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**VIA RESS, EMAIL and COURIER**

March 21, 2017

Ms. Kirsten Walli  
Board Secretary  
Ontario Energy Board  
2300 Yonge Street, Suite 2700  
Toronto, ON M4P 1E4

**Re: Enbridge Gas Distribution Inc. (“Enbridge”)  
EB-2016-0054 – Seaton Land Development Pipeline Project  
Conditions of Approval – Post Construction Report - Correction**

Further to the Post Construction Report filed on March 17, 2017 in the above noted proceeding, enclosed please find a corrected version of the Report. Appendix E was inadvertently missed with the Report.

A hard copy of Appendix E will be forwarded to the Board.

Please contact the undersigned if you have any questions.

Yours truly,

(Original Signed)

Stephanie Allman  
Regulatory Coordinator

cc: Ms. Zora Cronjacki, OPCC Chair (via email)  
Ceiran Bishop, Manager Supply and Infrastructure Applications Division (via email)

**Enbridge Gas Distribution Inc.  
Interim Post-construction  
Environmental Monitoring Report  
Pipeline to Serve the Seaton Land  
Development  
EB -2016-0054**

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## 1.0 Introduction

On June 23, 2016 the Ontario Energy Board (“OEB” or the “Board”) granted Enbridge Gas Distribution Inc. (“Enbridge”) leave to construct a natural gas pipeline to serve the Seaton Development Project (the “project”)<sup>1</sup>. Enbridge retained Stantec Consulting Ltd. (“Stantec”) to assess the environmental and socio-economic impact of the proposed pipeline. This assessment was documented in an Environmental Report (“ER”) which formed part of the evidence in the leave to construct application. The ER included a route evaluation and selection process that was designed to identify the proposed route alternative(s) with the least potential environmental and socio-economic impacts.

As part of the project Enbridge conducted the following studies to further inform the design, planning and permitting process, identify potential environmental and socio-economic impacts potentially resulting from construction, and minimize and mitigate impacts through the application of documented mitigation measures.

<b>Report Title</b>	<b>Conducted By</b>	<b>Date Completed</b>
Geotechnical Investigation and Hydrogeological Assessment	Stantec Consulting Ltd.	January 16, 2015
Stage 1 Archaeological Assessment: Proposed Natural Gas Pipeline to serve the Seaton Land Department	Stantec Consulting Ltd.	January 7, 2016
Proposed Natural Gas Pipeline to serve the Seaton Land Development: Environmental Report	Stantec Consulting Ltd.	March 8, 2016
Stage 2 Archaeological Assessment: Proposed Natural Gas Pipeline to Serve the Seaton Land Development (temporary workspace included)	Stantec Consulting Ltd.	July 11, 2016
Final Environmental Protection Plan; Natural Gas Pipeline to Serve the Seaton Land Development	Stantec Consulting Ltd	September 8, 2016
Seaton Pipeline Project Cultural Heritage Assessment report	Stantec Consulting Ltd.	September 14, 2016

Construction of the project began on September 12, 2016 and was completed on December 22, 2016. The project was fully energized on December 16, 2016. Enbridge filed, in accordance with the Conditions of Approval (“COA”) for the project, notifications of these project milestones with the Board<sup>2</sup>.

<sup>1</sup> This leave to construct application was assigned Board file number EB-2016-0054.

<sup>2</sup> Please refer to the letters dated November 10, 2016 and December 2, 2016.

This report has been prepared in fulfillment of COA 6 a, reproduced below, of the Board's Decision and Order for the project:

6. Both During and after construction, Enbridge shall monitor the impacts of construction, and shall file with the OEB one paper copy and one electronic (searchable PDF) version of each of the following reports:
  - a. a post construction report, within three months of the in-service date, which shall:
    - i. provide a certification, by a senior executive of the company, of Enbridge's adherence to Condition 1;
    - ii. describe any impacts and outstanding concerns identified during construction;
    - iii. describe actions taken or planned to be taken to prevent or mitigate any identified impacts of construction;
    - iv. include a log of all complaints received by Enbridge, including the date/time the complaint was received, a description of the complaint, any actions taken to address the complaint, the rationale for taking such actions; and
    - v. Provide a certification, by a senior executive of the company, that the company has obtained all other approvals, permits, licenses, and certificates required to construct, operate and maintain the proposed project.

Site observations noted within this report are limited to a site visit that was completed by Enbridge on March 1, 2017 and a follow up site visit completed on March 6, 2017.

The report provides a summary of any construction issues that arose during construction of the project and any actions taken or planned to be taken to mitigate or prevent impacts as a result of construction. Enbridge has visited the area of construction to assess the quality of restoration and will revisit the site again after a full growing season to ensure proper restoration is established. Enbridge's construction site is part of a larger plan to provide necessary infrastructure to the Seaton Land Development and as such will be subject to further construction activities from third party companies. Enbridge will ensure that the site is restored to its previous condition but cannot guarantee that further construction activities will not impact the same area.

## **2.0 Project Description**

The project consisted of the installation of 2.9 km of Nominal Pipe Size ("NPS") 8-inch steel high pressure ("HP") and 500 m of NPS 6-inch steel extra high pressure ("XHP") natural gas pipeline in North Pickering, in the Regional Municipality of Durham, Ontario. The pipeline originates from Enbridge's existing NPS 16-inch steel XHP pipeline, which runs north-south along Sideline 16. The pipeline then runs west along Taunton Road where it terminates at the intersection of Sideline 24 and Taunton Road. The pipeline is located within an existing road allowance. A 5 m wide temporary working easement ("TWE") was required along portions of the proposed route to accommodate construction activities.

The project will provide safe and reliable natural distribution service to the future Seaton Land Development, which is expected to add 70,000 new residents and add 35,000 new jobs to north Pickering. Residential and business construction is anticipated to begin in 2017.

### **3.0 Environmental Inspection**

In order to ensure that environmental commitments in the ER were followed and the best industry practices were used, an environmental overview was presented to the construction team at a project kick-off meeting held on September 9<sup>th</sup>, 2016. This environmental overview focused on:

- Review of the Seaton Land Development ER and Environmental Protection Plan (“EPP”) including:
  - General construction mitigation measures
  - Site specific mitigation measures
  - Contingency plans
- Review of environmental permits and special conditions including:
  - Ministry of Natural Resources and Forestry (MNRF) – Notice of Activity for Species at Risk (SAR)
    - Timing window extension
    - Mitigation and Monitoring Plan
  - Toronto and Region Conservation Authority (TRCA)
- Review of Heritage Building Resource including:
  - Mitigation measures
  - Contingency Plan
- Review of Environmental Spills
- Review of Emergency Response Plans

A qualified Environmental Inspector (“EI”) was also onsite to support construction by monitoring for potential risks to the natural environment. These environmental monitoring activities were undertaken during construction activities in the vicinity of environmentally sensitive habitats. For example the EI monitored the Horizontal Direction Drilling (“HDD”) beneath the Urfe and Ganatsekiagon Creeks where potential Species at Risk (“SAR”) habitat was identified.

### **4.0 Construction Effects and Mitigation Measures**

The primary mitigation measures implemented during construction to reduce the environmental and socio-economic effects from the project and identification of any deviations from the proposed mitigation measures initially identified in the ER are discussed below.

Construction activities were carried out ensuring minimal impact to the environment and the residents located adjacent to the Right of Way (“ROW”). Monitoring and site specific mitigation measures were implemented during all phases of the project to identify and mitigate potential impacts. Examples of site

specific mitigation measures included: A set-back distance of greater than 30m for watercourse crossings, installing pressure relief pits for HDD activities to decrease the potential for an inadvertent release, and using a combination of siltsoxx and sediment fence.

Other potential adverse environmental effects were further reduced by observing fisheries timing restrictions to limit potential interaction during sensitive breeding/spawning periods, and reclaiming disturbed areas as soon as possible.

#### **4.1. Horizontal Direction Drill (HDD)**

Potential effects during HDD crossings include siltation and sedimentation during a surface release of bentonite mud. The potential release of bentonite drilling mud was mitigated through the installation of protection measures (i.e. siltsoxx, relief pits) prior to the onset of drilling and having the appropriate spill response materials (e.g. silt fence, straw bales, vacuum trucks, etc.) readily available at all times during drilling. Enbridge reported the release to the Ministry Of Environment and Climate Change's ("MOECC") Spills Action Center ("SAC") immediately after discovery.

To mitigate the potential loss of liquids used onsite during construction, standard procedures were followed for the storage and handling of any construction fluids (e.g. drilling mud, fuel, etc.). To prevent deleterious substances from entering a watercourse, these materials were stored at a distance greater than 30m from the watercourses where possible. Temporary Erosion and Sediment Control ("ESC") measures (e.g. Siltsoxx, straw bales) were installed, near the entry and exit pits, prior to drilling and maintained until all work near the watercourses (including restoration) had been completed.

#### **4.2 Inadvertent Fluid Release Emergency Response**

Prior to drilling, emergency response materials (as described in the ER and EPP) were maintained onsite near the subject watercourses in a readily accessible location. If an inadvertent release occurred outside of the isolated entrance and exit location, drilling was to be stopped to prevent further migration of drilling fluids from the point of release. All inadvertent releases were reported immediately to SAC and other agencies as required.

There was one inadvertent release which resulted in a discharge to Urfe Creek. The EI onsite was quick to identify and address the release to prevent any further impacts and to provide direction on the proper inadvertent release emergency response protocol. This release was reported to SAC, CA and MNRF. No residual significant impacts were observed or were anticipated as a result of the release. Follow up was to the satisfaction of the MOECC, CA and MNRF. A copy of the release report is provided in Appendix E.

### **4.3 Species at Risk**

The ER identified ten Endangered or Threatened SAR which were either observed or could potentially be found within the study area for the project. The following is a list of the potential/observed species:

- Butternut (Endangered)
- Acadian Flycatcher (Endangered)
- Bank Swallow (Threatened)
- Barn Swallow (Threatened)
- Bobolink (Threatened)
- Chimney Swift (Threatened)
- Eastern Meadowlark (Threatened)
- Least Bittern (Threatened)
- Little Brown Myotis (Endangered)
- Northern Myotis (Endangered)

Targeted surveys were completed in 2015 and 2016 for all ten SARs listed above. Potential habitat was later identified for Redside Dace (Endangered) within the two (Urfe and Ganatsekiagon) watercourses. Enbridge registered a Notice of Activity with the MNRF for the planned HDD activities at both watercourses and prepared a Mitigation and Monitoring plan for each crossing. No Permits or approvals were required for Butternut, Acadian flycatcher, Bank swallow, Barn Swallow, Bobolink, Chimney Swift, Easter Meadowlark, Least Bittern, Little Brown Myotis and Northern Myotis.

### **4.4 Watercourse Crossing**

Throughout the permitting stage of the project, Enbridge remained in close consultation with the Conservation Authority and MNRF to identify sensitive watercourse and design crossing strategies/procedures to limit the overall impact of construction on the watercourses. Discussion included the following topics: SARs, crossing methodology, proposed schedules for each crossing and restoration requirements. Both watercourses were crossed as per the permits and agreements granted by the appropriate regulatory authority. A timing window extension was issued by the MNRF on August 26, 2016 to allow construction at both watercourses beyond September 15. The MNRF granted approval for the construction timing window for work at Ganatsekiagon Creek to be extended to October 15, 2016 and at Urfe Creek to be extended to November 30, 2016.

Potential impacts to watercourses were reduced by isolating sensitive (i.e. entry and exit pits more than 30m from top of bank) and SAR habitats along the route, crossing using trenchless drilling technologies and by observing best practices and permit requirements.



## **4.5 Archaeology and Heritage Resources**

Prior to construction and in consultation with the Ministry of Tourism Culture and Sport and First Nations, a Stage 1 Archaeological Assessment (“AA”) was completed for the full length of the Seaton Land Development Project. The Stage 1 AA included a review of past AAs completed within the study area and also identified specific project areas where Stage 2 AAs would be necessary to meet regulatory requirements under the Ontario Heritage Act. During the Stage 1 and 2 AA no known archaeological sites were identified within or adjacent to the ROW and no archaeological sites were encountered during the project.

Known or potential heritage resources were also identified as part of the ER. A Heritage Assessment Report was prepared to identify the presence of heritage resources within the ER study area to; understand the potential impacts of the project on these resources; and prepare mitigation strategies to minimize these impacts. Two resources, 1574 4<sup>th</sup> Concession Road and 1290 Taunton Road were identified.

