



**CN Milton Logistics Hub
Groundwater Follow-up Program**

February 14, 2022

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Abbreviations

CDWQG	Canadian Drinking Water Quality Guidelines
CEAR	Canadian Environmental Assessment Registry
CN	Canadian National Railway Company
e.g.	<i>exempli gratia</i> (or 'for example')
EM	Environmental Monitor
IAAC	Impact Assessment Agency of Canada
IR	Information Request
m	metre
m/s	metres per second
MECP	Ontario Ministry of the Environment, Conservation and Parks
NRCan	Natural Resources Canada
ODWQS	Ontario Drinking Water Quality Standards
PDA	Project Development Area
PGO	Professional Geoscientist
Stantec	Stantec Consulting Ltd.
TDR	Technical Data Report
ZOI	dewatering zone of influence

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General
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1.0 GENERAL

This document outlines the follow-up program for groundwater in relation to construction and operation of the Milton Logistics Hub and has been developed concurrently with other programs to ensure consistency and efficiencies in monitoring throughout the lifespan of this project.

The groundwater monitoring program presented below, and the associated monitoring details, have been developed to comply with the Minister's conditions of approval issued January 21, 2021. This program has been developed to comply with condition 5.13 of the Decision Statement and has been developed in consultation with Natural Resources Canada (NRCan), Environmental and Climate Change Canada (ECCC), Conservation Halton (CH) and other relevant authorities. Draft versions of this FUP were sent to ECCC on August 10, 2020, NRCan on September 14, 2020, the Ontario Ministry of the Environment, Conservation and Parks (MECP) on June 7, 2021, and CH on June 28, 2021. Comments were received from NRCan and MECP and have been considered in finalizing the Groundwater FUP. No updates to this follow-up program are proposed over the program's period of implementation.

2.0 PROGRAM DESIGN CONSIDERATIONS

A follow up program for groundwater will be implemented during construction and operation to verify the accuracy of the environmental assessment and determine the effectiveness of proposed mitigation measures. The program has been developed in accordance with the information outlined in Condition 2.6 of the Decision Statement.

The program will consist of two components:

1. Monitoring of groundwater levels and quality in a CN installed monitoring well adjacent to the Lower Base Line grade separation (i.e., where excavation and dewatering activities are proposed).
2. Monitoring groundwater levels and water quality at selected locations within and adjacent to the Project Development Area (PDA).

3.0 LOWER BASE LINE SEPARATION - PRIVATE WELL GROUNDWATER MONITORING

Groundwater dewatering may be required during the Lower Base Line grade separation works and, as a form of due diligence, the monitoring of dewatering activities is proposed to identify potential quantity and quality effects on adjacent residential private wells.

As per the Lower Base Line Grade Separation Construction Dewatering Assessment (Stantec 2020a), the predicted dewatering zone of influence (ZOI) (i.e., horizontal extent of groundwater level declines / drawdown caused by dewatering activities at a point source) is not expected to intercept local private wells and, subsequently, interfere with the quantity/yield and quality of these potable water supply sources. However, CN is proposing to establish baseline groundwater quality and level fluctuations within a newly installed multi-level monitoring well on CN property (i.e., MW303-21(S/D)) near the predicted ZOI (Figure 1, Appendix A) and continue to monitor water levels in these well until the time that dewatering activities are completed. CN constructed MW303-21(S/D) in response to permission not being granted to monitor the private landowner well located at 3242 Lower Base Line (Figure 1, Appendix A).

In general, the effects of local dewatering cannot be mitigated, since dewatering deliberately seeks to create an effect (i.e., temporary lowering of groundwater levels). However, the amount of drawdown in the Lower Base Line grade separation area is predicted to be low and isolated to a small distance around the excavation (Stantec 2020), given that this excavation will be completed in soils characterized by hydraulic conductivities in the range of 10^{-8} m/s, resulting in low volumes of groundwater inflow towards the excavation. Overall, the residual effects of dewatering will be reversible as once pumping ceases, groundwater levels will recover as they re-equilibrate within the local groundwater table.

