March 11, 2016

BY COURIER & RESS

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

Dear Ms. Walli:

Re: Union Gas Limited ("Union")
2016 Sudbury Replacement Project
EB-2016-0122

Enclosed please find two copies of Union's Application and pre-filed evidence for the above-noted project.

In the event that you have any questions on the above or would like to discuss in more detail, please do not hesitate to contact me.

Yours truly,

W.T. (Bill) Wachsmuth, RPF
Senior Administrator, Regulatory Projects
:sb
Attach.

cc: P. Duguay
Z. Crnojacki

ONTARIO ENERGY BOARD

IN THE MATTER OF The Ontario Energy Board Act, 1998, S.O. 1998, c.15, Schedule B, and in particular, s.90 thereof;

AND IN THE MATTER OF an Application by Union Gas Limited for an Order granting leave to construct a natural gas pipeline and ancillary facilities in the City of Greater Sudbury.

UNION GAS LIMITED

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1. Union Gas Limited (the "Applicant") hereby applies to the Ontario Energy Board (the "Board"), pursuant to Section 90(1) of the Ontario Energy Board Act (the "Act"), for an Order granting leave to construct 850 metres of NPS 12 natural gas pipeline in the City of Greater Sudbury.

2. Attached hereto as Schedule "A" is a map showing the general location of the proposed pipeline and the municipalities, highways, railways, utility lines and navigable waters through, under, over, upon or across which the proposed pipeline will pass.

3. The construction of the Proposed Pipelines will ensure the continued reliable, safe delivery of natural gas and meet the growing demands for natural gas in The City of Greater Sudbury.

4. The Applicant requests that this Application be dealt with in accordance with Section 34 of the Board's Rules of Practice and Procedure for written hearings.

5. The Applicant now therefore applies to the Board for an Order granting leave to construct the proposed pipeline as described above.

Dated at Municipality of Chatham-Kent this 11th day of March, 2016.

[original signed by]

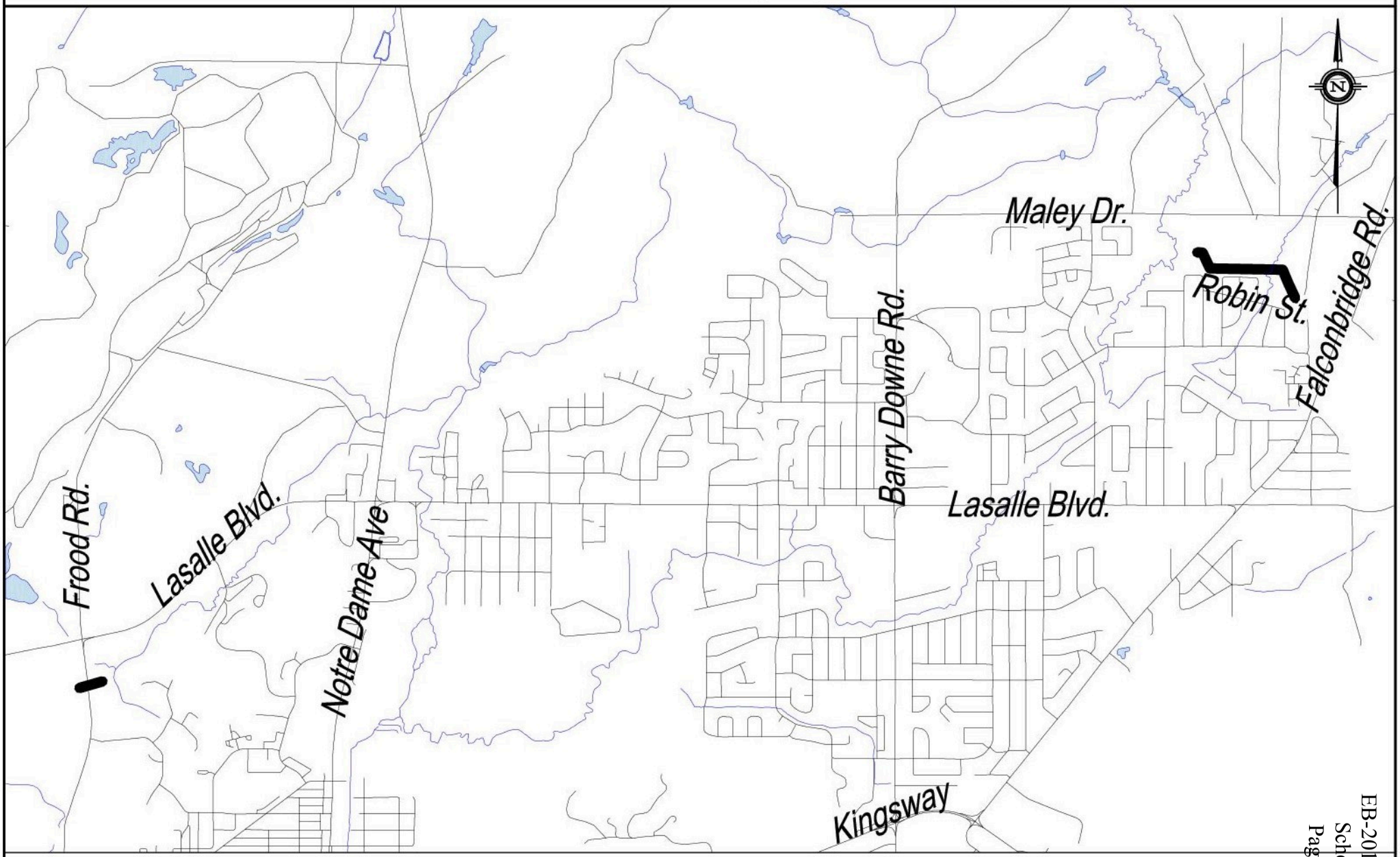
Per: W.T. (Bill) Wachsmuth, RPF
Senior Administrator, Regulatory Projects
Union Gas Limited

Comments respecting this Application should be directed to:

W.T. (Bill) Wachsmuth, RPF
Senior Administrator, Regulatory Projects
Union Gas Limited
50 Keil Drive North
Chatham, Ontario
N7M 5M1
Telephone: (519) 436-5457
Facsimile: (519) 436-4641

Email:
bwachsmuth@uniongas.com

Union Gas Limited 2016 Sudbury Replacement Project



500m 0 1000m

HORIZONTAL SCALE 1:30,000

Legend:

NPS 12 Inch Pipeline Location

EB-2016-0122
Schedule A
Page 1 of 1

2016 SUDBURY REPLACEMENT PROJECT

INDEX

Schedules

Project Summary

1. Union Gas Limited ("Union"), pursuant to Section 90.(1) of the Ontario Energy Board Act, requests approval from the Ontario Energy Board ("OEB") for leave to construct approximately 850 metres of NPS12 hydrocarbon (natural gas) pipeline ("Proposed Pipeline"), to replace two sections of the existing Sudbury lateral NPS10 Line located in the City of Greater Sudbury (the "Project"). The location of the Proposed Project is shown on Schedule 1.

2. The NPS10 Sudbury Lateral commences in North Bay and terminates in Espanola. The Sudbury Lateral was predominantly constructed in 1958. Union is proposing to replace and upsize two short sections of the Sudbury lateral to address class location changes, integrity issues and some future growth requirements. This is a continuation of the 2015 Sudbury Replacement Project (EB-2015-0042).

3. Union completes property and population reviews of its pipelines for class location compliance. This review has identified several locations along the identified existing stretches of the Sudbury lateral that need to be replaced to meet the current requirements. This line is also inspected periodically as part of Union's Integrity Management Program. Results of scheduled inspections and associated investigative digs over the past 12 years have identified multiple integrity issues that could pose safety and security of supply concerns if not addressed. From these two perspectives, the replacement of the proposed sections of the Sudbury Lateral is the most effective way of managing its ongoing safety and reliability.

4. As part of the replacement, Union is proposing to increase the size of this portion of the Sudbury Lateral from the current NPS 10 diameter pipeline to an NPS 12 diameter pipeline. The increase in pipeline size will provide some additional capacity for future growth on the Sudbury system. Union anticipates this incremental capacity will help to serve future demands for Industrial/Commercial/Residential customers in the Sudbury area.