1290 Taunton Road - Due to construction constraints the mitigation measures at 1290 Taunton Road were not wholly suitable and had to be amended from the recommended mitigation measures contained in the Cultural Heritage Report. In addition to the Cultural Heritage Report recommendations, Enbridge completed a property condition assessment and vibration monitoring of the identified heritage resource to ensure no negative impacts from construction activities. An EI was on site at the time of construction around the heritage resource. Please see Appendix D for the Pre-Construction and Post-Construction Property Condition Assessments (Stantec, January 2017), and Construction Vibration Monitoring Summary Report (Stantec, January 2017). No residual impacts were recorded.

1574 4<sup>th</sup> Concession - The heritage resource identified at 1574 4th Concession Road was outside the construction area and required no further monitoring.

## **5.0 ROW Condition**

Restoration of the site was progressive throughout construction. Sites that were suitable to be seeded were done so at the time of restoration. Both watercourses were restored, seeded with a native seed mix and stabilized with appropriate measures (i.e. straw) to ensure long-term stability of both watercourses. Areas that were too wet or frozen at the time of construction completion were stabilized with appropriate temporary ESC measures until completion of the spring freshet/break-up.

Any areas that could not be restored at the time of construction completion will be revisited and restored in the spring. Please see below for a table of current conditions and the action planned for each outstanding issue. Refer to Appendix A for the photo map and Appendix B for the photo log.

**Table 1: List of current conditions and action items.**

<b>Photo #</b>	<b>Location</b>	<b>Current Condition</b>	<b>Action</b>
<b>Photo 1</b>	Taunton Rd and Sideline 16 tie-in pit (looking North)	In complete. Drainage resembles pre-construction condition.	Further seeding required. No further action for the drainage.
<b>Photo 2</b>	Taunton Rd and Sideline 16 tie-in pit (looking North- East)	In complete. Drainage resembles pre-construction condition.	Further seeding required.
<b>Photo 3</b>	Regulator Station east of Brock Rd (looking north-west).	In complete. Construction was finished in December.	Requires grading and seeding
<b>Photo 4</b>	Regulator Station east of Brock Rd (looking East).	In complete. Construction was finished in December.	Requires grading and seeding
<b>Photo 5</b>	West of Brock Rd (looking east).	Complete.	Follow up required assessing vegetation growth.
<b>Photo 6</b>	East side of Urfe Creek (looking west).	Complete. The Creek was seeded and straw was placed over top as a temporary over-winter ESC measure.	Follow up required assessing vegetation growth.
<b>Photo 7</b>	West side of Urfe creek (looking east)	Complete. The Creek was seeded and straw was placed over top as a temporary over-winter ESC measure. Area was shared by other utility companies as a staging area.	Follow up required assessing vegetation growth.
<b>Photo 8</b>	West side of Urfe Creek (looking west)	Complete. The Creek was seeded and straw was placed over top as a temporary over-winter ESC measure. Area was shared by other utility companies as a staging area.	Follow up required assessing vegetation growth.
<b>Photo 9</b>	East side of Ganatsekiagon creek (looking west).	Complete. The Creek was seeded and straw was placed over top as a temporary over-winter ESC measure.	Follow up required assessing vegetation growth.

<b>Photo #</b>	<b>Location</b>	<b>Current Condition</b>	<b>Action</b>
<b>Photo 10</b>	West side of Ganatsekiagon Creek (looking east).	Complete. The Creek was seeded and straw was placed over top as a temporary over-winter ESC measure.	Follow up required assessing vegetation growth.
<b>Photo 11</b>	West of Ganatsekiagon Creek (looking east). Hydro corridor crossing.	Complete. The Creek was seeded and straw was placed over top as a temporary over-winter ESC measure.	Follow up required assessing vegetation growth.
<b>Photo 12:</b>	1420 Taunton Rd west of the Hydro corridor crossing (looking west).	In complete.	Further clean-up will be required in the spring.
<b>Photo 13</b>	Trans Norther Pipeline Inc. utility crossing west of 1420 Taunton Rd (looking east).	Complete. The area was seeded and straw was placed over top as a temporary over-winter ESC measure.	Follow up required assessing vegetation growth.
<b>Photo 14</b>	Trans Northern Pipeline Inc. utility crossing west of 1420 Taunton Rd (looking east)	Complete. The area was seeded and straw was placed over top as a temporary over-winter ESC measure.	Follow up required assessing vegetation growth.
<b>Photo 15</b>	Heritage building at 1290 Taunton Rd (looking west)	Complete. No impacts were recorded during construction. Please see Appendix D	No further Action required.
<b>Photo 16</b>	Heritage building at 1290 Taunton Rd (looking north)	Complete. No impacts were recorded during construction. Please see Appendix D	No further Action required.
<b>Photo 17</b>	West of 1290 Taunton Rd (looking east)	In complete. Construction was finished in December.	Requires grading and seeding
<b>Photo 18</b>	West of 1290 Taunton Rd (looking west)	In complete. Construction was finished in December.	Requires grading and seeding
<b>Photo 19</b>	Sideline 24 and Taunton Rd (looking west)	In Complete. Construction was finished in December.	Requires grading and seeding

## 6.0 Landowner Comments and Complaints

Property along the construction ROW is owned and leased by Infrastructure Ontario (IO). There were six documented communications directed through IO's property management company (Dell Management Solution). Of the six, only one item requires further action subsequent to the submission of this report. For this item IO has requested to be notified when final restoration activities begin. See Appendix C for a table of correspondence transactions.

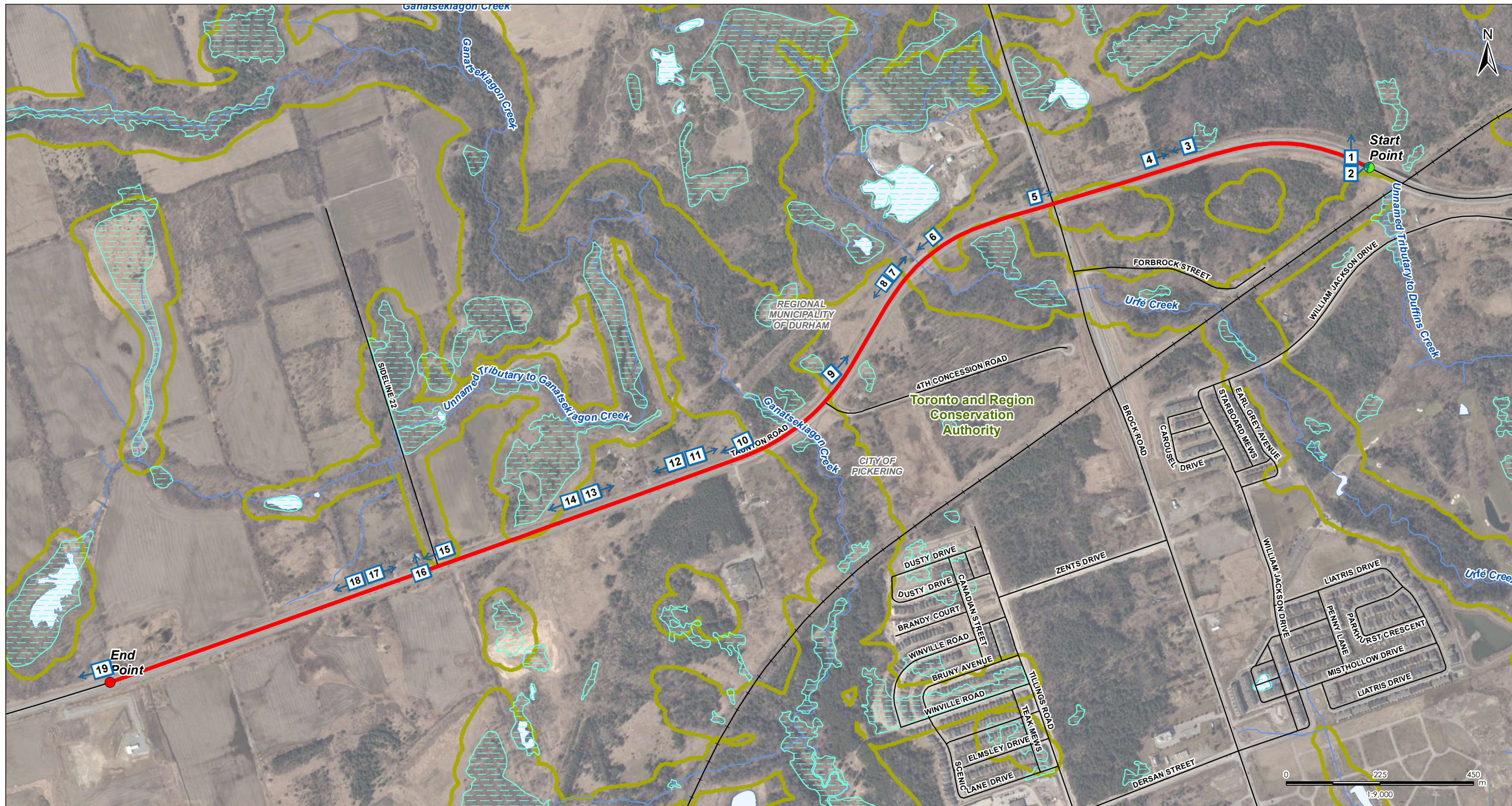
## 7.0 Summary

Important components that reduced the overall potential for residual and cumulative effects from the Seaton Land Development Project included:

- Pre-construction planning and consultation with regulators and other stakeholders;
- Using trenchless drilling technologies;
- Environmental Overview Session;
- Environmental inspection;
- Monitoring during construction;
- Working within watercourse crossing timing windows to avoid important breeding/spawning periods;
- Contingency planning;
- Designing site specific environmental protection measures to be effective in both the short and long term; and
- Responding and addressing stakeholder's concerns along the ROW in a timely manner.

Final site restoration is planned for spring 2017, as winter conditions restricted the restoration at the time of construction completion. Providing that final restoration is completed in the spring of 2017 and any outstanding issues identified in Table 1 are addressed, no significant residual or cumulative effects on environmental and/or socio-economic features are anticipated as a result of the project.

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 Revised: 2016-07-22 By: searles



**Notes**

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2015.
3. Orthoimagery © First Base Solutions, 2015.

**Legend**

- End Point
- Start Point
- Pipeline Route
- Upper Tier Municipality
- Lower Tier Municipality
- Road
- Railway
- Watercourse
- Unevaluated Wetland (per OWES)
- Waterbody
- Regulation Limits
- 1 ↓ Photo number and direction

Client/Project

Enbridge Gas Distribution Inc.  
 Natural Gas Pipeline to  
 Serve the Seaton Land Development

Figure No.

**1.1**

Title

**Natural Gas Pipeline to Serve the  
 Seaton Land Development  
 Location Map**

July 2016  
 160950837

## Appendix B: Photo Log

<b>Photo #</b>	<b>Location</b>	<b>Current Condition</b>	<b>Action</b>
<b>Photo 1</b>	Taunton Rd and Sideline 16 tie-in pit (looking North)	In complete. Drainage resembles pre-construction condition.	Further seeding required.
<b>Photo 2</b>	Taunton Rd and Sideline 16 tie-in pit (looking North- East)	In complete. Drainage resembles pre-construction condition.	Further seeding required.
<b>Photo 3</b>	Regulator Station east of Brock Rd (looking north-west).	In complete. Construction was finished in December.	Requires grading and seeding
<b>Photo 4</b>	Regulator Station east of Brock Rd (looking East).	In complete. Construction was finished in December.	Requires grading and seeding
<b>Photo 5</b>	West of Brock Rd (looking east).	Complete.	Follow up required assessing vegetation growth.
<b>Photo 6</b>	East side of Urfe Creek (looking west).	Complete. The Creek was seeded and straw was placed over top as a temporary over-winter ESC measure.	Follow up required assessing vegetation growth.
<b>Photo 7</b>	West side of Urfe creek (looking east)	Complete. The Creek was seeded and straw was placed over top as a temporary over-winter ESC measure. Area was shared by other utility companies as a staging area.	Follow up required assessing vegetation growth.
<b>Photo 8</b>	West side of Urfe Creek (looking west)	Complete. The Creek was seeded and straw was placed over top as a temporary over-winter ESC measure. Area was shared by other utility companies as a staging area.	Follow up required assessing vegetation growth.
<b>Photo 9</b>	East side of Ganatsekiagon creek (looking west).	Complete. The Creek was seeded and straw was placed over top as a temporary over-winter ESC measure.	Follow up required assessing vegetation growth.
<b>Photo 10</b>	West side of Ganatsekiagon Creek	Complete. The Creek was seeded and straw was	Follow up required assessing vegetation

	(looking east).	placed over top as a temporary over-winter ESC measure.	growth.
<b>Photo 11</b>	West of Ganatsekiagon Creek (looking east). Hydro corridor crossing.	Complete. The Creek was seeded and straw was placed over top as a temporary over-winter ESC measure.	Follow up required assessing vegetation growth.
<b>Photo 12:</b>	1420 Taunton Rd west of the Hydro corridor crossing (looking west).	In complete.	Further clean-up will be required in the spring.
<b>Photo 13</b>	Trans Norther Pipeline Inc. utility crossing west of 1420 Taunton Rd (looking east).	Complete. The area was seeded and straw was placed over top as a temporary over-winter ESC measure.	Follow up required assessing vegetation growth.
<b>Photo 14</b>	Trans Northern Pipeline Inc. utility crossing west of 1420 Taunton Rd (looking east)	Complete. The area was seeded and straw was placed over top as a temporary over-winter ESC measure.	Follow up required assessing vegetation growth.
<b>Photo 15</b>	Heritage building at 1290 Taunton Rd (looking west)	Complete. No impacts were recorded during construction. Please see Appendix D	No further Action required.
<b>Photo 16</b>	Heritage building at 1290 Taunton Rd (looking north)	Complete. No impacts were recorded during construction. Please see Appendix D	No further Action required.
<b>Photo 17</b>	West of 1290 Taunton Rd (looking east)	In complete. Construction was finished in December.	Requires grading and seeding
<b>Photo 18</b>	West of 1290 Taunton Rd (looking west)	In complete. Construction was finished in December.	Requires grading and seeding
<b>Photo 19</b>	Sideline 24 and Taunton Rd (looking west)	In Complete. Construction was finished in December.	Requires grading and seeding





Photo 1: Taunton Rd and Sideline 16 tie-in pit (looking north)



Photo 2: Taunton Rd and Sideline 16 tie-in pit (looking north-east)



Photo 3: Regulator Station east of Brock Rd (looking north-west)



Photo 4: Regulator Station east of Brock Rd (looking east)



Photo 5: West of Brock Rd (looking east).