3.1 CRITERIA

A detrimental effect to the function of a private water supply well falls into two categories:

1. Quantity – where a water level decline/interference to a private well induced by sources such as construction dewatering exceeds the drawdown that is available within that well (i.e., the column of water left above the pump intake within the well after adjusting for declines associated with daily domestic-related usage), resulting in reductions in yield.
2. Quality – where construction activities potentially cause a change in the quality of the aquifer, making the groundwater pumped from the private well unsafe and/or undesirable for human consumption.

The pre-construction monitoring of groundwater levels in those private wells identified for inclusion in the monitoring program (Section 3.2) and the collection of samples from these wells to establish existing groundwater quality conditions (Section 3.3(e) and (f)) will be used as the baseline against which CN will evaluate whether the quantity and/or quality of these private wells has/have been affected by dewatering activities.

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3.2 LOCATION

Based on the analysis presented in the Lower Base Line Grade Separation Construction Dewatering Assessment (Stantec 2020), the following residential properties were recommended for inclusion in the private water supply well monitoring program (**Figure 1, Appendix A**):

- 3204 Lower Base Line (CN owned)
- 3214 Lower Base Line (CN owned)
- 3242 Lower Base Line (CN owned)
- 3249 Lower Base Line (CN owned)
- 3316 Lower Base Line (Private)

Permission to access those private wells currently not under the ownership of CN is required prior to equipping these wells with monitoring devices (i.e., data loggers) and/or collecting water samples for quality analysis. If permission cannot be obtained, the program may be reduced, or an alternative site(s) may be identified. This may include the installation of an additional monitoring well at a suitable location between the proposed area to be dewatered and the private well, to a similar depth and formation in which the private well is constructed, if the homeowner declines to participate in the monitoring program.

On behalf of CN, a field survey performed by Stantec personnel in September 2021 confirmed that private wells listed in the MECP Water Well Information System (WWIS) for 3204, 3214, 3242 and 3249 Lower Base Line no longer exist or were inaccessible. Stantec personnel contacted the resident of 3316 Lower Base Line for permission to access their private well for monitoring purposes; however, the resident did not wish to participate in the monitoring program. As such, permission was not granted to access the private well at 3316 Lower Base Line and, as an alternative, CN constructed a new multi-level monitoring well (i.e., MW303-21(S/D)) immediately to the north of this property for inclusion in the monitoring program (Figure 1, Appendix A).

3.3 METHODS

A summary procedure for conducting groundwater monitoring during construction and analyzing the results is identified below:

- a) A qualified Professional Geoscientist (PGO) or Engineer specializing in Hydrogeology will complete a door-to-door survey of the residences identified in Section 3.2 to verify the location, construction details, integrity, and performance (i.e., quantity and quality) of the water supply well associated with each property. Data will be gathered from the MECP Water Well Information System (i.e., water well records) including any background information from CN. The PGO will inspect and photo document the exterior of the private well, and perform the administrative tasks involved with obtaining permission from the resident to access their well for the installation of water level monitoring equipment and/or the collection of a pre-construction water quality sample. Based on the results of this initial survey, the number of water wells to be included in the program could increase or

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decrease depending upon the 1) resident's willingness to participate in the program and 2) verification that the water supply well on their property is physically accessible.

- b) Each contacted residence will be provided with a CN approved letter summarizing the proposed construction works and a well survey questionnaire. If a contacted resident is unavailable to complete the survey, a copy of the letter and questionnaire will be left at the residence with a postage paid envelope addressed to CN. A contact person and phone number will be included in the letter. Where warranted, a second attempt may be made by the PGO to physically contact the residents missed during the first survey following the same protocols outlined above. A final attempt to contact residents will be made via a telephone call. All attempts to contact each resident will be documented for reporting purposes.
- c) The protocols outlined herein, which include equipping participating resident wells with monitoring devices (i.e., data loggers) and the collection of a baseline water quality sample, are to be completed prior to construction dewatering activities being initiated for the Lower Base Line grade separation component. The monitoring of the private wells should begin at a time that allows the greatest amount of pre-construction water level fluctuation data to be collected to establish baseline trends.
- d) Groundwater level fluctuations will be measured in each participating private well using a continuous data logging device (e.g., Levellogger), which is designed to continuously record water levels at specified intervals. This information together with the assessment of precipitation patterns will allow the PGO to properly assess whether dewatering activities associated with the Lower Base Line grade separation have caused any notable effects to private well water levels/quantities or whether observed fluctuations are merely a function of naturally occurring seasonal atmospheric conditions or an already pre-existing issue with the well. Accessing the private wells to install/remove the data logging devices and obtain manual water level measurements will be completed by a licensed water well contractor. Standard operating practice (SOP) for all groundwater monitoring includes the manual measurements at each visit for all wells, including those with dataloggers. All contractors retained on behalf of CN to access the participating wells will adhere to the SOPs. The licensed well contractor retained by CN will access each private well at least three times over the monitoring period:
 - for the initial installation of the data logging device
 - to download the data logging device prior to the start of construction activities/dewatering (for the preparation of the pre-construction monitoring report)
 - to permanently remove the data logging device after the construction works are completed (for the preparation of the post-construction monitoring report).