5. The cost of the Project is approximately $2.2 M.

6. Union has discussed the Project with the directly affected landowners along the route of the pipeline and no significant issues have been identified. Union has also informed the majority

of the adjacent landowners about the Project. Union will continue to inform adjacent landowners about the Project.

7. Union has completed an Environmental Screening for the Project. The screening did not identify any long term significant environmental impacts as a result of the Project.

8. Union is proposing to replace this pipeline during the 2016 summer construction season. In order to accommodate this, Union respectfully requests Ontario Energy Board approval by June 2016.

Description of Existing Sudbury System

9. Sudbury currently receives gas from two pipelines ("Sudbury Lateral System") that both originate from the TCPL pipeline system. The Sudbury Lateral System extends from the TCPL pipeline system to Espanola and services the entire Sudbury District along with numerous communities along the route.

10. The Sudbury Lateral System consists of a NPS 10 line which interconnects with TCPL in the City of North Bay and an NPS 12 line which extends from TCPL in the Marten River area, north of the City of North Bay.

11. The original NPS 10 line was installed in 1958 with the intent to provide natural gas service to Sudbury as well as other communities located between North Bay and Sudbury.

12. As a result of continued growth in the area, between 1972 and 1987, the NPS 10 line was looped in phases with an NPS 12 pipeline which extends from a TCPL interconnect at Marten River to the northwest end of Sudbury.

13. A schematic of the Sudbury System can be found at Schedule 2.

Background

Integrity

14. Since 2002, Union has had an extensive pipeline maintenance and integrity management program in place that includes the regular monitoring of pipelines for corrosion, leaks or other potential damage to ensure its pipelines remain in safe operating condition.

15. As part of this program, Union regularly conducts inline assessments of its pipelines using inline inspection tools to determine the condition of the pipelines. Based on the results of these assessments, Union takes appropriate mitigation action to address any integrity issues that are found.

16. The pipeline was initially inspected using inline inspection tools in 2002, and subsequent inspections were completed in 2006 and 2014. Investigative digs were also completed on the pipeline subsequent to the inline inspections, and anomalies were removed from the pipeline. The inspections completed in the past identified metal loss at a number of locations that need to be further investigated to address the potential defects.

17. Based on Union's experience with this pipeline and given its overall condition and proximity to built-up areas, replacement of these sections of the pipeline was deemed the most effective action to manage and ensure the long term integrity of the pipeline.

18. If the Project is delayed, integrity concerns will become more serious as the risk of a potential failure increases.

Class Location

19. At the time of the original construction of the NPS 10 Sudbury Line in 1958, the population, land use density and the number of dwellings were such that the pipeline was designed for a Class 1 location. Since this initial construction, land use and population density along sections of the NPS 10 Sudbury Line have changed, resulting in change to class locations and the original design of the pipe has to be upgraded.

20. The pipe design depends on which Class Location it is located within. To determine Class Location, CSA Z662-11 uses a classification system that takes into account land use and population density. The classifications are as follows:

    a. Class 1 areas consist of 10 or fewer dwellings;

    b. Class 2 areas consist of 11 to 45 dwellings, or a building occupied by 20 or more persons during normal use such as playgrounds, recreational areas, or other places of public assembly as well as industrial installations;

c. Class 3 areas consist of 46 or more dwellings.

d. Class 4 contains a prevalence of buildings intended for human occupancy with 4 or more stories above ground.

21. The Class Location boundaries are determined by a sliding boundary 1.6 km long by 400 meter wide centered over the pipeline. This method covers existing development. This is supplemented with information for future development through discussions with landowners, and municipalities. The pipeline may be designed to accommodate a higher Class Location to be compatible with future development.

22. Since this initial construction, land use and population density have changed such that the Proposed Pipeline will be constructed in compliance with the requirements of CSA Z662-11 Standard in accordance with the Code Adoption Document under Ontario Regulation 2010/01. The Proposed Pipeline will be designed to meet Class 3 requirements.

23. Based on Union's experience with this pipeline and given its overall condition and proximity to built-up areas, the proposed Project was deemed the most effective action to manage and ensure the long term integrity of the pipeline and class location design compliance.

24. The pipeline will be designed and built to meet Class 3 requirements.

<u>Proposed Pipeline</u>

25. Union is proposing to replace two sections of the NPS 10 Sudbury Line:

- Section one is 700 meters long and located near the Falconbridge Road and Maley Drive in the City of Sudbury, ("Section One"); and
- Section two is 150 meters long and located east of Frood Road in the City of Sudbury, ("Section Two").

26. A map showing the Proposed Pipeline can be found at Schedule 1.

Alternatives

27. To address the integrity issues and Class Location issues with the Sudbury Line, Union considered two additional options:

(a) Size for size replacement of the Sudbury Line; and

(b) Replacement of individual sections of the pipeline identified as not meeting integrity or complying with Class Location requirements.

28. Option (a) was not selected as it would not serve the forecasted growth in the City of Greater Sudbury. Option (b) was eliminated as a result of inefficiencies related to the individual replacements required to meet all integrity and class location requirements.

29. Based upon this analysis, Union decided the proposed Project is the preferred method to address these concerns.

Project Costs and Economics

30. The estimated Project costs for the Project are approximately $2.2 M. A detailed breakdown of these costs can be found at Schedule 3.

31. A Discounted Cash Flow report has not been completed for this Project as the Project is underpinned by the integrity and class location requirements and there are no new contracts associated with this Project.

Design and Construction

32. The existing pipeline will be removed and the Proposed Pipeline installed in existing easements and new easements.

33. The design and pipe specifications are outlined in Schedule 4. All the design specifications are in accordance with the *Ontario Regulations 210/01* under the *Technical Standards and Safety Act 2000, Oil and Gas Pipeline Systems*. This is the regulation governing the installation of pipelines in the Province of Ontario.

34. The current class location for the Proposed Pipeline includes Class1, 2 and 3. In consideration for future potential development along the route, the entire length of the Proposed Pipeline will be designed for Class 3 location requirements.

35. The Proposed Pipeline has an outside diameter of 323.9 mm and a minimum wall thickness of 6.4 mm. The pipe is to be manufactured by the electric resistance weld process and will have minimum specified minimum yield strength of 359 MPa. This pipe will be manufactured to

the CSA Z245.1-14 Steel Line Pipe Standard for Pipeline Systems and Materials. This pipeline will have a design maximum operating pressure of 6895 kPa.

36. The Proposed Pipeline will be hydrostatically tested in accordance with the Ontario Regulation requirements.

37. The minimum depth of cover will be in accordance with Clause 4.11 of the CSA Code Z662-11. Additional depth greater than the planned depth of 0.8 meters will be provided to accommodate existing or planned Pipeline.

38. Material is readily available for this Project.

39. Schedule 5 indicates the proposed construction schedule which is scheduled to commence in June 2016 and be completed by the end of November 2016.

40. For Section One, Union will abandon some of the existing Pipeline in place and remove the remainder of the existing Pipeline. The majority of the eastern section of the Pipeline adjacent to the Hydro One corridor will be abandoned in place. The new pipeline in this area will be directionally drilled. By abandoning the existing Pipeline in place and directional drilling the new pipeline Union is able to minimize the environmental impacts during pipeline construction. The existing Pipeline in the middle and western sections, of Section One will be removed and replaced with the Proposed Pipeline. For Section Two, the existing Pipeline will be removed and replaced with the Proposed Pipeline.

41. The portions of the existing Pipeline that will be abandoned in place will be completed in compliance with TSSA guidelines. The TSSA abandonment guidelines can be found at Schedule 6.

42. Schedule 7 describes the general techniques and methods of construction that will be employed in the construction of the Proposed Pipeline. This schedule details the following activities; locating, clearing and grading, removal of existing pipe, stringing of new pipe, trenching, welding, burying, tie-ins, cleaning and testing and restoration. Union's construction procedures have been continually updated and refined in order to mitigate potential environmental effects related to pipeline construction and be responsive to landowner concerns.

