disturbance activities included grading, soil excavation and stripping for cut and fill for track subgrade, and the Indian Creek realignment area. Excavation activities were typically at soil depths greater than 30 cm below grade. Erosion and sediment control (ESC) measures were installed where required adjacent to surface water features.

Of the seven monitoring stations in the SWQQ FUP, only five were active at the time of the monitoring event as Stormwater Management Ponds (SWMPs) 1 and 2 were not yet constructed (see attached Figure 1). Water samples were collected using an ISCO autosampler over a 2.5 to 3 hour collection period with a 15 minute sampling frequency and *in situ* water quality measurements were taken at Trib-Ain, Trib-Ain2, Trib-Aout, IC-IN, IC-OUT, and a duplicate sample at IC-IN as per the SWQQ FUP. *In situ* water quality measurements were conducted using a calibrated YSI ProDSS multi-parameter digital water quality meter. The IC-IN and IC-OUT stations were sampled on August 24, 2022. The Trib-Ain, Trib-Ain2, and Trib-Aout stations were sampled on August 25, 2022.

The attached Table 1 presents the Table 4-2 water quality results for the August 24 and 25, 2022 monitoring event with comparison to applicable Canadian Council of the Ministers of Environment (CCME) Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CWQG-FAL). *In situ* pH and temperature results have been added to Table 4-2 results to calculate CWQG-FAL values for total ammonia and were used by Bureau Veritas to calculate un-ionized ammonia concentrations for each monitoring station. Bureau Veritas conducted the total coliform and *E.coli* analysis using three different dilutions (100:1, 10:1, 1:1), instead of the standard 1:1 (no dilution method). Water samples were collected and submitted to ALS Global in Burlington, ON for low-level analysis for the pesticide chlorpyrifos.

The attached Table 1 results at the five monitoring stations were below the short-term and long-term CCME CWQG-FAL guideline values for nitrate and nitrite and applicable pesticides and herbicides analysed. Of

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – August 2022 Table 4-2 Results

the pesticide and herbicide parameter results at the five sites only chlorpyrifos observed concentrations above reportable detection limits. A range of detection limits (0.000012 – 0.000028 µg/L) were reported, based on the measured background noise for each sample. The maximum laboratory detection limit (0.000028 µg/L) for chlorpyrifos is two orders of magnitude lower than the long-term CCME CWQG-FAL value. ALS Global has communicated that the low-level analysis typically observes concentrations at or near the chlorpyrifos reportable detection limit in lab blanks and samples. The observed chlorpyrifos concentrations at Trib-Ain, Trib-Aout, and IC-OUT were marginally higher than their respective detection limits.

The nitrate results at IC-IN were comparable to IC-OUT, and nitrite concentrations were below the reportable detection limit at both sites. The total ammonia and calculated unionized ammonia concentrations were an order of magnitude higher at IC-IN than IC-OUT. The total ammonia concentration of the IC-IN duplicate sample result was lower than the IC-IN result. The total ammonia and calculated unionized ammonia concentrations exceeded CWQG-FAL for IC-IN and the duplicate IC-IN.

The total coliform results at IC-OUT were comparable to IC-IN and its duplicate sample. The *E.coli* result at IC-OUT was slightly higher than at IC-IN and the IC-IN duplicate, but within the same concentration range. Comparison of the duplicate and IC-IN total coliform and *E.coli* results indicate fluctuation in bacteria populations within the watercourse at the same location.

The nitrate and nitrite results at Trib-Ain, Trib-Ain2 and Trib-Aout were below the reportable detection limits. Total ammonia (as N) was highest at Trib-Ain2 and lowest at Trib-Aout for the Tributary A sites.

The total coliform results were similar in value at Trib-Ain, Trib-Ain2, and Trib-Aout which were lower than the Indian Creek sites. The *E.coli* result at Trib-Ain was similar in value to Trib-Ain2, which were higher than Trib-Aout. Trib-Aout had the lowest *E.coli* concentration of all five monitoring sites during the monitoring event.

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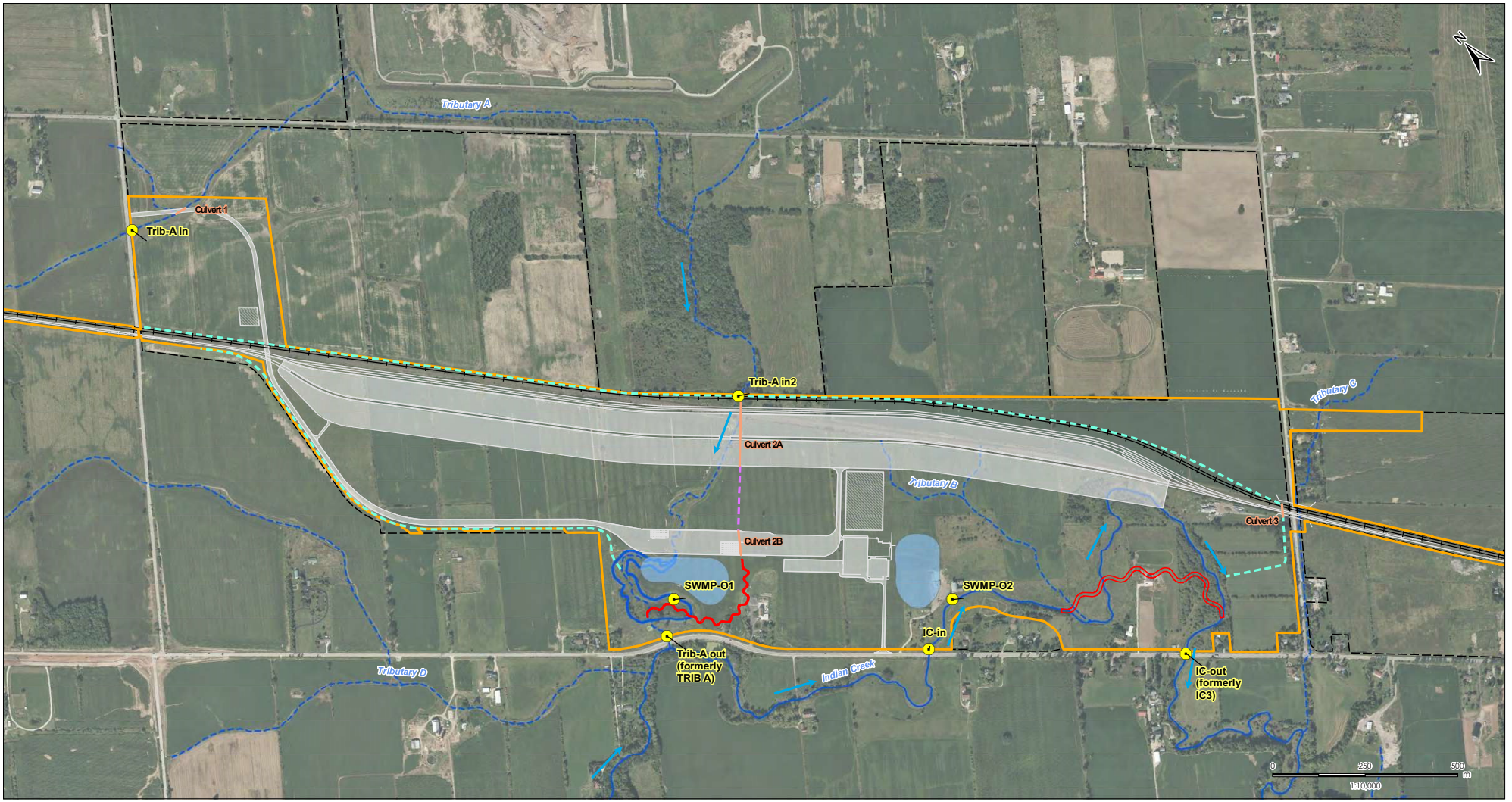
Attachments:

Figure 1 - Construction and Operation Surface Water Monitoring Stations
Table 1 - CN Milton SW FUP Table 4-2 August 2022 Monitoring Results

References

Stantec Consulting Ltd. 2022. *CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program*. 160960844. Prepared for Canadian National Railway Company.



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Revised: 2020-05-06 By: dharvey

May 2020
160960844

Stantec

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2015. Site layout: July 10, 2015.
3. Orthoimagery © First Base Solutions, 2015. Imagery taken in 2014.

Legend

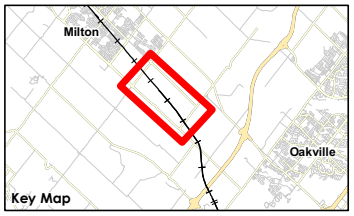
- Surface Water Monitoring Station
- SWM Pond
- Creek Realignment

Project Components

- Project Development Area
- Existing Single Track Mainline
- Existing Double Track Mainline
- Single Track - Mainline
- Double Track - Mainline
- Project Component
- CN-Owned Property

Existing Features

- Permanent Watercourse
- Intermittent Watercourse
- Waterbody
- Flow Direction
- Proposed Culvert
- Drainage Ditch
- Tributary A Regional Diversion Ditch



Client/Project
Canadian National Railway
Milton Logistics Hub
Technical Data Report - Channel Realignment (Appendix E.2)

Figure No.
2

Title
Construction and Operation Surface Water Monitoring Stations

TABLE 1 - CN Milton SW FUP Table 4-2 August 2022 Monitoring Results

Parameters	Units	Detection Limit (DL)	CWQG-FAL Guidelines		Monitoring Station Results							
					TRIB-AIN	TRIB-AIN2	TRIB-AOUT	IC-IN	DUPLICATE (IC-IN)	IC-OUT	SWMP-01	SWMP-02
					25-Aug-22	25-Aug-22	25-Aug-22	24-Aug-22	24-Aug-22	24-Aug-22	Not Constructed	
			Short Term	Long Term	854	855	856	857		858		
Field pH	-	-	-	-	7.21	7.06	7.22	7.71	7.71	7.83		
Field temperature	°C	-	-	-	21.3	21.9	23.8	23.5	23.5	24.2		
Ammonia (total) (as N)	µg/L	10	-	Narrative [a]	390	480	100	2,800	1,500	200		
Ammonia (unionized, calculated)	µg/L	-	-	19	3.4	3.0	1.1	88	46	8.7		
Nitrate (as N)	µg/L	100	124,000	3,000	<100	<100	<100	120	120	130		
Nitrite (as N)	µg/L	10	-	60	<10	<10	<10	<10	<10	<10		
Coliform, total	CFU/100mL	0	-	-	20000	16000	20000	5700	8300	6300		
E. Coli	CFU/100mL	0	-	-	200	200	100	280	330	360		
Pesticides												
Organophosphate Package												
Metolachlor	µg/L	5	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0		
Fenchlorphos (Ronnel)	µg/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Mevinphos	µg/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Trifluralin	µg/L	0.05	ND	0.2	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Phosmet	µg/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Dichlorvos	µg/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Dimethoate	µg/L	2	ND	6.2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Fonofos	µg/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Triallate	µg/L	0.05	ND	0.24	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Demeton-S	µg/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Atrazine	µg/L	1	ND	1.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Diazinon	µg/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Malathion	µg/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Parathion Ethyl	µg/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Parathion Methyl	µg/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Simazine	µg/L	2	ND	10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Aldicarb	µg/L	0.1	ND	1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
Bendiocarb	µg/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Carbaryl	µg/L	0.1	3.3	0.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
Carbofuran	µg/L	0.1	ND	1.8	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
Cyanazine (Bladex)	µg/L	0.1	ND	2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
Prometryne	µg/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Chlorpyrifos (Dursban)	µg/L	0.000012 - 0.000028[b]	0.02	0.002	0.0000151	<0.000012	0.0000148	<0.000028	<0.000014	0.0000161		
Terbufos	µg/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Phorate	µg/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Guthion (Azinophos-methyl)	µg/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Ethion	µg/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Fenthion	µg/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Herbicides												
Dicamba	µg/L	0.5	ND	10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
Picloram	µg/L	0.5	ND	29	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
MCPB	µg/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4-D(BEE)	µg/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
MCPP	µg/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
MCPA	µg/L	0.5	ND	2.6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4-DP (Dichloroprop)	µg/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4-D	µg/L	0.5	ND	4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4,5-TP (Silvex)	µg/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4,5-T	µg/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4-DB	µg/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		

N - nitrogen; ND – no data; NDOGT - No data due to overgrowth. Total coliforms and/or E.coli detected

[a] - Guideline for total ammonia is temperature and pH dependent. Measurements of total ammonia in the aquatic environment are often expressed as mg/L total ammonia-N. The present guideline values (mg/L NH3) can be converted to mg/L total ammonia-N by multiplying the corresponding guideline value by 0.8224. Consult the CWQG-FAL factsheet for more details. TRIB-AIN - 2,610 µg/L; TRIB-AIN2 - 3,224 µg/L; TRIB-AOUT - 2,143 µg/L; IC-IN/DUPLICATE - 718 µg/L; IC-OUT - 527 µg/L

[b] - The varying detection limits are based on the measured background noise for this target in each sample.

Stantec

Memo

To:	France Moreau CN, Montreal, QC	From:	Andrew Sinclair/Sheldon Smith Stantec, Markham
Project/File:	160960844	Date:	June 3, 2022

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program - February 2022 Table 4-2 Results

As part of the reporting requirements for the CN Milton Logistics Hub Surface Water Quality and Quantity Follow-up Program (SWQQ FUP), monthly Table 4-2 parameter monitoring results are to be reported for the first six months of construction to Environment and Climate Change Canada (ECCC), Fisheries and Oceans Canada (DFO) and Conservation Halton (CH). Construction of the CN Milton Logistics Hub began in late January 2022 and the first surface water quality monitoring event occurred on February 23 and 24, 2022. Water samples were submitted to Bureau Veritas Laboratories in Mississauga, ON for analysis.

Of the seven monitoring stations in the SWQQ FUP, only five were active at the time of the monitoring event as Stormwater Management Ponds (SWMPs) 1 and 2 were not constructed (see attached Figure 1). Water samples were collected using an ISCO autosampler over a 2.5 to 3 hour collection period with a 15 minute sampling frequency and *in-situ* water quality measurements were taken at Trib-Ain, Trib-Ain2, Trib-Aout, IC-IN, and IC-OUT, and a duplicate sample at IC-OUT as per the SWQQ FUP. Water samples were submitted to Bureau Veritas in Mississauga, ON for analysis, and *in-situ* water quality measurements were conducted using a calibrated YSI ProDSS multi-parameter digital water quality meter. Trib-Ain and Trib-Ain2 were sampled on February 23, 2022 and Trib-Aout, IC-IN and IC-OUT were sampled on February 24, 2022.

The attached Table 1 presents the Table 4-2 water quality results for the February 23 and 24, 2022 monitoring event with comparison to applicable Canadian Council of the Ministers of Environment (CCME) Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CWQG-FAL). *In-situ* pH and temperature results have been added to Table 4-2 results to calculate CWQG-FAL values for total ammonia and were used by Bureau Veritas to calculate un-ionized ammonia concentrations for each monitoring station.

The attached Table 1 results at the five monitoring stations were below the short-term and long-term CCME CWQG-FAL guideline values for the nitrogen compounds and applicable pesticides and herbicides analysed. None of the pesticide and herbicide parameter results were above the reportable detection limits at the five sites.

The nitrogen compound results at IC-IN were similar or higher in value than at IC-OUT. The *E.coli* and total coliform result at IC-IN and IC-OUT were overgrown with target indicator bacteria that made counting by the analyst difficult to determine a quantitative amount.

Reference: DRAFT CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program - February 2022 Table 4-2 Results

The nitrogen compound results at Trib-Ain and Trib-Ain2 were similar in value to Trib-Aout. Total ammonia and nitrite were slightly elevated above the inlet site measurements at the outlet. Nitrite at Trib-Aout was slightly elevated above the Indian Creek site results , while nitrate and total ammonia were lower. As was observed at the Indian Creek sites, *E.coli* and total coliform results were overgrown with target indicator bacteria that made counting by the analyst difficult to determine a quantitative amount.

As this was the first monthly sample event that collected water at the five Tributary A and Indian Creek monitoring sites for bacteria results analysis, it is recommended that if the March sample event does not obtain quantitative counts for E.coli and total coliform that other analysis options be explored with Bureau Veritas to obtain quantitative counts for future sampling events.

STANTEC CONSULTING LTD.

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Attachments: Figure 1 - Construction and Operation Surface Water Monitoring Stations
Table 1 - CN Milton SW FUP Table 4-2 February 2022 Monitoring Results

References

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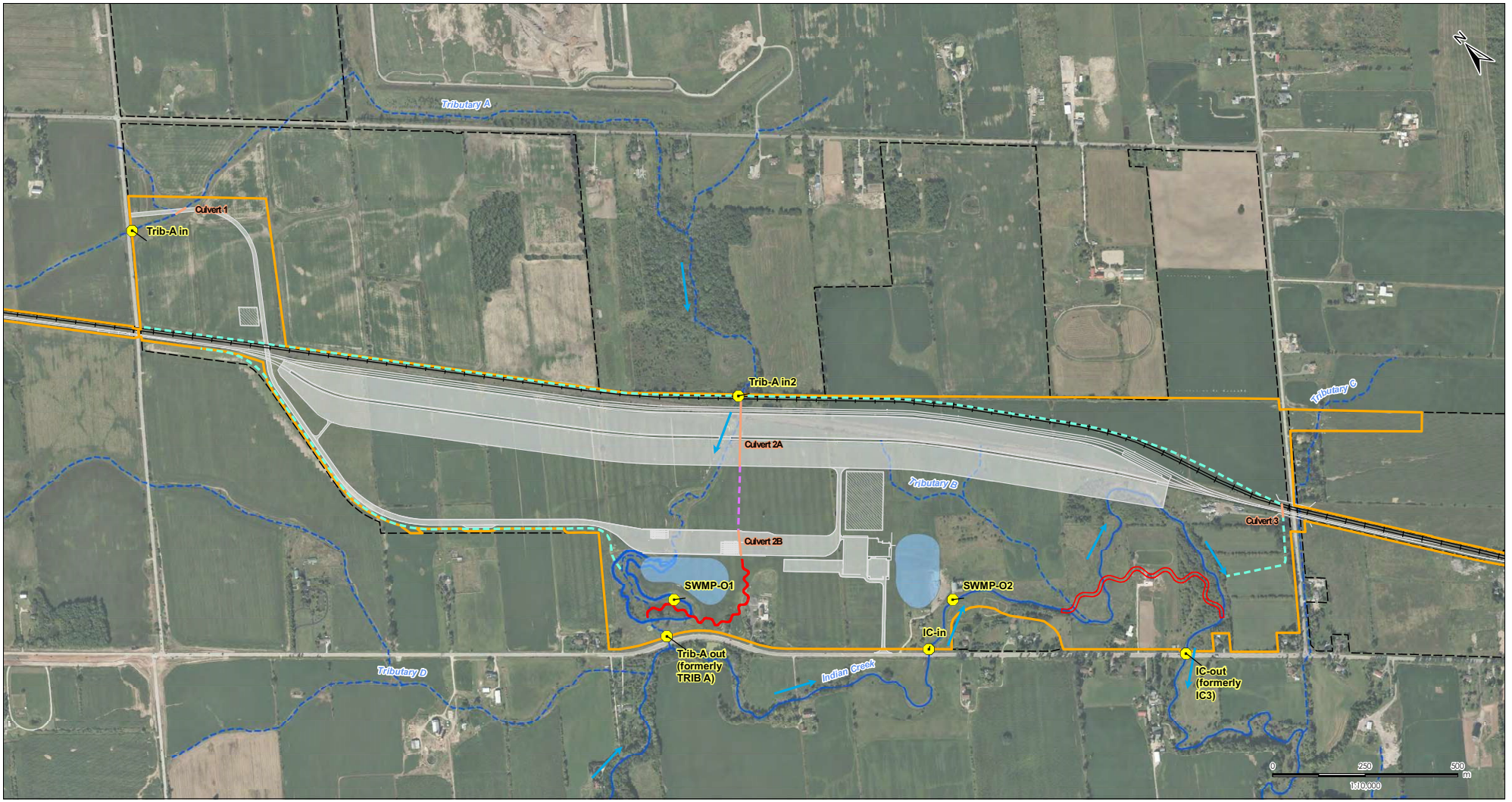

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Revised: 2020-05-06 By: dhanley

May 2020
160960844

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Notes

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3. Orthoimagery © First Base Solutions, 2015. Imagery taken in 2014.