Additional data logger downloads and, subsequently, accessing the private well(s) will be required if a well interference complaint is logged by a participating resident.

- e) The PGO will collect one pre-construction water sample from each well for water quality analysis. The water sample is to be collected from a raw water tap (i.e., point in the piping distribution system prior to water flowing through a treatment unit such as water softener, ultraviolet (UV) water purification, etc.). Prior to sample collection, the tap is to be disinfected with a dilute (10%) bleach solution and allowed to run for a minimum of 20 minutes. If equipped with an aerator, this device is to be removed from the tap prior to disinfecting the spout. In addition, the PGO must monitor the temperature, pH and conductivity during this purging cycle using a Hanna pen® (or equivalent

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device) until these parameters stabilize, indicating that any stagnant water was no longer flowing through the plumbing system and that the water flowing from the tap is representative of raw water quality. Water samples are to be collected directly into laboratory supplied containers, placed in a cooler on ice for storage, and delivered to an accredited laboratory for analyses. The PGO will also document the visual appearance of the well water sample following collection.

- f) Private well water samples will be analyzed against quality parameters listed under Tables 1, 2 and 4 as documented in the MECP (2006) *Technical Support Document for Ontario Drinking Water (Quality) Standards (ODWQS), Objectives and Guidelines* (document issued in support of Ontario Regulation 169/03). The samples will not be analyzed for radionuclides (Table 3) other than gross alpha and gross beta.
- g) If health related water quality problems are found in a pre-construction well water sample (i.e., parameter concentrations exceeding Canadian Drinking Water Quality Guidelines (CDWQG)), the affected resident will be notified within 24 hours of receiving the laboratory results, with the PGO recommending to the resident that the local Health Unit be contacted to obtain appropriate advice.
- h) Where dewatering activities are identified as impacting adjacent wells, adaptive management measures will be employed.

3.4 ADAPTIVE MANAGEMENT

A private well interference complaint may be received during the site preparation, construction (when dewatering activities may occur), or post-construction phases of the Lower Base Line grade separation work. Commonly, a water quality complaint associated with construction dewatering activities is increased turbidity/particulate in a private well or the detection of an odour. With regards to water quantity, complaints tend to focus on a loss of yield in the well. If CN receives a well complaint involving the loss of well yield and/or quality issue, the following process is to be undertaken:

- a) The MECP will be notified immediately upon the well complaint being received and advised on how the complaint will be addressed (i.e., Steps b) through f) outlined below).
- b) CN will immediately provide the affected resident with a temporary source of potable water until that time where the well issue is deemed to not be the result of construction dewatering activities or has been mitigated if dewatering was the cause of the well issue.
- c) If the complaint is related to a quality issue, the private well of the complainant will be resampled immediately by the PGO using the protocols outlined in Section 3.3(e) to confirm the nature of the quality. If the complaint is related to a water level/quantity complaint, data from the data logger will be downloaded from the private well for review.
- d) If water quality and/or quantity results are found to be notably different than previously established baseline conditions, an assessment will be completed by the PGO to determine whether onsite construction activities are the potential cause of the disturbance.
- e) If private well quantity and/or quality interference is deemed to be caused by the onsite construction dewatering activities, CN will enter discussions with NRCAN to assess those options available for the mitigating of the interference effect (i.e., actions will be taken to restore that water supply to those who have been affected).