Landowners

43. For Section One, Union will be constructing the Proposed Pipeline within existing easements and within three new easements which Union will obtain prior to construction.

44. For Section One, Union will require permanent easements from two private landowners and the City of Greater Sudbury. Union will require temporary land use agreements from the City of Greater Sudbury and Hydro One.

45. For Section Two, no new permanent land rights are required. Union will be constructing the Proposed Pipeline on existing easements and a roadway which will be completed following Union's Franchise Agreement with the City of Greater Sudbury.

46. For Section Two, Union will require temporary land use agreements from the City of Greater Sudbury.

47. Union will require crossing permits or agreements with; the City of Greater Sudbury and Hydro One.

48. Union has met with the City of Greater Sudbury to discuss the Project and provided them with drawings showing the location of the Proposed Pipeline and the land rights which Union requires to construct the Proposed Pipeline. The City of Greater Sudbury is currently reviewing Union's proposal to date they have not identified any significant concerns with the Proposed Pipeline.

49. Union has provided Hydro One with drawings of the Proposed Pipeline and the land rights required to construct the Proposed Pipeline.

50. Union has met with all private landowners where easement rights are in place or will be required for the Proposed Pipeline. These landowners are currently reviewing Union's proposal and have not identified any significant concerns with the Proposed Pipeline. Union has also met with the majority of the private landowners adjacent to the Proposed Pipeline; none of these landowners have identified any significant concerns to date.

51. Schedule 8 is a map that identifies the running line of the Proposed Pipeline and the land rights required for the pipeline.

52. Schedule 9 lists the permanent and temporary land use rights required to construct the Proposed Pipeline.

53. Union will offer to all landowners where permanent easements are required the Form of Easement found at Schedule 10.

54. Temporary land use agreements are usually required for a period of two years. This allows Union the opportunity to return in the year following construction to perform further clean-up and remediation work as may be required.

55. At the conclusion of construction, Union will seek a full and final release from each of the directly affected landowner. This full and final release will include compensation for any damages caused or attributed to the pipeline construction.

56. Union has a program in place to address any landowner issues with this Project during construction.

57. After construction, negotiations with landowners will continue, where necessary, to settle any damages that were not foreseen or compensated for, prior to construction.

Environmental

58. As the majority of the pipeline will be removed and a new pipeline installed in the same general location, a full route selection was not completed.

59. Union completed an Environmental Screening of the Proposed Pipeline. A copy of this screening can be found at Schedule 11.

60. Union will implement a program dealing with environmental inspection. This program will ensure that the recommendations in the screening are followed.

61. An inspector trained in environmental issues will monitor construction activities and ensure that all activities comply with the mitigation measures found in the screening.

62. Union has discussed the Proposed Pipeline with Conservation Sudbury and the Ministry of Natural Resources and will continue to work with them throughout the Project to secure any necessary permits. Union will obtain the necessary permits and authorizations prior to construction.

63. With respect to watercourses, Union will adhere to the agreement with the Department of Fisheries and Oceans – Ontario great Lakes Area (DFO- OGLA/UGL AGREEMENT 2088). Under the agreement Union conducts watercourse crossings using a specific set of conditions and mitigation measures without DFO review. There is one watercourse associated with the Project that will be crossed using the directional drill or dam and pump method. The necessary permits will be obtained from Conservation Sudbury.

First Nation and Métis Nation Consultation

64. Union has a long standing practice of consulting with Métis and First Nations, and has programs in place whereby Union works with them to ensure they are aware of Union's projects and have the opportunity to participate in both the planning and construction phases of the project.

65. Union has an extensive data base and knowledge of First Nations and Métis Nation organizations in Ontario and consults with the Tribal organizations and the data bases of the Ministry of Natural Resources, Ministry of Aboriginal Affairs and Aboriginal Affairs and Northern Development Canada to ensure consultation is carried out with the most appropriate groups.

66. Union has signed a General Relationship Agreement with the Métis Nation of Ontario which describes Union's commitments to the Métis Nation when planning and constructing pipeline projects.

67. The following First Nations and Métis were notified regarding the Proposed Pipeline:

Chief Ted Roque	Wahnapitaie First Nation
Chief Steve Miller	Whitefish First Nation
Councillor Juliette Denis	Region 5 Métis Nation of Ontario
Steve Sarrazin	LRC Coordinator Sudbury Métis Nation of Ontario

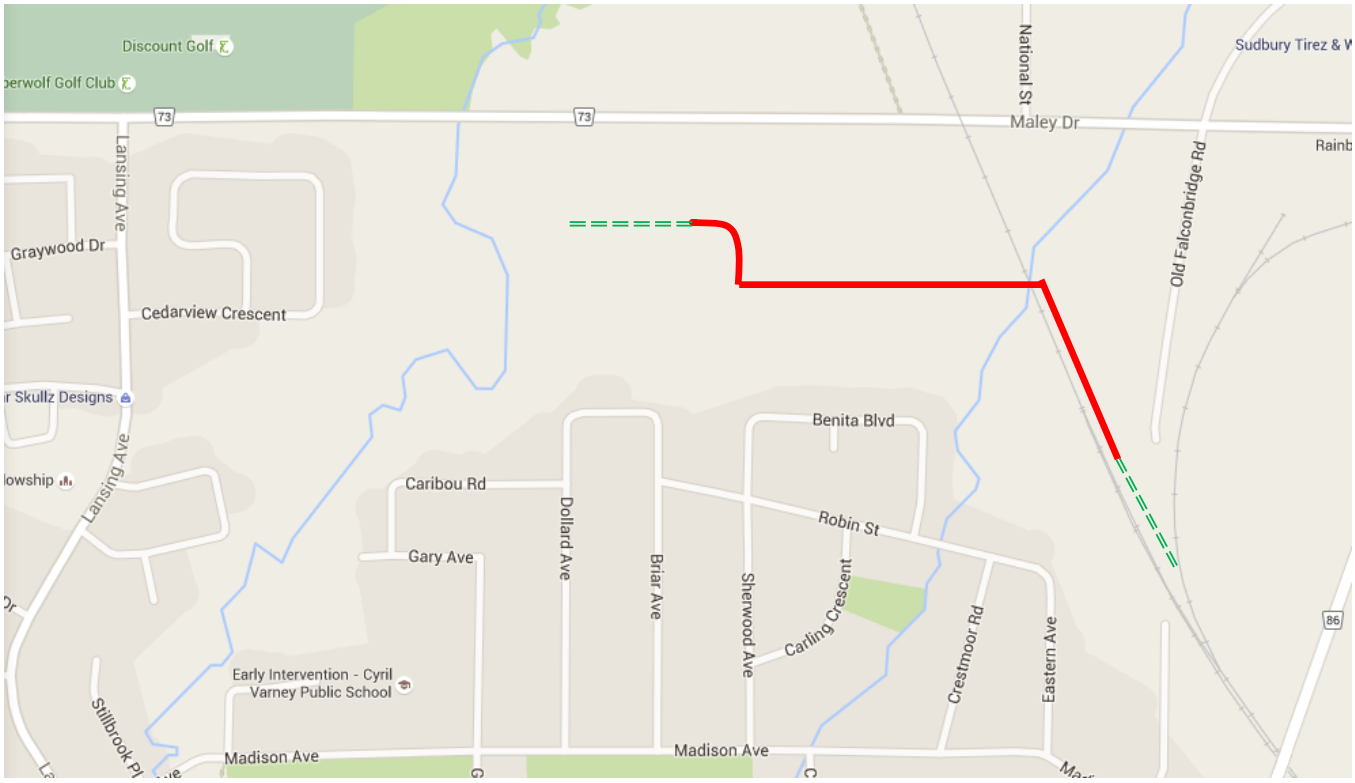
68. Union will continue to meet and consult with the First Nations and the Métis Nation organizations noted above.

69. During construction, Union has inspectors in the field who are available to First Nation's and Métis Nation organization as a primary contact to discuss and review any issues that may arise during construction.