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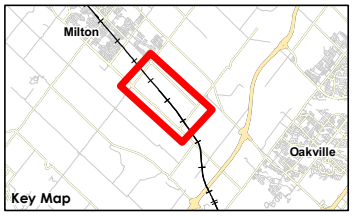
- Drainage Ditch
- Tributary A Regional Diversion Ditch



Client/Project
Canadian National Railway
Milton Logistics Hub
Technical Data Report - Channel Realignment (Appendix E.2)

Figure No.
1

Title
Construction and Operation Surface Water Monitoring Stations

TABLE 1 - CN Milton SW FUP Table 4-2 February 2022 Monitoring Results

Parameters	Units	Detection Limit (DL)	CWQG-FAL Guidelines		Monitoring Station Results							
					TRIB-AIN	TRIB-AIN2	TRIB-AOUT	IC-IN	IC-OUT	Dup-1 (IC-OUT)	SWMP-01	SWMP-02
					23-Feb-22	23-Feb-22	24-Feb-22	24-Feb-22	24-Feb-22	24-Feb-22	Not Constructed	
			Short Term	Long Term	542	543	544	545	546	550		
Field pH	-	-	-	-	8.57	7.8	6.92	7.36	7.37	7.37		
Field temperature	°C	-	-	-	0.1	0.1	0.2	0.5	0.1	0.1		
Ammonia (total) (as N)	ug/L	10	-	Narrative [a]	130	90	170	650	510	650		
Ammonia (unionized, calculated)	ug/L	-	-	19	4.6	<0.61	<0.61	1.6	1.2	1.5		
Nitrate (as N)	ug/L	100	124,000	3,000	450	410	300	1190	850	850		
Nitrite (as N)	ug/L	10	-	60	19	15	30	29	25	26		
Coliform, total	CFU/100mL	0	-	-	NDOGT	NDOGT	NDOGT	NDOGT	NDOGT	NDOGT		
E. Coli	CFU/100mL	0	-	-	NDOGT	NDOGT	NDOGT	NDOGT	NDOGT	NDOGT		
Pesticides												
Organophosphate Package												
Metolachlor	ug/L	5	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0		
Fenchlorphos (Ronnel)	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Mevinphos	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Trifluralin	ug/L	0.05	ND	0.2	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0		
Phosmet	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Dichlorvos	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Dimethoate	ug/L	2	ND	6.2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Fonofos	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Triallate	ug/L	0.05	ND	0.24	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Demeton-S	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Atrazine	ug/L	1	ND	1.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Diazinon	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Malathion	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Parathion Ethyl	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Parathion Methyl	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Simazine	ug/L	2	ND	10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Aldicarb	ug/L	0.1	ND	1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
Bendiocarb	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Carbaryl	ug/L	0.1	3.3	0.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
Carbofuran	ug/L	0.1	ND	1.8	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
Cyanazine (Bladex)	ug/L	0.1	ND	2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
Prometryne	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Chloropryifos (Dursban)	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Terbufos	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Phorate	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Guthion (Azinophos-methyl)	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Ethion	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Fenthion	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Herbicides												
Dicamba	ug/L	0.5	ND	10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
Picloram	ug/L	0.5	ND	29	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
MCPB	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4-D(BEE)	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
MCPP	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
MCPA	ug/L	0.5	ND	2.6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4-DP (Dichloroprop)	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4-D	ug/L	0.5	ND	4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4,5-TP (Silvex)	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4,5-T	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4-DB	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		

N - nitrogen; ND – no data; NDOGT - No data due to overgrowth. Total coliforms and/or E.coli detected

[a] - Guideline for total ammonia is temperature and pH dependent. Measurements of total ammonia in the aquatic environment are often expressed as mg/L total ammonia-N. The present guideline values (mg/L NH_3) can be converted to mg/L total ammonia-N by multiplying the corresponding guideline value by 0.8224. Consult the CWQG-FAL factsheet for more details. TRIB-AIN - 555 µg/L; TRIB-AIN2 - 3,534 µg/L; TRIB-AOUT - 25,218 µg/L; IC-IN - 9,327 µg/L; IC-OUT - 9,331 µg/L; Dup-1 (IC-OUT) - 9,331 µg/L

Stantec

Memo

To:	France Moreau CN, Montreal, QC	From:	Andrew Sinclair/Sheldon Smith Stantec, Markham
Project/File:	160960844	Date:	May 4, 2022

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program - January 2022 Table 4-2 Results

As part of the reporting requirements for the CN Milton Logistics Hub Surface Water Quality and Quantity Follow-up Program (SWQQ FUP), monthly Table 4-2 parameter monitoring results are to be reported for the first six months of construction to Environment and Climate Change Canada (ECCC), Fisheries and Oceans Canada (DFO) and Conservation Halton (CH). Construction of the CN Milton Logistics Hub began in late January 2022 and the first surface water quality monitoring event occurred on January 27, 2022. Water samples were submitted to Bureau Veritas Laboratories in Mississauga, ON for analysis.

Of the seven monitoring stations in the SWQQ FUP, only five were active at the time of the monitoring event as Stormwater Management Ponds (SWMPs) 1 and 2 were not constructed (see attached Figure 1). Ice covered conditions were observed at the other five stations with Trib-Ain frozen solid, which did not allow for a water quality sample to be collected. Trib-Ain2 was frozen with shallow pockets of water under the ice. There was no observed flow within these pockets and therefore a water quality sample was not collected. Water samples were collected using an ISCO autosampler over a 2.5 to 3 hour collection period with a 15 minute sampling frequency and *in-situ* water quality measurements were taken at Trib-Aout, IC-IN, and IC-OUT as per the SWQQ FUP. Water samples were submitted to Bureau Veritas in Mississauga, ON for analysis, and *in-situ* water quality measurements were conducted using a calibrated YSI ProDSS multi-parameter digital water quality meter.

The attached Table 1 presents the Table 4-2 water quality results for the January 27, 2022 monitoring event with comparison to applicable Canadian Council of the Ministers of Environment (CCME) Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CWQG-FAL). *In-situ* pH and temperature results have been added to Table 4-2 results to calculate CWQG-FAL values for total ammonia and were used by Bureau Veritas to calculate un-ionized ammonia concentrations for each monitoring station.

The attached Table 1 results at the three monitoring stations were below the short-term and long-term CCME CWQG-FAL guideline values for the nitrogen compounds and applicable pesticides and herbicides analysed. None of the pesticide and herbicide parameter results were above the reportable detection limit at the three sites. The nitrogen compound results at IC-IN were similar or higher in value than at IC-OUT except for nitrite being 7 µg/L as N higher at the Indian Creek project site outlet. The *E.coli* and total coliform result at IC-OUT were overgrown with target indicator bacteria that made counting by the analyst difficult to determine a quantitative amount.

Reference: CN Milton Logistic Hub Surface Water Quality Follow-up Program - January Table 4-2 Results

No monitoring sites upstream of the Project site in Tributary A had flowing water conditions to monitor for the January event. Total ammonia was higher at Trib-Aout then at the two Indian Creek sites with lower concentrations of nitrate and nitrite. As was observed at IC-OUT *E.coli* and total coliform results were overgrown with target indicator bacteria that made counting by the analyst difficult to determine a quantitative amount.

Bacteria results will be assessed for the next several sample events to determine whether samples need to be diluted prior to plating to obtain quantitative counts for total coliforms and *E.coli*.

STANTEC CONSULTING LTD.

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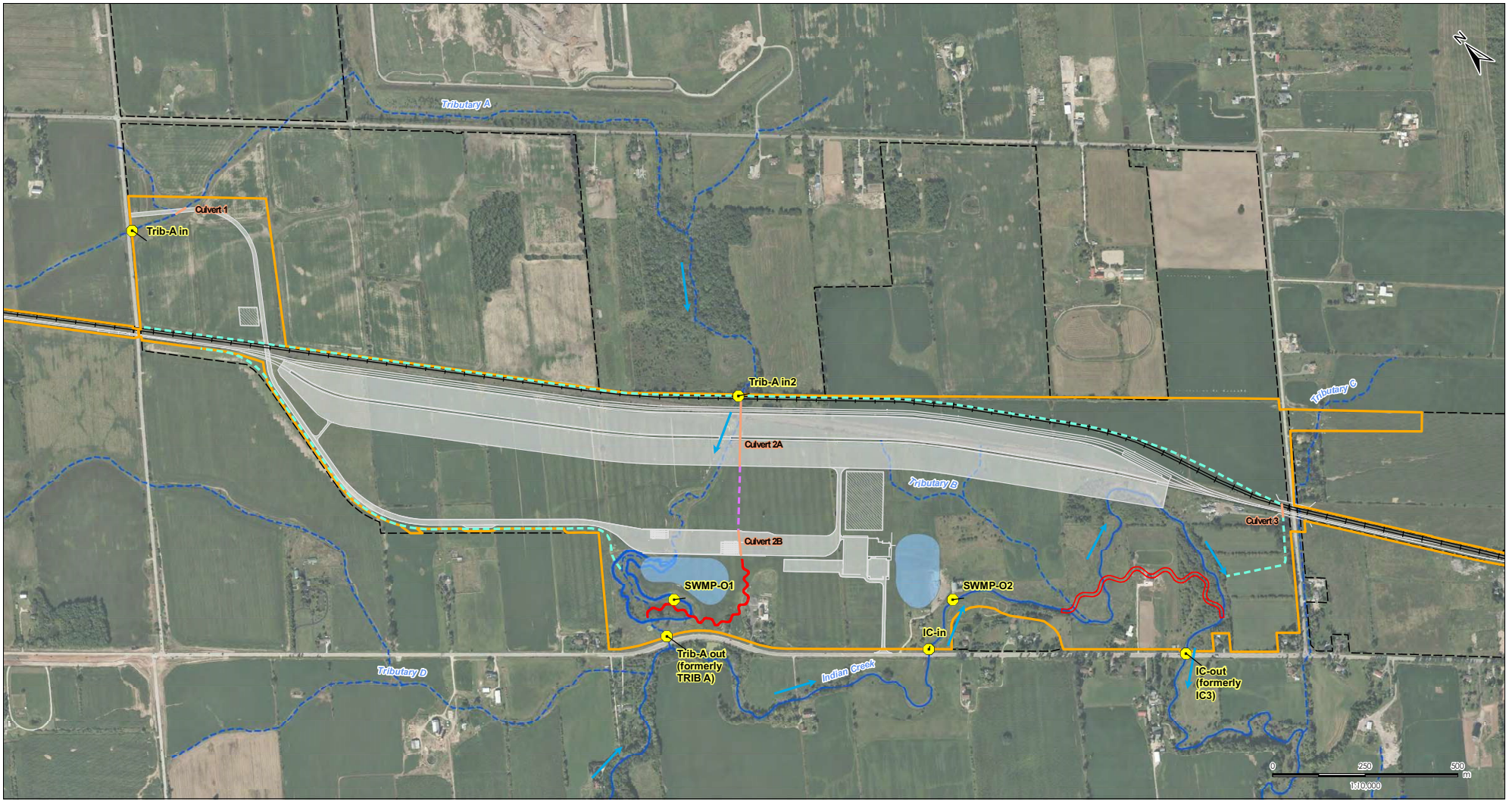
Attachments: Figure 1 - Construction and Operation Surface Water Monitoring Stations
Table 1 - CN Milton SW FUP Table 4-2 January 2022 Monitoring Results

References

Stantec Consulting Ltd. 2022. *CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program*. 160960844. Prepared for Canadian National Railway Company.



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Revised: 2020-05-06 By: dhanley

May 2020
160960844

Stantec

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2015. Site layout: July 10, 2015.
3. Orthoimagery © First Base Solutions, 2015. Imagery taken in 2014.

Legend

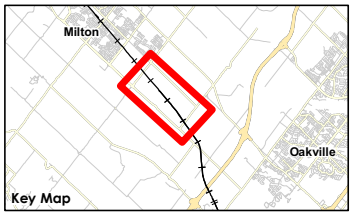
- Surface Water Monitoring Station
- SWM Pond
- Creek Realignment

Project Components

- Project Development Area
- Existing Single Track Mainline
- Existing Double Track Mainline
- Single Track - Mainline
- Double Track - Mainline
- Project Component
- CN-Owned Property

Existing Features

- Permanent Watercourse
- Intermittent Watercourse
- Waterbody
- Flow Direction
- Proposed Culvert
- Drainage Ditch
- Tributary A Regional Diversion Ditch



Client/Project
Canadian National Railway
Milton Logistics Hub
Technical Data Report - Channel Realignment (Appendix E.2)

Figure No.
1

Title
Construction and Operation Surface Water Monitoring Stations

TABLE 1 - CN Milton SW FUP Table 4-2 January 2022 Monitoring Results

Parameters	Units	Detection Limit (DL)	CWQG-FAL Guidelines		Monitoring Station Results						
					TRIB-AIN	TRIB-AIN2	TRIB-AOUT	IC-IN	IC-OUT	SWMP-O1	SWMP-O2
					Frozen - No Sample Available		27-Jan-22	27-Jan-22	27-Jan-22	Not Constructed	
			Short Term	Long Term			516	517	518		
Field pH	-	-	-	-			7.4	7.77	6.78		
Field temperature	°C	-	-	-			-0.1	-0.1	0		
Ammonia (total) (as N)	ug/L	10	-	Narrative [a]			1,100	670	340		
Ammonia (unionized, calculated)	ug/L	-	-	19			2.8	3.9	<0.61		
Nitrate (as N)	ug/L	100	124,000	3,000			200	2,260	2,120		
Nitrite (as N)	ug/L	10	-	60			<10	16	23		
Coliform, total	CFU/100mL	0	-	-			NDOGT	25	NDOGT		
E. Coli	CFU/100mL	0	-	-			NDOGT	2	NDOGT		
Pesticides											
Organophosphate Package											
Metolachlor	ug/L	5	-	-			<5.0	<5.0	<5.0		
Fenchlorphos (Ronnel)	ug/L	2	-	-			<2.0	<2.0	<2.0		
Mevinphos	ug/L	2	-	-			<2.0	<2.0	<2.0		
Trifluralin	ug/L	0.05	ND	0.2			<0.050	<0.050	<0.050		
Phosmet	ug/L	2	-	-			<2.0	<2.0	<2.0		
Dichlorvos	ug/L	2	-	-			<2.0	<2.0	<2.0		
Dimethoate	ug/L	2	ND	6.2			<2.0	<2.0	<2.0		
Fonofos	ug/L	2	-	-			<2.0	<2.0	<2.0		
Triallate	ug/L	0.05	ND	0.24			<0.050	<0.050	<0.050		
Demeton-S	ug/L	2	-	-			<2.0	<2.0	<2.0		
Atrazine	ug/L	1	ND	1.8			<1.0	<1.0	<1.0		
Diazinon	ug/L	2	-	-			<2.0	<2.0	<2.0		
Malathion	ug/L	2	-	-			<2.0	<2.0	<2.0		
Parathion Ethyl	ug/L	2	-	-			<2.0	<2.0	<2.0		
Parathion Methyl	ug/L	2	-	-			<2.0	<2.0	<2.0		
Simazine	ug/L	2	ND	10			<2.0	<2.0	<2.0		
Aldicarb	ug/L	0.1	ND	1			<0.10	<0.10	<0.10		
Bendiocarb	ug/L	2	-	-			<2.0	<2.0	<2.0		
Carbaryl	ug/L	0.1	3.3	0.2			<0.10	<0.10	<0.10		
Carbofuran	ug/L	0.1	ND	1.8			<0.10	<0.10	<0.10		
Cyanazine (Bladex)	ug/L	0.1	ND	2			<0.10	<0.10	<0.10		
Prometryne	ug/L	1	-	-			<1.0	<1.0	<1.0		
Chloropryifos (Dursban)	ug/L	2	-	-			<2.0	<2.0	<2.0		
Terbufos	ug/L	1	-	-			<1.0	<1.0	<1.0		
Phorate	ug/L	1	-	-			<1.0	<1.0	<1.0		
Guthion (Azinophos-methyl)	ug/L	1	-	-			<1.0	<1.0	<1.0		
Ethion	ug/L	1	-	-			<1.0	<1.0	<1.0		
Fenthion	ug/L	1	-	-			<1.0	<1.0	<1.0		
Herbicides											
Dicamba	ug/L	0.5	ND	10			<0.50	<0.50	<0.50		
Picloram	ug/L	0.5	ND	29			<0.50	<0.50	<0.50		
MCPB	ug/L	0.5	-	-			<0.50	<0.50	<0.50		
2,4-D(BEE)	ug/L	0.5	-	-			<0.50	<0.50	<0.50		
MCPP	ug/L	0.5	-	-			<0.50	<0.50	<0.50		
MCPA	ug/L	0.5	ND	2.6			<0.50	<0.50	<0.50		
2,4-DP (Dichloroprop)	ug/L	0.5	-	-			<0.50	<0.50	<0.50		
2,4-D	ug/L	0.5	ND	4			<0.50	<0.50	<0.50		
2,4,5-TP (Silvex)	ug/L	0.5	-	-			<0.50	<0.50	<0.50		
2,4,5-T	ug/L	0.5	-	-			<0.50	<0.50	<0.50		
2,4-DB	ug/L	0.5	-	-			<0.50	<0.50	<0.50		

N - nitrogen; ND – no data; NDOGT - No data due to overgrowth. Total coliforms and/or E.coli detected

[a] - Guideline for total ammonia is temperature and pH dependent. Measurements of total ammonia in the aquatic environment are often expressed as mg/L total ammonia-N. The present guideline values (mg/L NH_3) can be converted to mg/L total ammonia-N by multiplying the corresponding guideline value by 0.8224. Consult the CWQG-FAL factsheet for more details. TRIB-AOUT - 8,615 µg/L; IC-IN - 4,132 µg/L; IC-OUT - 41,979 µg/L

Stantec

Memo

To:	France Moreau CN, Montreal, QC	From:	Andrew Sinclair/Sheldon Smith Stantec, Markham
Project/File:	160960844	Date:	October 27, 2022

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – July 2022 Table 4-2 Results

As part of the reporting requirements for the CN Milton Logistics Hub Surface Water Quality and Quantity Follow-up Program (SWQQ FUP), Table 4-2 parameter monitoring results are to be reported monthly for the first six months of construction to Environment and Climate Change Canada (ECCC), Fisheries and Oceans Canada (DFO) and Conservation Halton (CH). Construction of the CN Milton Logistics Hub began in late January 2022 with monitoring events in late January, February, March, April, May, and June. As part of the continuing monthly monitoring, a seventh Table 4-2 surface water quality monitoring event occurred on July 22, 2022. Water samples were submitted to Bureau Veritas Laboratories in Mississauga, ON for analysis.

In July 2022, a beaver dam was removed approximately 100 m upstream of IC-OUT on Indian Creek. The main site soil disturbance activities included grading, soil excavation and stripping for cut and fill for track subgrade, and the Indian Creek realignment area. Excavation activities were typically at soil depths greater than 30 cm below grade. Erosion and sediment control (ESC) measures were installed where required adjacent to surface water features. By July 19, 2022 approximately 30% of the Project Development Area and 36% of the agricultural lands within the Project Development Area had disturbed soils due to earthworks.

Of the seven monitoring stations in the SWQQ FUP, only two were active at the time of the monitoring event as Stormwater Management Ponds (SWMPs) 1 and 2 were not yet constructed (see attached Figure 2), and Trib-Ain, Trib-Ain2 and Trib-Aout contained no water. Water samples in the remaining two monitoring stations were collected using an ISCO autosampler over a 2.5 to 3 hour collection period with a 15 minute sampling frequency and *in situ* water quality measurements were taken at IC-IN and IC-OUT as per the SWQQ FUP. *In situ* water quality measurements were conducted using a calibrated YSI ProDSS multi-parameter digital water quality meter. The stations were sampled on July 22, 2022.

The attached Table 1 presents the Table 4-2 water quality results for the July 22, 2022 monitoring event with comparison to applicable Canadian Council of the Ministers of Environment (CCME) Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CWQG-FAL). *In situ* pH and temperature results have been added to Table 4-2 results to calculate CWQG-FAL values for total ammonia and were used by Bureau Veritas to calculate un-ionized ammonia concentrations for each monitoring station. Bureau Veritas conducted the total coliform and *E.coli* analysis using three different dilutions (100:1, 10:1, 1:1), instead of the standard 1:1 (no dilution method).

The Table 4-2 pesticide and herbicide parameters were not analysed for the July 2022 monitoring event. As the results from the first six monthly monitoring events were below lab reportable detection limits and associated CCME CWQG-FAL guideline values. During the assessment of the July Table 4-2 results, it was

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program - July 2022 Table 4-2 Results

identified by ECCC staff that the pesticide parameter chlorpyrifos was mis-spelled in the Table 4-2 results and had a long-term CCME CWQG-FAL value associated with it of 0.002 µg/L. This is lower than the laboratory reportable detection limit of 2 µg/L. It is recommended that for the August 2022 monitoring event, chlorpyrifos be added to the monthly surface water quality program and analysed at a laboratory that has a reportable detection limit below the long-term CCME CWQG-FAL value.

The attached Table 1 results at the two monitoring stations were below the short-term and long-term CCME CWQG-FAL guideline values for nitrate and nitrite. The nitrate and nitrite results at IC-IN were similar to IC-OUT. The total ammonia and unionized ammonia concentrations were higher at IC-OUT than IC-IN. Neither IC-IN nor IC-OUT total ammonia or unionized ammonia concentration's exceeded CWQG-FAL guidelines.

The total coliform results were higher at IC-IN in comparison to IC-OUT. The *E.coli* results were higher at IC-OUT in comparison to IC-IN, but within the same concentration range. In July, approximately 100 m upstream of IC-OUT a beaver dam was removed.

STANTEC CONSULTING LTD.

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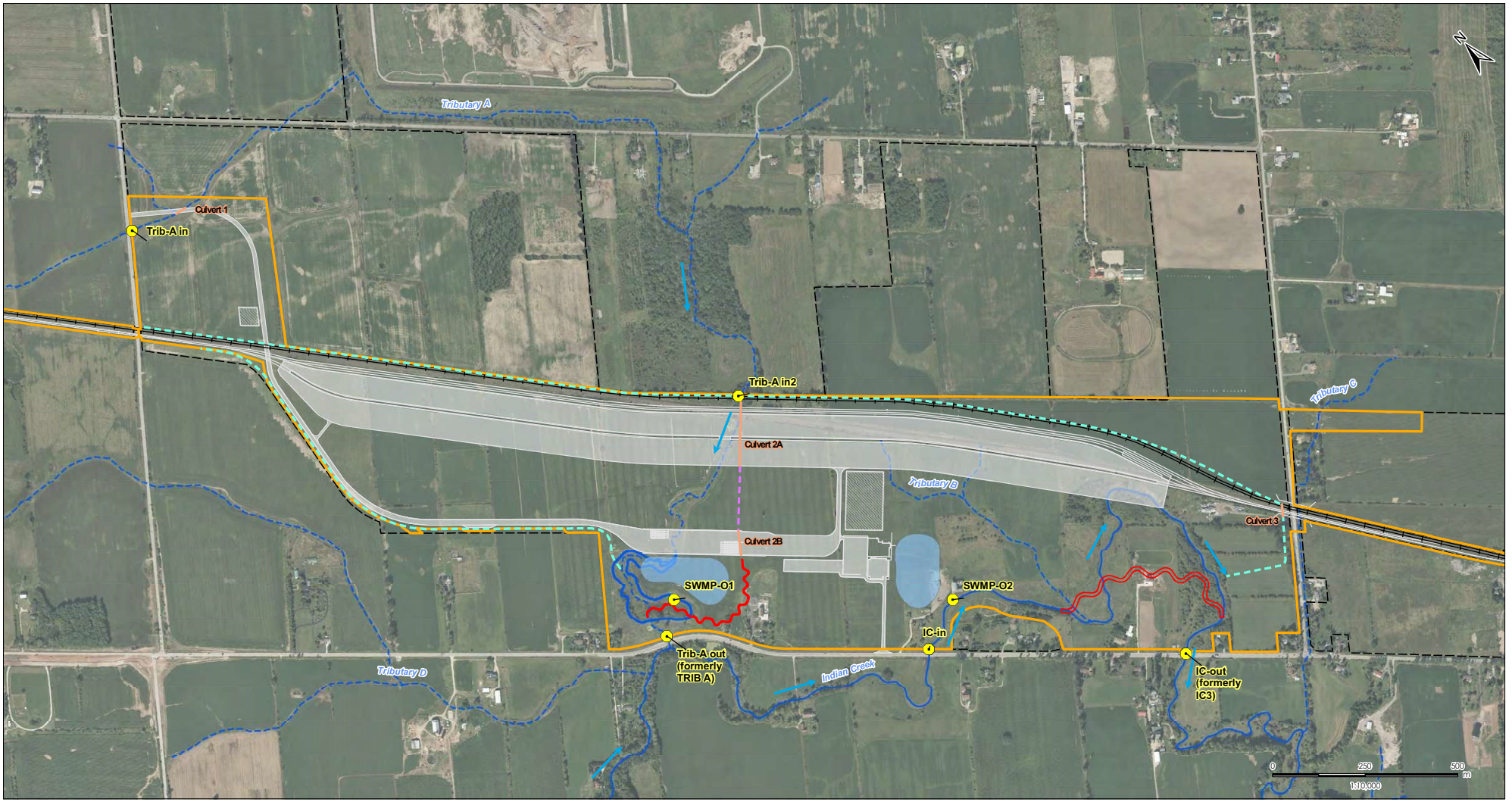
Attachments: Figure 1 - Construction and Operation Surface Water Monitoring Stations
Table 1 - CN Milton SW FUP Table 4-2 July 2022 Monitoring Results

References

Stantec Consulting Ltd. 2022. *CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program*. 160960844. Prepared for Canadian National Railway Company.