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- f) Results of the interference complaint investigation will be documented in a complaint report as per the CN complaint response protocol.

3.5 REPORTING

The results of the groundwater monitoring activities proposed as part of the follow-up program will be reviewed, analyzed and presented in two main reports completed by a PGO:

Pre-Construction Monitoring Report: to be prepared and issued prior to the start of construction dewatering activities, with the report providing an interpretation of the data logger (i.e., water level) and laboratory (i.e., water quality) results for each of the participating residential properties. This report will essentially provide documentation of baseline groundwater quantity and quality conditions against which future construction and post-construction conditions will be compared.

Post-Construction Monitoring Report: to be prepared within 30 days after the termination of construction dewatering. The report will document (a) the results of the monitoring program, (b) conformity with previously observed pre-construction water level fluctuations and quality conditions specific to the private wells monitored, (c) the effectiveness of the groundwater mitigation measures (if such measures were required), and (d) any adaptive management measures (i.e., additional mitigation) employed during operation, if required. This report will also include documentation pertaining to any well interference complaints that were logged during the completion of the Lower Base Line grade separation works.

Ultimately, the frequency and duration of reporting will be specified in the Minister's conditions of approval. However, CN anticipates that the final reports will be prepared and submitted to NRCan, the IAAC and any other Agency as recommended in the Minister's conditions of approval.

4.0 PROJECT DEVELOPMENT AREA - GROUNDWATER MONITORING

CN plans to undertake groundwater monitoring to verify that any potential construction dewatering activities occurring within the PDA does not affect quantity or quality of local groundwater supplies (i.e., the geological units used for water supply in the area). This program will continue during construction and post-construction (for a minimum of one year) to monitor groundwater level fluctuations and quality throughout the PDA.

4.1 CRITERIA

The objective of the PDA groundwater monitoring program is to track/assess whether the ZOI associated with onsite groundwater dewatering activities, if any, is potentially expanding beyond the boundaries of the PDA and whether groundwater conditions differ from documented pre-construction/baseline conditions since the program began at the PDA in June 2015. The program will follow the methods and data presented in the Hydrogeological Technical Data Report (TDR) (EIS Appendix E.6) and response to IR3.27 (CEAR #613).



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The key criteria/questions to be answered in assessing potential groundwater effects will include:

1. Is the dewatering ZOI expanding beyond boundaries of the PDA (i.e., is potential drawdown observed in the monitoring wells a function of dewatering, other onsite construction or operations activities, and/or naturally occurring atmospheric-based factors (e.g., less than long-term precipitation normals))?
2. Is groundwater quality changing in the onsite monitoring wells and is this potentially attributed to onsite construction activities and/or post-construction facility operations?
3. If changes are occurring as per 1) and 2), assess the potential that these changes occurring within the PDA could pose a risk to offsite private well water supplies.

4.2 LOCATION

CN is proposing to utilize the existing groundwater monitoring well network that has been in place at the PDA since June 2015. However, not all onsite wells will be available for monitoring during the construction and post-construction phases of the Project, given that the locations of many of these wells fall within the footprints of various Project components. As such, some onsite monitoring wells will be decommissioned prior to construction as discussed in the Water Well Decommissioning Plan (Stantec 2021). Overall, the wells projected to be available for monitoring through the construction and post-construction (i.e., for a minimum of one year) period include (**Figure 2, Appendix A**):

- BH5, MW202, MW206, and MW208.
- Residential water supply wells located within the PDA: MECP Wells 2806808 and 2803463.

Except for BH5, these previously mentioned wells are constructed to depths/elevations that are representative of the depths/elevations of offsite private wells located immediately to the south of Tremaine Road, making them ideal for monitoring the potential advancement of any onsite dewatering ZOI beyond the southern boundary of the PDA.