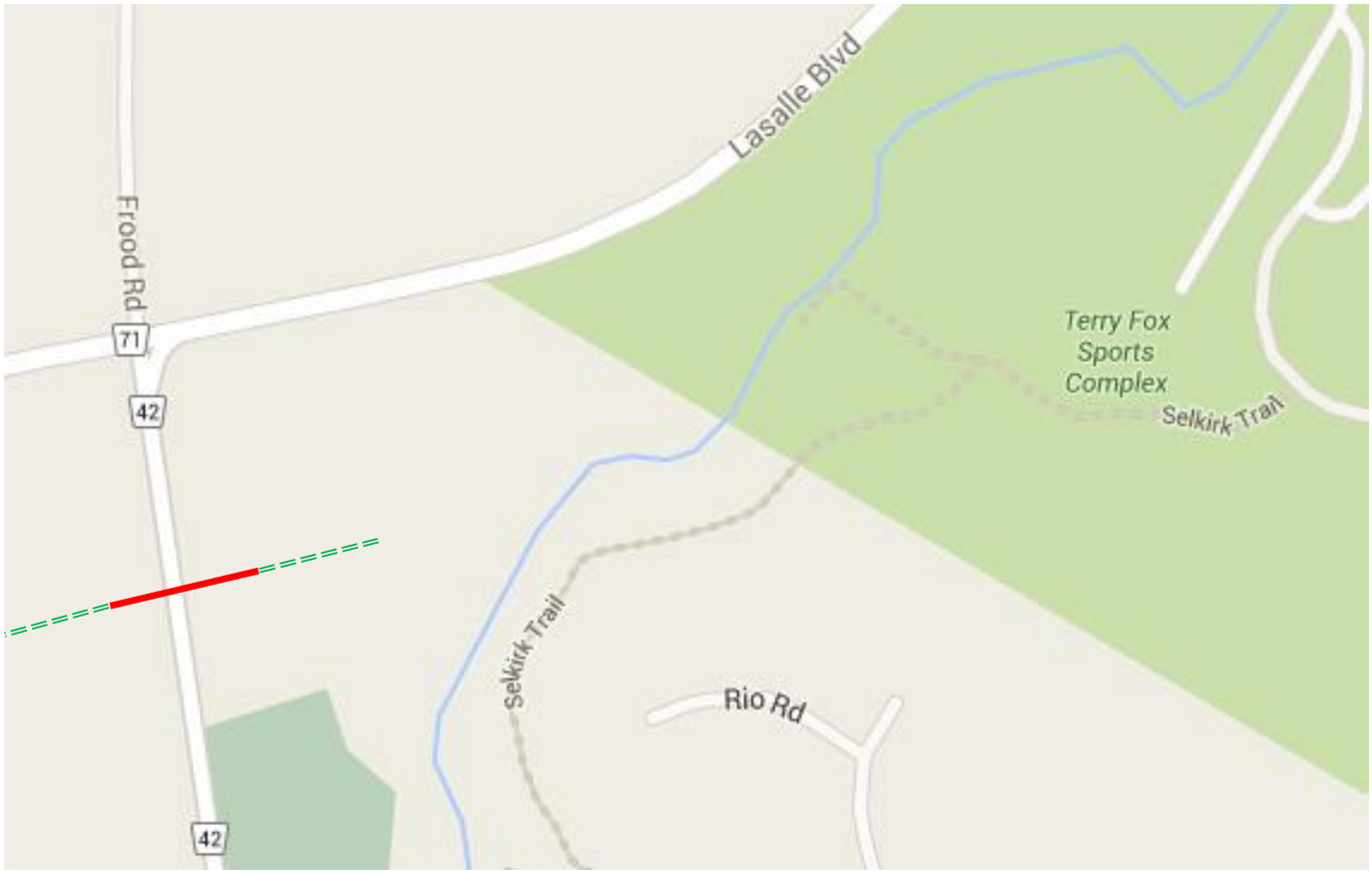
70. When Union completes the necessary archaeological assessments for the Project Union will consult with and provide the result of the surveys to any First Nations or Métis Nation upon their request.

2016 Sudbury Replacement

Section One



Section Two

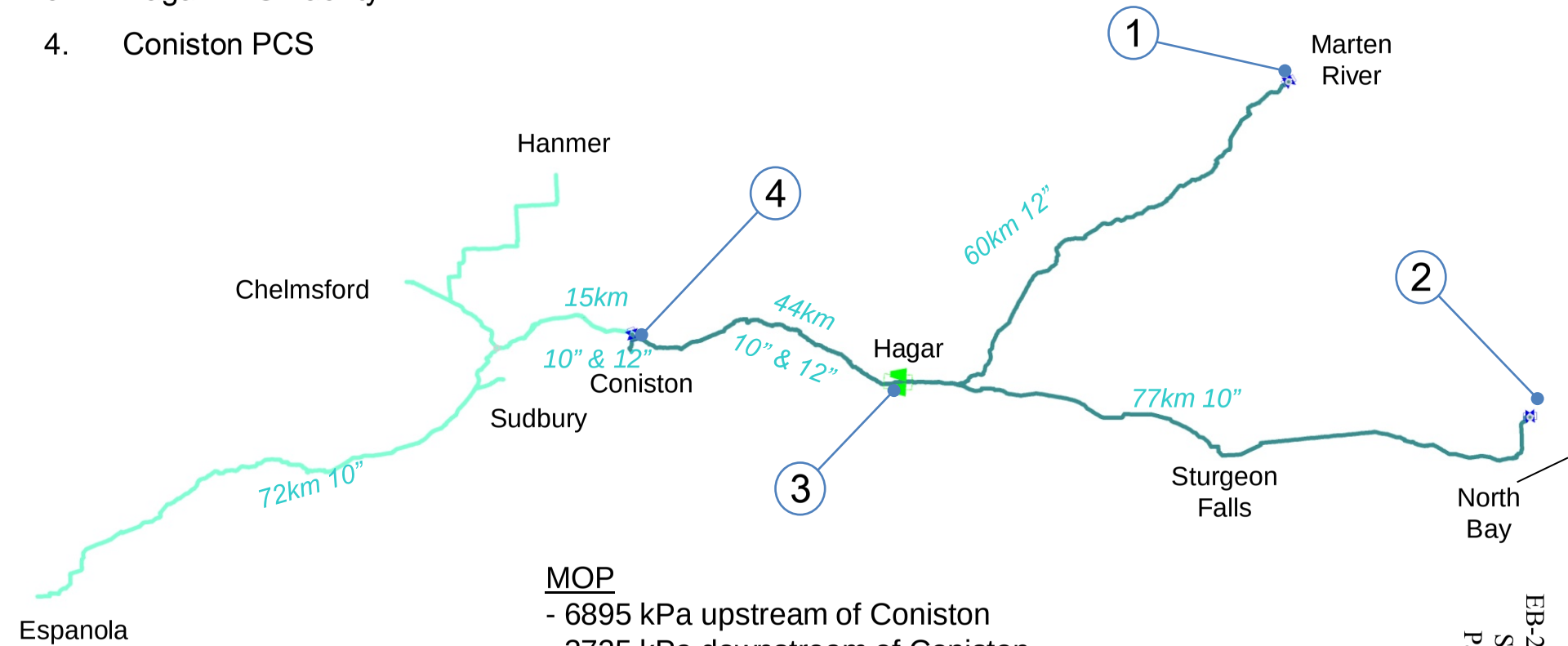


Proposed Pipeline

Existing Pipeline

Sudbury System Overview

1. Marten River Control Valves
2. North Bay Control Valves
3. Hagar LNG Facility
4. Coniston PCS



MOP
- 6895 kPa upstream of Coniston
- 3725 kPa downstream of Coniston

TOTAL ESTIMATED PIPELINE CAPITAL COSTS

2016 Sudbury Replacement

Pipeline and Equipment				
NPS 12 Steel Pipe	$	86,163		
Fittings and Miscellaneous Material	$	12,145		
Total Pipeline and Equipment			$	98,307
Construction and Labour				
Replace 850 m of NPS 10 with NPS 12 Miscellaneous Contract Labour	$	1,450,129		
Company Labour, Inspection, X-Ray, Construction Survey, Legal, Environmental, and Permitting	$	211,429		
Easements, Lands, Restoration & Regulatory	$	176,546		
Total Construction and Labour			$	1,838,104
Subtotal Estimated Pipeline Capital Costs - 2016 Construction			$	1,936,411
Contingencies			$	251,733
Total Estimated Pipeline Capital Costs - 2016 Construction			$	2,188,145