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Revised: 2020-05-06 By: dhanley

May 2020
160960844

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Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2015. Site layout: July 10, 2015.
3. Orthoimagery © First Base Solutions, 2015. Imagery taken in 2014.

Legend

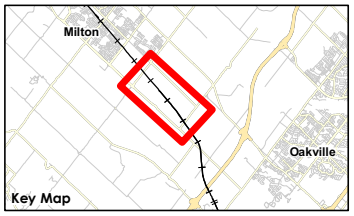
- Surface Water Monitoring Station
- SWM Pond
- Creek Realignment

Project Components

- Project Development Area
- Existing Single Track Mainline
- Existing Double Track Mainline
- Single Track - Mainline
- Double Track - Mainline
- Project Component
- CN-Owned Property

Existing Features

- Permanent Watercourse
- Intermittent Watercourse
- Waterbody
- Flow Direction
- Proposed Culvert
- Drainage Ditch
- Tributary A Regional Diversion Ditch



Client/Project
Canadian National Railway
Milton Logistics Hub
Technical Data Report - Channel Realignment (Appendix E.2)

Figure No.
1

Title
Construction and Operation Surface Water Monitoring Stations

TABLE 1 - CN Milton SW FUP Table 4-2 July 2022 Monitoring Results

Parameters	Units	Detection Limit (DL)	CWQG-FAL Guidelines		Monitoring Station Results						
					TRIB-AIN	TRIB-AIN2	TRIB-AOUT	IC-IN	IC-OUT	SWMP-01	SWMP-02
					No Water and/or Flow			22-Jul-22	22-Jul-22	Not Constructed	
			Short Term	Long Term				850	851		
Field pH	-	-	-	-				7.55	7.47		
Field temperature	°C	-	-	-				24.24	23.5		
Ammonia (total) (as N)	ug/L	10	-	Narrative [a]				160	760		
Ammonia (unionized, calculated)	ug/L	-	-	19				4	14		
Nitrate (as N)	ug/L	100	124,000	3,000				<100	<100		
Nitrite (as N)	ug/L	10	-	60				<10	<10		
Coliform, total	CFU/100mL	0	-	-				6400	2800		
E. Coli	CFU/100mL	0	-	-				120	310		
Pesticides											
Organophosphate Package											
Metolachlor	ug/L	5	-	-				-	-		
Fenchlorphos (Ronnel)	ug/L	2	-	-				-	-		
Mevinphos	ug/L	2	-	-				-	-		
Trifluralin	ug/L	0.05	ND	0.2				-	-		
Phosmet	ug/L	2	-	-				-	-		
Dichlorvos	ug/L	2	-	-				-	-		
Dimethoate	ug/L	2	ND	6.2				-	-		
Fonofos	ug/L	2	-	-				-	-		
Triallate	ug/L	0.05	ND	0.24				-	-		
Demeton-S	ug/L	2	-	-				-	-		
Atrazine	ug/L	1	ND	1.8				-	-		
Diazinon	ug/L	2	-	-				-	-		
Malathion	ug/L	2	-	-				-	-		
Parathion Ethyl	ug/L	2	-	-				-	-		
Parathion Methyl	ug/L	2	-	-				-	-		
Simazine	ug/L	2	ND	10				-	-		
Aldicarb	ug/L	0.1	ND	1				-	-		
Bendiocarb	ug/L	2	-	-				-	-		
Carbaryl	ug/L	0.1	3.3	0.2				-	-		
Carbofuran	ug/L	0.1	ND	1.8				-	-		
Cyanazine (Bladex)	ug/L	0.1	ND	2				-	-		
Prometryne	ug/L	1	-	-				-	-		
Chlorpyrifos (Dursban)	ug/L	2	0.02	0.002				-	-		
Terbufos	ug/L	1	-	-				-	-		
Phorate	ug/L	1	-	-				-	-		
Guthion (Azinophos-methyl)	ug/L	1	-	-				-	-		
Ethion	ug/L	1	-	-				-	-		
Fenthion	ug/L	1	-	-				-	-		
Herbicides											
Dicamba	ug/L	0.5	ND	10				-	-		
Picloram	ug/L	0.5	ND	29				-	-		
MCPB	ug/L	0.5	-	-				-	-		
2,4-D(BEE)	ug/L	0.5	-	-				-	-		
MCPP	ug/L	0.5	-	-				-	-		
MCPA	ug/L	0.5	ND	2.6				-	-		
2,4-DP (Dichloroprop)	ug/L	0.5	-	-				-	-		
2,4-D	ug/L	0.5	ND	4				-	-		
2,4,5-TP (Silvex)	ug/L	0.5	-	-				-	-		
2,4,5-T	ug/L	0.5	-	-				-	-		
2,4-DB	ug/L	0.5	-	-				-	-		

N - nitrogen; ND – no data; NDOGT - No data due to overgrowth. Total coliforms and/or E.coli detected

[a] - Guideline for total ammonia is temperature and pH dependent. Measurements of total ammonia in the aquatic environment are often expressed as mg/L total ammonia-N. The present guideline values (mg/L NH_3) can be converted to mg/L total ammonia-N by multiplying the corresponding guideline value by 0.8224. Consult the CWQG-FAL factsheet for more details. IC-IN - 882 µg/L; IC-OUT - 1129 µg/L

Stantec

Memo

To:	France Moreau CN, Montreal, QC	From:	Andrew Sinclair/Sheldon Smith Stantec, Markham
Project/File:	160960844	Date:	September 12, 2022

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – June 2022 Table 4-2 Results

As part of the reporting requirements for the CN Milton Logistics Hub Surface Water Quality and Quantity Follow-up Program (SWQQ FUP), Table 4-2 parameter monitoring results are to be reported monthly for the first six months of construction to Environment and Climate Change Canada (ECCC), Fisheries and Oceans Canada (DFO) and Conservation Halton (CH). Construction of the CN Milton Logistics Hub began in late January 2022 with monitoring events in late January, February, March, April and May. The sixth surface water quality monitoring event occurred on June 28, 2022. Water samples were submitted to Bureau Veritas Laboratories in Mississauga, ON for analysis.

In June 2022, there were no in-water construction activities within Tributary A and Indian Creek. The main activities included grading, soil excavation and stripping for cut and fill for track subgrade, and the Indian Creek realignment area. Excavation activities were typically at soil depths greater than 30 cm below grade. Erosion and sediment control (ESC) measures were installed where required adjacent to surface water features. By June 21, 2022 approximately 28% of the Project Development Area and 34% of the agricultural lands within the Project Development Area had disturbed soils due to Project earthworks (Figure 1).

Of the seven monitoring stations in the SWQQ FUP, only two were active at the time of the monitoring event as Stormwater Management Ponds (SWMPs) 1 and 2 were not yet constructed (see attached Figure 2), and Trib-Ain, Trib-Ain2 and Trib-Aout contained no water. Water samples were collected using an ISCO autosampler over a 2.5 to 3 hour collection period with a 15 minute sampling frequency and *in situ* water quality measurements were taken at IC-IN, IC-OUT, and a duplicate sample at IC-IN as per the SWQQ FUP. *In situ* water quality measurements were conducted using a calibrated YSI ProDSS multi-parameter digital water quality meter. The stations were sampled on June 28, 2022.

The attached Table 1 presents the Table 4-2 water quality results for the June 28, 2022 monitoring event with comparison to applicable Canadian Council of the Ministers of Environment (CCME) Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CWQG-FAL). *In situ* pH and temperature results have been added to Table 4-2 results to calculate CWQG-FAL values for total ammonia and were used by Bureau Veritas to calculate un-ionized ammonia concentrations for each monitoring station. Bureau Veritas conducted the total coliform and *E.coli* analysis using three different dilutions (100:1, 10:1, 1:1), instead of the standard 1:1 (no dilution method).

The attached Table 1 results at the two monitoring stations were below the short-term and long-term CCME CWQG-FAL guideline values for nitrate and nitrite and the majority of applicable pesticides and herbicides analysed. None of the pesticide and herbicide parameter results were above the reportable detection limits at the two sites. It was identified following the July 2022 monitoring event that the laboratory detection limit

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – June 2022 Table 4-2 Results

for Chlorpyrifos (Dursban) is above the CCME CWQG-FAL short-term and long-term guideline values. This reportable detection limit issue will be addressed for future monitoring events.

The nitrate and nitrite results at IC-IN were similar to IC-OUT. The total ammonia concentration was higher at IC-IN than IC-OUT, the duplicate IC-IN sample was greater than double the total ammonia concentration at IC-IN. Total ammonia concentration exceeded CWQG-FAL guidelines for IC-IN and the duplicate IC-IN sample. Unionized ammonia was highest at the duplicate IC-IN in comparison to the IC-IN, and IC-OUT samples. Unionized ammonia concentration exceeded the CWQG-FAL guideline value for IC-IN and the duplicate IC-IN sample.

The *E.coli* and total coliform results were higher at IC-OUT in comparison to IC-IN and its duplicate sample result, but within the same order of magnitude. Comparison of the duplicate and IC-IN total coliform results indicates fluctuation in bacteria populations within the watercourse at the same location. Additionally, approximately 100 m upstream of IC-OUT was an active beaver pond and lodge. The beavers would potentially contribute *E.coli* and total coliform to Indian Creek via their feces.

STANTEC CONSULTING LTD.

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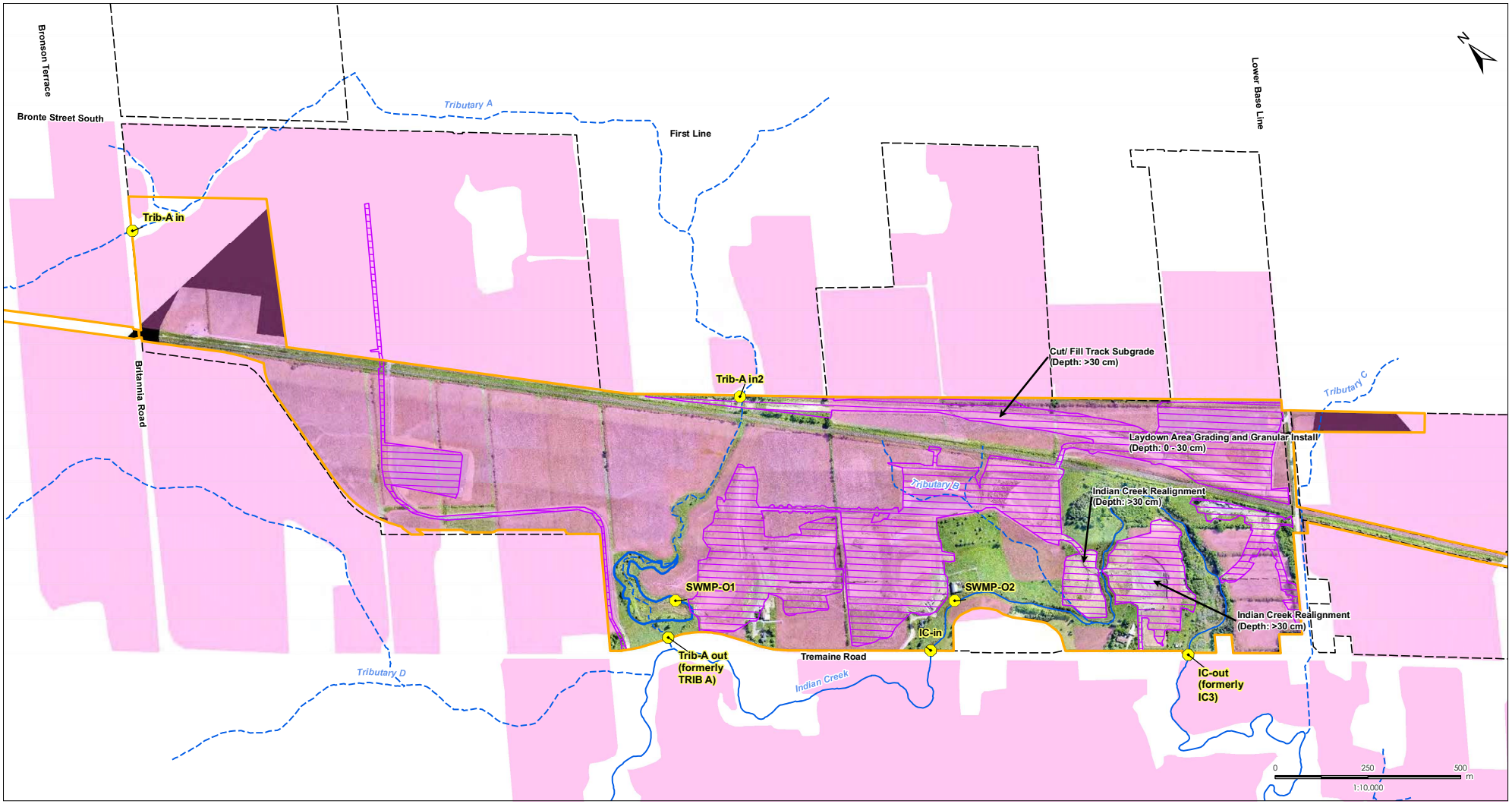
Attachments: Figure 1 - June Site Soil Disturbance Extents
Figure 2 - Construction and Operation Surface Water Monitoring Stations
Table 1 - CN Milton SW FUP Table 4-2 June 2022 Monitoring Results

References

Stantec Consulting Ltd. 2022. *CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program*. 160960844. Prepared for Canadian National Railway Company.



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Revised: 2022-08-16 By: dharvey

August 2022
160960844

Stantec

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2015. Site layout: July 10, 2015.
3. Orthoimagery © Canadian National Railway. Imagery Taken 20220621
4. All depths are approximate.

Legend

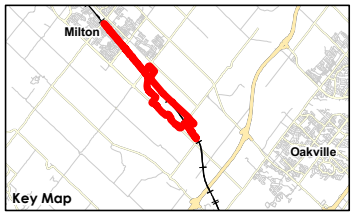
- Surface Water Monitoring Station
- Site Disturbance
- Agricultural Fields

Project Components

- Project Development Area
- CN-Owned Property

Existing Features

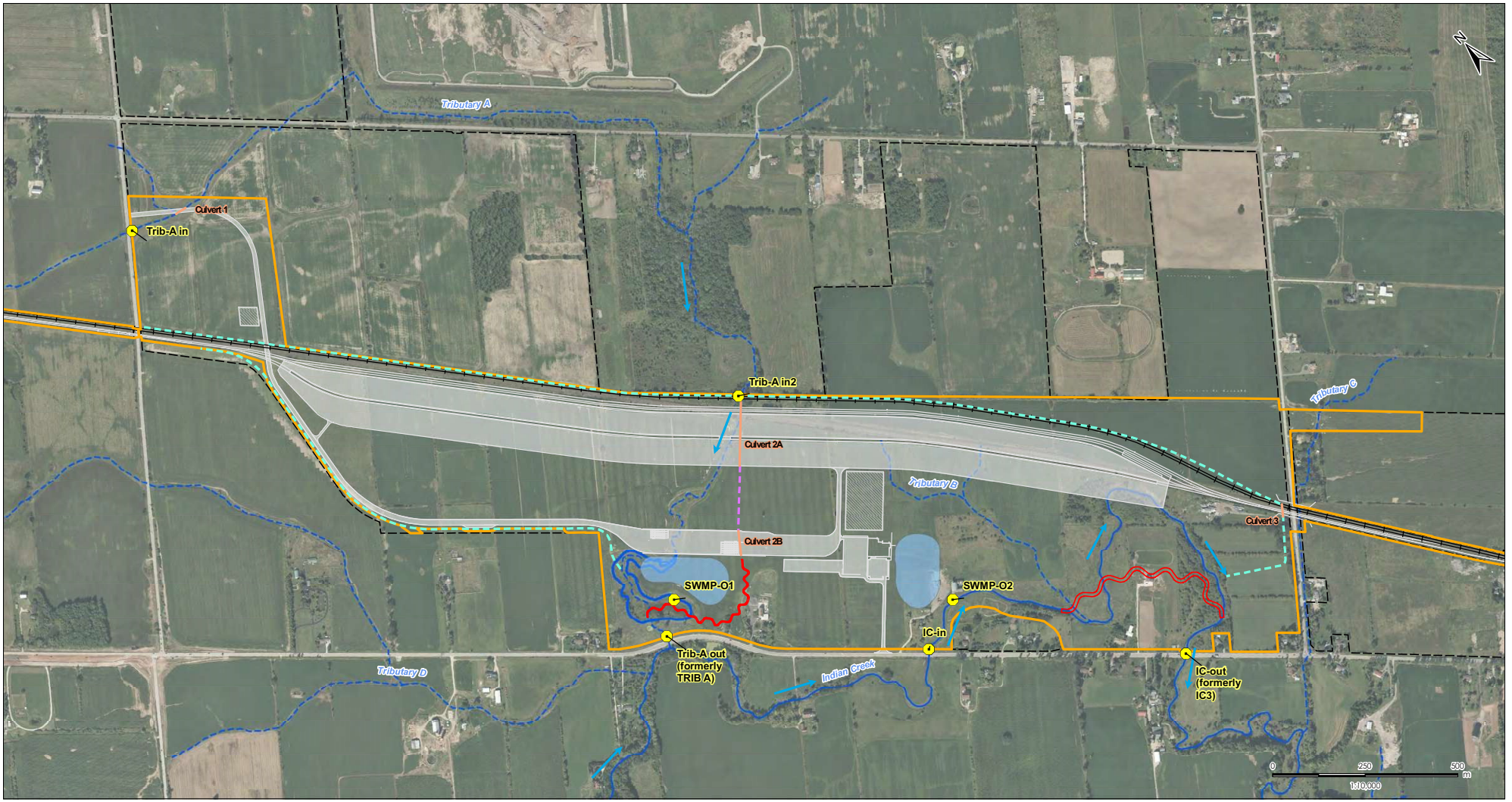
- Permanent Watercourse
- Intermittent Watercourse
- Waterbody



Client/Project
Canadian National Railway
Milton Logistics Hub

Figure No.
1

Title
Site Disturbance
As of June 21 2022



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Revised: 2020-05-06 By: dhanley

May 2020
160960844

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Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2015. Site layout: July 10, 2015.
3. Orthoimagery © First Base Solutions, 2015. Imagery taken in 2014.