Photo 6: East side of Urfe Creek (looking west).



Photo 7: West side of Urfe creek (looking east)



Photo 8: West side of Urfe Creek (looking west)





Photo 9: East side of Ganatsekiagon creek (looking west).



Photo 10: West side of Ganatsekiagon Creek (looking east).



Photo 11: West of Ganatsekiagon Creek looking east. Hydro corridor crossing.



Photo 12: 1420 Taunton Rd west of the Hydro corridor crossing (looking west)



Photo 13: Trans Northern Pipeline Inc. utility crossing west of 1420 Taunton Rd (looking east)



Photo 14: Trans Northern Pipeline Inc. utility crossing west of 1420 Taunton Rd (looking east)



Photo 15: Heritage building at 1290 Taunton Rd (looking west)



Photo 16: Heritage building at 1290 Taunton Rd (looking north)





Photo 17: West of 1290 Taunton Rd (looking east)



Photo 18: West of 1290 Taunton Rd (looking west)



Photo 19: Sideline 24 and Taunton Rd (looking west).

## Appendix C: Consultation Log

Appendix C: Stakeholder Consultation Log

Date Received	Communication	Name	Landowner Type	Landowner Comments	EGD Responses	Status
20-Sep-16	Telephone	Mag	Infrastructure Ontario - Residential Tenant	<p><b>20Sept16</b> - IO tenant notified EGD/IO of concerns with respect to a septic tank in their driveway. Tenant indicated that we shouldn't be digging/storing equipment in this location. Landowner indicated that EGD had been by to conduct water well testing. IO Tenant indicated that structural testing hadn't been completed.</p> <p><b>21Sept16</b> - During call with IO Tenant to answer the tenants September 20th question, the tenant indicated their concerns weren't with the well, but with the houses structure. The tenant indicated the house had been settling and cracking over previous years. Indicated cracking noises were heard when ditches were previously dug and during the installation of hydro poles earlier in the year. Tenant concerned EGD's proposed work may cause similar outcomes.</p>	<p><b>21Sept16</b> - Responded to the Landowner via Telephone. Indicated that EGD's Temporary Working Area wasn't close to the house. EGD would be working within the limits of the road.</p> <p>Indicated that we don't test the structure of the well. If there is an issue due to construction, EGD will remediate and find the source of the problem.</p> <p><b>26Sept16</b> - Responded to the tenants September 21st concerns. Indicated that EGD would be HDDing at this location. Although we were about a month away from working near the property the EGD Project Manager would speak with the tenant prior to drilling past the house. Advised the tenant to call if any work is occurring in close proximity to the house. Project Manager was notified of the IO Tenants concerns and to perhaps take some pictures prior to beginning work.</p>	No further correspondence received; matter closed
20-Sep-16	Email Letter	Lloyd Cherniak 1133373 Ontario Inc.	Landowner - Temporary Working Area		<p><b>20Sept16</b> - Sent letter advising the Landowner that EGD would be commencing the Term for the Temporary Working Area.</p> <p><b>2Dec16</b> - Sent Letter advising that EGD would be enacting its right to extend the Temporary Working Area Term for an additional twelve (12) week period.</p> <p><b>18Jan17</b> - Advised Landowner of the Termination of the Temporary Working Area Agreement. Landowner was notified that although EGD had an active agreement for the Lands; EGD never ended up occupying/utilizing their property.</p>	No further correspondence received; matter closed

27-Sep-16	Telephone	Mike	Infrastructure Ontario - Residential Tenant	<b>27Sept16</b> - Concerned that Temporary Working Areas/Construction would block driveway access. Indicated plans to transport/store boats in their yard. Boat Storage would require the tenant have access to their side driveway.	<b>29Sept16</b> - Responded to Landowner and indicated EGD wouldn't be working in this area until November. Landowner confirmed that the problem was mitigated as the boats would already have been stored.	No further correspondence received; matter closed
11-Oct-16	Telephone	Mike	Infrastructure Ontario - Residential Tenant	<b>11Oct16</b> - IO Tenant called to report that the replacement soil on their driveway (sand) was washing away and water was ponding.	<b>11Oct16</b> - Advised IO Tenant the Project Manager had been contacted to address the situation right away. Project Manager was having someone look at the situation right away. IO Tenant advised to call back in a few days if the problem hadn't been mitigate.	No further correspondence received; matter closed
4-Nov-16	Telephone	Josie - DEL Management Solutions - Property Manager	Infrastructure Ontario - Property Manager	<b>4Nov16</b> - IO Tenant is concerned with locate flags on their property. Tenant is concerned about flower beds/landscaping being disturbed from construction activities.	<b>7Nov16</b> - Responded and indicated that this location will be using HDD and there was the small chance of above surface works depending on circumstances. Excavation activities would be occurring much further away at the Tie-In Pit locations.	No further correspondence received; matter closed
9-Jan-17	Site Inspection	<b>Josie Cuirrier</b> (Property Manager - Del Management Solution on behalf of Infrastructure Ontario), <b>Stephen McCormack</b> (EGD), <b>Chris Meilleur</b> (EGD), Aecon Foreman	Land Owner		<b>9Jan16</b> - Met with IO's representative Del Management Solutions to inspect the Temporary Working Areas and portions of IO lands impacted by the project. Temporary Working Area directly west of Sideline 24 was identified to DEL as requiring restoration. EGD would return in the Spring to restore the lands. All other locations were smoothed out and laid with seed/hay. Advised DEL that multiple utilities were working in the area.  Follow-up inspection to occur in late spring to address any further restoration requirements.	IO/DEL to be contacted in late spring to monitor restoration. EGD will complete the restoration of the Temporary Working Area to the west of Sideline 24.

## Appendix D: Heritage Building Assessments

**Pre-Construction and Post-  
Construction Property  
Condition Assessments**

Seaton Heritage Barn  
1290 Taunton Road  
Pickering, ON



Prepared for:  
Enbridge Gas Distribution Inc.

Prepared by:  
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Project No.: 160950837  
January 5, 2017



# PRE-CONSTRUCTION AND POST- CONSTRUCTION PROPERTY CONDITION ASSESSMENTS

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# PRE-CONSTRUCTION AND POST- CONSTRUCTION PROPERTY CONDITION ASSESSMENTS

January 5, 2017

## 1.0 Introduction

Enbridge Gas Distribution Inc. (Enbridge) retained Stantec Consulting Ltd. (Stantec) to undertake Pre-Construction and Post-Construction Property Condition Assessments (PCAs) for the wood framed barn building, which is located at 1290 Taunton Road, Pickering, ON.

The purpose of the pre-construction and post-construction PCAs was to document damage/deficiency/deterioration, if any, on the subject barn building prior to and following the planned construction of the underground pipeline by Enbridge.

The pre-construction PCA was completed on November 21, 2016 and during the site visit, damage/deficiency/deterioration of the visible portions of the building structure and building envelope prior to the planned pipeline construction was documented. The documentation also included, where accessible, a photo array of the building structure, walls, floors and ceiling.

The post-construction PCA was completed on December 1, 2016, following the cessation of the on-site construction activities. During the post-construction PCA, the building structure, walls, floors and ceiling, and especially areas previously assessed with damage/deficiency/deterioration were reviewed, and the affects, if any, of the construction activities were analyzed.

The pre-construction and post-construction PCAs were carried out as outlined in the Methodology section below.

From the analysis of the pre-construction and post-construction assessments, no significant change to condition of the subject barn was noted.

## 2.0 Methodology

The pre-construction and post-construction PCAs generally followed the procedure outlined in ASTM Standard E2018-15. The methodology for the pre-construction and post-construction PCAs generally included a visual condition review of the accessible building systems:

- Structure (foundation, structural framing, etc.)
- Cladding (brick/stone masonry, wood/metal/vinyl paneling, parging, etc.)
- Roofing
- Windows
- Interior finishes (floor, wall, ceiling finishes)

A spreadsheet report accompanied by a photo log of building system reviewed was prepared. Where damage/deficiency/deterioration was noted, the area was recorded and findings tracked in the spreadsheet report.

## PRE-CONSTRUCTION AND POST- CONSTRUCTION PROPERTY CONDITION ASSESSMENTS

January 5, 2017

The PCAs were a visual review and were limited to the areas that were visible and easily accessible. The assessors did not at any point during the assessment move furniture or equipment to identify deficiencies or deteriorations, or carry out intrusive investigations to support the observed deficiency.

Recommendation or cost for renewal were excluded from the scope of this assignment.

The pre-construction and post-construction PCAs were carried out by a qualified assessor, who is experienced and has knowledge on the performance of building structure, envelope and site feature.

### 3.0 Observations

The observations made during the pre-construction and post-construction PCAs are summarized in the observation spreadsheet provided in **Appendix A**, and the photo log supporting these observations is found in **Appendix B**. A plan drawing of the building and property indicating the approximate locations of pre-construction and post-construction observations is provided in **Appendix C**.

The pre-construction PCA of the subject barn building located at 1290 Taunton Road, Pickering ON was completed on November 21, 2016. The post-construction assessment was undertaken on December 1, 2016.

Please note that crack gauges were not installed at this address.

Following the analysis of the pre-construction and post-construction PCAs, no significant change to the condition of the subject barn building elements was noted.

### 4.0 Closure

The findings documented in this report were based on observations and information gathered during our pre-construction PCA on November 21, 2016, and post-construction PCA completed on December 1, 2016. The PCAs were conducted at the request of Enbridge Gas Distribution Inc.

This report has been prepared by Stantec for the exclusive and sole use of Enbridge Gas Distribution Inc. The report may not be relied upon by any other person or entity without the express written consent of Stantec Consulting Ltd. Any reliance on this report by a third party, any decisions that a third party makes based on this report, or any use at all of this report by a third party is the responsibility of such third parties. Stantec accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made, or actions taken, based on this report.

## PRE-CONSTRUCTION AND POST- CONSTRUCTION PROPERTY CONDITION ASSESSMENTS

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The assessment of the building and site components was performed using methods and procedures that are consistent with standard commercial and customary practice as outlined in ASTM Standard E 2018-15 for PCAs. As per this ASTM Standard, the assessment of the building and site components was based on non-invasive, visual observations of the parts of the building which were readily accessible during our review. The overall condition of the building and site was captured at that specific point in time only. Conditions may exist that are not as per the general condition of the system being observed and reported in this report.

No legal surveys, soil tests, environmental assessments, geotechnical assessments, detailed barrier-free compliance assessments, seismic assessments, detailed engineering calculations, or quantity surveying compilations have been made. No responsibility, therefore, is assumed concerning these matters. No responsibility is held for the impact of design or construction defects as part of these services, whether or not described in this report. No guarantee or warranty, expressed or implied, with respect to the property, building components, building systems, property systems, or any other physical aspect of the property is made.