Sudbury Replacement Project

DESIGN AND PIPE SPECIFICATIONS

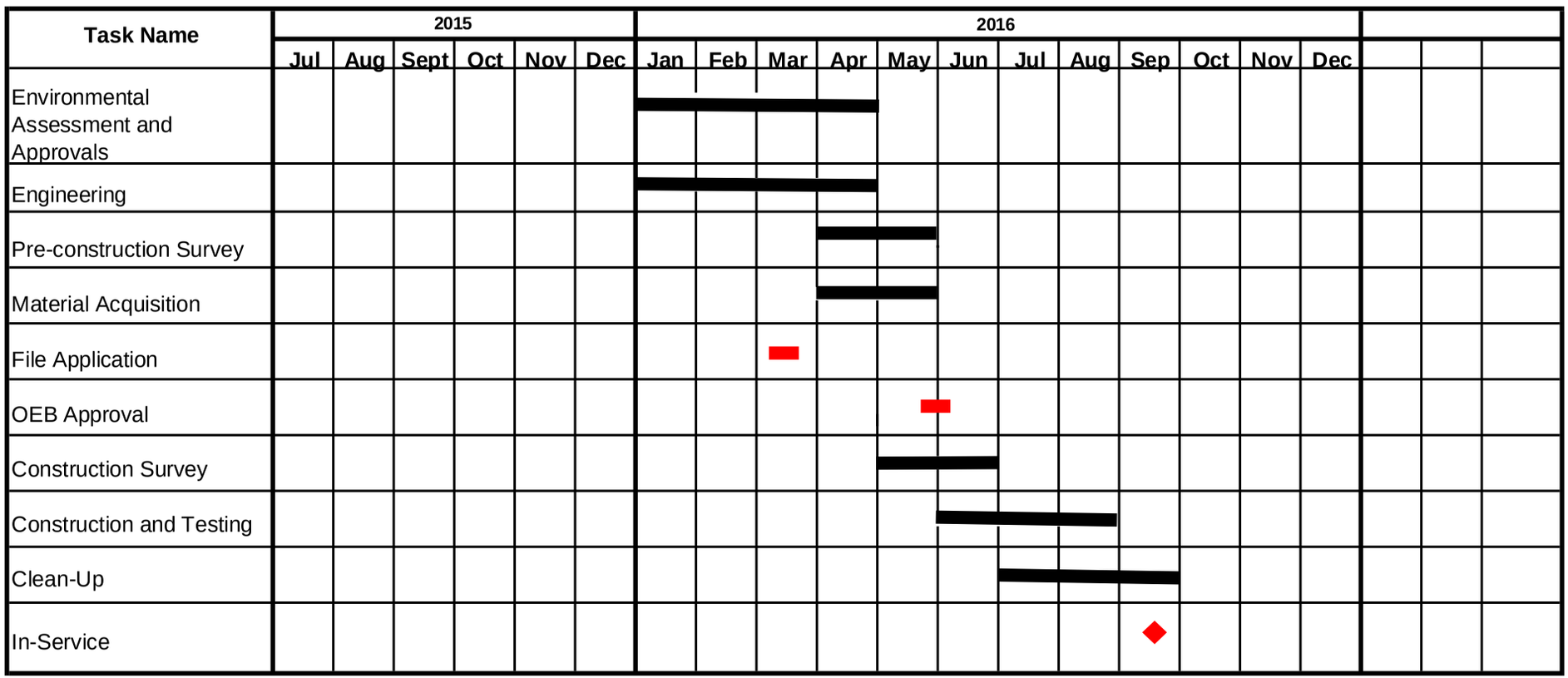
Design Specifications: NPS 12

Class Location (existing)	-	Class 2&3
Design Class Location	-	Class 3
Design Factor	-	0.8
Location Factor (General)	-	0.700
Maximum Design Pressure	-	6895 kPa
Maximum Operating Pressure	-	3723 kPa (current) 6895 kPa (future)
Test Medium	-	Water
Test Pressure	-	9653 kPa
Valves/Fittings	-	PN 100
Minimum Depth of Cover (General)	-	0.9 m

Pipe Specifications:

Size	-	NPS-12
Outside Diameter	-	323.9 mm
Wall Thickness	-	6.4 mm
Grade	-	359 MPa
Type	-	Electric Resistance Weld
Description	-	C.S.A. Standard Z245.1-14
Category	-	Cat. I, M5C
Coating	-	FBE, Dual Layer FBE
% SMYS	-	49% at design & future MOP

2016 Sudbury Replacement
Pipeline Construction Schedule



PIPELINE ABANDONMENT CHECKLIST

PLANNING

1. Has subsidence been considered for pipelines having a diameter greater than 323.9 mm (12 inches)?
2. Has the pipeline company notified the landowners and proper authorities (municipalities, MOE, MTO, MNR, etc.) of the abandonment?
3. Have abandonment procedures for crossings been agreed upon by utilities (road, railway, pipelines, etc.) and authorities responsible for rivers and streams crossed by the pipeline?
4. Has consideration been given to the effect of drainage in the area surrounding the abandoned pipeline , which may act as a conduit for ground water after the pipe is perforated by corrosion?
5. Has consideration been given to the removal of all the aboveground facilities?
6. Has consideration been given to any hazards posed to people, equipment, wildlife or livestock by any apparatus left in place above or underground?

IMPLEMENTATION

1. Has the abandoned pipeline been physically isolated from the live pipeline?
2. Has the pipeline been drained of all fluids and adequately cleaned to prevent ground water contamination from hydrocarbon residue on the pipe wall after the pipe is perforated by corrosion?
3. Have all aboveground facilities been removed and has consideration been given to removing underground facilities such as anode beds and tanks?

LIABILITY/RISK MANAGEMENT

1. Does the pipeline company have a contingency plan to remedy any contamination caused by the abandoned pipeline?
2. Has consideration been given to conducting post-abandonment surveillance programs?
3. Has consideration been given to maintaining signage after the pipeline is abandoned?
4. Has consideration been given to providing a locate service after the pipeline is abandoned?

GENERAL TECHNIQUES AND METHODS OF CONSTRUCTION

1. Union Gas Limited ("Union") will provide its own inspection staff to enforce Union's construction specifications and *Ontario Regulation 210/01 under the Technical Standards and Safety Act 2000, Oil and Gas Pipeline Systems*.
2. Pipeline construction is divided into several crews that create a mobile assembly line. Each crew performs a different function, with a finished product left behind when the last crew has completed its work.
3. Union's contract specifications require the contractor to erect safety barricades, fences, signs or flashers, or to use flag persons as may be appropriate, around any excavation across or along a road.
4. It is Union's policy to restore the areas affected by the construction of the pipeline to "as close to original condition" as possible. As a guide to show the "original condition" of the area, photos and/or a video will be taken before any work commences. When the clean-up is completed, the approval of the landowner or appropriate government authority is obtained.
5. Construction of the pipeline includes the following activities:

Locating Running Line

6. Union establishes the location where the pipeline is to be installed ("the running line"). For pipelines within road allowances, the adjacent property lines are identified and the running line is set at a specified distance from the property line. For pipelines located on private easement, the easement is surveyed and the running line is set at the specified distance from the edge of the easement. The distance from the start of the pipeline (or other suitable point) is marked on the pipeline stakes and the drawings.

Clearing and Grading

7. The right-of-way is prepared for the construction of the pipeline. When required, bushes, trees and crops are removed and the ground leveled. When required, the topsoil is stripped and stored, and/or sod is lifted.

Removing Existing Pipeline

8. The existing trench is excavated exposing the existing pipeline. The spoil material is placed onto the easement, separate from the topsoil. The majority of the existing NPS 10 pipeline will be removed from the trench, cut into sections and trucked off site. The trench is then backfilled.