Legend

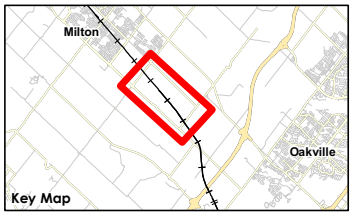
- Surface Water Monitoring Station
- SWM Pond
- Creek Realignment

Project Components

- Project Development Area
- Existing Single Track Mainline
- Existing Double Track Mainline
- Single Track - Mainline
- Double Track - Mainline
- Project Component
- CN-Owned Property

Existing Features

- Permanent Watercourse
- Intermittent Watercourse
- Waterbody
- Flow Direction
- Proposed Culvert
- Drainage Ditch
- Tributary A Regional Diversion Ditch



Client/Project
Canadian National Railway
Milton Logistics Hub
Technical Data Report - Channel Realignment (Appendix E.2)

Figure No.
2

Title
Construction and Operation Surface Water Monitoring Stations

TABLE 1 - CN Milton SW FUP Table 4-2 June 2022 Monitoring Results

Parameters	Units	Detection Limit (DL)	CWQG-FAL Guidelines		Monitoring Station Results							
					TRIB-AIN	TRIB-AIN2	TRIB-AOUT	IC-IN	Dup-1 (IC-IN)	IC-OUT	SWMP-01	SWMP-02
					No Water Present. No Sampling Conducted.			28-Jun-22	28-Jun-22	28-Jun-22	Not Constructed	
			Short Term	Long Term				732	740	733		
Field pH	-	-	-	-				8.27	8.27	7.54		
Field temperature	°C	-	-	-				21.6	21.6	21.4		
Ammonia (total) (as N)	ug/L	10	-	Narrative [a]				940	2,500	910		
Ammonia (unionized, calculated)	ug/L	-	-	19				88	230	17		
Nitrate (as N)	ug/L	100	124,000	3,000				<100	<100	<100		
Nitrite (as N)	ug/L	10	-	60				<10	<10	<10		
Coliform, total	CFU/100mL	0	-	-				710	1200	2300		
E. Coli	CFU/100mL	0	-	-				250	240	290		
Pesticides												
Organophosphate Package												
Metolachlor	ug/L	5	-	-				<5.0	<5.0	<5.0		
Fenchlorphos (Ronnel)	ug/L	2	-	-				<2.0	<2.0	<2.0		
Mevinphos	ug/L	2	-	-				<2.0	<2.0	<2.0		
Trifluralin	ug/L	0.05	ND	0.2				<0.050	<0.050	<0.050		
Phosmet	ug/L	2	-	-				<2.0	<2.0	<2.0		
Dichlorvos	ug/L	2	-	-				<2.0	<2.0	<2.0		
Dimethoate	ug/L	2	ND	6.2				<2.0	<2.0	<2.0		
Fonofos	ug/L	2	-	-				<2.0	<2.0	<2.0		
Triallate	ug/L	0.05	ND	0.24				<0.050	<0.050	<0.05		
Demeton-S	ug/L	2	-	-				<2.0	<2.0	<2.0		
Atrazine	ug/L	1	ND	1.8				<1.0	<1.0	<1.0		
Diazinon	ug/L	2	-	-				<2.0	<2.0	<2.0		
Malathion	ug/L	2	-	-				<2.0	<2.0	<2.0		
Parathion Ethyl	ug/L	2	-	-				<2.0	<2.0	<2.0		
Parathion Methyl	ug/L	2	-	-				<2.0	<2.0	<2.0		
Simazine	ug/L	2	ND	10				<2.0	<2.0	<2.0		
Aldicarb	ug/L	0.1	ND	1				<0.10	<0.10	<0.10		
Bendiocarb	ug/L	2	-	-				<2.0	<2.0	<2.0		
Carbaryl	ug/L	0.1	3.3	0.2				<0.10	<0.10	<0.10		
Carbofuran	ug/L	0.1	ND	1.8				<0.10	<0.10	<0.10		
Cyanazine (Bladex)	ug/L	0.1	ND	2				<0.10	<0.10	<0.10		
Prometryne	ug/L	1	-	-				<1.0	<1.0	<1.0		
Chlorpryifos (Dursban)	ug/L	2	0.02	0.002				<2.0	<2.0	<2.0		
Terbufos	ug/L	1	-	-				<1.0	<1.0	<1.0		
Phorate	ug/L	1	-	-				<1.0	<1.0	<1.0		
Guthion (Azinophos-methyl)	ug/L	1	-	-				<1.0	<1.0	<1.0		
Ethion	ug/L	1	-	-				<1.0	<1.0	<1.0		
Fenthion	ug/L	1	-	-				<1.0	<1.0	<1.0		
Herbicides												
Dicamba	ug/L	0.5	ND	10				<0.50	<0.50	0.63		
Picloram	ug/L	0.5	ND	29				<0.50	<0.50	<0.50		
MCPB	ug/L	0.5	-	-				<0.50	<0.50	<0.50		
2,4-D(BEE)	ug/L	0.5	-	-				<0.50	<0.50	<0.50		
MCPP	ug/L	0.5	-	-				<0.50	<0.50	<0.50		
MCPA	ug/L	0.5	ND	2.6				<0.50	<0.50	<0.50		
2,4-DP (Dichloroprop)	ug/L	0.5	-	-				<0.50	<0.50	<0.50		
2,4-D	ug/L	0.5	ND	4				<0.50	<0.50	<0.50		
2,4,5-TP (Silvex)	ug/L	0.5	-	-				<0.50	<0.50	<0.50		
2,4,5-T	ug/L	0.5	-	-				<0.50	<0.50	<0.50		
2,4-DB	ug/L	0.5	-	-				<0.50	<0.50	<0.50		

N - nitrogen; ND – no data; NDOGT - No data due to overgrowth. Total coliforms and/or E.coli detected

[a] - Guideline for total ammonia is temperature and pH dependent. Measurements of total ammonia in the aquatic environment are often expressed as mg/L total ammonia-N. The present guideline values (mg/L NH_3) can be converted to mg/L total ammonia-N by multiplying the corresponding guideline value by 0.8224. Consult the CWQG-FAL factsheet for more details. IC-IN - 241 µg/L; Dup-1 (IC-IN) - 241 µg/L; IC-OUT - 1098 µg/L

Stantec

Memo

To:	France Moreau CN, Montreal, QC	From:	Andrew Sinclair/Sheldon Smith Stantec, Markham
Project/File:	160960844	Date:	June 3, 2022

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program - March 2022 Table 4-2 Results

As part of the reporting requirements for the CN Milton Logistics Hub Surface Water Quality and Quantity Follow-up Program (SWQQ FUP), monthly Table 4-2 parameter monitoring results are to be reported for the first six months of construction to Environment and Climate Change Canada (ECCC), Fisheries and Oceans Canada (DFO) and Conservation Halton (CH). Construction of the CN Milton Logistics Hub began in late January 2022 with monitoring events in late January and February. The third surface water quality monitoring event occurred on March 24, 2022. Water samples were submitted to Bureau Veritas Laboratories in Mississauga, ON for analysis.

Of the seven monitoring stations in the SWQQ FUP, only five were active at the time of the monitoring event as Stormwater Management Ponds (SWMPs) 1 and 2 were not constructed (see attached Figure 1). Water samples were collected using an ISCO autosampler over a 2.5 to 3 hour collection period with a 15 minute sampling frequency and *in-situ* water quality measurements were taken at Trib-Ain, Trib-Ain2, Trib-Aout, IC-IN, and IC-OUT, and a duplicate sample at Trib-Ain as per the SWQQ FUP. *In-situ* water quality measurements were conducted using a calibrated YSI ProDSS multi-parameter digital water quality meter. All stations were sampled on March 24, 2022.

The attached Table 1 presents the Table 4-2 water quality results for the March 24, 2022 monitoring event with comparison to applicable Canadian Council of the Ministers of Environment (CCME) Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CWQG-FAL). *In-situ* pH and temperature results have been added to Table 4-2 results to calculate CWQG-FAL values for total ammonia and were used by Bureau Veritas to calculate un-ionized ammonia concentrations for each monitoring station.

The attached Table 1 results at the five monitoring stations were below the short-term and long-term CCME CWQG-FAL guideline values for the nitrogen compounds and applicable pesticides and herbicides analysed. None of the pesticide and herbicide parameter results were above the reportable detection limits at the five sites.

The nitrogen compound results at IC-IN were similar or higher in value than at IC-OUT. The *E.coli* and total coliform result at IC-IN and IC-OUT were overgrown with target indicator bacteria that made counting by the analyst difficult to determine a quantitative amount.

Reference: DRAFT CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program - March 2022 Table 4-2 Results

The nitrate results at Trib-Ain and Trib-Ain2 were similar in value to Trib-Aout. Trib-Ain2 had low nitrite results compared to Trib-Ain and Trib-Aout with Trib-Ain having the highest observed nitrite concentration. Total ammonia (as N) had the highest concentration at Trib-Ain2 and was lower at the Tributary A outlet. The nitrite concentration at Trib-Aout was similar to the Indian Creek site results, while nitrate was lower. Total ammonia was higher at Trib-Aout than the Indian Creek site results. As was observed at the Indian Creek sites, *E.coli* and total coliform results were overgrown with target indicator bacteria that made counting by the analyst difficult to determine a quantitative amount.

The March sample event did not obtain quantitative counts for *E.coli* and total coliform. Therefore, other analysis options are actively being explored with Bureau Veritas to obtain quantitative counts for the future sampling events.

STANTEC CONSULTING LTD.

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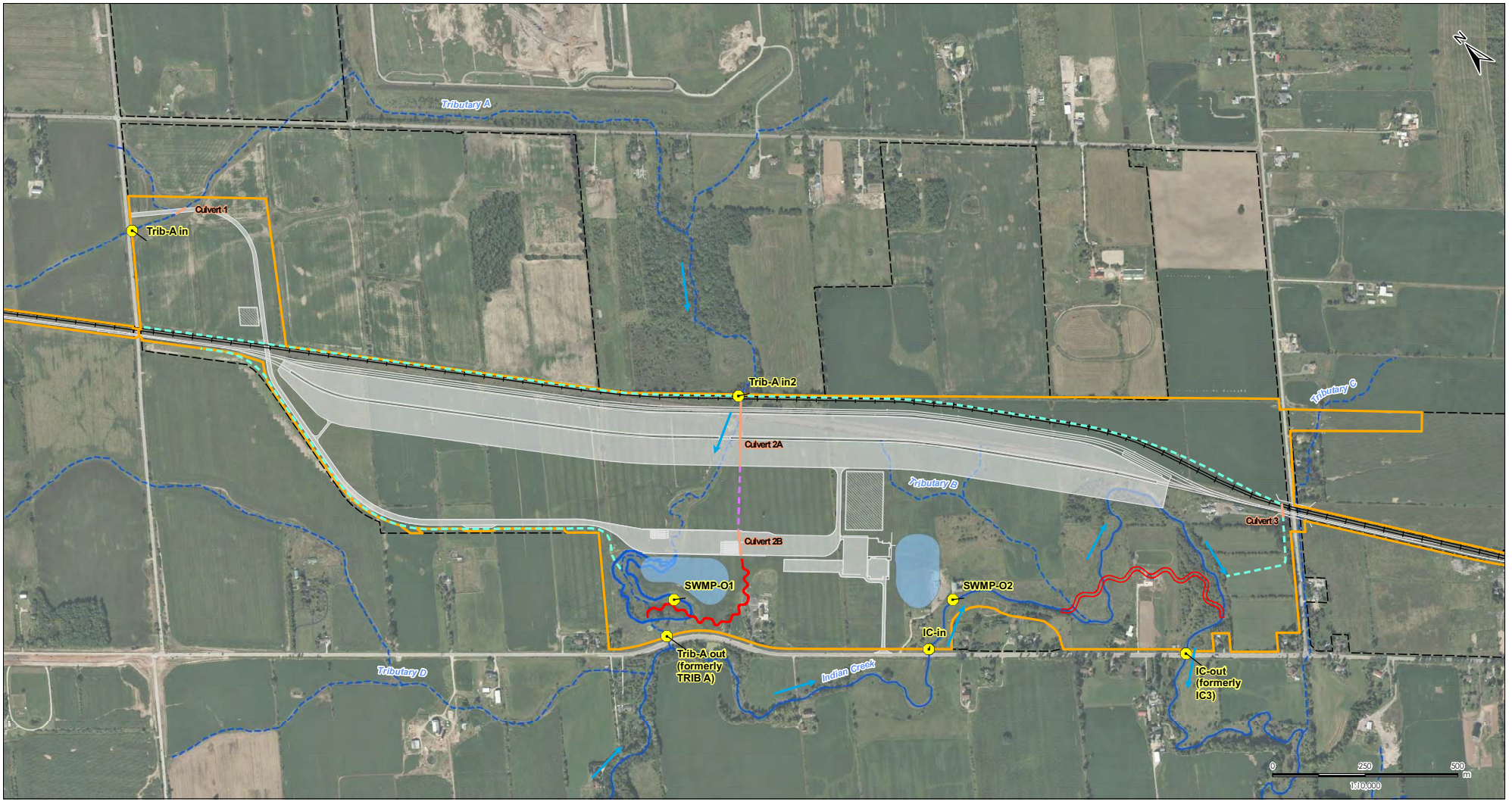
Attachments: Figure 1 - Construction and Operation Surface Water Monitoring Stations
Table 1 - CN Milton SW FUP Table 4-2 February 2022 Monitoring Results

References

Stantec Consulting Ltd. 2022. *CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program*. 160960844. Prepared for Canadian National Railway Company.



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Revised: 2020-05-06 By: dhanley

May 2020
160960844

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Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2015. Site layout: July 10, 2015.
3. Orthoimagery © First Base Solutions, 2015. Imagery taken in 2014.

Legend

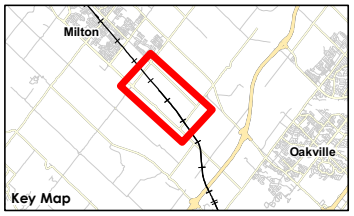
- Surface Water Monitoring Station
- SWM Pond
- Creek Realignment

Project Components

- Project Development Area
- Existing Single Track Mainline
- Existing Double Track Mainline
- Single Track - Mainline
- Double Track - Mainline
- Project Component
- CN-Owned Property

Existing Features

- Permanent Watercourse
- Intermittent Watercourse
- Waterbody
- Flow Direction
- Proposed Culvert
- Drainage Ditch
- Tributary A Regional Diversion Ditch



Client/Project
Canadian National Railway
Milton Logistics Hub
Technical Data Report - Channel Realignment (Appendix E.2)

Figure No.
1

Title
Construction and Operation Surface Water Monitoring Stations

TABLE 1 - CN Milton SW FUP Table 4-2 March 2022 Monitoring Results

Parameters	Units	Detection Limit (DL)	CWQG-FAL Guidelines		Monitoring Station Results							
					TRIB-AIN	Dup-1 (TRIB-AIN)	TRIB-AIN2	TRIB-AOUT	IC-IN	IC-OUT	SWMP-01	SWMP-02
					24-Mar-22	24-Mar-22	24-Mar-22	24-Mar-22	24-Mar-22	24-Mar-22	Not Constructed	
			Short Term	Long Term	585	n/a	n/a	587	n/a	589		
Field pH	-	-	-	-	6.9	6.9	6.85	6.62	8.17	6.96		
Field temperature	°C	-	-	-	6.5	6.5	5.8	3.6	4.1	5		
Ammonia (total) (as N)	ug/L	10	-	Narrative [a]	550	390	2,200	1,300	190	190		
Ammonia (unionized, calculated)	ug/L	-	-	19	0.74	<0.61	2.5	0.74	3.8	<0.61		
Nitrate (as N)	ug/L	100	124,000	3,000	320	320	260	340	880	870		
Nitrite (as N)	ug/L	10	-	60	25	22	<0.010	16	14	12		
Coliform, total	CFU/100mL	0	-	-	NDOGT	NDOGT	NDOGT	NDOGT	NDOGT	NDOGT		
E. Coli	CFU/100mL	0	-	-	NDOGT	NDOGT	NDOGT	NDOGT	NDOGT	NDOGT		
Pesticides												
Organophosphate Package												
Metolachlor	ug/L	5	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0		
Fenchlorphos (Ronnel)	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Mevinphos	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Trifluralin	ug/L	0.05	ND	0.2	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0		
Phosmet	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Dichlorvos	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Dimethoate	ug/L	2	ND	6.2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Fonofos	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Triallate	ug/L	0.05	ND	0.24	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Demeton-S	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Atrazine	ug/L	1	ND	1.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Diazinon	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Malathion	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Parathion Ethyl	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Parathion Methyl	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Simazine	ug/L	2	ND	10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Aldicarb	ug/L	0.1	ND	1	<0.10	<0.10	<5.0	<0.10	<0.10	<0.10		
Bendiocarb	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Carbaryl	ug/L	0.1	3.3	0.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
Carbofuran	ug/L	0.1	ND	1.8	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
Cyanazine (Bladex)	ug/L	0.1	ND	2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
Prometryne	ug/L	1	-	-	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0		
Chloropryifos (Dursban)	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Terbufos	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Phorate	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Guthion (Azinophos-methyl)	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Ethion	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Fenthion	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Herbicides												
Dicamba	ug/L	0.5	ND	10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
Picloram	ug/L	0.5	ND	29	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
MCPB	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4-D(BEE)	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
MCPP	ug/L	0,5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
MCPA	ug/L	0.5	ND	2.6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4-DP (Dichloroprop)	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4-D	ug/L	0.5	ND	4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4,5-TP (Silvex)	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4,5-T	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4-DB	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		

N - nitrogen; ND – no data; NDOGT - No data due to overgrowth. Total coliforms and/or E.coli detected

[a] - Guideline for total ammonia is temperature and pH dependent. Measurements of total ammonia in the aquatic environment are often expressed as mg/L total ammonia-N. The present guideline values (mg/L NH_3) can be converted to mg/L total ammonia-N by multiplying the corresponding guideline value by 0.8224. Consult the CWQG-FAL factsheet for more details. TRIB-AIN - 16,239 µg/L; Dup-1 (TRIB-AIN) - 16,239 µg/L; TRIB-AIN2 - 19,636 µg/L; TRIB-AOUT - 37,962 µg/L; IC-IN - 1,066 µg/L; IC-OUT -14,754 µg/L

Stantec

Memo

To:	France Moreau CN, Montreal, QC	From:	Andrew Sinclair/ Sheldon Smith Markham
Project/File:	160960844	Date:	September 21, 2022

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – May Table 4-2 Results Submission and Five Month Results Summary

Stantec Consulting Ltd. is pleased to submit the CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program May 2022 Table 4-2 Results memos to CN (see attached).

As detailed in CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program, select agricultural water quality parameters listed in Table 4-2 are to be monitored for the first six months of construction. Project earthwork activities were identified as potential sources of residual agricultural contamination (nitrogen compounds, pathogenic organisms, pesticides and herbicides) during the Environmental Assessment process, development of the Surface Water Quality and Quantity Follow-up Program in consultation with federal, provincial and municipal agencies. With the submission of the attached May 2022 Table 4-2 results, five months have now been monitored and reported. On June 28, 2022, the sixth and planned final monitoring event for analysis of Table 4-2 parameters was conducted.

The following is a summary of construction activities at the Project site and the Table 4-2 parameters results for five of the six months of planned monitoring indicating that Project activities have not been a substantial source of agricultural related parameter loading into Tributary A and Indian Creek.

Construction at the CN Milton Logistics Hub began in late January 2022 and has primarily consisted of earthwork activities. Earthwork activities have included excavation and construction of the Tributary A and Indian Creek channel realignments, two stormwater management ponds (which have not discharged to the environment), site drainage works, access roads and laydown areas. Erosion and sediment control (ESC) measures have been installed to mitigate potential sediment loss from earthworks activities, which have been monitored and maintained throughout construction. The attached Figures 1 to 6 present the site disturbance areas for January, February, March, April, May and June, respectively. The figures identify areas that have been cleared and grubbed (30 cm depth of ground disturbance or less) and areas excavated at depths greater than 30 cm below ground surface. Table 1 below presents the total percentage of the Project Development Area (PDA) and agricultural fields within the PDA disturbed at the end of each month. At the end of June 2022, approximately 75% of the Project site anticipated to be disturbed during Phase 1 of construction had been disturbed by earthworks activities, which accounts for 28% of the PDA and 34% of the agricultural lands within the PDA. The remaining construction activities in 2022 include completion of the Tributary A realignment and culvert installation downstream of the existing mainline, abandonment of the existing Tributary A channel, completion of the grading of the Indian Creek valley lands and offline channel, completion of the excavation of SWM Pond 1, and progress on the temporary realignment of the mainline east of the tracks.

Reference: **CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – May Table 4-2 Results Submission and Five Month Results Summary**

Table 1 Percentage of Project Development Area (PDA) with Soil Disturbance.

Month	Percentage of PDA	Percentage of Agricultural Lands within PDA
January	0.6	0.1
February	1.5	0.1
March	7.7	8.1
April	23.6	28.7
May	27.4	33.7
June	28.2	33.8

Pesticides and Herbicides

At the five monitoring sites on Tributary A and Indian Creek for the five monitoring events, the observed pesticide and herbicide parameter results were consistently below the laboratory reportable detection limits (RDLs), which were also below applicable Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for Freshwater Aquatic Life (CWQG-FAL) values.

Ammonia

Ammonia (total and calculated unionized) results in Tributary A observed one exceedance of the CCME CWQG-FAL at TRIB-AIN (inlet site to the Project area; see Figure 1 in attached memo). Typically, concentrations for total ammonia were higher at the Project inlet sites (TRIB-AIN, TRIB-AIN2) than the outlet site (TRIB-AOUT) (3 of 4 monitoring events; January 2022 Tributary A inlet sites experienced frozen conditions).

Within Indian Creek, ammonia (total and calculated unionized) results were similar in value at the Project inlet (IC-IN) and outlet (IC-OUT) monitoring sites. There were no observed exceedances at the Indian Creek sites of the total ammonia/unionized ammonia CCME CWQG-FAL values. Tributary A outlet (TRIB-AOUT) total ammonia concentrations were elevated for three of five events in comparison to IC-IN, but as discussed in the previous paragraph TRIB-AOUT concentrations were typically higher at Tributary A inlet sites.

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – May Table 4-2 Results Submission and Five Month Results Summary

Nitrate

Nitrate concentrations within Tributary A were similar in value for inlet and outlet monitoring sites, and for the April and May monitoring events were consistently below the laboratory RDLs at the three monitoring sites. Nitrite concentrations were also typically the same at the Tributary A inlet and outlet sites with only the February 2022 event observing nitrite slightly elevated at TRIB-AOUT in comparison to TRIB-AIN and TRIB-AIN2. As was observed for nitrate for the April and May monitoring events, nitrite concentrations at the Tributary A sites were below detection.

Nitrate concentrations at IC-IN were consistently higher than IC-OUT in Indian Creek. Nitrite concentrations at IC-OUT were similar in value or lower in value than at IC-IN. Nitrate and nitrite concentrations at TRIB-AOUT in comparison to IC-IN were consistently similar or lower in value.

Coliform and E. coli

Total coliform and *E. coli* concentration results for the January, February and March events observed "no data due to overgrowth" at the five monitoring sites on Tributary A and Indian Creek, except for the January 27, 2022 results for IC-IN. Overgrowth results indicate the tray or filter had so many target indicator bacteria that the analyst was not able to determine a quantitative amount. Following the March monitoring event, water samples were diluted at 1:10 and 1:100 and total coliform and *E. coli* concentrations were quantified.

Tributary A total coliform and *E. coli* concentrations for the April and May 2022 monitoring events were higher at the TRIB-AIN and/or TRIB-AIN2 sites in comparison to TRIB-AOUT. Within Indian Creek, total coliform and *E. coli* concentrations for the April and May 2022 monitoring events were slightly higher at IC-OUT than IC-IN with the same order of magnitude results. Immediately upstream of IC-OUT was an active beaver pond and lodge. The beavers would potentially contribute *E.coli* and total coliform to Indian Creek via their feces. TRIB-AOUT total coliform and *E. coli* concentrations were consistently lower than at IC-IN.

Summary

The above summary of Table 4-2 results from the first five months of surface water quality monitoring for the CN Milton Logistics Hub indicate that ongoing major earthwork activities have not been a substantial source of residual agricultural contaminant loading to Tributary A and Indian Creek. It is recommended, based on the above summary of five months of monitoring results, and assuming that the results from the June sampling event are consistent with existing findings, that monitoring for Table 4-2 parameters no longer be conducted, as anticipated in the CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program.

We welcome any comments or input from the interested parties in this regard, but trust that the information provided to date has been sufficient to confirm that project activities have not been a substantial source of residual agricultural contaminant loading to Tributary A and Indian Creek, as predicted.

Reference: **CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – May Table 4-2 Results Submission and Five Month Results Summary**

Respectfully,

STANTEC CONSULTING LTD.