In certain instances, Stantec has been required to assume that the information provided is accurate and cannot be held responsible for incorrect information received during a interview process. Should additional information become available with respect to the condition of the building and/or site elements, Stantec requests that this information be brought to our attention so that we may reassess the observations presented herein.

Stantec is reporting on observations made only and is not advocating or recommending any particular action. Stantec disclaims any liability for any actions or decisions made by Enbridge as a result of the contents of this report.

We trust that the above is satisfactory for your purposes at this time. Should you have any questions or concerns, or require additional information, please do not hesitate to contact the undersigned at your convenience.

Regards,

**STANTEC CONSULTING LTD.**

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# **PRE-CONSTRUCTION AND POST- CONSTRUCTION PROPERTY CONDITION ASSESSMENTS**

Appendix A  
Pre-Construction and Post-Construction  
Condition Assessments  
January 5, 2017

## **Appendix A Pre-Construction and Post-Construction Condition Assessments**

**PIPELINE PRE-CONSTRUCTION OBSERVATIONS**



Photo 1: E1 – View of a crack on south foundation wall in the basement



Photo 3: E2 – View of crack on south foundation wall in the basement



Photo 5: E3 – View of the southwest foundation wall

**PIPELINE POST CONSTRUCTION OBSERVATIONS**



Photo 2: No significant change to the crack on the south foundation wall was observed.



Photo 4: No significant change to the crack on the south foundation wall was observed.



Photo 6: No significant change to the south foundation wall.

**PIPELINE PRE-CONSTRUCTION OBSERVATIONS**



Photo 7: E4 –View of the west foundation wall



Photo 9: E5 – View of the west foundation wall.



Photo 11: E6 – View of the west foundation wall

**PIPELINE POST CONSTRUCTION OBSERVATIONS**



Photo 8: No significant change to the condition of the west foundation wall was observed following the construction.



Photo 10: No significant change to the west foundation wall.



Photo 12: No apparent change to the west foundation wall

**PIPELINE PRE-CONSTRUCTION OBSERVATIONS**



Photo 13: E7 –View of a crack on the west foundation wall (Animal Stable # 3)



Photo 15: E8 – View of a crack on the north foundation wall



Photo 17: E9 – On the east elevation,- a view of the basement door access

**PIPELINE POST CONSTRUCTION OBSERVATIONS**



Photo 14: No significant change to the crack on the west foundation wall was observed.



Photo 16: No significant change to the (north foundation wall) crack was observed.



Photo 18: The condition of the basement door access appears to be similar to the pre-construction assessment.



**PIPELINE PRE-CONSTRUCTION OBSERVATIONS**



Photo 19: E10 – View of the east foundation wall

**PIPELINE POST CONSTRUCTION OBSERVATIONS**



Photo 20: The condition of the east foundation wall appears consistent with the pre-construction assessment.



Photo 21: E11 – Another view of the east foundation wall



Photo 22: The east foundation wall appears to be similar to the pre-construction assessment.



Photo 23: E12 –View of the east foundation wall towards the entrance door



Photo 24: The east foundation wall appears to be consistent with the pre-construction assessment.

**PIPELINE PRE-CONSTRUCTION OBSERVATIONS**



Photo 25: E13 – Exterior view of the south foundation wall



Photo 27: E14 – View of the south foundation wall around the window



Photo 29: E15 – View of the floor joists in the basement

**PIPELINE POST CONSTRUCTION OBSERVATIONS**



Photo 26: The south foundation wall appears to be similar with the pre-construction assessment.



Photo 28: The observed condition is consistent with the pre-construction assessment.



Photo 30: The condition of the floor joists appear to be similar to the pre-construction assessment.

**PIPELINE PRE-CONSTRUCTION OBSERVATIONS**



Photo 31: E16 – View of the wood post and floor joist in the basement

**PIPELINE POST CONSTRUCTION OBSERVATIONS**



Photo 32: The wood post and floor joist appear to be consistent with the pre-construction assessment.



Photo 33: E17 - View of the first floor wood roof frame structure



Photo 34: The first floor wood roof frame structure appears to be consistent with the pre-construction assessment



Photo 35: E18 – View of the wood frame structure



Photo 36: The condition of the wood roof frame structure appears to be consistent with the pre-construction assessment.

**PIPELINE PRE-CONSTRUCTION OBSERVATIONS**



Photo 37: E19 – View of the roof wood frame structure

**PIPELINE POST CONSTRUCTION OBSERVATIONS**



Photo 38: The condition of the wood roof frame structure appears to be similar with the initial assessment.

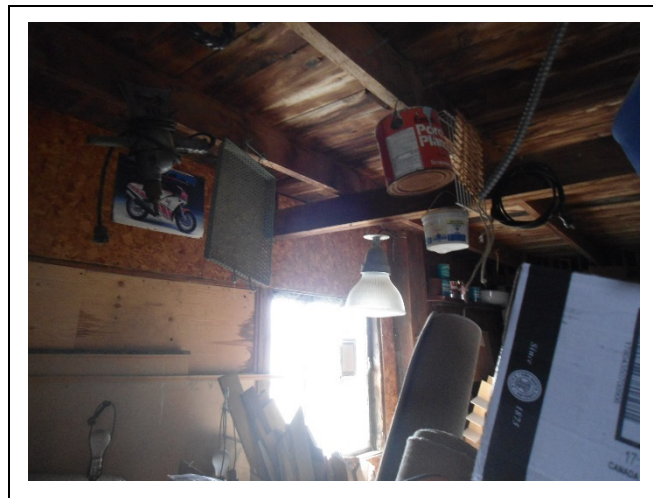


Photo 39: E20 - View of the first floor the exposed ceiling structure in the storage area

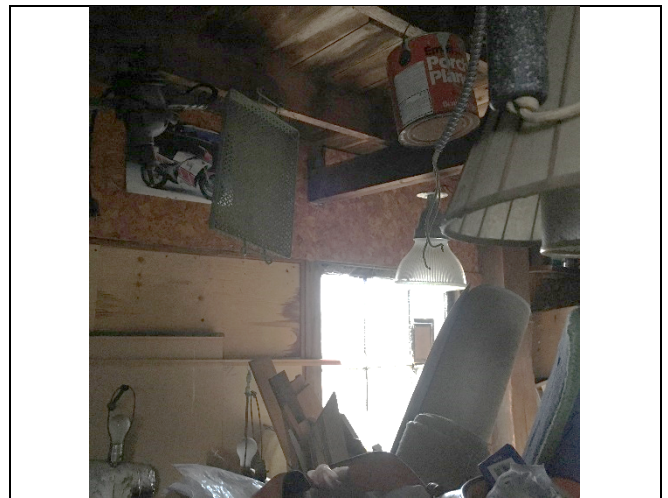


Photo 40: The condition of the exposed ceiling structure in the storage area appears to be consistent with the initial assessment.



Photo 41: E21 – View of the boarded damaged window and damaged wood boards on the south elevation



Photo 42: No significant change to the condition of damaged window and wood boards was observed.

**PIPELINE PRE-CONSTRUCTION OBSERVATIONS**



Photo 43: E22 – View of the south elevation storage opening

**PIPELINE POST CONSTRUCTION OBSERVATIONS**



Photo 44: At the south elevation storage opening, no significant change was observed.



Photo 45: E23 – View of the damaged wood boards on the south elevation



Photo 46: No significant change to the south elevation damaged wood boards was observed.



Photo 47: E24 – General view of the south elevation



Photo 48: In general, the condition of the south elevation appears to be consistent with the pre-construction assessment.

**PIPELINE PRE-CONSTRUCTION OBSERVATIONS**



Photo 49: E25 – View of the south elevation

**PIPELINE POST CONSTRUCTION OBSERVATIONS**



Photo 50: On the south elevation, no significant change to the damaged wood boards was observed.



Photo 51: E26 – View of the damaged wood boards on the east elevation



Photo 52: No significant change to the damaged wood boards was observed on the east elevation



Photo 53: E27 – Closer view of the damaged wood boards on the east elevation



Photo 54: No significant change to the damaged wood boards was observed on the east elevation.

**PIPELINE PRE-CONSTRUCTION OBSERVATIONS**



Photo 55: E28 – General view of the north elevation

**PIPELINE POST CONSTRUCTION OBSERVATIONS**



Photo 56: On the north elevation no significant change to the damaged wood boards was observed.



Photo 57: E29 – View of the west elevation



Photo 58: The condition of the west elevation appears to be similar to the pre-construction assessment.



Photo 59: E30 – View of the north portion of the west elevation



Photo 60: No significant change to the damaged wood boards was observed on the west elevation.

**PIPELINE PRE-CONSTRUCTION OBSERVATIONS**



Photo 61: E31 – View of the wood boards above the sliding door

**PIPELINE POST CONSTRUCTION OBSERVATIONS**



Photo 62: The condition of the wood boards above the sliding door appears unchanged.



Photo 63: E32 –View of the lower portion of the sliding door



Photo 64: The condition of the lower portion of the sliding door appears to be consistent with the pre-construction initial assessment.

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# PRE-CONSTRUCTION AND POST- CONSTRUCTION PROPERTY CONDITION ASSESSMENTS

Appendix B  
Photo Log  
January 5, 2017

## Appendix B Photo Log

Client Name **Enbridge**  
 Project Location 1290 Taunton Road, Pickering, Ontario - Seaton Heritage Barn  
 Stantec Project No 160950837  
 Home Owner City of Pickering  
 Site Visit 1  
 21-Nov-16 Pre-construction Site Visit  
 1-Dec-16 Post Construction Site Visit

Observation number	Component	Elevation / Location	Pipeline Pre-Construction Observations	Pipeline Post-Construction Observations	Comments
<b>EXTERIORS - Observations</b>					
E-1	Foundation Wall	South Elevation	View of a crack on south foundation wall in the basement (See Photograph 1).	No significant change to the crack on the south foundation wall was observed (See Photograph 2).	
E-2	Foundation Wall	South Elevation	View of another crack on south foundation wall in the basement (See Photograph 3).	No significant change to the crack on the south foundation wall was observed (See Photograph 4).	
E-3	Foundation Wall	South Elevation	View of the southwest foundation wall (See Photograph 5).	No significant change to the south foundation wall.(See Photograph 6).	
E-4	Foundation Wall	West Elevation	View of the west foundation wall (See Photograph 7).	No significant change to the condition of the west foundation wall was observed following the construction. (See Photograph 8).	
E-5	Foundation Wall	West Elevation	View of the west foundation wall (See Photograph 9).	No significant change to the west foundation wall. (See Photograph 10).	
E-6	Foundation Wall	West Elevation	View of the west foundation wall (See Photograph 11).	No apparent change to the west foundation wall (See Photograph 12).	
E-7	Foundation Wall	West Elevation	View of a crack on the west foundation wall (Animal Stable # 3) (See Photograph 13).	No significant change to the crack on the west foundation wall was observed (See Photograph 14).	
E-8	Foundation Wall	North Elevation	View of a crack on the north foundation (See Photograph 15).	No significant change to the (north foundation wall) crack was observed. (See Photograph 16).	
E-9	Foundation Wall	East Elevation	On the east elevation a view of the basement door access (See Photograph 17).	The condition of the basement door access appears to be similar to the pre-construction assessment. (See Photograph 18).	
E-10	Foundation Wall	East Elevation	View of the east foundation wall (See Photograph 19).	The condition of the east foundation wall appears to be consistent with the initial assessment (See Photograph 20).	
E-11	Foundation Wall	East Elevation	Another view of the east foundation wall (See Photograph 21).	he east foundation wall appears to be similar to the pre-construction assessment (See Photograph 22).	
E-12	Foundation Wall	East Elevation	View of the east foundation wall towards the entrance door (See Photograph 23).	The east foundation wall appears to be consistent with the pre-construction assessment. (See Photograph 24).	
E-13	Foundation Wall	South Elevation	Exterior view of the south foundation wall (See Photograph 25).	The south foundation wall appears to be similar with the pre-construction assessment. (See Photograph 26).	
E-14	Foundation Wall	South Elevation	View of the south foundation wall around the window(See Photograph 27).	The condition of the south foundation wall appears to be consistent with the initial assessment (See Photograph 28).	
E-15	Superstructure	Basement - Floor Wood Framing Structure	View of the floor joists in the basement (See Photograph 29).	The condition of the floor joists appear to be similar to the pre-construction assessment.(See Photograph 30).	
E-16	Superstructure	Basement - Floor Wood Framing Structure	View of the wood post and floor joists in the basement (See Photograph 31).	The condition of the wood post and floor joist appear to be consistent with the initial assessment (See Photograph 32).	
E-17	Superstructure	First Floor - Wood Roof Framing Structure	View of the first floor wood roof frame structure (See Photograph 33).	The condition of the wood roof frame structure appears to be similar with the pre-construction assessment (See Photograph 34).	