The wells projected to be available for monitoring through a portion of the construction period include:

- BH1, BH10, BH12, BH17, BH28, and BH37
- MW201, MW203, MW204, MW205, MW207, MW210, MW212, and MW214

Although several onsite monitoring wells are present along the northern boundary of the PDA, many of these wells are not completed to depths/elevations that are representative of the depths/elevations of offsite private wells located near Bronte Street South, except for MW28 and MW214. To address this gap in the groundwater monitoring network, CN has installed two additional multi-level monitoring wells (i.e., MW301-21(S/D) and MW302-21(S/D)) on their lands located directly to the north of the PDA (**Figure 2, Appendix A**). The combination of BH28, MW214, MW301(S/D), and MW302(S/D) will provide adequate coverage along the northern boundary of the PDA for monitoring potential advancement of any onsite dewatering ZOI towards these northern offsite private wells.

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4.3 METHODS

A summary of the procedures for conducting groundwater monitoring within the PDA during construction and post-construction phases of the Project and analyzing these results are identified below:

- As discussed in Section 4.2, the installation of two new multi-level monitoring wells (i.e., each well consisting of a shallow and deep pipe) occurred on the CN-owned lands adjacent to the northern boundary of the PDA (i.e., MW301(S/D) and MW302(S/D)). The monitoring wells were installed by a licensed drilling contractor adhering to provincial requirements for the construction/installation of monitoring wells, given that no federal requirements exist for such installations. The monitoring wells were constructed to depths in the range of 16 m to 26 m below existing grades to reflect the depths/elevations of offsite private wells located near Bronte Street South. The screened intervals of MW301(S/D) and MW302(S/D) are positioned in the same geological units in which local private wells are screened.
- The continuation of monitoring groundwater level fluctuations in the existing onsite network of groundwater monitoring wells as shown on **Figure 2 (Appendix A)** and discussed in Section 4.2. Data loggers (i.e., Leveloggers) have been recording water level measurements from these wells on an hourly basis since June 2015, which will continue throughout the construction and post-construction phases of the Project. These monitoring wells will provide an indication of whether construction dewatering that occurs in the shallow overburden (where required) is affecting groundwater quantities in the deeper overburden and bedrock aquifer systems from which local private wells draw their potable water supplies, and whether resulting ZOIs are potentially extending beyond the boundaries of the PDA.
- Where construction dewatering is planned to occur and following the initiation of this dewatering, a qualified EM will visit the PDA once per week to obtain manual measurements from monitoring wells immediately surrounding the open excavation and plot these measurements against the historical pre-construction groundwater level baseline data set corresponding to each monitoring well. This information will be reviewed by the PGO within 24 hours of being collected to assess the presence and rate/extent that the ZOI is expanding from the excavation being pumped. If groundwater level fluctuation trends suggest that ZOI has stabilized under existing pumping volumes, and any associated water level declines remain within the historical range of fluctuations, the monitoring frequency/collection of manual measurements will be adjusted to every two weeks.
- The EM will collect groundwater samples from each of the onsite monitoring wells on an annual basis over the construction and post-construction phases of the Project for comparison against pre-construction groundwater quality results previously documented in the TDR and response to IR3.27. The groundwater samples will be obtained from the monitoring wells using a dedicated inertial lift Waterra™ sampling pump, purging the required number of casing volumes from the well until field measurements of conductivity, temperature and pH in the purged water stabilize, indicating that all stagnant water has been removed from the well. Groundwater samples collected for metals analysis are to be field-filtered using disposable, in-line, 0.45 µm (micron) filters attached to the HDPE tubing.

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Groundwater samples are to be collected directly into laboratory supplied containers, placed in a cooler on ice for storage, and delivered to an accredited laboratory for analyses.

- Groundwater samples are to be analyzed for the same parameters as specified in the TDR (**Table 1**), with the resulting parameter concentrations being compared to corresponding CDWQG.
- The objective of the previously mentioned collection of groundwater level fluctuation and quality data is to be ready to complete a detailed effects analysis if an offsite private well interference complaint is logged. If an interference complaint does occur over the construction or post-construction (for a minimum of one year following construction) phases of the Project, CN will proceed with the adaptive management measures discussed in Section 4.4 below.