<Original signed by>

<Original signed by>

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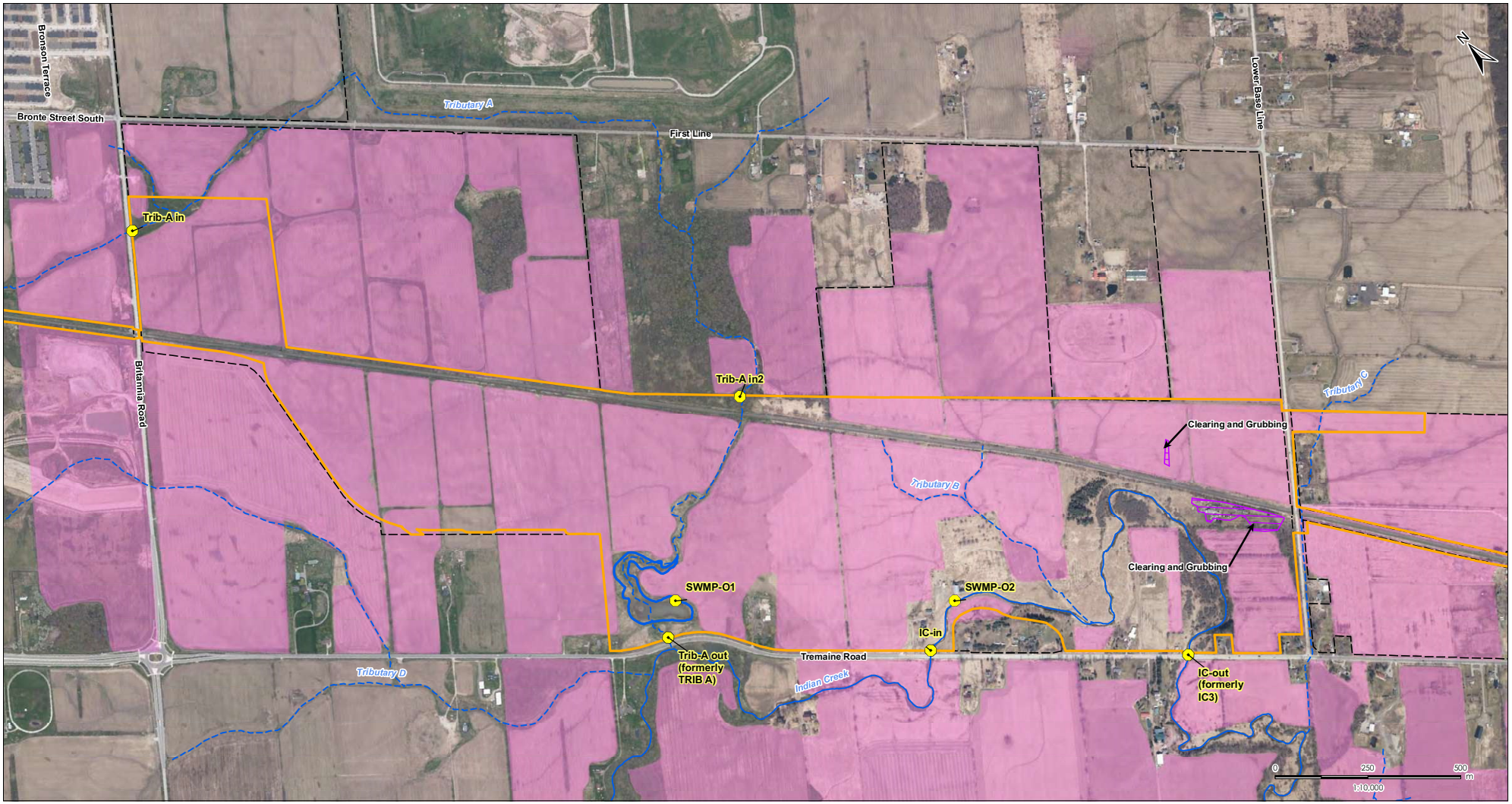
Attachment: Figures 1 to 5 - Monthly Site Soil Disturbance Extents; Memo - CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – May 2022 Table 4-2 Results



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Revised: 2022-08-16 By: dharvey

August 2022
160960844

Stantec

Notes

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3. Orthoimagery © First Base Solutions, 2015. Imagery taken in 2019
4. All depths are approximate.

Legend

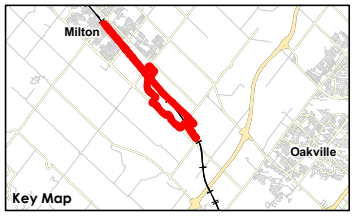
- Surface Water Monitoring Station
- Site Disturbance
- Agricultural Fields

Project Components

- Project Development Area
- CN-Owned Property

Existing Features

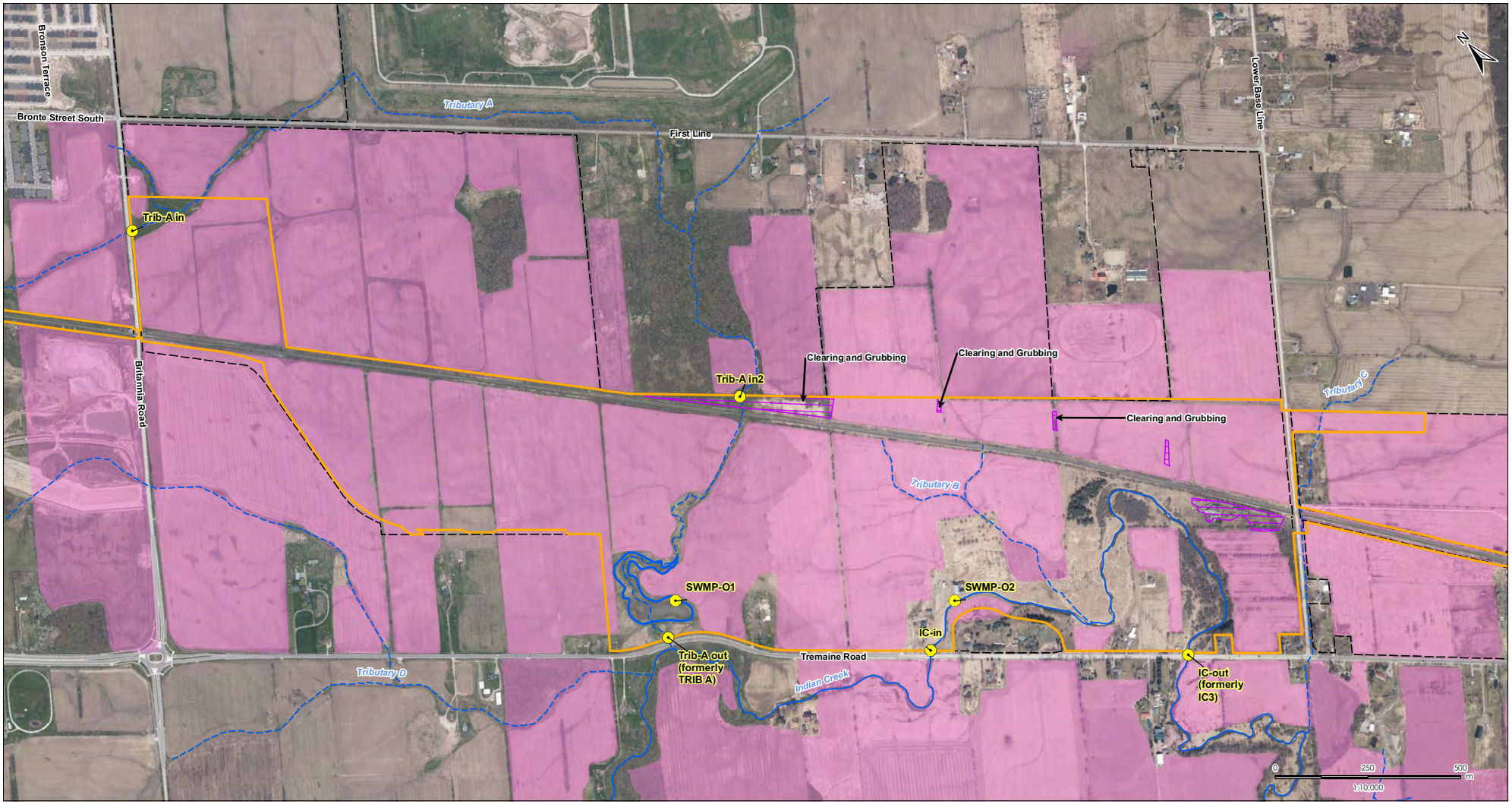
- Permanent Watercourse
- Intermittent Watercourse
- Waterbody



Client/Project
Canadian National Railway
Milton Logistics Hub

Figure No.
1

Title
Site Disturbance
As of January 30 2022



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August 2022
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4. All depths are approximate.

Legend

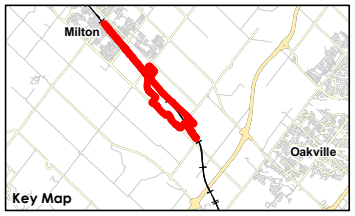
- Surface Water Monitoring Station
- Site Disturbance
- Agricultural Fields

Project Components

- Project Development Area
- CN-Owned Property

Existing Features

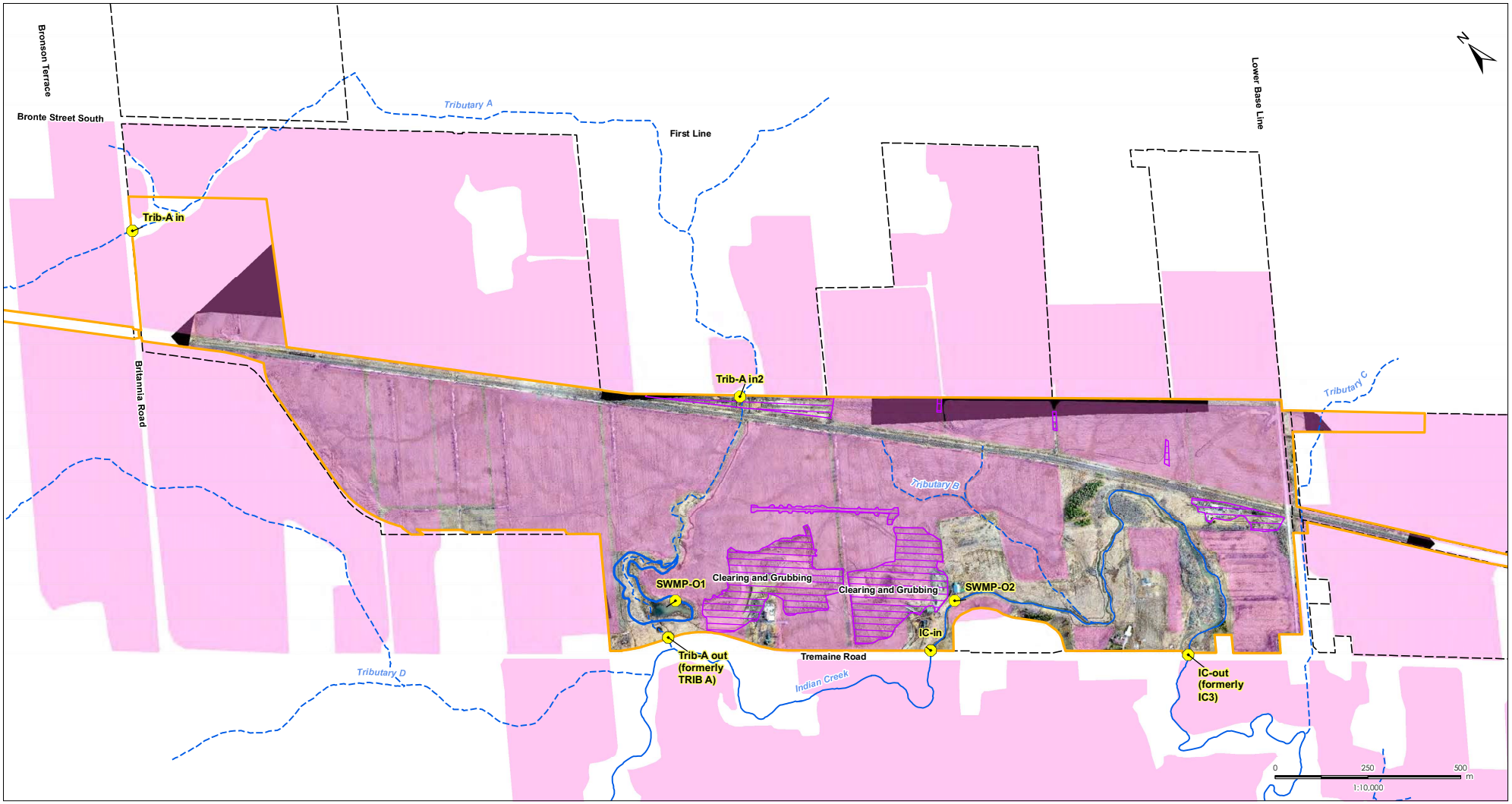
- Permanent Watercourse
- Intermittent Watercourse
- Waterbody



Client/Project
Canadian National Railway
Milton Logistics Hub

Figure No.
2

Title
Site Disturbance As of February 28 2022



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Revised: 2022-08-16 By: dharvey

August 2022
160960844

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Notes

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3. Orthoimagery © Canadian National Railway. Imagery taken in 20220322
4. All depths are approximate.

Legend

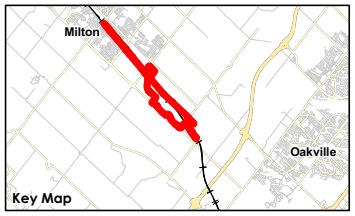
- Surface Water Monitoring Station
- Site Disturbance
- Agricultural Fields

Project Components

- Project Development Area
- CN-Owned Property

Existing Features

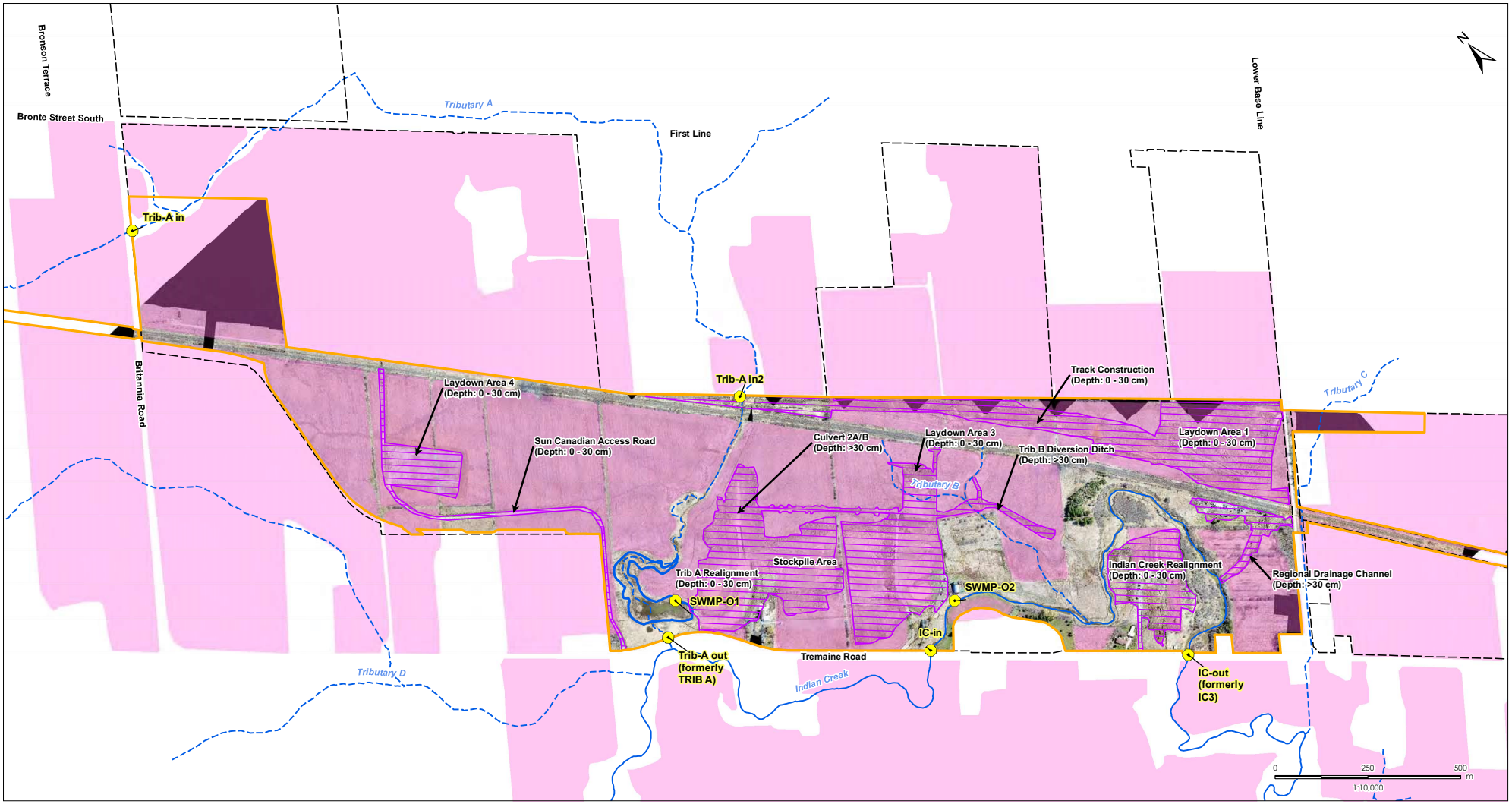
- Permanent Watercourse
- Intermittent Watercourse
- Waterbody



Client/Project
Canadian National Railway
Milton Logistics Hub

Figure No.
3

Title
Site Disturbance
As of March 22 2022



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August 2022
160960844

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4. All depths are approximate

Legend

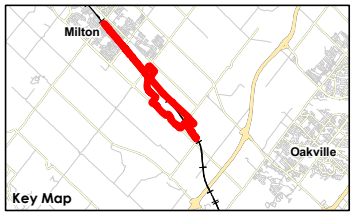
- Surface Water Monitoring Station
- Site Disturbance
- Agricultural Fields

Project Components

- Project Development Area
- CN-Owned Property

Existing Features

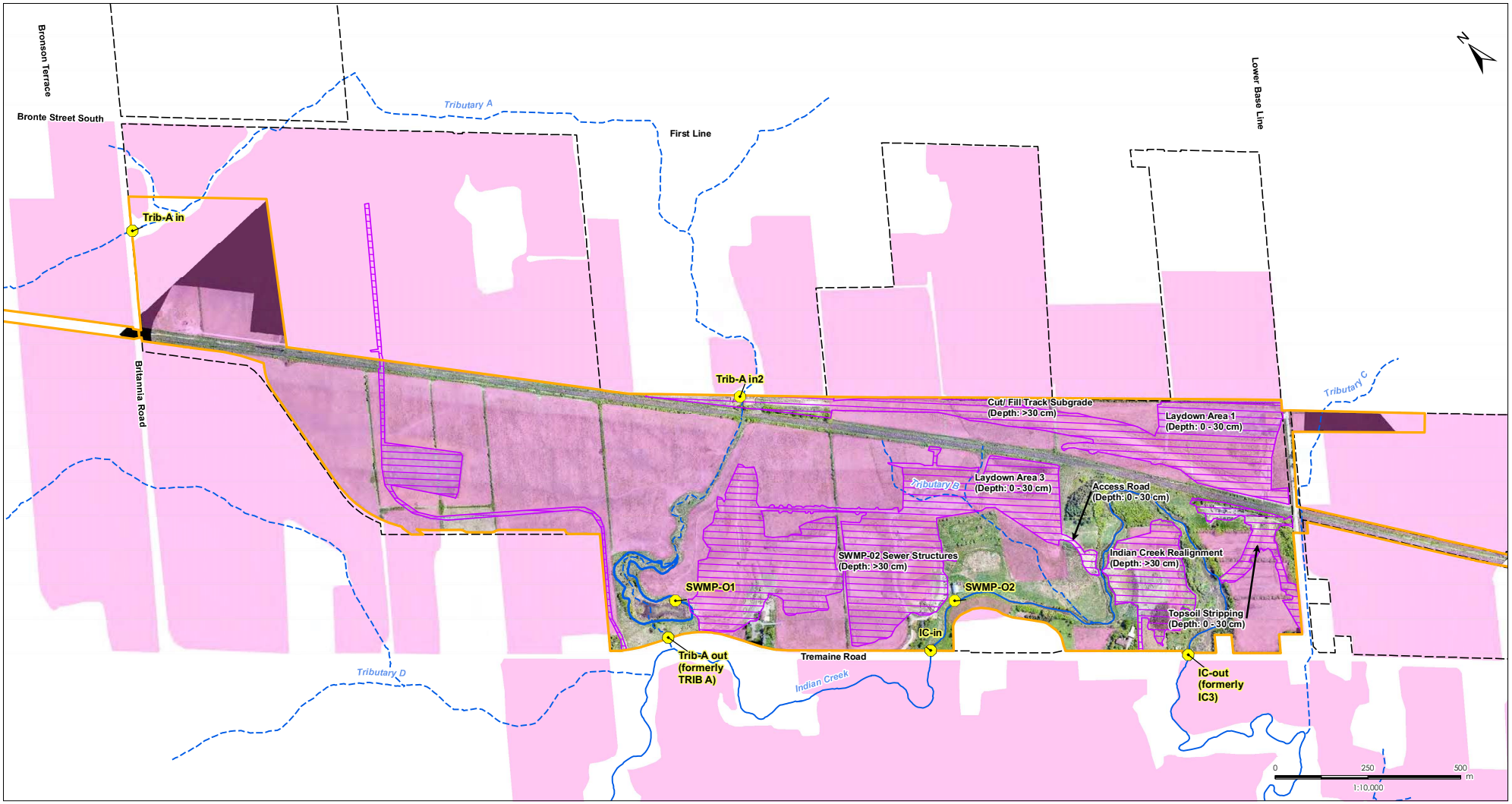
- Permanent Watercourse
- Intermittent Watercourse
- Waterbody



Client/Project
Canadian National Railway
Milton Logistics Hub

Figure No.
4

Title
Site Disturbance
As of April 22 2022



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Revised: 2022-08-16 by dharvey

August 2022
160960844

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Notes

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4. All depths are approximate.