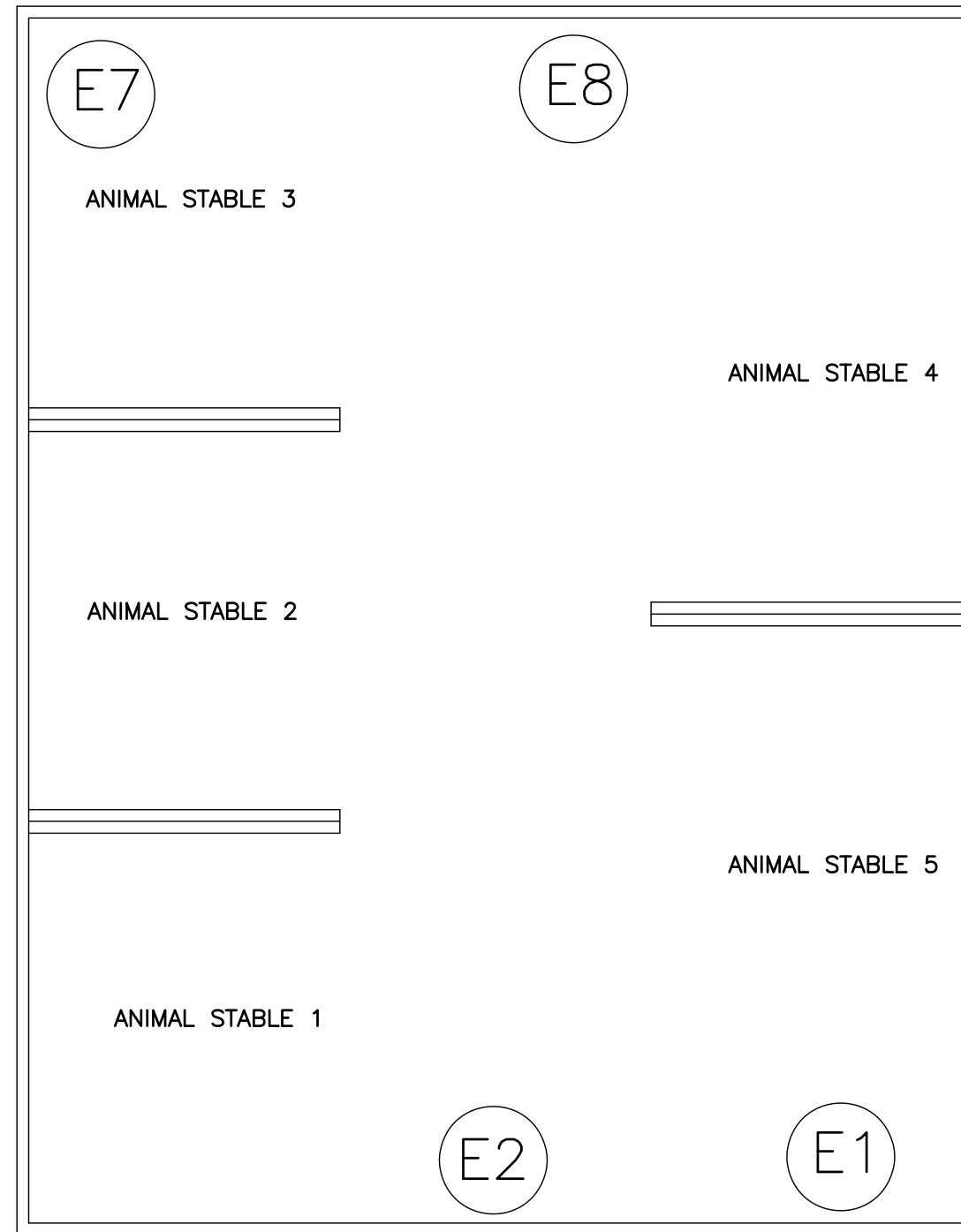
Client Name **Enbridge**  
 Project Location 1290 Taunton Road, Pickering, Ontario - Seaton Heritage Barn  
 Stantec Project No 160950837  
 Home Owner City of Pickering  
 Site Visit 1  
 21-Nov-16 Pre-construction Site Visit  
 1-Dec-16 Post Construction Site Visit

Observation number	Component	Elevation / Location	Pipeline Pre-Construction Observations	Pipeline Post-Construction Observations	Comments
E-18	Superstructure	First Floor - Wood Roof Framing Structure	View of the wood framed structure (See Photograph 35).	The condition of the wood roof framing structure appears to be consistent with the pre-construction assessment (See Photograph 36).	
E-19	Superstructure	First Floor - Wood Roof Framing Structure	View of the roof wood frame structure (See Photograph 37).	The condition of the wood roof frame structure appears to be similar with the initial assessment (See Photograph 38).	
E-20	Superstructure	First Floor - Storage - Wood Ceiling Framing Structure	View of the first floor the exposed ceiling structure in the storage area (See Photograph 39).	The condition of the exposed ceiling structure in the storage area appears to be consistent with the initial assessment.(See Photograph 40).	
E-21	Exterior Walls - Wood Siding	South Elevation	View of the boarded damaged window and damaged wood boards on the south elevation (See Photograph 41).	No significant change to the condition of damaged window and wood boards was observed (See Photograph 42).	
E-22	Exterior Walls - Wood Siding	South Elevation	View of the south elevation storage opening (See Photograph 43).	View of the damaged wood boards on the south elevation (See Photograph 44).	
E-23	Exterior Walls - Wood Siding	South Elevation	View of the damaged wood siding in the south elevation (See Photograph 45).	No significant change to the south elevation damaged wood boards was observed. (See Photograph 46).	
E-24	Exterior Walls - Wood Siding	South Elevation	General view of the south elevation (See Photograph 47).	In general, the condition of the south elevation appears to be consistent with the pre-construction assessment. (See Photograph 48).	
E-25	Exterior Walls - Wood Siding	South Elevation	View of the south elevation (See Photograph 49).	On the south elevation, no significant change to the damaged wood siding was observed (See Photograph 50).	
E-26	Exterior Walls - Wood Siding	East Elevation	View of the damaged wood boards on the east elevation (See Photograph 51).	No significant change to the damaged wood boards was observed on the east elevation (See Photograph 52).	
E-27	Exterior Walls - Wood Siding	East Elevation	Closer view of the damaged wood boards on the east elevation (See Photograph 53).	No significant change to the damaged wood boards was observed on the east elevation (See Photograph 54).	
E-28	Exterior Walls - Wood Siding	North Elevation	General view of the north elevation (See Photograph 55).	On the north elevation, no significant change to the damaged wood boards was observed (See Photograph 56).	
E-29	Exterior Walls - Wood Siding	West Elevation	View of the west elevation (See Photograph 57).	The condition of the west elevation appears to be similar to the pre-construction assessment (See Photograph 58).	
E-30	Exterior Walls - Wood Siding	West Elevation	View of the north portion of the west elevation (See Photograph 59).	No significant change to the damaged wood boards was observed on the west elevation. (See Photograph 60).	
E-31	Exterior Walls - Wood Siding	West Elevation	View of the wood boards above the sliding door (See Photograph 61).	The condition of the wood boards above the sliding door appears unchanged(See Photograph 62).	
E-32	Exterior Walls - Wood Siding	West Elevation	View of the lower portion of the sliding door (See Photograph 63).	The condition of the lower portion of the sliding door appears to be consistent with the pre-construction initial assessment. (See Photograph 64).	

# PRE-CONSTRUCTION AND POST- CONSTRUCTION PROPERTY CONDITION ASSESSMENTS

Appendix C  
Drawings  
January 5, 2017

## Appendix C Drawings

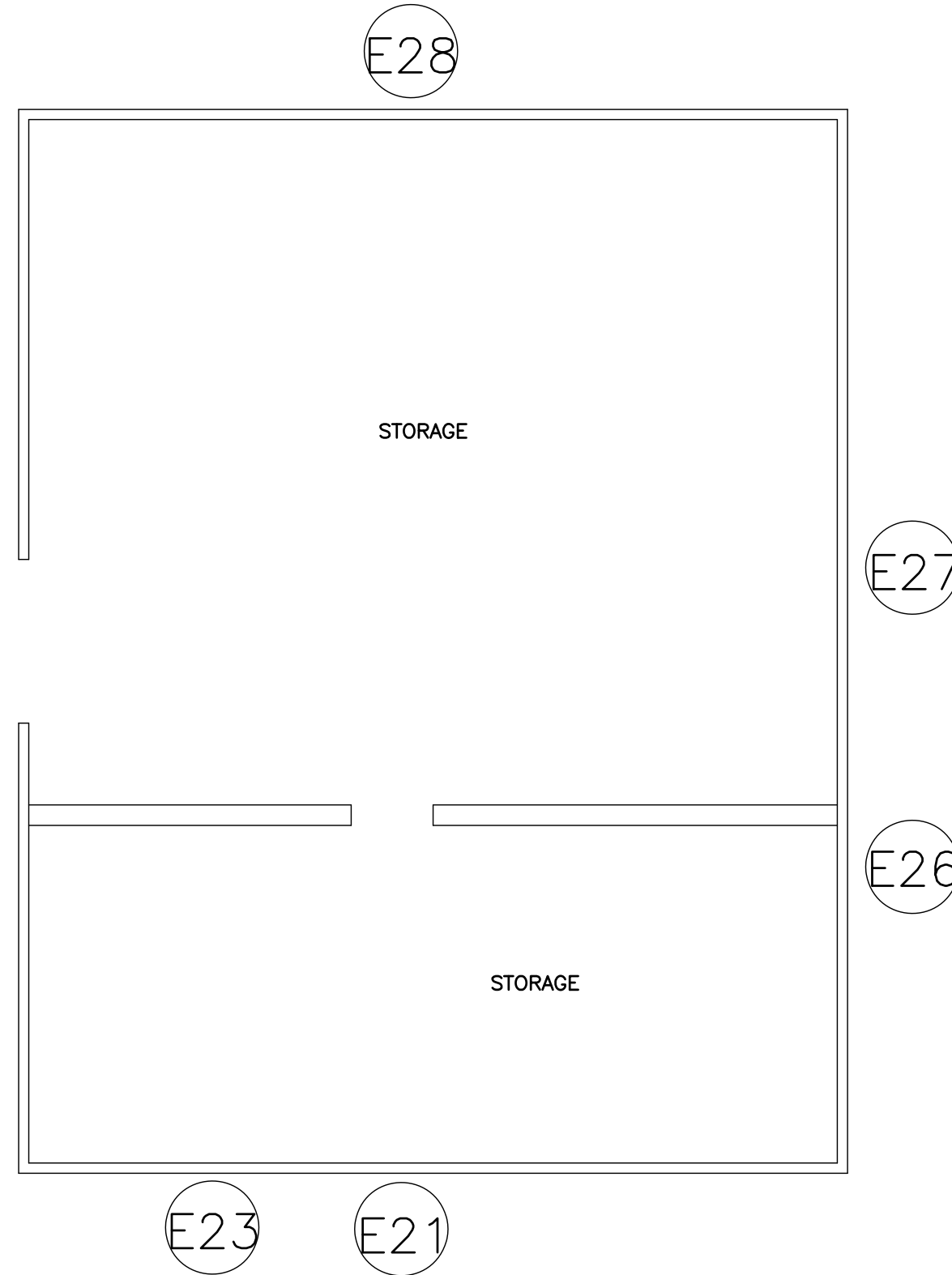


**BASEMENT**  
Not To Scale

ENBRIDGE PIPELINE  
 PRE-CONSTRUCTION  
 POST CONSTRUCTION  
 Client/Project

SEATON HERITAGE BARN  
 12 90 TAUNTON ROAD,  
 PICKERING, ONTARIO

Title	
BASEMENT PLAN	
160950837	Not To Scale
Project No.	Scale
	A/2
Revision	Drawing No.



**FIRST FLOOR**  
Not To Scale

ENBRIDGE PIPELINE  
PRE-CONSTRUCTION  
POST CONSTRUCTION  
Client/Project

SEATON HERITAGE BARN  
12 90 TAUNTON ROAD,  
PICKERING, ONTARIO

Title  
FIRST FLOOR PLAN

160950837 Not To Scale

Project No. Scale

Revision A/1

Drawing No.