Table 1: Groundwater Quality Analytical Parameters

General Chemistry (Laboratory)	
<ul style="list-style-type: none"> • Alkalinity, Total (As CaCO₃) • Ammonia (as N) • Anion Sum • Bromide • Cation Sum • Chloride • Color • Dissolved Organic Carbon (DOC) • Electrical Conductivity • Fluoride • Hardness (as CaCO₃) • Iron Balance • Langelier Index (at 20 °C) 	<ul style="list-style-type: none"> • Langelier Index (at 4 °C) • Nitrate • Nitrate (as N) • Nitrate + Nitrite (as N) • Orthophosphate (as P) • pH, Lab • Phosphate • Phosphorus, Total • Saturation pH (at 20 °C) • Saturation pH (at 4 °C) • Sulfate • Total Dissolved Solids (Calculated) • Turbidity
General Chemistry (Field)	
<ul style="list-style-type: none"> • Electrical Conductivity • pH • Temperature 	
Metals	
<ul style="list-style-type: none"> • Aluminum • Antimony • Arsenic • Barium • Beryllium • Boron • Cadmium • Calcium • Chromium (Total) • Cobalt • Copper • Iron • Magnesium • Manganese 	<ul style="list-style-type: none"> • Molybdenum • Nickel • Phosphorus • Potassium • Selenium • Silicon • Silver • Sodium • Strontium • Thallium • Titanium • Uranium • Vanadium • Zinc

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4.4 ADAPTIVE MANAGEMENT

If CN receives a private well complaint involving the loss of well yield and/or quality issue, the following process is to be undertaken:

- a) The MECP will be notified immediately upon the well complaint being received and advised on how the complaint will be addressed (i.e., Steps b) through e) outlined below).
- b) If the complaint is related to water level/quantity, data from the data loggers installed in onsite monitoring wells located near the affected property will be downloaded and processed by the EM. The data will be reviewed by the PGO to evaluate whether dewatering activities occurring onsite have produced a ZOI that has extended beyond the boundaries of the PDA and potentially intercepted the private water well in question. If preliminary evidence suggests that the onsite construction dewatering may be the potential source of the private well interference, CN will immediately provide the affected resident with a temporary source of potable water until that time when the well issue is deemed to not be the result of construction dewatering activities or has been mitigated if dewatering was the cause.
- c) If the complaint is related to water quality, the EM will interview the complainant to document the nature of the water quality concern and collect a sample from the well using the methods described in Section 3.3(e). The results of the private well sample will be compared to the corresponding CDWQ Guidelines and the groundwater quality/quantity baseline data from the onsite monitoring wells. The data will be analyzed together to evaluate whether the dewatering activities have produced a ZOI that has extended beyond the boundaries of the PDA and potentially intercepted the private water well in question. If preliminary evidence suggests that the onsite construction dewatering may be the potential source of the quality concerns in the private well, CN will provide the affected resident with a temporary source of potable water until that time when the well issue is deemed to not be the result of construction dewatering activities or has been mitigated if dewatering was the cause of the well issue.
- d) If private well quantity and/or quality interference is deemed to be caused by the onsite construction dewatering activities, CN will enter discussions with NRCAN to assess those options available for the mitigating of the interference effect (i.e., actions will be taken to restore that water supply to those who have been affected).
- e) Results of the interference complaint investigation will be documented in a complaint report as per the CN complaint response protocol.

4.5 REPORTING

The results of the groundwater monitoring activities proposed as part of the follow-up program will be reviewed, analyzed and presented as follows by a PGO:

Pre-Construction Monitoring Data: Baseline monitoring data will be reviewed and analyzed to provide an interpretation of the data logger (i.e., water level) and laboratory (i.e., water quality) results for all onsite monitoring wells included within the PDA groundwater monitoring network. This information will provide documentation of baseline groundwater quantity and quality conditions against which future and post-construction conditions will be compared and will be included in the annual reports described below, as appropriate.



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During/Post-Construction Monitoring Reports: a summary report will be prepared at the end of each calendar year of Project construction and after the first calendar year of operations (i.e., post-construction). The report will document:

- (a) the results of the monitoring program, including a comparison of pre-construction to construction and post-construction groundwater quantity and quality conditions
- (b) any adaptive management measures employed over the duration of the Project
- (c) the effectiveness of the groundwater mitigation measures (if such measures were required).

Each report will also include documentation pertaining to any private well interference complaints that were logged during the construction and post-construction phases of the project.