Legend

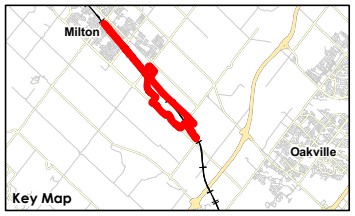
- Surface Water Monitoring Station
- Site Disturbance
- Agricultural Fields

Project Components

- Project Development Area
- CN-Owned Property

Existing Features

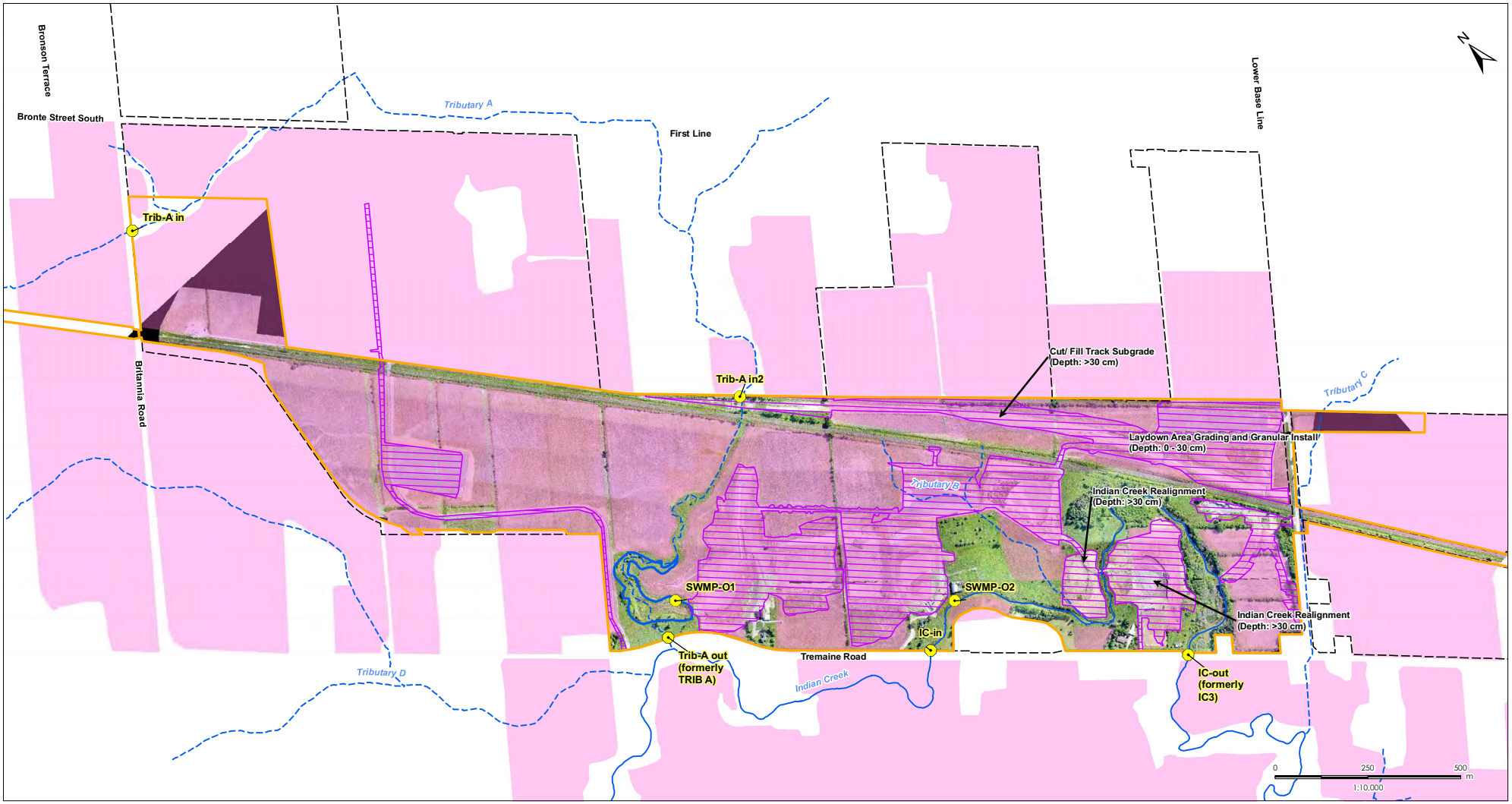
- Permanent Watercourse
- Intermittent Watercourse
- Waterbody



Client/Project
Canadian National Railway
Milton Logistics Hub

Figure No.
5

Title
Site Disturbance As of May 20 2022



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Revised: 2022-08-16 By: dharvey

August 2022
160960844

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Notes

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4. All depths are approximate.

Legend

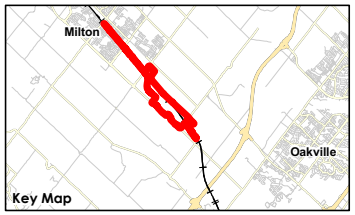
- Surface Water Monitoring Station
- Site Disturbance
- Agricultural Fields

Project Components

- Project Development Area
- CN-Owned Property

Existing Features

- Permanent Watercourse
- Intermittent Watercourse
- Waterbody



Client/Project
Canadian National Railway
Milton Logistics Hub

Figure No.
6

Title
Site Disturbance
As of June 21 2022

Stantec

Memo

To:	France Moreau CN, Montreal, QC	From:	Andrew Sinclair/Sheldon Smith Stantec, Markham
Project/File:	160960844	Date:	September 21, 2022

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – May 2022 Table 4-2 Results

As part of the reporting requirements for the CN Milton Logistics Hub Surface Water Quality and Quantity Follow-up Program (SWQQ FUP), Table 4-2 parameter monitoring results are to be reported monthly for the first six months of construction to Environment and Climate Change Canada (ECCC), Fisheries and Oceans Canada (DFO) and Conservation Halton (CH). Construction of the CN Milton Logistics Hub began in late January 2022 with monitoring events in late January, February and March. The fifth surface water quality monitoring event occurred on May 17, 2022. Water samples were submitted to Bureau Veritas Laboratories in Mississauga, ON for analysis.

In May 2022, there were no in-water construction activities within Tributary A and Indian Creek. The main activities at the site were earthwork related adjacent to the watercourses with erosion and sediment control mitigation measures installed.

Of the seven monitoring stations in the SWQQ FUP, only five were active at the time of the monitoring event as Stormwater Management Ponds (SWMPs) 1 and 2 were not constructed (see attached Figure 1). Water samples were collected using an ISCO autosampler over a 2.5 to 3 hour collection period with a 15 minute sampling frequency and *in-situ* water quality measurements were taken at Trib-Ain, Trib-Ain2, Trib-Aout, IC-IN, and IC-OUT, and a duplicate sample at Trib-Ain as per the SWQQ FUP. *In-situ* water quality measurements were conducted using a calibrated YSI ProDSS multi-parameter digital water quality meter. All stations were sampled on May 17, 2022.

The attached Table 1 presents the Table 4-2 water quality results for the May 17, 2022 monitoring event with comparison to applicable Canadian Council of the Ministers of Environment (CCME) Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CWQG-FAL). *In-situ* pH and temperature results have been added to Table 4-2 results to calculate CWQG-FAL values for total ammonia and were used by Bureau Veritas to calculate un-ionized ammonia concentrations for each monitoring station. Bureau Veritas conducted the total coliform and *E.coli* analysis using three different dilutions (100:1, 10:1, 1:1), instead of the standard 1:1 (no dilution method).

The attached Table 1 results at the five monitoring stations were below the short-term and long-term CCME CWQG-FAL guideline values for the nitrogen compounds and applicable pesticides and herbicides analysed. None of the pesticide and herbicide parameter results were above the reportable detection limits at the five sites.

The nitrate and nitrite results at IC-IN were similar or higher in value than at IC-OUT. Total ammonia concentration was higher at IC-IN than IC-OUT, the duplicate IC-IN sample revealed similar total ammonia concentration to that of IC-OUT. Unionized ammonia was highest at IC-IN in comparison to the duplicate

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program - April 2022 Table 4-2 Results

IC-IN, and IC-OUT samples. Concentration of unionized ammonia was an order of magnitude lower in IC-OUT than IC-IN.

The *E.coli* and total coliform results were higher at IC-OUT in comparison to IC-IN, but were the same order of magnitude. Comparison of the duplicate and IC-IN *E.coli* and total coliform results indicates substantial fluctuation in bacteria populations within the watercourse at the same location. Additionally, approximately 100 m upstream of IC-OUT was an active beaver pond and lodge. The beavers would potentially contribute *E.coli* and total coliform to Indian Creek via their feces.

The nitrate and nitrite results at Trib-Ain and Trib-Ain2 were similar in value to Trib-Aout with all being below the reportable detection limit. Total ammonia (as N) was highest at Trib-Ain. Ammonia concentrations were similar at Trib-Aout and Indian Creek sites.

Trib-Ain2 had the highest *E.coli* concentration and Trib-Aout was the lowest value of the Tributary A sites. IC-IN had higher total coliform and *E.coli* concentrations than Trib-Aout.

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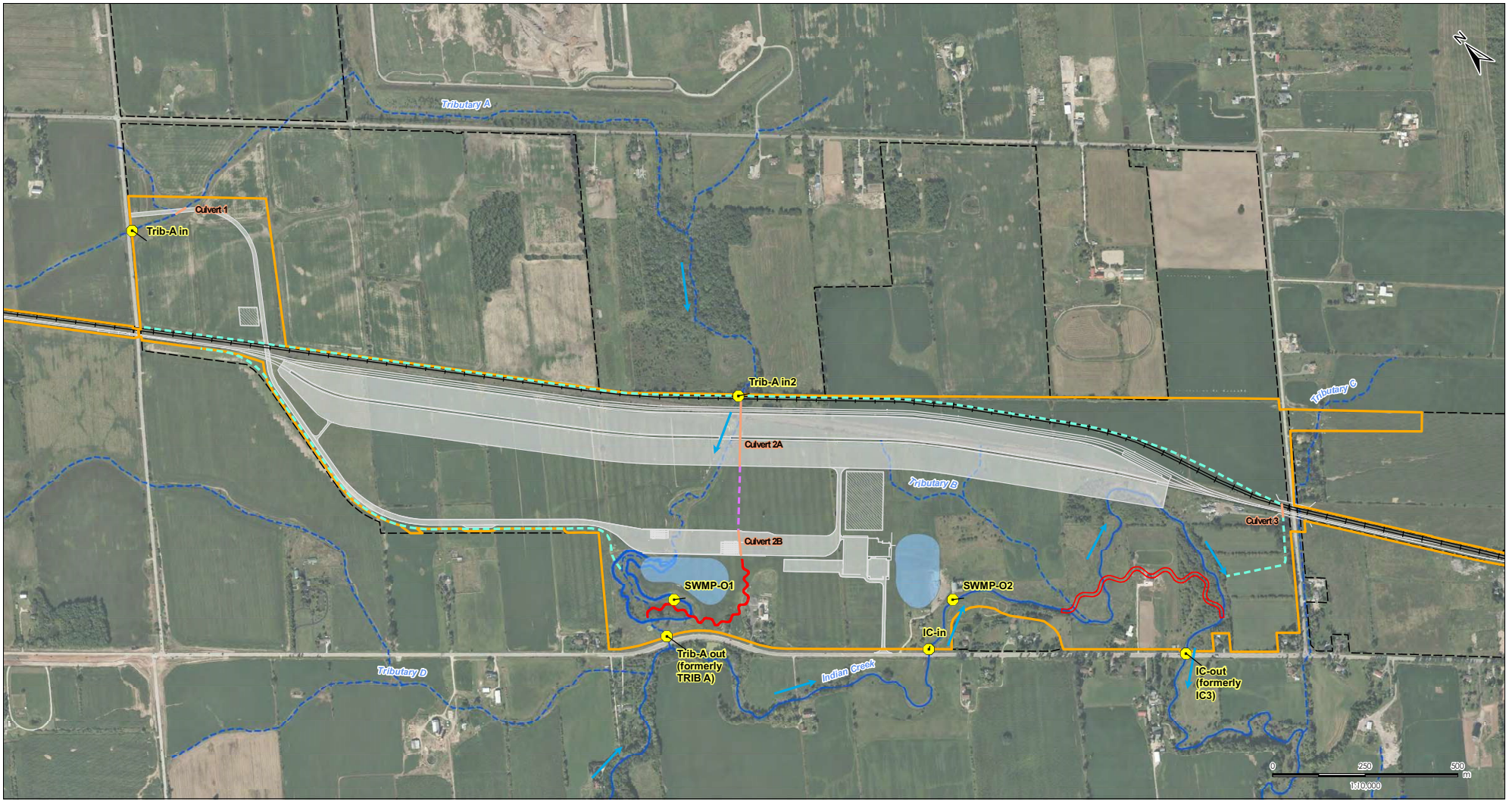
Attachments: Figure 1 - Construction and Operation Surface Water Monitoring Stations
Table 1 - CN Milton SW FUP Table 4-2 May 2022 Monitoring Results

References

Stantec Consulting Ltd. 2022. *CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program*. 160960844. Prepared for Canadian National Railway Company.



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Revised: 2020-05-06 By: dhanley

May 2020
160960844

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Notes

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2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2015. Site layout: July 10, 2015.
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Legend

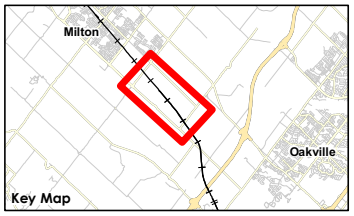
- Surface Water Monitoring Station
- SWM Pond
- Creek Realignment

Project Components

- Project Development Area
- Existing Single Track Mainline
- Existing Double Track Mainline
- Single Track - Mainline
- Double Track - Mainline
- Project Component
- CN-Owned Property

Existing Features

- Permanent Watercourse
- Intermittent Watercourse
- Waterbody
- Flow Direction
- Proposed Culvert
- Drainage Ditch
- Tributary A Regional Diversion Ditch



Client/Project
Canadian National Railway
Milton Logistics Hub
Technical Data Report - Channel Realignment (Appendix E.2)

Figure No.
1

Title
Construction and Operation Surface Water Monitoring Stations

TABLE 1 - CN Milton SW FUP Table 4-2 May 2022 Monitoring Results

Parameters	Units	Detection Limit (DL)	CWQG-FAL Guidelines		Monitoring Station Results							
					TRIB-AIN	TRIB-AIN2	TRIB-AOUT	IC-IN	Dup-1 (IC-IN)	IC-OUT	SWMP-01	SWMP-02
					17-May-22	17-May-22	17-May-22	17-May-22	17-May-22	17-May-22	Not Constructed	
			Short Term	Long Term	694	695	696	697	701	698		
Field pH	-	-	-	-	8.3	7.86	7.74	8.2	8.2	7.21		
Field temperature	°C	-	-	-	15.9	17.6	20.3	16.9	16.9	16.1		
Ammonia (total) (as N)	ug/L	10	-	Narrative [a]	110	100	60	190	60	70		
Ammonia (unionized, calculated)	ug/L	-	-	19	7.3	3	1.5	11	3.7	<0.61		
Nitrate (as N)	ug/L	100	124,000	3,000	<100	<100	<100	710	690	510		
Nitrite (as N)	ug/L	10	-	60	<10	<10	<10	25	24	23		
Coliform, total	CFU/100mL	0	-	-	10000	2400	950	1200	2300	3200		
E. Coli	CFU/100mL	0	-	-	510	85	250	350	410	560		
Pesticides												
Organophosphate Package												
Metolachlor	ug/L	5	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0		
Fenchlorphos (Ronnel)	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Mevinphos	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Trifluralin	ug/L	0.05	ND	0.2	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Phosmet	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Dichlorvos	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Dimethoate	ug/L	2	ND	6.2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Fonofos	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Triallate	ug/L	0.05	ND	0.24	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Demeton-S	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Atrazine	ug/L	1	ND	1.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Diazinon	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Malathion	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Parathion Ethyl	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Parathion Methyl	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Simazine	ug/L	2	ND	10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Aldicarb	ug/L	0.1	ND	1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
Bendiocarb	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Carbaryl	ug/L	0.1	3.3	0.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
Carbofuran	ug/L	0.1	ND	1.8	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
Cyanazine (Bladex)	ug/L	0.1	ND	2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
Prometryne	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Chloropryifos (Dursban)	ug/L	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
Terbufos	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Phorate	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Guthion (Azinophos-methyl)	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Ethion	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Fenthion	ug/L	1	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Herbicides												
Dicamba	ug/L	0.5	ND	10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
Picloram	ug/L	0.5	ND	29	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
MCPB	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4-D(BEE)	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
MCPP	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
MCPA	ug/L	0.5	ND	2.6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4-DP (Dichloroprop)	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4-D	ug/L	0.5	ND	4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4,5-TP (Silvex)	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4,5-T	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
2,4-DB	ug/L	0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		

N - nitrogen; ND – no data; NDOGT - No data due to overgrowth. Total coliforms and/or E.coli detected

[a] - Guideline for total ammonia is temperature and pH dependent. Measurements of total ammonia in the aquatic environment are often expressed as mg/L total ammonia-N. The present guideline values (mg/L NH_3) can be converted to mg/L total ammonia-N by multiplying the corresponding guideline value by 0.8224. Consult the CWQG-FAL factsheet for more details. TRIB-AIN - 334 µg/L; TRIB-AIN2 - 787 µg/L; TRIB-AOUT - 840 µg/L; IC-IN - 382 µg/L; Dup-1 (IC-IN) - 382 µg/L; IC-OUT - 3818 µg/L

Stantec

Memo

To:	France Moreau CN, Montreal, QC	From:	Andrew Sinclair/Sheldon Smith Stantec, Markham
Project/File:	160960844	Date:	January 27, 2023

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – December 2022 Table 4-2 Results

As part of the reporting requirements for the CN Milton Logistics Hub Surface Water Quality and Quantity Follow-up Program (SWQQ FUP), Table 4-2 parameter monitoring results are to be reported monthly for the first six months of construction and onward to Environment and Climate Change Canada (ECCC), Fisheries and Oceans Canada (DFO) and Conservation Halton (CH), until confirmation to remove Table 4-2 parameters is received from ECCC. Construction of the CN Milton Logistics Hub began in late January 2022 with monitoring events on a monthly basis from late January to October for a total of ten events. Monitoring results showed no exceedances of the Table 4-2 criteria. CN submitted a request for the discontinuation of nitrogen compounds (total and un-ionized ammonia, nitrate and nitrite), bacteria (total coliforms, *E.coli*), and pesticide and herbicide parameters except for chlorpyrifos and this was accepted on December 5, 2022 by ECCC.

As a result, only chlorpyrifos is being reported. The 12th surface water quality monitoring event occurred on December 13, 2022. Water samples were submitted to ALS Global in Burlington, ON for low-level analysis of chlorpyrifos.

The main site soil disturbance activities to date include grading, soil excavation and stripping for cut and fill for track subgrade, and the Tributary A and Indian Creek realignment areas. Excavation activities were typically at soil depths greater than 30 cm below grade. Erosion and sediment control (ESC) measures were installed where required adjacent to surface water features.

Of the seven monitoring stations in the SWQQ FUP, only two were active at the time of the December monitoring event, IC-IN and IC-OUT. Stormwater Management Ponds (SWMPs) 1 and 2 were not yet constructed and Trib-Ain, Trib-Ain2, and Trib-Aout contained no flowing water (see attached Figure 1).

Water samples were collected using an ISCO autosampler over a 2.5 to 3 hour collection period with a 15 minute sampling frequency and *in situ* water quality measurements were taken at IC-IN and IC-OUT on December 13, 2022. *In situ* water quality measurements were conducted using a calibrated YSI ProDSS multi-parameter digital water quality meter. Two samples (IC-IN and IC-OUT) were submitted to ALS Global in Burlington, ON for low-level analysis of chlorpyrifos. The reporting limit for low-level analysis for the pesticide chlorpyrifos depends on the sample matrix (i.e., measured background noise). Thus, in addition to these two samples (IC-IN, IC-OUT), DUPLICATE 1 (IC-IN), DUPLICATE 2 (IC-OUT) and one FIELD BLANK were submitted to ALS Global as quality assurance/quality control measures for the low-level analysis of chlorpyrifos.

The attached Table 1 presents the Table 4-2 chlorpyrifos results for the December 13, 2022 monitoring event with comparison to applicable Canadian Council of the Ministers of Environment (CCME) Canadian

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – December 2022 Table 4-2 Results

Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CWQG-FAL). *In situ* pH and temperature results are also included in the Table 4-2 results.

The results were below the short-term and long-term CCME CWQG-FAL guideline values for chlorpyrifos of 0.02 and 0.002 µg/L, respectively. The chlorpyrifos results for the IC-IN and IC-OUT samples, and their duplicates were below the reportable detection limits ranging from <0.000021 to <0.000045 µg/L, which were less than the CCME CWQG-FAL guideline values. The chlorpyrifos detection limits varied at each site between the original samples and duplicates due to measured background noise.

Chlorpyrifos has been monitored monthly from August to December 2022. Monitoring results for the last five monitoring events (August to December 2022) observed both IC-IN and IC-OUT water samples below the short-term and long-term CCME CWQG-FAL guideline values for chlorpyrifos. The chlorpyrifos concentrations at IC-IN and IC-OUT were comparable and when measurable concentrations were observed they were around the detection limit values (maximum 0.000016 µg/L at IC-IN, September 27, 2022).

It is expected that the January 2023 monitoring results for the 6th of six planned monitoring events will also demonstrate chlorpyrifos condition compliance. Assuming these expected results, the January results report memo will request the conclusion of monitoring this last Table 4.2 parameter and conclude this component of the SWQQ FUP.