## Construction Vibration Monitoring Summary Report

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Project No.	160950837	Monitoring Period:	November 21, 2016 to November 29, 2016
Project Name:	Seaton Heritage Barn Construction Vibration Monitoring	Report Date:	January 4, 2017
Location Details:	1290 Taunton Road, Pickering, Ontario		

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**Reference: Construction Vibration Monitoring Summary Report – Location 1290 Taunton Road (Seaton Heritage Barn), Pickering, Ontario**

As requested by Enbridge, Stantec Consulting Ltd. (Stantec) conducted vibration monitoring at barn located at 1290 Taunton Road, in Pickering, Ontario. This monitoring program was conducted to monitor construction vibrations from horizontal directional drilling (HDD) and related activities at close proximity of a barn which is considered a heritage structure. **Attachment 1** shows the location of barn, and the location of HDD as well as approximate location of the vibration sensor. This report summarizes measurements and observations recorded during the vibration monitoring conducted between November 21, 2016 and November 29, 2016.

#### **VIBRATION MONITORING PROGRAM**

The measurements were conducted using an Instatel Minimate Plus (Series III) equipped with a tri-axial geophone (sensor). The unit was configured to measure peak particle velocity (PPV) in units of mm/s in three perpendicular directions (transversal, longitudinal and vertical directions). The monitor was configured to continuously monitor and record vibration events.

In order to measure maximum vibration level during the monitoring period, the monitors were deployed closer to the sources of vibration (HDD and related activities) than to the receptor. Since vibration levels diminish as they propagate from the source, the actual vibration levels received by the nearby receptor are expected to be below the measured levels at the monitoring location.

#### **ASSESSMENT CRITERIA**

Construction vibration is quantified using peak particle velocity (PPV), and is measured in millimeters per second (mm/s) at different frequencies. Frequency refers to ground vibration oscillation expressed in hertz (Hz). PPV is defined as the maximum of three velocity components measured in three mutually perpendicular directions (transversal, longitudinal and vertical) at a point. Peak vector sum (PVS) is the vector sum of the PPV in three (3) perpendicular axes.

As discussed, the monitored property at 1290 Taunton Road is a heritage structure. For construction vibration effects on heritage structure, "DIN-4150-3-1999 Structural Vibration Part 3: Effects of vibration on structures" provides appropriate limits. These limits are summarized in **Table 1**.



**Reference: Construction Vibration Monitoring Summary Report – Location 1290 Taunton Road (Seaton Heritage Barn), Pickering, Ontario**

**Table 1: Construction Vibration Limits for Heritage Structures**

Frequency of Vibration [Hz]	Vibration Peak Particle Velocity at Foundations [mm/sec]
1 Hz to 10 Hz	3
10 Hz to 50 Hz	3 to 8
50 Hz to 100 Hz	8 to 10

## VIBRATION MONITORING RESULTS

**Table 2** summarizes the highest measured vibration level at the heritage structure during each day of the monitoring program. The data collected at this location was plotted in **Figure 1**. Overall, the measured vibration levels as a result of HDD and related construction activities were low.

The data showed that the maximum vibration level of 10.41 mm/s occurred on November 25, 2016 around 1:00 PM. The event lasted approximately 5 seconds and further analysis indicated that the magnitude is not typical of construction activities taking place at these times. This isolated event is typical of a near field influence and are not expected to propagate further (i.e. near field). Since the sensor was generally located closer to the construction activity than the heritage structure, the nearfield influence at the measurement location is not a concern.

The measured vibration levels at the heritage structure are below the limit. Sample vibration event reports corresponding to the highest vibration recorded levels are provided in **Attachment 2**.

**Table 2: Summary of Vibration Monitoring Results**

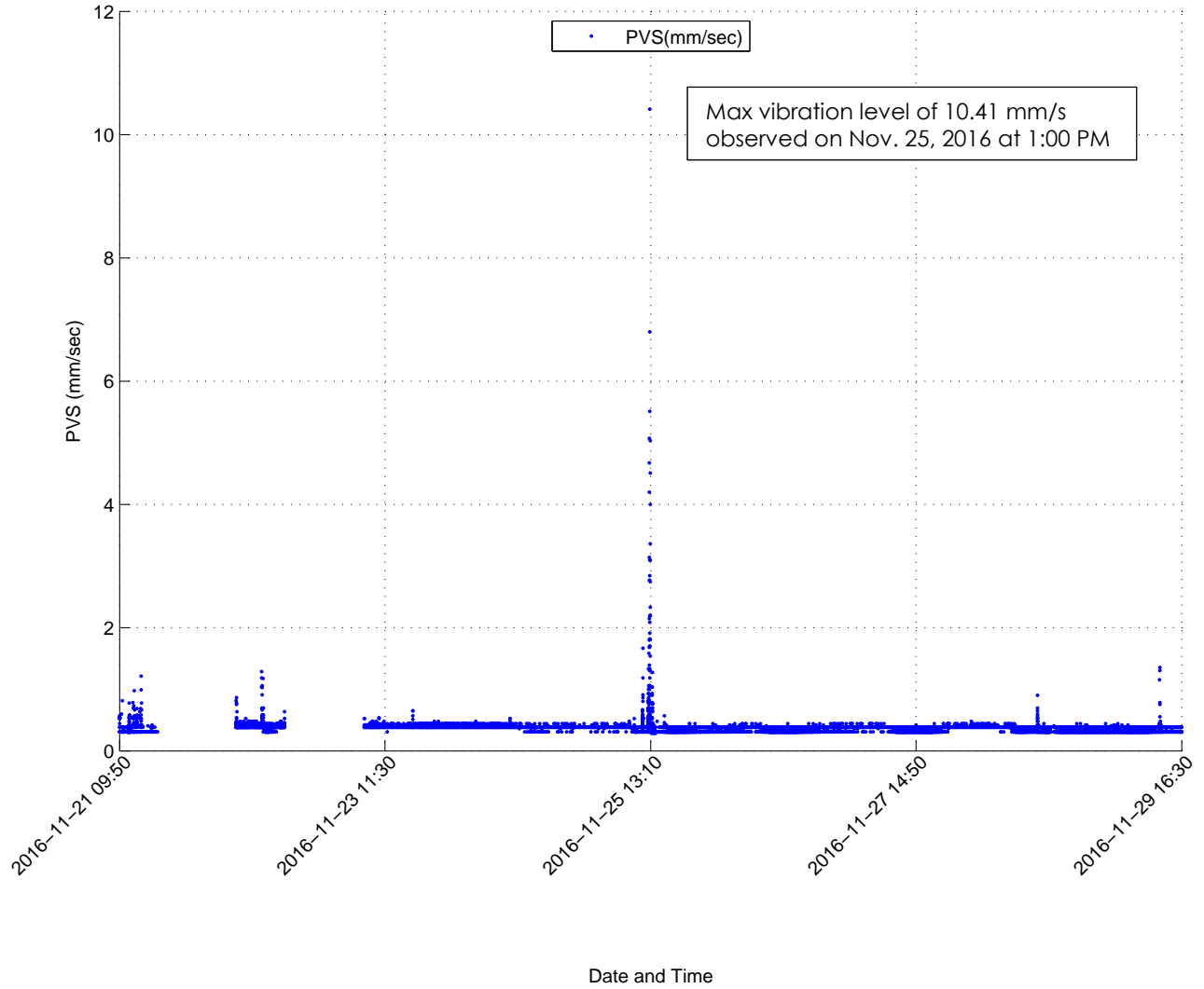
Day	Maximum Measured Vibration Level (mm/s) <sup>1</sup>	Frequency of Measured Vibration Level (Hz)	Monitoring Limit (mm/s)
November 21, 2016	1.21	>100	10
November 22, 2016	1.28	>100	10
November 23, 2016	0.65	>100	10
November 24, 2016	0.52	>100	10
November 25, 2016	10.41 <sup>2</sup>	>100	10
November 28, 2016	0.90	>100	10
November 29, 2016	1.350	>100	10

**Notes:**

1. Vector sum of PPV in three (3) mutually perpendicular directions is presented
2. As discussed, not expected to be from construction activities

**Figure 1 Vibration Monitoring Results at 1209 Taunton Road (Nov. 21, 2016 to Nov. 29, 2016)**

**Reference: Construction Vibration Monitoring Summary Report – Location 1290 Taunton Road (Seaton Heritage Barn), Pickering, Ontario**



**Reference: Construction Vibration Monitoring Summary Report – Location 1290 Taunton Road (Seaton Heritage Barn), Pickering, Ontario**

## CONCLUSION AND CLOSURE

Based on measurements conducted at 1209 Taunton Road, Pickering, Ontario, it is concluded that vibration resulting from HDD and related construction activities is below the relevant guideline criterion and are not anticipated to affect the heritage structure monitored as part of this program.

This document entitled "Construction Vibration Monitoring Summary Report – Location 1290 Taunton Road (Seaton Heritage Barn), Pickering, Ontario " was prepared by Stantec Consulting Ltd. for the account of Enbridge Gas Distribution Inc. (Enbridge). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use, which a third party makes of this document, is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Regards,

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Attachment:

- Attachment 1 Vibration Monitoring Location
- Attachment 2 Sample Vibration Report

**Reference: Construction Vibration Monitoring Summary Report – Location 1290 Taunton Road (Seaton Heritage Barn), Pickering, Ontario**

## **Attachment 1 – Vibration Monitoring Location**



**Reference: Construction Vibration Monitoring Summary Report – Location 1290 Taunton Road (Seaton Heritage Barn), Pickering, Ontario**

## **Attachment 2 – Sample Vibration Report**

**Histogram Start Time** 13:41:21 November 21, 2016  
**Histogram Finish Time** 14:15:22 November 21, 2016  
**Number of Intervals** 408.00 at 5 seconds  
**Range** Geo:254.0 mm/s  
**Sample Rate** 1024sps

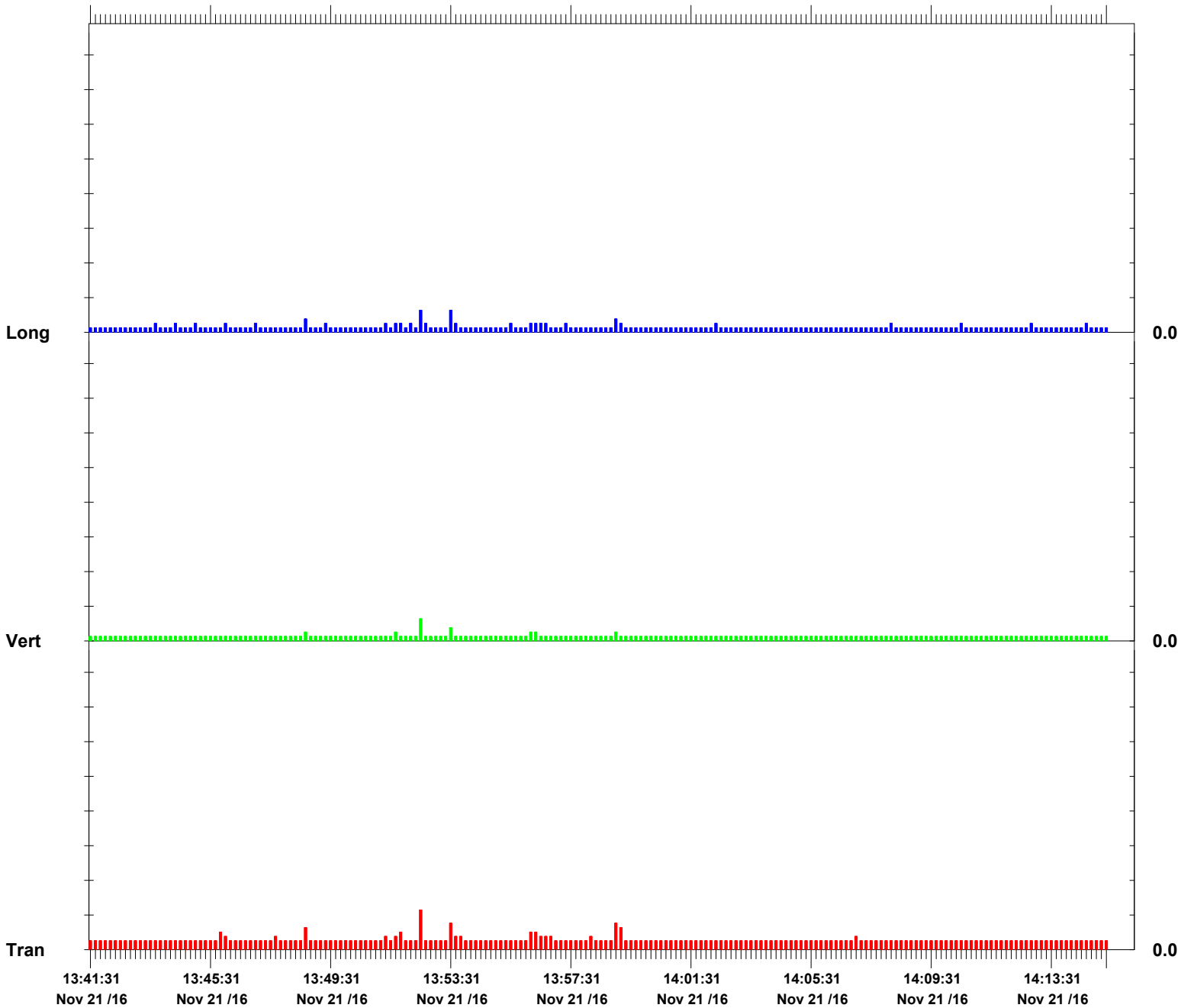
**Serial Number** BE15151 V 10.72-8.17 MiniMate Plus  
**Battery Level** 6.9 Volts  
**Unit Calibration** March 18, 2016 by InstanTel  
**File Name** Q151GN5K.OX0

**Notes**

Location: Seaton Heritage Barn  
 Client: Enbridge  
 Date Installed: November, 21, 2016  
 Company: Stantec Consulting Ltd.