The final reports will be prepared and submitted to NRCan, CH and other relevant authorities as applicable and a summary of the findings will be included as a component of the annual report to IAAC.

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References

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5.0 REFERENCES

Ministry of Environment, Conservation, and Parks. 2003. Technical Support Document for Ontario Drinking Water (Quality) Standards (ODWQS), Objectives and Guidelines. Revised 2006. In support of Ontario Regulation 169/03 (January 1, 2020).

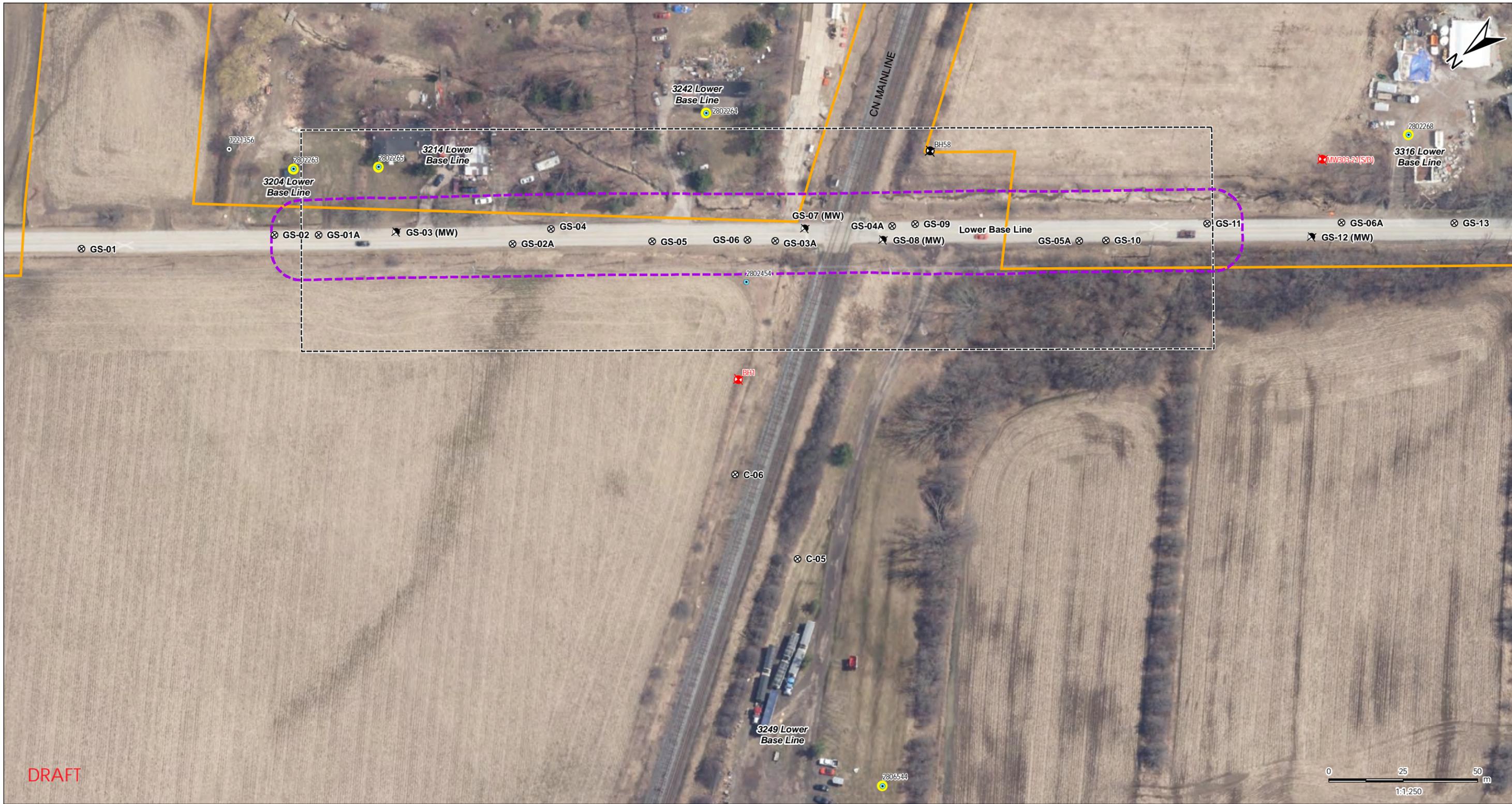
Stantec Consulting Ltd. 2020. Milton Logistics Hub. Lower Base Line Grade Separation Construction Dewatering Assessment.