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Attachments:

Figure 1 - Construction and Operation Surface Water Monitoring Stations
Table 1 - CN Milton SW FUP Table 4-2 December 2022 Monitoring Results

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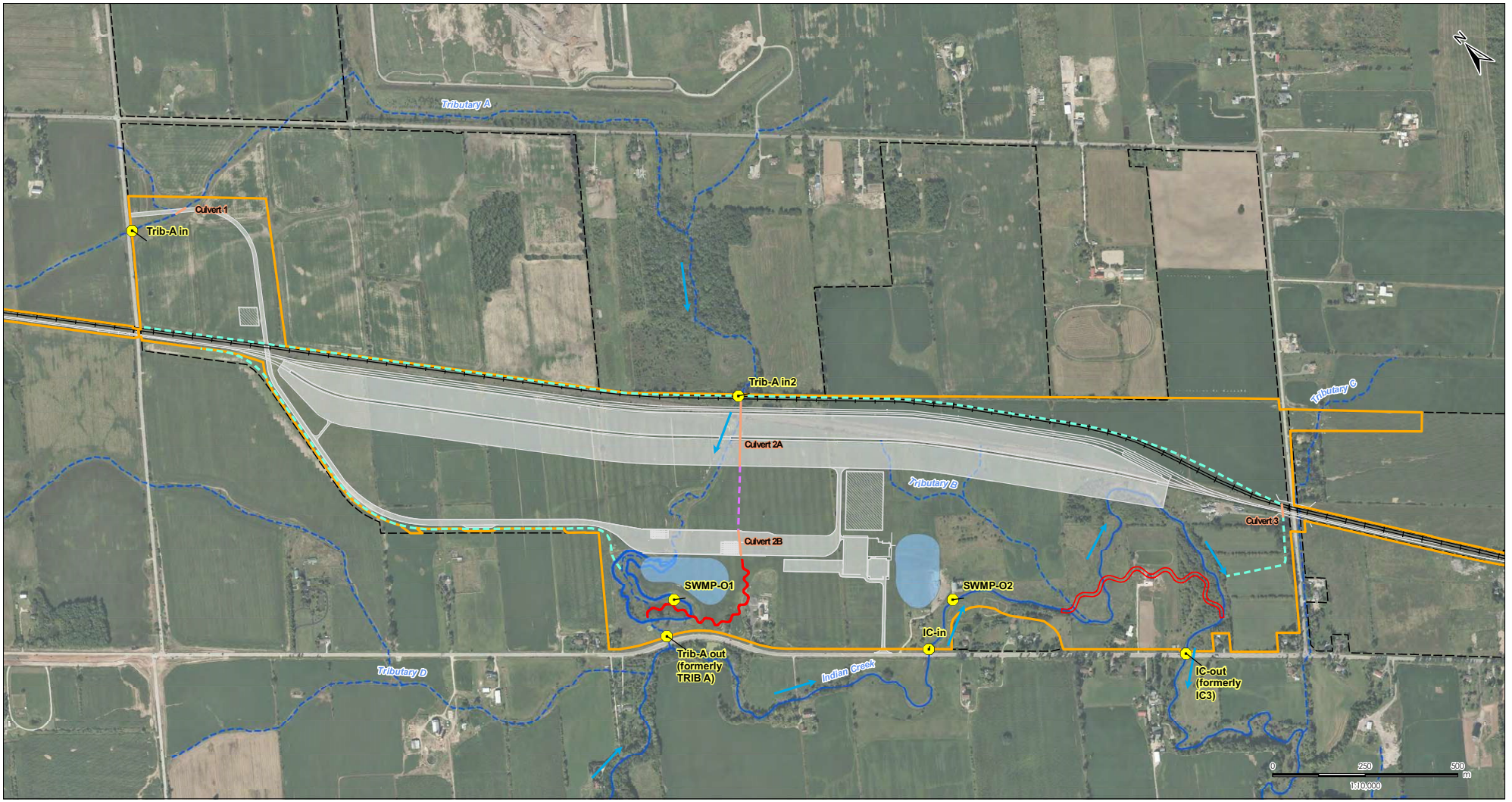

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May 2020
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Notes

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3. Orthoimagery © First Base Solutions, 2015. Imagery taken in 2014.

Legend

- Surface Water Monitoring Station
- SWM Pond
- Creek Realignment

Project Components

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- Existing Single Track Mainline
- Existing Double Track Mainline
- Single Track - Mainline
- Double Track - Mainline
- Project Component
- CN-Owned Property

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- Intermittent Watercourse
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- Flow Direction
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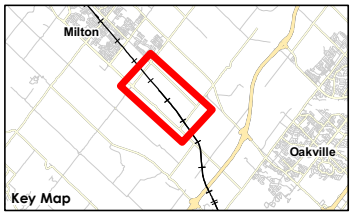

Client/Project
Canadian National Railway
Milton Logistics Hub
Technical Data Report - Channel Realignment (Appendix E.2)

Figure No.
2

Title
Construction and Operation Surface Water Monitoring Stations

TABLE 1 - CN Milton SW FUP Table 4-2 December 2022 Monitoring Results

Parameters	Units	Detection Limit (DL)	CWQG-FAL Guidelines		Monitoring Station Results						
					IC-IN	IC-OUT	DUPLICATE 1 (IC-IN)	DUPLICATE 2 (IC-OUT)	FIELD BLANK	SWMP-01	SWMP-02
					13-Dec-22	13-Dec-22	13-Dec-22	13-Dec-22	13-Dec-22	Not Constructed	
			Short Term	Long Term							
Field pH	-	-	-	-	8.54	7.79	8.54	7.79	ND		
Field temperature	°C	-	-	-	1.4	0.4	1.4	0.4	ND		
Pesticides											
Chlorpyrifos (Dursban)	µg/L	0.000021 - 0.000053[a]	0.02	0.002	<0.000038	<0.000021	<0.000023	<0.000045	<0.000053		

ND - no data

[a] - The varying detection limits are based on the measured background noise for this parameter in each sample.

Stantec

Memo

To:	France Moreau CN, Montreal, QC	From:	Andrew Sinclair/Sheldon Smith Stantec, Markham
Project/File:	160960844	Date:	January 4, 2022

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – November 2022 Table 4-2 Results

As part of the reporting requirements for the CN Milton Logistics Hub Surface Water Quality and Quantity Follow-up Program (SWQQ FUP), Table 4-2 parameter monitoring results are to be reported monthly for the first six months of construction and onward to Environment and Climate Change Canada (ECCC), Fisheries and Oceans Canada (DFO) and Conservation Halton (CH), until confirmation to remove Table 4-2 parameters is received from ECCC. Construction of the CN Milton Logistics Hub began in late January 2022 with monitoring events on a monthly basis from late January to October for a total of ten events. Monitoring results showed that no exceedances of the Table 4-2 criteria at the Project and similar concentrations at the inlets and outlet sites for over six months of construction. Subsequently, CN submitted a request to ECCC on Nov 23, 2022 for the discontinuation of nitrogen compounds (total and un-ionized ammonia, nitrate and nitrite), bacteria (total coliforms, *E.coli*), and pesticide and herbicide parameters except for chlorpyrifos for the November monitoring event and subsequent monthly events. On December 5, 2022, ECCC approved the request by CN via email. Therefore, only chlorpyrifos will be reported for the November monitoring event and subsequent monthly events. The 11th surface water quality monitoring event occurred on November 24, 2022. Water samples were submitted to ALS Global in Burlington, ON for low-level analysis of chlorpyrifos.

The main site soil disturbance activities to date include grading, soil excavation and stripping for cut and fill for track subgrade, and the Tributary A and Indian Creek realignment areas. Excavation activities were typically at soil depths greater than 30 cm below grade. Erosion and sediment control (ESC) measures were installed where required adjacent to surface water features.

Of the seven monitoring stations in the SWQQ FUP, only two were active at the time of the November monitoring event, IC-IN and IC-OUT. Stormwater Management Ponds (SWMPs) 1 and 2 were not yet constructed and Trib-Ain, Trib-Ain2, and Trib-Aout contained no flowing water (see attached Figure 1). Water samples were collected using an ISCO autosampler over a 2.5 to 3 hour collection period with a 15 minute sampling frequency and *in situ* water quality measurements were taken at IC-IN and IC-OUT on November 24, 2022. *In situ* water quality measurements were conducted using a calibrated YSI ProDSS multi-parameter digital water quality meter. Two samples (IC-IN and IC-OUT) were submitted to ALS Global in Burlington, ON for low-level analysis of chlorpyrifos. The reporting limit for low-level analysis for the pesticide chlorpyrifos depends on the sample matrix (i.e., measured background noise). Thus, in addition to these two samples (IC-IN, IC-OUT), DUPLICATE 1 (IC-IN), DUPLICATE 2 (IC-OUT) and one FIELD BLANK were submitted to ALS Global as quality assurance/quality control measures for the low-level analysis of chlorpyrifos.

The attached Table 1 presents the Table 4-2 chlorpyrifos results for the November 24, 2022 monitoring event with comparison to applicable Canadian Council of the Ministers of Environment (CCME) Canadian

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – November 2022 Table 4-2 Results

Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CWQG-FAL). *In situ* pH and temperature results are also included in the Table 4-2 results.

The attached Table 1 results at the two monitoring stations were below the short-term and long-term CCME CWQG-FAL guideline values for chlorpyrifos. The chlorpyrifos results for the IC-IN and IC-OUT samples, and their duplicates were below the reportable detection limits ranging from <0.000085 to <0.00021 µg/L, which were less than the CCME CWQG-FAL guideline values. The chlorpyrifos detection limits varied at each site between the original samples and duplicates due to measured background noise.

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Attachments:

Figure 1 - Construction and Operation Surface Water Monitoring Stations
Table 1 - CN Milton SW FUP Table 4-2 November 2022 Monitoring Results

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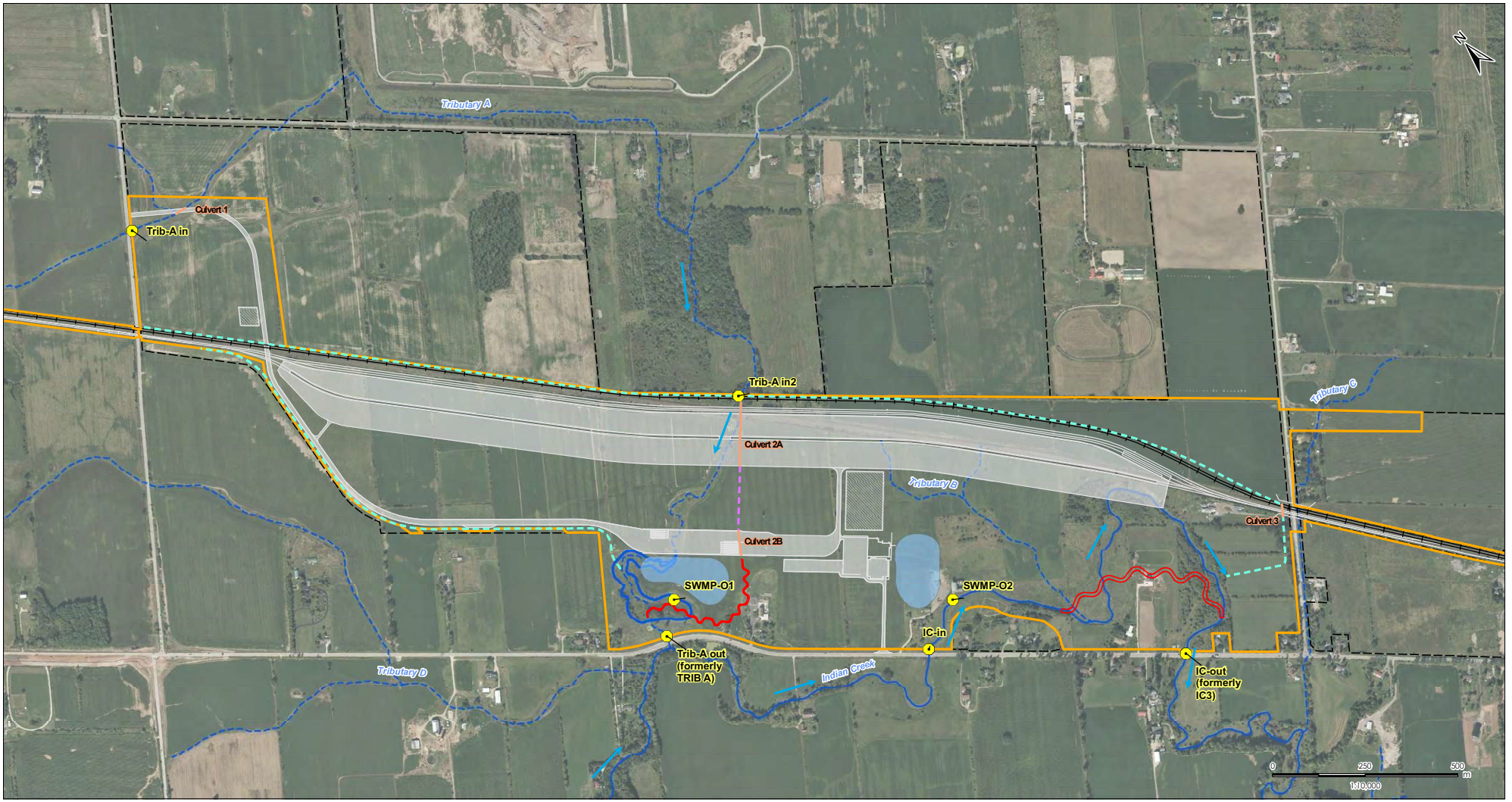

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Revised: 2020-05-06 By: dhanley

May 2020
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- Single Track - Mainline
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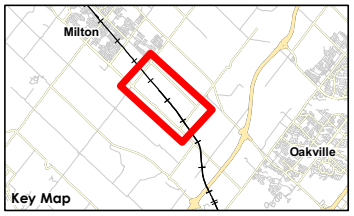

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Canadian National Railway
Milton Logistics Hub
Technical Data Report - Channel Realignment (Appendix E.2)

Figure No.
2

Title
Construction and Operation Surface Water Monitoring Stations

TABLE 1 - CN Milton SW FUP Table 4-2 November 2022 Monitoring Results

Parameters	Units	Detection Limit (DL)	CWQG-FAL Guidelines		Monitoring Station Results						
					IC-IN	IC-OUT	DUPLICATE 1 (IC-IN)	DUPLICATE 2 (IC-OUT)	FIELD BLANK	SWMP-01	SWMP-02
					24-Nov-22	24-Nov-22	24-Nov-22	24-Nov-22	24-Nov-22	Not Constructed	
			Short Term	Long Term							
Field pH	-	-	-	-	8.08	7.70	8.08	7.70	ND		
Field temperature	°C	-	-	-	1.6	1.0	1.6	1.0	ND		
Pesticides											
Chlorpyrifos (Dursban)	µg/L	0.000085 - 0.00021[a]	0.02	0.002	<0.00012	<0.000098	<0.000085	<0.00021	<0.00017		

ND - no data

[a] - The varying detection limits are based on the measured background noise for this parameter in each sample.

Stantec

Memo

To:	France Moreau CN, Montreal, QC	From:	Andrew Sinclair/Sheldon Smith Stantec, Markham
Project/File:	160960844	Date:	December 15, 2022

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – October 2022 Table 4-2 Results

As part of the reporting requirements for the CN Milton Logistics Hub Surface Water Quality and Quantity Follow-up Program (SWQQ FUP), Table 4-2 parameter monitoring results are to be reported monthly for the first six months of construction and onward to Environment and Climate Change Canada (ECCC), Fisheries and Oceans Canada (DFO) and Conservation Halton (CH), until confirmation to remove Table 4-2 parameters is received from ECCC. Construction of the CN Milton Logistics Hub began in late January 2022 with monitoring events on a monthly basis from late January to September for a total of nine events. The tenth surface water quality monitoring event occurred on October 25, 2022. Water samples were submitted to Bureau Veritas Laboratories in Mississauga, ON and ALS Global in Burlington, ON for analysis.

The main site soil disturbance activities to date include grading, soil excavation and stripping for cut and fill for track subgrade, and the Tributary A and Indian Creek realignment areas. Excavation activities were typically at soil depths greater than 30 cm below grade. Erosion and sediment control (ESC) measures were installed where required adjacent to surface water features.

Of the seven monitoring stations in the SWQQ FUP, only two were active at the time of the October monitoring event, IC-IN and IC-OUT. Stormwater Management Ponds (SWMPs) 1 and 2 were not yet constructed and Trib-Ain, Trib-Ain2, and Trib-Aout contained no flowing water (see attached Figure 1). Water samples were collected using an ISCO autosampler over a 2.5 to 3 hour collection period with a 15 minute sampling frequency and *in situ* water quality measurements were taken at IC-IN and IC-OUT on October 25, 2022. *In situ* water quality measurements were conducted using a calibrated YSI ProDSS multi-parameter digital water quality meter. Two samples (IC-IN and IC-OUT) were submitted to Bureau Veritas Laboratories for all analyses except the pesticide chlorpyrifos which was analyzed by ALS Global. The reporting limit for low-level analysis for the pesticide chlorpyrifos depends on the sample matrix (i.e., measured background noise). Thus, in addition to these two samples (IC-IN, IC-OUT), DUPLICATE 1 (IC-OUT), DUPLICATE 2 (IC-IN) and one FIELD BLANK were submitted to ALS Global as quality assurance/quality control measures for the low-level analysis of chlorpyrifos.

The attached Table 1 presents the Table 4-2 water quality results for the October 25, 2022 monitoring event with comparison to applicable Canadian Council of the Ministers of Environment (CCME) Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CWQG-FAL). *In situ* pH and temperature results have been added to Table 4-2 results to calculate CWQG-FAL values for total ammonia and were used by Bureau Veritas to calculate un-ionized ammonia concentrations for each monitoring station. Bureau Veritas conducted the total coliform and *E.coli* analysis using three different dilutions (100:1, 10:1, 1:1), instead of the standard 1:1 (no dilution method).

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – October 2022 Table 4-2 Results

The attached Table 1 results at the two monitoring stations were below the short-term and long-term CCME CWQG-FAL guideline values for total ammonia, calculated un-ionized ammonia, nitrate, nitrite, and applicable pesticides and herbicides analysed. The observed concentrations of the analyzed pesticide and herbicide parameters at the two sites were below reportable detection limits, including chlorpyrifos, which were lower than the respective CCME CWQG-FAL guideline values. The chlorpyrifos detection limits varied at each site between the original samples and duplicates due to measured background noise.

The nitrate and nitrite concentrations at IC-IN and IC-OUT were below the reportable detection limits. The total ammonia and calculated unionized ammonia concentrations at the IC-OUT site were similar to those at the IC-IN site. The total ammonia and calculated unionized ammonia concentrations at IC-IN and IC-OUT were below the CCME CWQG-FAL guideline values.

The total coliform and *E.coli* results at IC-OUT were slightly elevated in comparison to IC-IN, but were within the same concentration range. Although no duplicate sample was collected for bacteria analysis for this event, past sample results have identified fluctuations in total coliform and *E. coli* concentrations within the same concentration range.

Following the completion of the October 25, 2022 monitoring event and based on no exceedances of the Table 4-2 criteria at the Project and similar concentrations at the inlets and outlet sites for over six months of construction, CN submitted a request to ECCC on Nov 23, 2022 for the discontinuation of the following Table 4-2 parameters for the November monitoring event and subsequent monthly events:

- Nitrogen compounds (total and un-ionized ammonia, nitrate and nitrite)
- Bacteria (total coliforms, *E.coli*)
- Pesticide and herbicide parameters, except for chlorpyrifos

On December 5, 2022, ECCC responded via email that they agree with the requested discontinuation of the above Table 4-2 parameters for the November monitoring event and subsequent monthly events. For the November monitoring event onward the following Table 4-2 parameter will be monitored until a total of six months of results have been collected:

- Chlorpyrifos

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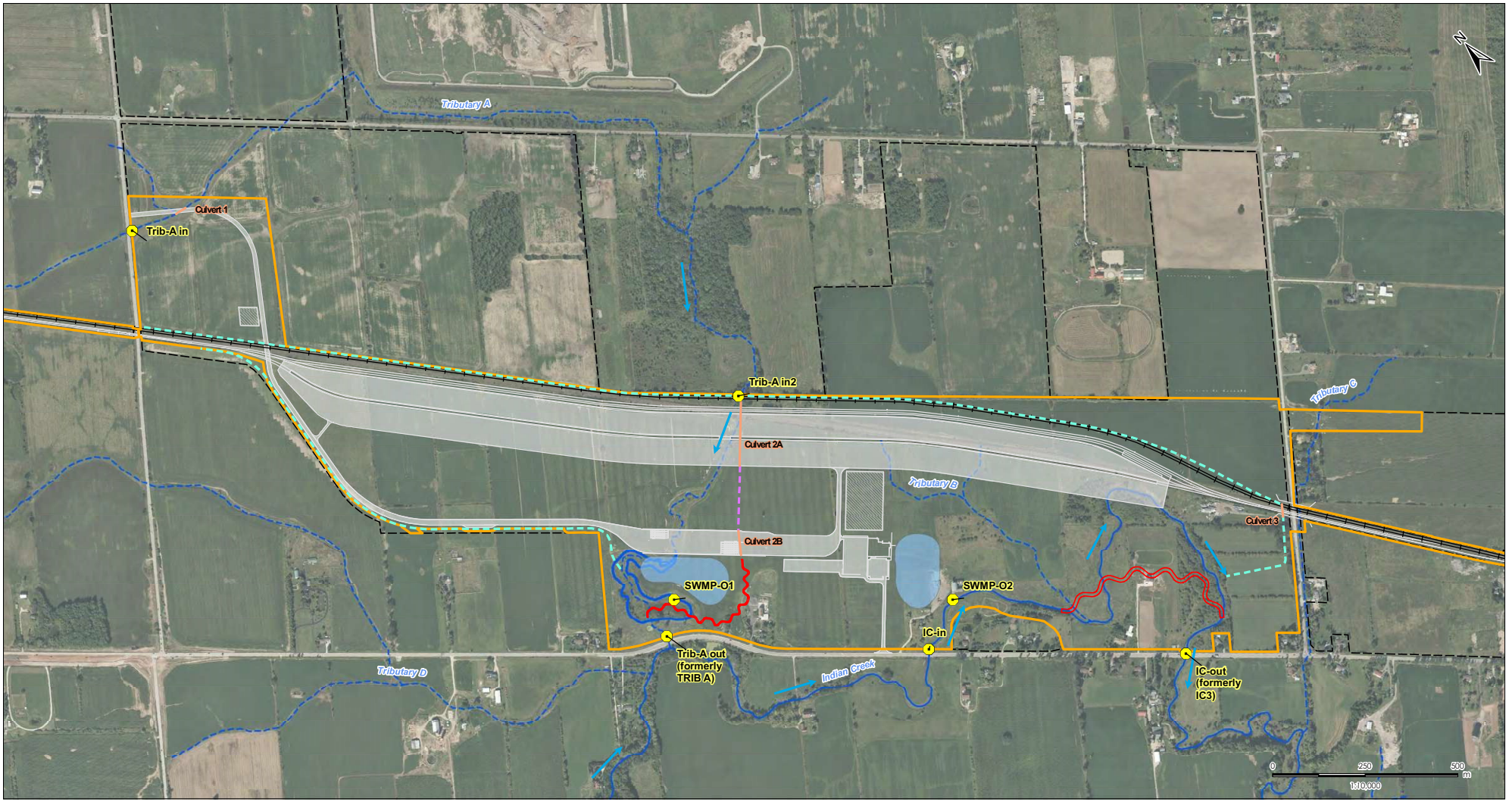
Attachments:

Figure 1 - Construction and Operation Surface Water Monitoring Stations
Table 1 - CN Milton SW FUP Table 4-2 October 2022 Monitoring Results

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – October 2022 Table 4-2 Results

References

Stantec Consulting Ltd. 2022. *CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program*. 160960844. Prepared for Canadian National Railway Company.



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Revised: 2020-05-06 By: dhanley

May 2020
160960844

Stantec

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2015. Site layout: July 10, 2015.
3. Orthoimagery © First Base Solutions, 2015. Imagery taken in 2014.