	Tran	Vert	Long	
PPV	1.143	0.635	0.635	mm/s
ZC Freq	>100	>100	>100	Hz
Date	Nov 21 /16	Nov 21 /16	Nov 21 /16	
Time	13:52:31	13:52:31	13:52:31	
Sensor Check	Passed	Passed	Passed	

**Peak Vector Sum** 1.212 mm/s on November 21, 2016 at 13:52:31



**Time Scale:** 10 seconds /div **Amplitude Scale:**Geo: 1.000 mm/s/div

**Histogram Start Time** 07:46:35 November 22, 2016  
**Histogram Finish Time** 16:43:19 November 22, 2016  
**Number of Intervals** 6440.00 at 5 seconds  
**Range** Geo:254.0 mm/s  
**Sample Rate** 1024sps

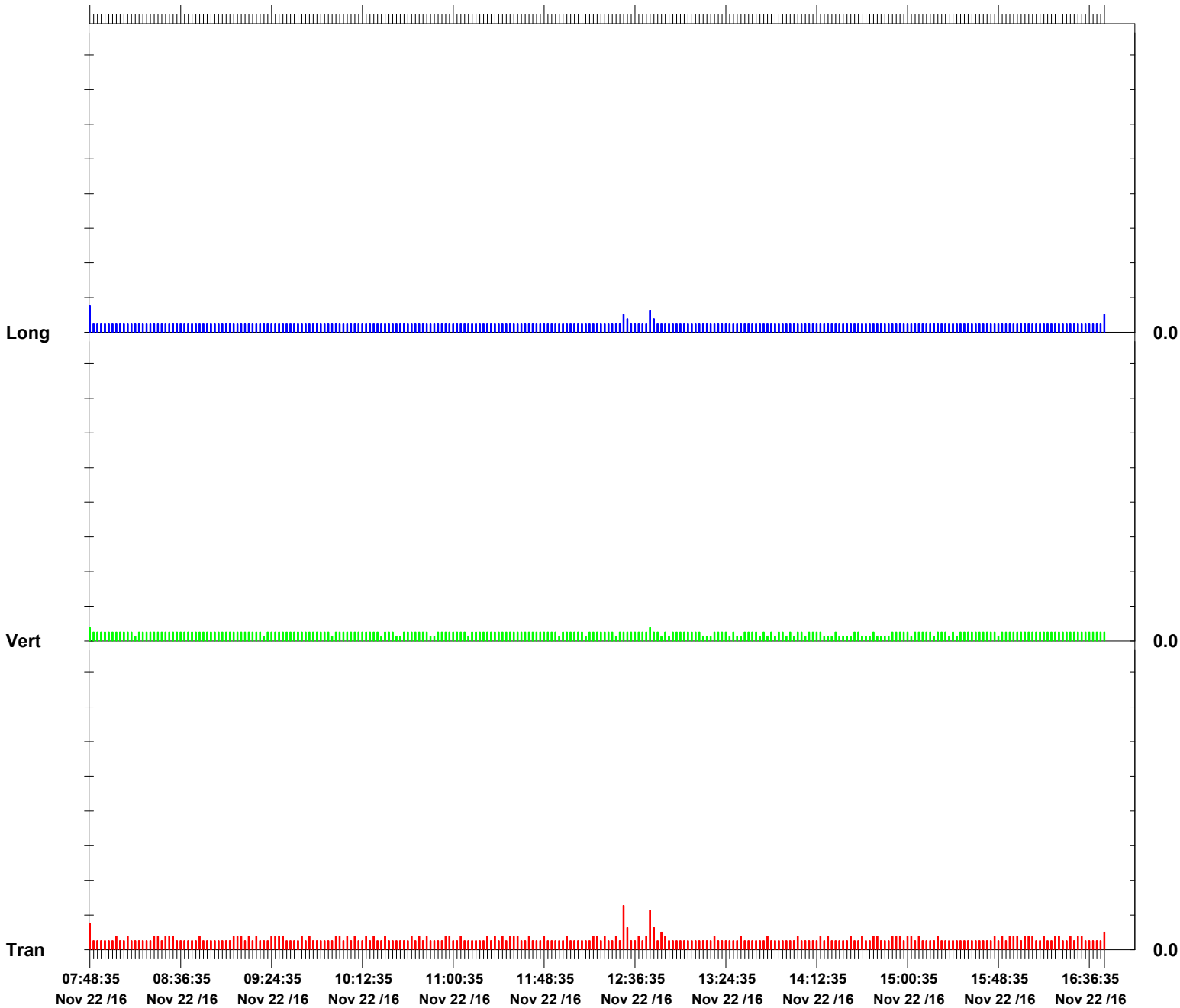
**Serial Number** BE15151 V 10.72-8.17 MiniMate Plus  
**Battery Level** 7.0 Volts  
**Unit Calibration** March 18, 2016 by InstanTel  
**File Name** Q151GN6Y.XN0

### Notes

Location: Seaton Heritage Barn  
Client: Enbridge  
Date Installed: November, 21, 2016  
Company: Stantec Consulting Ltd.

	Tran	Vert	Long	
PPV	1.270	0.381	0.762	mm/s
ZC Freq	>100	>100	>100	Hz
Date	Nov 22 /16	Nov 22 /16	Nov 22 /16	
Time	12:29:05	07:47:00	07:47:00	
Sensor Check	Passed	Passed	Passed	

**Peak Vector Sum** 1.283 mm/s on November 22, 2016 at 12:29:05



**Time Scale:** 2 minutes /div **Amplitude Scale:** Geo: 1.000 mm/s/div



**Histogram Start Time** 12:42:26 November 25, 2016  
**Histogram Finish Time** 13:06:58 November 25, 2016  
**Number of Intervals** 294.00 at 5 seconds  
**Range** Geo:254.0 mm/s  
**Sample Rate** 1024sps

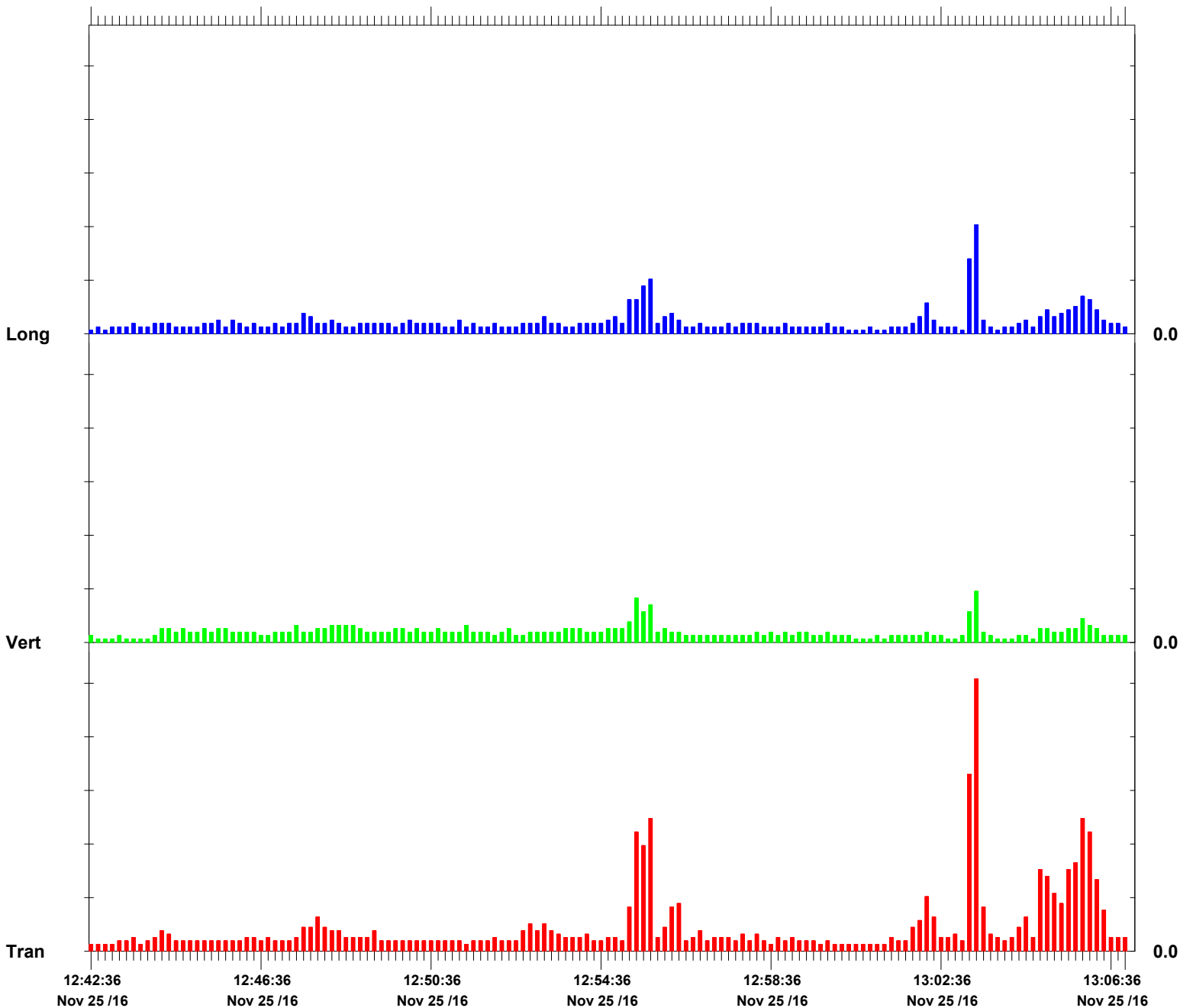
**Serial Number** BE15151 V 10.72-8.17 MiniMate Plus  
**Battery Level** 6.9 Volts  
**Unit Calibration** March 18, 2016 by InstanTel  
**File Name** Q151GNCW.MQ0

### Notes

Location: Seaton Heritage Barn  
Client: Enbridge  
Date Installed: November, 21, 2016  
Company: Stantec Consulting Ltd.