Stantec Consulting Ltd. 2021. Milton Logistic Hub. Water Well Decommissioning Plan.

APPENDIX A: FIGURES



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 Revised: 2022-02-14 By: dharvey



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Notes

- Coordinate System: NAD 1983 UTM Zone 17N
- Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2019. Site layout: July 10, 2015.
- Orthoimagery © First Base Solutions, 2019. Imagery taken in 2019.
- MECP water well locations are approximate and have been positioned based on published UTM coordinates.

Legend

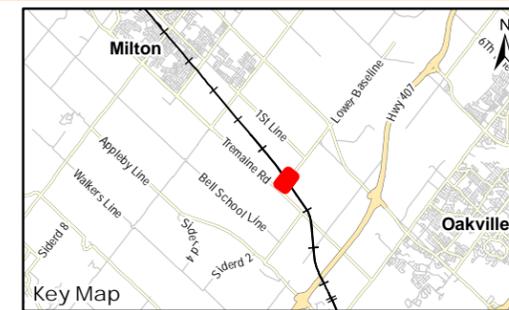
Project Components

- Project Development Area
- Borehole with Monitoring Well (Stantec)
- Borehole (Stantec)
- Borehole (AECOM)
- Borehole/Monitoring Well (AECOM)
- Lower Base Line Grade Separation Area

Estimated Dewatering Zone of Influence

MECP Water Wells (January 2015)

- Abandoned
- Water Supply
- Proposed Private Well Groundwater Monitoring Location



Client/Project

Canadian National Railway
 Milton Logistics Hub
 Groundwater Follow-up Program

Figure No.

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Title

Lower Base Line Separation -
 Proposed Private Well
 Monitoring Locations



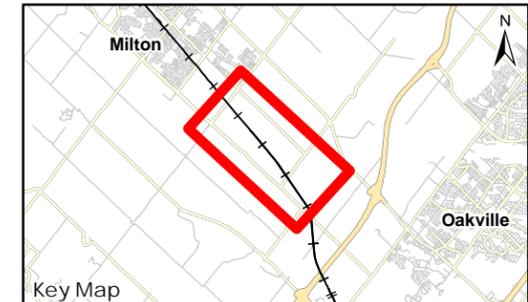
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 Revised: 2022-02-14 By: dharvey



- Notes**
- Coordinate System: NAD 1983 UTM Zone 17N
 - Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2020. Site layout: July 10, 2015.
 - Orthoimagery © First Base Solutions, 2019. Imagery taken in 2018.
 - MECP water well locations are approximate and have been positioned based on published UTM coordinates.

Legend

- | | | | | | |
|--|---|--|--|---|---|
| <p>Project Components</p> <ul style="list-style-type: none"> Project Development Area Existing Double Track Mainline Double Track - Mainline Concrete Pad Temporary Laydown Area | <p>Existing Features</p> <ul style="list-style-type: none"> Permanent Stream Intermittent Stream Waterbody | <p>New Channel</p> <ul style="list-style-type: none"> New Channel <p>Naturalized/Enhancement Area</p> <ul style="list-style-type: none"> Naturalized/Enhancement Area | <p>MECP Water Wells (January 2015)</p> <ul style="list-style-type: none"> Abandoned Water Supply Unknown | <p>Borehole with Monitoring Well (Stantec)</p> <ul style="list-style-type: none"> Existing Monitoring Well Borehole with Monitoring Well (Stantec) | <p>Well Decommissioning</p> <ul style="list-style-type: none"> Stage 1 Stage 3 Stage 4 Post Construction |
|--|---|--|--|---|---|



Client/Project
 Canadian National Railway
 Milton Logistics Hub
 Groundwater Follow-Up Program

Figure No.
 2

Title
 Project Development Area -
 Proposed Groundwater
 Monitoring Locations