Abandoning Existing Pipeline

9. The existing pipe within road allowance and in environmentally sensitive areas can be abandoned in place. The abandoned sections are capped and filled with grout, a low density concrete.

Stringing

10. The joints of pipe are laid end-to-end on supports that keep the pipe off the ground to prevent damage to the pipe coating.

Welding

11. The pipe is welded/fused into manageable lengths. The welds in steel pipe are radiographically inspected and the welds are coated.

Burying

12. Pipe may be buried using either the trench method or the trenchless method. All utilities that will be crossed or paralleled by the pipeline are located by the appropriate utility prior to installing the pipeline. Prior to trenching, all such utilities will be hand-located or hydro vacuumed.

    Trench Method: Trenching is done by using a trenching machine or hoe excavator depending upon the ground conditions. Provisions are made to allow residents access to their property, as required. All drainage tiles that are cut during the trench excavation are flagged to signify that a repair is required. All tiles are measured and recorded as to size, depth, type and quality. This information is kept on file with Union. If a repair is necessary in the future, Union will have an accurate method of locating the tile. Next, the pipe is lowered into the trench. For steel pipe, the pipe coating is tested using a high voltage electrical tester as the pipe is lowered into the trench. All defects in the coating are repaired before the pipe is lowered in. Next, if the soil that was excavated from the trench is suitable for backfill, it is backfilled. If the soil is not suitable for

backfill the trench is backfilled with suitable material such as sand. After the trench is backfilled, drainage tile is repaired.

Rock Excavation: Rock in solid beds or masses will be removed by "Hoe Ram", where practical. Where rock that is too hard to "Hoe Ram" is encountered, blasting will be permitted in accordance to Union's construction procedures and the *Canadian Explosives Act*. The contractor shall obtain all necessary permits and shall comply with all legal requirements in connection with the use, storage and transportation of explosives.

Trenchless Method: Trenchless methods are alternate methods used to install pipelines under railways, roads, sidewalks, trees and environmentally sensitive areas. The trenchless method proposed for the NPS 12 pipeline is directional drilling. This method involves setting up a receiving hole and an exit hole, drilling a pilot hole on the design path, reaming the pilot hole larger by passing a cutting tool and pulling the pipe back through the bored hole.

Tie-Ins

13. The sections of pipelines that have been buried using either the trench or trenchless method are joined together (tied-in).

Cleaning and Testing

14. To complete the construction, the pipeline is cleaned, tested in accordance with Union's specifications using water.

Restoration

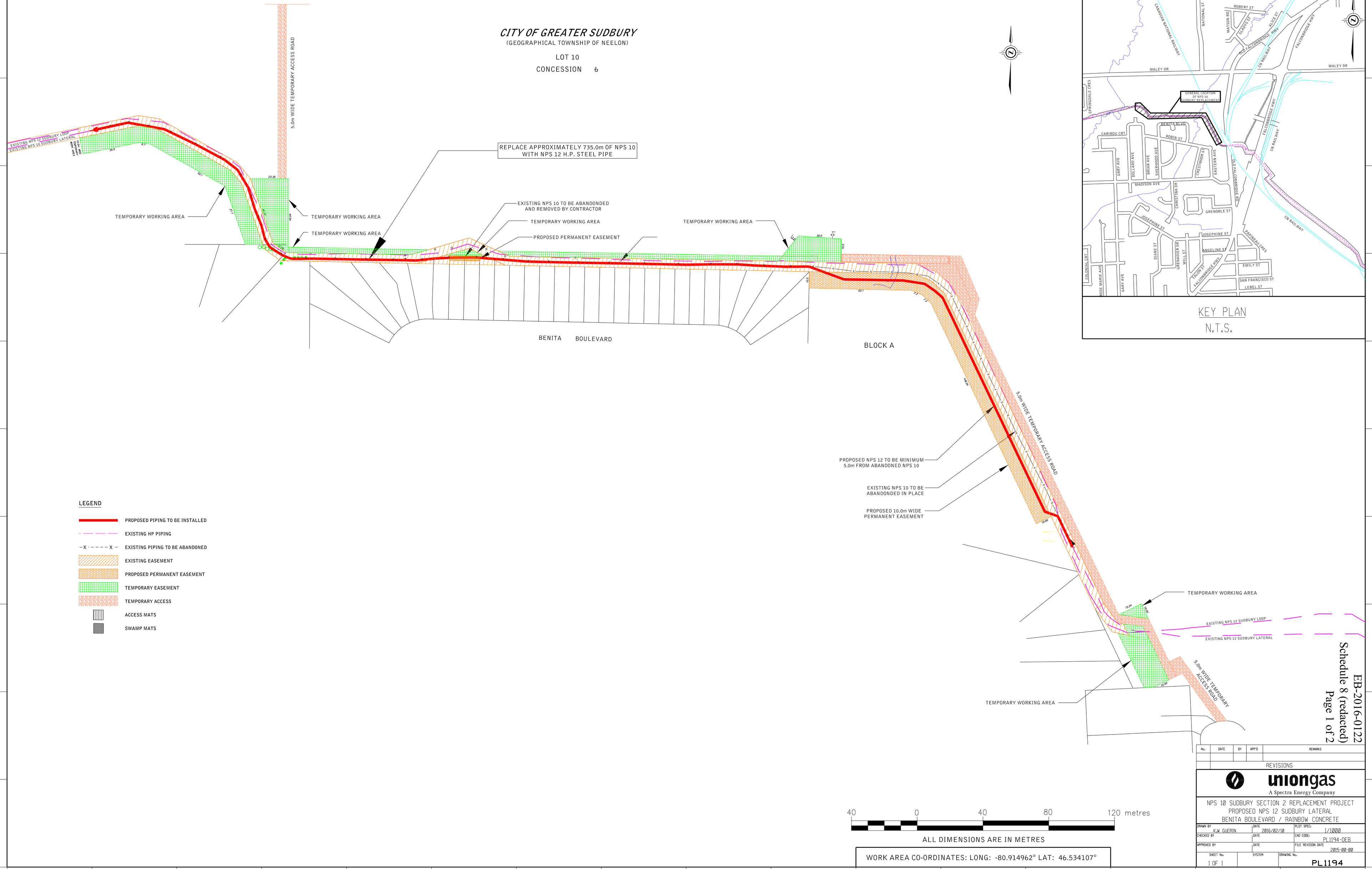
15. The final activity is the restoration. The work area is leveled, the sod is replaced in lawn areas and other grassed areas are re-seeded. Where required, concrete, asphalt and gravel are replaced to return the areas to as close to the original conditions as possible.

CITY OF GREATER SUDBURY

(GEOGRAPHICAL TOWNSHIP OF NEELON)

LOT 10

CONCESSION 6



LEGEND

- PROPOSED PIPING TO BE INSTALLED
- EXISTING HP PIPING
- EXISTING PIPING TO BE ABANDONED
- EXISTING EASEMENT
- PROPOSED PERMANENT EASEMENT
- TEMPORARY EASEMENT
- TEMPORARY ACCESS
- ACCESS MATS
- SWAMP MATS

KEY PLAN
N.T.S.