	Tran	Vert	Long	
PPV	10.16	1.905	4.064	mm/s
ZC Freq	>100	>100	>100	Hz
Date	Nov 25 /16	Nov 25 /16	Nov 25 /16	
Time	13:03:21	13:03:21	13:03:21	
Sensor Check	Passed	Passed	Passed	

**Peak Vector Sum** 10.41 mm/s on November 25, 2016 at 13:03:21



**Time Scale:** 10 seconds /div **Amplitude Scale:**Geo: 2.000 mm/s/div

**Histogram Start Time** 16:36:16 November 28, 2016  
**Histogram Finish Time** 16:30:54 November 29, 2016  
**Number of Intervals** 17215.00 at 5 seconds  
**Range** Geo:254.0 mm/s  
**Sample Rate** 1024sps

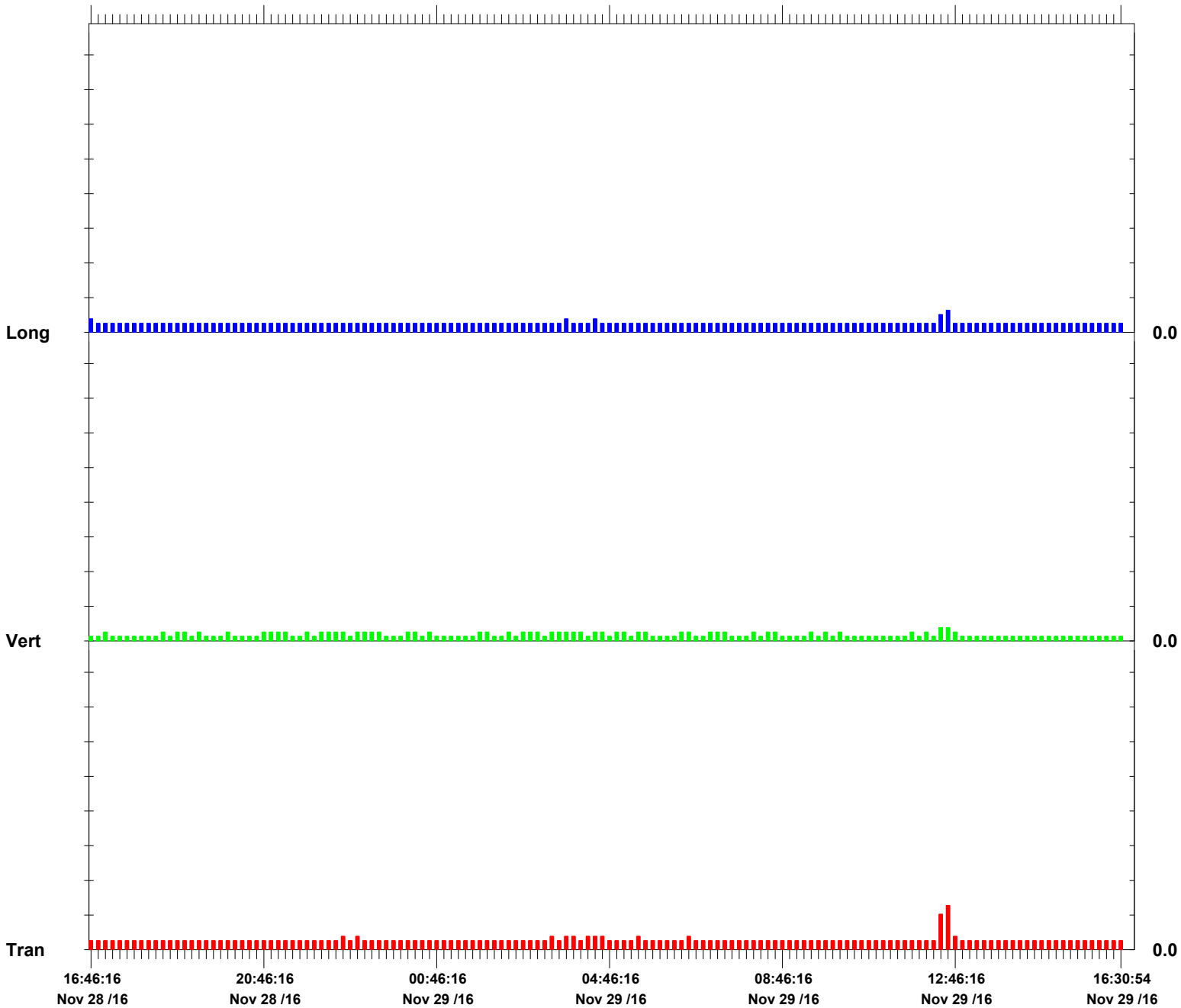
**Serial Number** BE15151 V 10.72-8.17 MiniMate Plus  
**Battery Level** 6.9 Volts  
**Unit Calibration** March 18, 2016 by InstanTel  
**File Name** Q151GNIR.GG0

### Notes

Location: Seaton Heritage Barn  
Client: Enbridge  
Date Installed: November, 21, 2016  
Company: Stantec Consulting Ltd.

	Tran	Vert	Long	
PPV	1.270	0.381	0.635	mm/s
ZC Freq	>100	>100	>100	Hz
Date	Nov 29 /16	Nov 29 /16	Nov 29 /16	
Time	12:27:01	12:23:46	12:27:21	
Sensor Check	Passed	Passed	Passed	

**Peak Vector Sum** 1.350 mm/s on November 29, 2016 at 12:27:21



**Time Scale:** 10 minutes /div **Amplitude Scale:**Geo: 1.000 mm/s/div

## Appendix E: Spill Response

# Spill Report

Report completed by: \_\_\_\_\_

Date Report Completed: \_\_\_\_\_

## PART A: DETAILS OF SPILL

Date of spill:	Time of spill:	Material spilled:
Address of spill:		Was spill on Enbridge property? <input type="radio"/> Yes <input type="radio"/> No
Approx. amount released:	Extent of spill (sq. meters):	Approx. amount or % recovered:
Spill occurred: <input type="radio"/> During use <input type="radio"/> During onsite storage <input type="radio"/> During transport <input type="radio"/> Other	Spill Receiver: <input type="radio"/> Air <input type="radio"/> Land <input type="radio"/> Sanitary sewer <input type="radio"/> Storm sewer <input type="radio"/> Water body <input type="radio"/> Inside building	Name of water body (if applicable):
Describe how the spill occurred and impact on environment:		
Immediate clean-up actions taken and effectiveness (include information on spill supplies used and disposal):		

## PART B: GEOGRAPHIC/WEATHER DETAILS (Complete only if the spill occurs outdoors.)

Proximity of fence line/property line:	Topography:
Surface: <input type="radio"/> Soil <input type="radio"/> Grass/Vegetation <input type="radio"/> Concrete <input type="radio"/> Asphalt <input type="radio"/> Gravel <input type="radio"/> Water <input type="radio"/> Snow <input type="radio"/> Other (specify) _____	Water table:
	Weather:

**PART C: RECORD OF NOTIFICATION**

<b>Ministry of Environment representative:</b>	Report Number:	Time:
Instructions/response:		
<b>Municipality, specify:</b>	Person spoken to:	Time:
Instructions/response:		
<b>Landowner, name:</b>	Contact Information:	Time:
Instructions/response (indicate if landowner is satisfied with measures being taken):		
<b>Other, specify:</b>	Person spoken to:	Time:
Instructions/response:		
<b>Other, specify:</b>	Person spoken to:	Time:
Instructions/response:		

**PART D: CORRECTIVE ACTIONS**

Are any additional actions required to clean up the spill / remediate affected areas?	
Are any actions required to prevent reoccurrences?	
Was spill considered a Dangerous Occurrence?	If yes, date Dangerous Occurrence Report Submitted to Transport Canada:



Photo 1: Condition of Urfe Creek on October 12, 2016 prior to the inadvertent Release



Photo 2: Condition of Urfe Creek on October 14, 2016 after the meeting with the MNRF and the TRCA

**From:** [Shapiera, Melanie \(MNRF\)](#)  
**To:** [Revak, Chris](#)  
**Cc:** [Kowalyk, Bohdan \(MNRF\)](#); [Kelsey Mills](#); [Rooly Georgopoulos](#); [Stephen McCormack](#)  
**Subject:** RE: Frac out follow up Urfe Creek  
**Date:** Wednesday, October 26, 2016 8:30:31 AM  
**Attachments:** [image001.gif](#)

---

Thanks for following up Chris. I'm happy that turbidity readings have declined even while taking readings with background precipitation. I hope the work to the east is progressing well.

Mel

## Melanie Shapiera

Biologist | Ontario Ministry of Natural Resources and Forestry | Aurora District Office  
50 Bloomington Road, Aurora, Ontario, L4G 0L8 | Tel:905-713-7425 | Email: [melanie.shapiera@ontario.ca](mailto:melanie.shapiera@ontario.ca)

---

**From:** Revak, Chris [mailto:Chris.Revak@stantec.com]  
**Sent:** October-25-16 4:48 PM  
**To:** Shapiera, Melanie (MNRF)  
**Cc:** Kowalyk, Bohdan (MNRF); Kelsey Mills; Georgopoulos, Rooly; Stephen.McCormack@enbridge.com  
**Subject:** RE: Frac out follow up Urfe Creek

Hi Melanie,

Stantec completed follow-up monitoring of the release location on the afternoon of October 21, 2016. There was some light precipitation during the survey; however, overall the flow generally appeared to be similar to flow which was observed on October 14, 2016. We completed two sets of surveys at the same locations and using the same methodology as on October 14, 2016. The following is a summary of the readings from October 21, 2016:

Location	First Survey (NTU)	Second Survey (NTU)
Upstream of Release	3.2	2.6
At Release Location	2.9	3.2
Downstream of Release	2.3	2.9

Let me know if you have any questions or concerns.

Thanks!

### Chris Revak, B.Sc.

Environmental Planner  
Phone: (705) 750-8873  
[Chris.Revak@Stantec.com](mailto:Chris.Revak@Stantec.com)



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**From:** Revak, Chris  
**Sent:** Monday, October 17, 2016 12:40 PM  
**To:** 'Shapiera, Melanie (MNRF)'  
**Cc:** Kowalyk, Bohdan (MNRF); Kelsey Mills; Georgopoulos, Rooly; [Stephen.McCormack@enbridge.com](mailto:Stephen.McCormack@enbridge.com)  
**Subject:** RE: Frac out follow up Urfe Creek

Hi Melanie,

We completed the turbidity reading in the afternoon of October 14, 2015 as discussed. We completed two sets of surveys at three locations with similar watercourse morphology (upstream of release, at the release location and downstream of the release location). During each survey and at each location, three readings occurred which were averaged together. The following is a summary of the readings:

Location	First Survey (NTU)	Second Survey (NTU)
Upstream of Release	4.8	3.5
At Release Location	6.0	6.0
Downstream of Release	3.4	3.5

We will also completed monitoring on Friday, October 21, 2016 as a follow-up. Let me know if you have any questions.

Thanks,

**Chris Revak, B.Sc.**

Environmental Planner  
Phone: (705) 750-8873  
[Chris.Revak@Stantec.com](mailto:Chris.Revak@Stantec.com)



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**From:** Shapiera, Melanie (MNRF) [<mailto:melanie.shapiera@ontario.ca>]  
**Sent:** Monday, October 17, 2016 8:42 AM  
**To:** Revak, Chris  
**Cc:** Kowalyk, Bohdan (MNRF); Kelsey Mills; Georgopoulos, Rooly; [Stephen.McCormack@enbridge.com](mailto:Stephen.McCormack@enbridge.com)  
**Subject:** RE: Frac out follow up Urfe Creek

Thank you Chris.

Yes that's fine indicating me as a contact for MOECC.

I will look for some NTU readings this week then. If you could take readings again on Friday that will let me see if there has been significant change.

Thanks  
Melanie



## Melanie Shapiera

Biologist | Ontario Ministry of Natural Resources and Forestry | Aurora District Office

50 Bloomington Road, Aurora, Ontario, L4G 0L8 | [Tel:905-713-7425](tel:905-713-7425) | Email: [melanie.shapiera@ontario.ca](mailto:melanie.shapiera@ontario.ca)

---

**From:** Revak, Chris [<mailto:Chris.Revak@stantec.com>]

**Sent:** October-14-16 4:31 PM

**To:** Shapiera, Melanie (MNRF)

**Cc:** Kowalyk, Bohdan (MNRF); Kelsey Mills; Georgopoulos, Rooly; [Stephen.McCormack@enbridge.com](mailto:Stephen.McCormack@enbridge.com)

**Subject:** RE: Frac out follow up Urfe Creek

Hi Melanie,

As requested, we have someone out right now taking turbidity samples. I'll send you the results as soon as I receive them.

I have attached some photos taken on the 6<sup>th</sup>, 7<sup>th</sup> and 12<sup>th</sup>. The one on the 12<sup>th</sup> was taken a little more than an hour before the release into the channel. I'm afraid I really don't have any downstream past where the gabian stone is underneath the bridge.

Lastly, the MOE has been updated and I suggested they contact you if they have any questions. I indicated that you guys had no further residual concerns other than providing the photos and conducting the turbidity sampling.

Thanks and have a great weekend!

Cheers,

**Chris Revak, B.Sc.**

Environmental Planner

Phone: (705) 750-8873

[Chris.Revak@Stantec.com](mailto:Chris.Revak@Stantec.com)



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**From:** Shapiera, Melanie (MNRF) [<mailto:melanie.shapiera@ontario.ca>]

**Sent:** Friday, October 14, 2016 2:13 PM

**To:** Revak, Chris

**Cc:** Kowalyk, Bohdan (MNRF)

**Subject:** Frac out follow up Urfe Creek

Hi Chris,

Just wanted to touch base wby email after our meeting this morning regarding Enbridge's frac out. As we discussed, please send turbidity readings for at the frac out site, upstream and downstream as soon as you can take them. Please also resample 1 week from now as well. I would appreciate

any photos of the site pre-work also.

Thanks

Mel

## **Melanie Shapiera**

Biologist | Ontario Ministry of Natural Resources and Forestry | Aurora District Office

50 Bloomington Road, Aurora, Ontario, L4G 0L8 | [Tel:905-713-7425](tel:905-713-7425) | Email: [melanie.shapiera@ontario.ca](mailto:melanie.shapiera@ontario.ca)