Legend

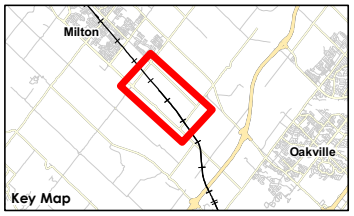
- Surface Water Monitoring Station
- SWM Pond
- Creek Realignment

Project Components

- Project Development Area
- Existing Single Track Mainline
- Existing Double Track Mainline
- Single Track - Mainline
- Double Track - Mainline
- Project Component
- CN-Owned Property

Existing Features

- Permanent Watercourse
- Intermittent Watercourse
- Waterbody
- Flow Direction
- Proposed Culvert
- Drainage Ditch
- Tributary A Regional Diversion Ditch



Client/Project
Canadian National Railway
Milton Logistics Hub
Technical Data Report - Channel Realignment (Appendix E.2)

Figure No.
2

Title
Construction and Operation Surface Water Monitoring Stations

TABLE 1 - CN Milton SW FUP Table 4-2 October 2022 Monitoring Results

Parameters	Units	Detection Limit (DL)	CWQG-FAL Guidelines		Monitoring Station Results						
					IC-IN	IC-OUT	DUPLICATE 1 (IC-OUT)	DUPLICATE 2 (IC-IN)	FIELD BLANK	SWMP-01	SWMP-02
					25-Oct-22	25-Oct-22	25-Oct-22	25-Oct-22	25-Oct-22	Not Constructed	
			Short Term	Long Term	COC ID: 922	COC ID: 923	-	-	-		
Field pH	-	-	-	-	7.85	7.96	7.96	7.85	ND		
Field temperature	°C	-	-	-	11.4	10.4	10.4	11.4	ND		
Ammonia (total) (as N)	µg/L	10	-	Narrative [a]	140	130	ND	ND	ND		
Ammonia (unionized, calculated)	µg/L	-	-	19	2.40	2.6	ND	ND	ND		
Nitrate (as N)	µg/L	100	124,000	3,000	<100	<100	ND	ND	ND		
Nitrite (as N)	µg/L	10	-	60	<10	<10	ND	ND	ND		
Coliform, total	CFU/100mL	0	-	-	360	640	ND	ND	ND		
E. Coli	CFU/100mL	0	-	-	13	62	ND	ND	ND		
Pesticides											
Organophosphate Package											
Metolachlor	µg/L	5	-	-	<5.0	<5.0	ND	ND	ND		
Fenchlorphos (Ronnel)	µg/L	2	-	-	<2.0	<2.0	ND	ND	ND		
Mevinphos	µg/L	2	-	-	<2.0	<2.0	ND	ND	ND		
Trifluralin	µg/L	0.05	ND	0.2	<0.05	<0.05	ND	ND	ND		
Phosmet	µg/L	2	-	-	<2.0	<2.0	ND	ND	ND		
Dichlorvos	µg/L	2	-	-	<2.0	<2.0	ND	ND	ND		
Dimethoate	µg/L	2	ND	6.2	<2.0	<2.0	ND	ND	ND		
Fonofos	µg/L	2	-	-	<2.0	<2.0	ND	ND	ND		
Triallate	µg/L	0.05	ND	0.24	<0.050	<0.050	ND	ND	ND		
Demeton-S	µg/L	2	-	-	<2.0	<2.0	ND	ND	ND		
Atrazine	µg/L	1	ND	1.8	<1.0	<1.0	ND	ND	ND		
Diazinon	µg/L	2	-	-	<2.0	<2.0	ND	ND	ND		
Malathion	µg/L	2	-	-	<2.0	<2.0	ND	ND	ND		
Parathion Ethyl	µg/L	2	-	-	<2.0	<2.0	ND	ND	ND		
Parathion Methyl	µg/L	2	-	-	<2.0	<2.0	ND	ND	ND		
Simazine	µg/L	2	ND	10	<2.0	<2.0	ND	ND	ND		
Aldicarb	µg/L	0.1	ND	1	<0.10	<0.10	ND	ND	ND		
Bendiocarb	µg/L	2	-	-	<2.0	<2.0	ND	ND	ND		
Carbaryl	µg/L	0.1	3.3	0.2	<0.10	<0.10	ND	ND	ND		
Carbofuran	µg/L	0.1	ND	1.8	<0.10	<0.10	ND	ND	ND		
Cyanazine (Bladex)	µg/L	0.1	ND	2	<0.10	<0.10	ND	ND	ND		
Prometryne	µg/L	1	-	-	<1.0	<1.0	ND	ND	ND		
Chlorpyrifos (Dursban)	µg/L	0.000034 - 0.000072 [b]	0.02	0.002	<0.000034	<0.000056	<0.000060	<0.000072	<0.000051		
Terbufos	µg/L	1	-	-	<1.0	<1.0	ND	ND	ND		
Phorate	µg/L	1	-	-	<1.0	<1.0	ND	ND	ND		
Guthion (Azinophos-methyl)	µg/L	1	-	-	<1.0	<1.0	ND	ND	ND		
Ethion	µg/L	1	-	-	<1.0	<1.0	ND	ND	ND		
Fenthion	µg/L	1	-	-	<1.0	<1.0	ND	ND	ND		
Herbicides											
Dicamba	µg/L	0.5	ND	10	<0.50	<0.50	ND	ND	ND		
Picloram	µg/L	0.5	ND	29	<0.50	<0.50	ND	ND	ND		
MCPB	µg/L	0.5	-	-	<0.50	<0.50	ND	ND	ND		
2,4-D(BEE)	µg/L	0.5	-	-	<0.50	<0.50	ND	ND	ND		
MCPP	µg/L	0.5	-	-	<0.50	<0.50	ND	ND	ND		
MCPA	µg/L	0.5	ND	2.6	<0.50	<0.50	ND	ND	ND		
2,4-DP (Dichloroprop)	µg/L	0.5	-	-	<0.50	<0.50	ND	ND	ND		
2,4-D	µg/L	0.5	ND	4	<0.50	<0.50	ND	ND	ND		
2,4,5-TP (Silvex)	µg/L	0.5	-	-	<0.50	<0.50	ND	ND	ND		
2,4,5-T	µg/L	0.5	-	-	<0.50	<0.50	ND	ND	ND		
2,4-DB	µg/L	0.5	-	-	<0.50	<0.50	ND	ND	ND		

N - nitrogen; ND - no data; NDOGT - No data due to overgrowth. Total coliforms and/or E.coli detected

[a] - Guideline for total ammonia is temperature and pH dependent. Measurements of total ammonia in the aquatic environment are often expressed as mg/L total ammonia-N. The present guideline values (mg/L NH3) can be converted to mg/L total ammonia-N by multiplying the corresponding guideline value by 0.8224. Consult the CWQG-FAL factsheet for more details. IC-IN - 1279 µg/L; IC-OUT - 976 µg/L

[b] - The varying detection limits are based on the measured background noise for this parameter in each sample.

Stantec

Memo

To:	France Moreau CN, Montreal, QC	From:	Andrew Sinclair/Sheldon Smith Stantec, Markham
Project/File:	160960844	Date:	November 22, 2022

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – September 2022 Table 4-2 Results

As part of the reporting requirements for the CN Milton Logistics Hub Surface Water Quality and Quantity Follow-up Program (SWQQ FUP), Table 4-2 parameter monitoring results are to be reported monthly for the first six months of construction and onward to Environment and Climate Change Canada (ECCC), Fisheries and Oceans Canada (DFO) and Conservation Halton (CH), until confirmation to remove Table 4-2 parameters is received from ECCC. Construction of the CN Milton Logistics Hub began in late January 2022 with monitoring events on a monthly basis from late January to August for a total of eight events. The ninth surface water quality monitoring event occurred on September 27, 2022. Water samples were submitted to Bureau Veritas Laboratories in Mississauga, ON and ALS Global in Burlington, ON for analysis.

The main site soil disturbance activities included grading, soil excavation and stripping for cut and fill for track subgrade, and the Indian Creek realignment area. Excavation activities were typically at soil depths greater than 30 cm below grade. Erosion and sediment control (ESC) measures were installed where required adjacent to surface water features.

Of the seven monitoring stations in the SWQQ FUP, only two were active at the time of the monitoring event as Stormwater Management Ponds (SWMPs) 1 and 2 were not yet constructed and Trib-Ain, Trib-Ain2, and Trib-Aout contained no flowing water (see attached Figure 1). Water samples were collected using an ISCO autosampler over a 2.5 to 3 hour collection period with a 15 minute sampling frequency and *in situ* water quality measurements were taken at IC-IN and IC-OUT on September 27, 2022. One duplicate sample (DUPLICATE 1 and DUPLICATE 2) was collected at IC-OUT and IC-IN, respectively, as per the SWQQ FUP. *In situ* water quality measurements were conducted using a calibrated YSI ProDSS multi-parameter digital water quality meter. Three samples (IC-IN, IC-OUT, and DUPLICATE 1) were submitted to Bureau Veritas Laboratories for all analyses except the pesticide chlorpyrifos which was analyzed by ALS Global. The reporting limit for low-level analysis for the pesticide chlorpyrifos depends on the sample matrix (i.e., measured background noise). Thus, in addition to these three samples (IC-IN, IC-OUT, and DUPLICATE 1), DUPLICATE 2 and one FIELD BLANK were submitted to ALS Global to improve the quality assurance/quality control measures on low-level analysis of chlorpyrifos.

The attached Table 1 presents the Table 4-2 water quality results for the September 27, 2022 monitoring event with comparison to applicable Canadian Council of the Ministers of Environment (CCME) Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CWQG-FAL). *In situ* pH and temperature results have been added to Table 4-2 results to calculate CWQG-FAL values for total ammonia and were used by Bureau Veritas to calculate un-ionized ammonia concentrations for each monitoring station. Bureau Veritas conducted the total coliform and *E.coli* analysis using three different dilutions (100:1, 10:1, 1:1), instead of the standard 1:1 (no dilution method).

Reference: CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program – September 2022 Table 4-2 Results

The attached Table 1 results at the two monitoring stations were below the short-term and long-term CCME CWQG-FAL guideline values for total ammonia, calculated un-ionized ammonia, nitrate, nitrite, and applicable pesticides and herbicides analysed. Aldicarb, carbaryl, carbofuran, cyanazine (Bladex) concentrations in the original sample at IC-OUT were not available due to a laboratory error occurring during analysis at Bureau Veritas Laboratories. However, the concentrations of these parameters in the duplicate sample collected at IC-OUT (DUPLICATE 1) were analysed and assessed. Of the pesticide and herbicide parameter results at the two sites only chlorpyrifos observed concentrations were above reportable detection limits. A range of detection limits (0.000018 – 0.000023 µg/L) were reported, based on the measured background noise for each sample, including the field blank sample. The maximum laboratory detection limit (0.000023 µg/L) for chlorpyrifos is two orders of magnitude lower than the long-term CCME CWQG-FAL value. ALS Global has communicated that the low-level analysis typically observes concentrations at or near the chlorpyrifos reportable detection limit in lab blanks and samples.

The nitrate and nitrite concentrations at IC-IN and IC-OUT were below the reportable detection limits. The total ammonia and calculated unionized ammonia concentrations of the IC-OUT duplicate sample result were comparable to the IC-IN result which were lower than the IC-OUT result. The total ammonia and calculated unionized ammonia concentrations at IC-IN and IC-OUT were below the CCME CWQG-FAL guideline values.

The total coliform and *E.coli* results at IC-OUT were comparable to IC-IN. The IC-OUT total coliform and *E.coli* results were higher than its duplicate sample, indicating fluctuation in bacteria populations within the watercourse at the same location.

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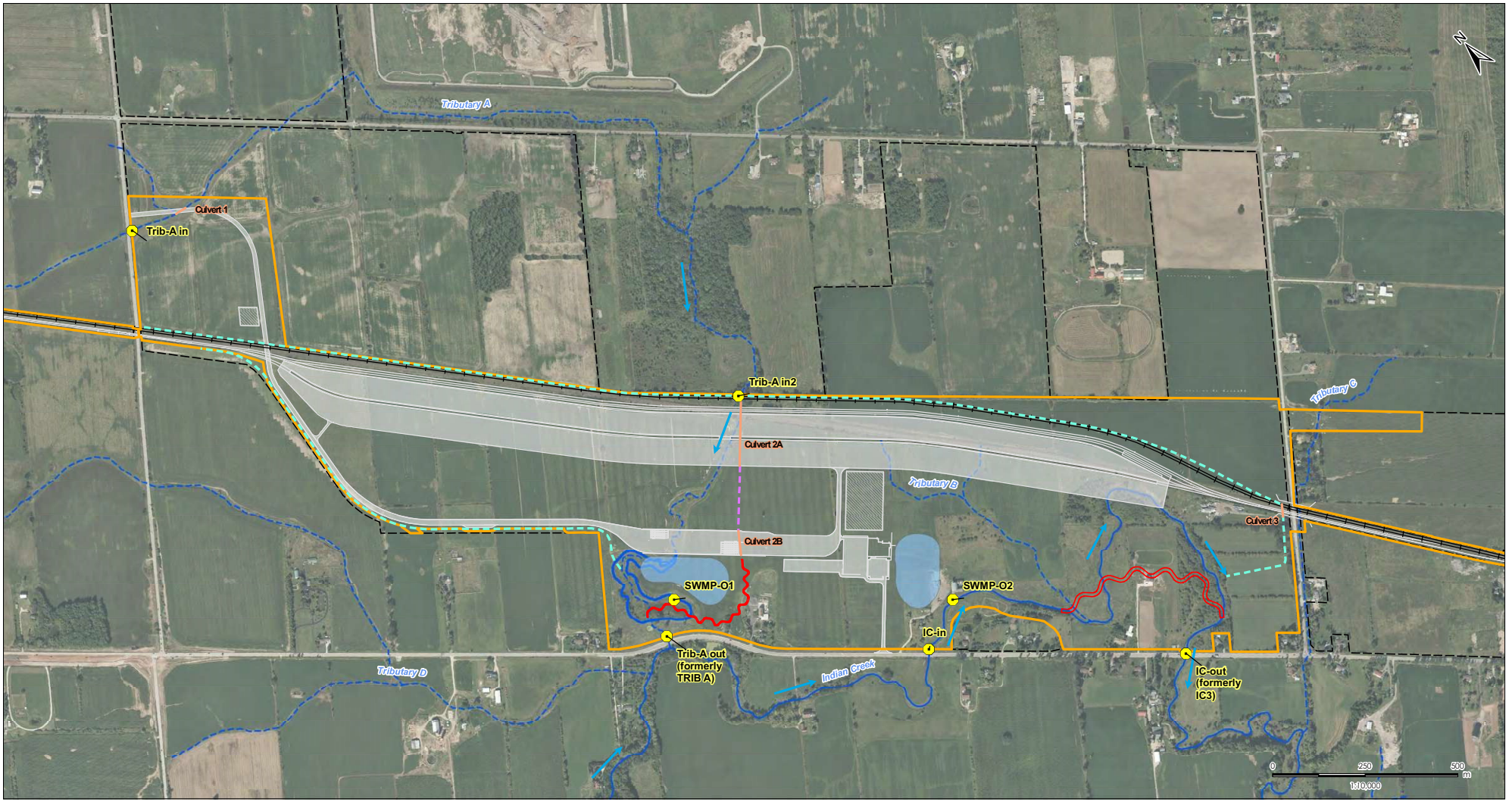
Attachments:

Figure 1 - Construction and Operation Surface Water Monitoring Stations
Table 1 - CN Milton SW FUP Table 4-2 August 2022 Monitoring Results

References

Stantec Consulting Ltd. 2022. *CN Milton Logistic Hub Surface Water Quality and Quantity Follow-up Program*. 160960844. Prepared for Canadian National Railway Company.



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Revised: 2020-05-06 By: dhanley

May 2020
160960844

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Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2015. Site layout: July 10, 2015.
3. Orthoimagery © First Base Solutions, 2015. Imagery taken in 2014.

Legend

- Surface Water Monitoring Station
- SWM Pond
- Creek Realignment

Project Components

- Project Development Area
- Existing Single Track Mainline
- Existing Double Track Mainline
- Single Track - Mainline
- Double Track - Mainline
- Project Component
- CN-Owned Property

Existing Features

- Permanent Watercourse
- Intermittent Watercourse
- Waterbody
- Flow Direction
- Proposed Culvert
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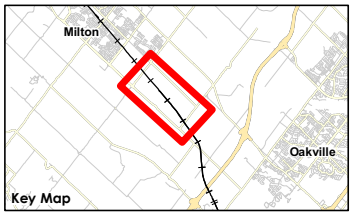
- Tributary A Regional Diversion Ditch



Client/Project
Canadian National Railway
Milton Logistics Hub
Technical Data Report - Channel Realignment (Appendix E.2)

Figure No.
2

Title
Construction and Operation Surface Water Monitoring Stations

TABLE 1 - CN Milton SW FUP Table 4-2 September 2022 Monitoring Results

Parameters	Units	Detection Limit (DL)	CWQG-FAL Guidelines		Monitoring Station Results						
					IC-IN	IC-OUT	DUPLICATE 1 (IC-OUT)	DUPLICATE 2 (IC-IN)	FIELD BLANK	SWMP-01	SWMP-02
					27-Sep-22	27-Sep-22	27-Sep-22	27-Sep-22	27-Sep-22	Not Constructed	
			Short Term	Long Term	COC ID: 892	COC ID: 893	COC ID: 927	-	-		
Field pH	-	-	-	-	7.82	7.83	7.83	7.82	ND		
Field temperature	°C	-	-	-	13.6	13.3	13.3	13.6	ND		
Ammonia (total) (as N)	µg/L	10	-	Narrative [a]	40	240	40	ND	ND		
Ammonia (unionized, calculated)	µg/L	-	-	19	0.78	4.7	0.76	ND	ND		
Nitrate (as N)	µg/L	100	124,000	3,000	<100	<100	<100	ND	ND		
Nitrite (as N)	µg/L	10	-	60	<10	<10	<10	ND	ND		
Coliform, total	CFU/100mL	0	-	-	2400	2300	960	ND	ND		
E. Coli	CFU/100mL	0	-	-	330	340	33	ND	ND		
Pesticides											
Organophosphate Package											
Metolachlor	µg/L	5	-	-	<5.0	<5.0	<5.0	ND	ND		
Fenchlorphos (Ronnel)	µg/L	2	-	-	<2.0	<2.0	<2.0	ND	ND		
Mevinphos	µg/L	2	-	-	<2.0	<2.0	<2.0	ND	ND		
Trifluralin	µg/L	0.05	ND	0.2	<0.050	<0.050	<0.050	ND	ND		
Phosmet	µg/L	2	-	-	<2.0	<2.0	<2.0	ND	ND		
Dichlorvos	µg/L	2	-	-	<2.0	<2.0	<2.0	ND	ND		
Dimethoate	µg/L	2	ND	6.2	<2.0	<2.0	<2.0	ND	ND		
Fonofos	µg/L	2	-	-	<2.0	<2.0	<2.0	ND	ND		
Triallate	µg/L	0.05	ND	0.24	<0.050	<0.050	<0.050	ND	ND		
Demeton-S	µg/L	2	-	-	<2.0	<2.0	<2.0	ND	ND		
Atrazine	µg/L	1	ND	1.8	<1.0	<1.0	<1.0	ND	ND		
Diazinon	µg/L	2	-	-	<2.0	<2.0	<2.0	ND	ND		
Malathion	µg/L	2	-	-	<2.0	<2.0	<2.0	ND	ND		
Parathion Ethyl	µg/L	2	-	-	<2.0	<2.0	<2.0	ND	ND		
Parathion Methyl	µg/L	2	-	-	<2.0	<2.0	<2.0	ND	ND		
Simazine	µg/L	2	ND	10	<2.0	<2.0	<2.0	ND	ND		
Aldicarb	µg/L	0.1	ND	1	<0.10	ND	<0.10	ND	ND		
Bendiocarb	µg/L	2	-	-	<2.0	<2.0	<2.0	ND	ND		
Carbaryl	µg/L	0.1	3.3	0.2	<0.10	ND	<0.10	ND	ND		
Carbofuran	µg/L	0.1	ND	1.8	<0.10	ND	<0.10	ND	ND		
Cyanazine (Bladex)	µg/L	0.1	ND	2	<0.10	ND	<0.10	ND	ND		
Prometryne	µg/L	1	-	-	<1.0	<1.0	<1.0	ND	ND		
Chlorpyrifos (Dursban)	µg/L	0.000016 - 0.000023 [b]	0.02	0.002	0.000016	<0.000023	0.000016	<0.000018	<0.000022		
Terbufos	µg/L	1	-	-	<1.0	<1.0	<1.0	ND	ND		
Phorate	µg/L	1	-	-	<1.0	<1.0	<1.0	ND	ND		
Guthion (Azinophos-methyl)	µg/L	1	-	-	<1.0	<1.0	<1.0	ND	ND		
Ethion	µg/L	1	-	-	<1.0	<1.0	<1.0	ND	ND		
Fenthion	µg/L	1	-	-	<1.0	<1.0	<1.0	ND	ND		
Herbicides											
Dicamba	µg/L	0.5	ND	10	<0.50	<0.50	<0.50	ND	ND		
Picloram	µg/L	0.5	ND	29	<0.50	<0.50	<0.50	ND	ND		
MCPB	µg/L	0.5	-	-	<0.50	<0.50	<0.50	ND	ND		
2,4-D(BEE)	µg/L	0.5	-	-	<0.50	<0.50	<0.50	ND	ND		
MCPP	µg/L	0.5	-	-	<0.50	<0.50	<0.50	ND	ND		
MCPA	µg/L	0.5	ND	2.6	<0.50	<0.50	<0.50	ND	ND		
2,4-DP (Dichloroprop)	µg/L	0.5	-	-	<0.50	<0.50	<0.50	ND	ND		
2,4-D	µg/L	0.5	ND	4	<0.50	<0.50	<0.50	ND	ND		
2,4,5-TP (Silvex)	µg/L	0.5	-	-	<0.50	<0.50	<0.50	ND	ND		
2,4,5-T	µg/L	0.5	-	-	<0.50	<0.50	<0.50	ND	ND		
2,4-DB	µg/L	0.5	-	-	<0.50	<0.50	<0.50	ND	ND		

N - nitrogen; ND - no data; NDOGT - No data due to overgrowth. Total coliforms and/or E.coli detected

[a] - Guideline for total ammonia is temperature and pH dependent. Measurements of total ammonia in the aquatic environment are often expressed as mg/L total ammonia-N. The present guideline values (mg/L NH3) can be converted to mg/L total ammonia-N by multiplying the corresponding guideline value by 0.8224. Consult the CWQG-FAL factsheet for more details. IC-IN - 1168 µg/L; IC-OUT/DUPLICATE - 1168 µg/L

[b] - The varying detection limits are based on the measured background noise for this target in each sample.