40 0 40 80 120 metres

ALL DIMENSIONS ARE IN METRES

WORK AREA CO-ORDINATES: LONG: -80.914962° LAT: 46.534107°

EB-2016-0122
Schedule 8 (redacted)
Page 1 of 2

No.	DATE	BY	APP'D	REMARKS

REVISIONS

uniongas
A Spectra Energy Company

NPS 10 SUDBURY SECTION 2 REPLACEMENT PROJECT
PROPOSED NPS 12 SUDBURY LATERAL
BENITA BOULEVARD / RAINBOW CONCRETE

DRAWN BY: K.W. GUERIN	DATE: 2016/02/10	PLOT SPEC: 1/1000	
CHECKED BY:	DATE:	CAD CODE: PL1194-OEB	
APPROVED BY:	DATE:	FILE REVISION DATE: 2015-00-00	
SHEET No.: 1 OF 1	SYSTEM:	DRAWING No.: PL1194	


LOT 6
CONCESSION 5
CITY OF GREATER SUDBURY
FROOD RD
NPS 4 S
NPS 8 S YJ
NPS 12
NPS 12
PROPOSED NPS 12
EXISTING NPS 12 SUDBURY LATERAL
PROPOSED APPROXIMATELY 150.0m OF NPS 12
H.P. STEEL PIPE REPLACEMENT SECTION 2
10.0m X 50.0m TEMPORARY LANDUSE
50.0m
10.0m
15.24m
15.24m
EXISTING NPS 12 SUDBURY
LATERAL INSTALLED 2015
TIE IN TO EXISTING NPS 12 SUDBURY
LATERAL CHAINAGE 136+502.7
EXISTING NPS 12 SUDBURY LOOP
EXISTING NPS 10 TO BE ABANDONED
AND REMOVED BY CONTRACTOR
GENERAL LOCATION
OF NPS 10
SUDBURY REPLACEMENT
FROOD MINE
COLLEGE BOREAL
LASALLE BLVD
UNION GAS EASEMENT
NOTRE DAME AV (HIGHWAY 80)
BURTON AV
FROOD RD
GREATER SUDBURY
KEY PLAN
N.T.S.
LEGEND
NEW PIPING TO BE INSTALLED
EXISTING HP PIPING
EXISTING PIPING TO BE ABANDONED
TEMPORARY LAND USE
40 0 40 80 120 metres
WORK AREA CO-ORDINATES: LONG: 81.005165°W LAT: 46.512627°N
ALL DIMENSIONS ARE IN METRES
FOR INFORMATION ONLY
PRELIMINARY
ISSUED FOR BID
ISSUED FOR CONSTRUCTION
AS BUILT
AS BUILT BY:
CHECKED BY:
APP'D
DATE
No. DATE BY APP'D REMARKS
01 16/02/11 KG BB ADD TEMPORARY LANDUSE
REVISIONS
ENGINEER: Bryden Berkvens
uniongas
A Spectra Energy Company
NPS 10 SUDBURY SECTION 2 REPLACEMENT PROJECT
PROPOSED NPS 12 SUDBURY LATERAL
UNDERCROSSING FROOD ROAD
DRAWN BY K.W. GUERIN
DATE 2016/01/26
PLOT SPEC: 1/250
CHECKED BY
CAD CODE: PL1242-OEB
APPROVED BY
FILE REVISION DATE 2016-00-00
SHEET No. 1 OF 1
SYSTEM
DRAWING No. PL1242

	PIN	NAME & ADDRESS	PROPERTY DESCRIPTION	PERMANENT EASEMENT Dimensions (Metres) W x L Hectares	TEMPORARY EASEMENT Dimensions (Metres) Area W x L Hectares	MORTGAGE, LIEN/LEASE &/OR ENCUMBRANCES	REMARKS
2016 Sudbury Replacement (RAINBOW WEST)							
	73565-0926(LT)		PCL 37254 SEC SES SRO; PT LT 10 CON 6 NEELON AS IN LT311335 EXCEPT M961, M1061, PT 1 & 4, 53R15313; S/T, IF ENFORCEABLE, EXECUTION 21644, 21864, 8775, 9018, 9019, 9020; S/T LT147324, LT476507, LT77666, LT79444, LT86480, LT86481; GREATER SUDBURY		9.0 x 29.8 0.027 5.0 x 340.7 0.170 7.6 x 10.0 0.008 15.0 x 40.0 0.060		
	73565-0795(LT)		PCL 12630 SEC SES; PT LT 10 CON 6 NEELON AS IN LT71302; S/T LT156335, LT460787; GREATER SUDBURY		3.2 x 74.5 0.024 3.2 x 24.2 0.008 3.2 x 163.2 0.052 7.8 x 38.0 0.030 5.0 x 75.2 0.038		
	73565-0140(LT)		PCL 44129A SEC SES SRO; BLK A PL M1061 NEELON; S/T LT86480, LT86481; GREATER SUDBURY	10.0 x 230.0 0.230			
	73565-0026(LT)		PCL 51163 SEC SES SRO; PT LT 7 PL M1061 NEELON PT 6 TO 13 53R15167; S/T LT432790, LT432791, LT432792, LT743024, LT743841, LT743842, LT743843, LT751861, LT86480, LT86481; GREATER SUDBURY	3.1 x 9.1 0.003			

	PIN	NAME & ADDRESS	PROPERTY DESCRIPTION	PERMANENT EASEMENT Dimensions (Metres) W x L Hectares	TEMPORARY EASEMENT Dimensions (Metres) Area W x L Hectares	MORTGAGE, LIEN/LEASE &/OR ENCUMBRANCES	REMARKS
	73565-0024(LT)		PCL 51160 SEC SES SRO; PT LT 7 PL M1061 NEELON PT 1 TO 5 53R15167; S/T LT432790, LT432791, LT432792, LT743024, LT743841, LT751861, LT86480, LT86481; GREATER SUDBURY	3.1 x 9.2 0.003			
	73565-0389(LT)		PCL 35391 SEC SES; PT LT 10 CON 6 NEELON PT 1 SR3064; S/T LT86480, LT86481; S/T EAS OVER PT 2 ON 53R6151 AS IN LT402515; GREATER SUDBURY		5.0 x 105.8 0.053		
	73565-0548(LT)		PCL 26249 SEC SES; PT LT 10 CON 6 NEELON AS IN LT166691 EXCEPT PT 3 53R6152; S/T LT147324, LT77666, LT79444, LT86480, LT86481; S/T EAS OVER PT 3 ON 53R6152 AS IN LT402515; GREATER SUDBURY		10.0 x 139.7 0.140 15.0 x 45.0 0.068		

File #	PIN	NAME & ADDRESS	PROPERTY DESCRIPTION	PERMANENT EASEMENT Dimensions (Metres) W x L Hectares	TEMPORARY EASEMENT Dimensions (Metres) Area W x L Hectares	MORTGAGE, LIEN/LEASE &/OR ENCUMBRANCES	REMARKS
2016 Sudbury Replacement FROOD							
	02127-0426(LT)		FIRSTLY: SRO PART LOT 5 CON 5 TOWNSHIP OF MCKIM BEING PARTS 3, 4, 13, 14, 15, 16 AND 17 ON PLAN 53R15280; *** SUBJECT TO EASEMENT OVER PARTS14 AND 16 AS IN LT165019; SUBJECT TO EASEMENT OVER PARTS 13, 14 AND 15AS IN LT448769; *** TOGETHER WITH A RIGHTS OF WAY OVER PARTS 9, 10, 11, 12 AND 18 PLAN 53R15280; *** CITY OF SUDBURY ### SECONDLY: SRO OF PART LOT 6 CON 5, TOWNSHIP OF MCKIM BEING PARTS 1, 2, 3, 4, 5, 6, 7, 8,9, 10, 11, 12, 13, 14, 15 AND 16 ON PLAN 53R8297; *** SUBJECT TO EA SEMENT OVER PARTS 4, 6, 8 AND 12 AS IN LT147574; SUBJECT TO EASEMENT OVER PART 2 AS IN LT154547; SUBJECT TO EASEMENT OVER PARTS 7, 8, 9 AND15 AS IN LT 165019; SUBJECT TO EASEMENT OVER PART 1 AS IN LT284256; SUBJECT TO EASEMENT OVER PARTS 6, 14, 15, 16 AND 17 AS IN LT448769; SUBJECT TO EASEMENT OVER PARTS 1, 2, 3, 4 AND 5 PLAN 53R11635 AS IN LT633625; SUBJECT TO EASEMENT OVER PART 6 PLAN 53R11635 AS IN LT633626; *** TOGETHER WITH AS RIGHT OF WAY OVER PARTS 9, 10, 11, 12 15280 AS IN LT803051; SUBJECT TO AN EASEMENT IN GROSS OVER PTS 1,2,3,4,5&6 53R20222 AS IN SD276161 CITY OF GREATER SUDBURY		10.0 x 50.0 0.050		

PIPELINE EASEMENT

(the “Easement”)

Between

(hereinafter called the “Transferor”)

and

UNION GAS LIMITED
(hereinafter called the “Transferee”)

This easement is an Easement in Gross

WHEREAS the Transferor is the owner in fee simple of those lands and premises more particularly described as:

PIN: Legal Description: (hereinafter called the "Transferor's Lands").

The Transferor does hereby GRANT, CONVEY, TRANSFER AND CONFIRM unto the Transferee, its successors and assigns, to be used and enjoyed as appurtenant to all or any part of the lands, the right, liberty, privilege and easement on, over, in, under and/or through a strip of the Transferor's Lands more particularly described as: PIN: Legal Description: (hereinafter called the "Lands") to survey, lay, construct, maintain, brush, clear trees and vegetation, inspect, patrol, alter, remove, replace, reconstruct, repair, move, keep, use and/or operate one pipeline for the transmission of Pipeline quality natural gas as defined in The Ontario Energy Board Act S.O. 1998 (hereinafter called the "Pipeline") including therewith all such buried attachments, equipment and appliances for cathodic protection which the Transferee may deem necessary or convenient thereto, together with the right of ingress and egress at any and all times over and upon the Lands for its servants, agents, employees, those engaged in its business, contractors and subcontractors on foot and/or with vehicles, supplies, machinery and equipment for all purposes necessary or incidental to the exercise and enjoyment of the rights, liberty, privileges and easement hereby granted. The Parties hereto mutually covenant and agree each with the other as follows:

1 In Consideration of the sum of /100 Dollars ($) of lawful money of Canada (hereinafter called the "Consideration"), which sum is payment in full for the rights and interest hereby granted and for the rights and interest, if any, acquired by the Transferee by expropriation, including in either or both cases payment in full for all such matters as injurious affection to remaining lands and the effect, if any, of registration on title of this document and where applicable, of the expropriation documents, subject to Clause 12 hereof to be paid by the Transferee to the Transferor within 90 days from the date of these presents or prior to the exercise by the Transferee of any of its rights hereunder other than the right to survey (whichever may be the earlier date), the rights, privileges and easement hereby granted shall continue in perpetuity or until the Transferee, with the express written consent of the Transferor, shall execute and deliver a surrender thereof. Prior to such surrender, the Transferee shall remove all debris as may have resulted from the Transferee's use of the Lands from the Lands and in all respects restore the Lands to its previous productivity and fertility so far as is reasonably possible , save and except for items in respect of which compensation is due under Clause 2, hereof.. As part of the Transferee’s obligation to restore the lands upon surrender of its easement, the Transferee agrees at the option of the Transferor to remove the Pipeline from the Lands. The Transferee and the Transferor shall surrender the easement and the Transferee shall remove the Pipeline at the Transferor’s option where the Pipeline has been abandoned. The Pipeline shall be deemed to be abandoned where: a) corrosion protection is no longer applied to the Pipeline, or, b) the Pipeline becomes unfit for service in accordance with Ontario standards. The Transferee shall, within 60 days of either of these events occurring, provide the Transferor with notice of the event. Upon removal of the Pipeline and restoration of the Lands as required by this agreement, the Transferor shall release the Transferee from further obligations in respect of restoration.

2. The Transferee shall make to the Transferor (or the person or persons entitled thereto) due compensation for any damages to the Lands resulting from the exercise of any of the rights herein granted, and if the compensation is not agreed upon by the Transferee and the Transferor, it shall

be determined by arbitration in the manner prescribed by the Expropriations Act, R.S.O. 1990, Chapter E-26 or any Act passed in amendment thereof or substitution therefore. Any gates, fences and tile drains curbs, gutters, asphalt paving, lockstone, patio tiles interfered with by the Transferee shall be restored by the Transferee at its expense as closely as reasonably possible to the condition and function in which they existed immediately prior to such interference by the Transferee and in the case of tile drains, such restoration shall be performed in accordance with good drainage practice and applicable government regulations.

3. The Pipeline (including attachments, equipment and appliances for cathodic protection but excluding valves, take-offs and fencing installed under Clause 9 hereof) shall be laid to such a depth that upon completion of installation it will not obstruct the natural surface run-off from the Lands nor ordinary cultivation of the Lands nor any tile drainage system existing in the Lands at the time of installation of the Pipeline nor any planned tile drainage system to be laid in the Lands in accordance with standard drainage practice, if the Transferee is given at least thirty (30) days notice of such planned system prior to the installation of the Pipeline. The Transferee agrees to make reasonable efforts to accommodate the planning and installation of future tile drainage systems following installation of the Pipeline so as not to obstruct or interfere with such tile installation. In the event there is a change in the use of all, or a portion of ,the Transferor Lands adjacent to the Lands which results in the pipeline no longer being in compliance with the pipeline design class location requirements, then the Transferee shall be responsible for any costs associated with any changes to the Pipeline required to ensure compliance with the class location requirements.

4. As soon as reasonably possible after the construction of the Pipeline, the Transferee shall level the Lands and unless otherwise agreed to by the Transferor, shall remove all debris as may have resulted from the Transferee's use of the Lands therefrom and in all respects restore the Lands to its previous productivity and fertility so far as is reasonably possible, save and except for items in respect of which compensation is due under Clause 2 hereof.

5. It is further agreed that the Transferee shall assume all liability and obligations for any and all loss, damage or injury, (including death) to persons or property that would not have happened but for this Easement or anything done or maintained by the Transferee hereunder or intended so to be and the Transferee shall at all times indemnify and save harmless the Transferor from and against all such loss, damage or injury and all actions, suits, proceedings, costs, charges, damages, expenses, claims or demands arising therefrom or connected therewith provided that the Transferee shall not be liable under the clause to the extent to which such loss, damage or injury is caused or contributed to by the gross negligence or wilful misconduct of the Transferor.

6. In the event that the Transferee fails to comply with any of the requirements set out in Clauses 2, 3, or 4 hereof within a reasonable time of the receipt of notice in writing from the Transferor setting forth the failure complained of, the Transferee shall compensate the Transferor (or the person or persons entitled thereto) for any damage, if any, necessarily resulting from such failure and the reasonable costs if any, incurred in the recovery of those damages.

7. Except in case of emergency, the Transferee shall not enter upon any of the Transferor's Lands, other than the Lands, without the consent of the Transferor. In case of emergency the right of entry upon the Transferor's Lands for ingress and egress to and from the Lands is hereby granted. The determination of what circumstances constitute an emergency, for purposes of this paragraph is within the absolute discretion of the Transferee, but is a situation in which the Transferee has a need to access the Pipeline in the public interest without notice to the Transferor, subject to the provisions of Clause 2 herein. The Transferee will, within 72 hours of entry upon such lands, advise the Transferor of the said emergency circumstances and thereafter provide a written report to Transferor with respect to the resolution of the emergency situation The Transferee shall restore the lands of the Transferor at its expense as closely as reasonably practicable to the condition in which they existed immediately prior to such interference by the Transferee and in the case of tile drains, such restoration shall be performed in accordance with good drainage practice.

8. The Transferor shall have the right to fully use and enjoy the Lands except for planting trees over the lesser of the Lands or a six (6) meter strip centered over the Pipeline, and except as may be necessary for any of the purposes hereby granted to the Transferee, provided that without the prior written consent of the Transferee, the Transferor shall not excavate, drill, install, erect or permit to be excavated, drilled, installed or erected in, on, over or through the Lands any pit, well, foundation, pavement, building, mobile homes or other structure or installation. Notwithstanding the foregoing the Transferee upon request shall consent to the Transferor erecting or repairing fences, hedges, pavement, lockstone constructing or repairing tile drains and domestic sewer pipes, water pipes, and utility pipes and constructing or repairing lanes, roads, driveways, pathways, and walks across,

on and in the Lands or any portion or portions thereof, provided that before commencing any of the work referred to in this sentence the Transferor shall (a) give the Transferee at least (30) clear days notice in writing describing the work desired so as to enable the Transferee to evaluate and comment on the work proposed and to have a representative inspect the site and/or be present at any time or times during the performance of the work, (b) shall follow the instructions of such representative as to the performance of such work without damage to the Pipeline, (c) shall exercise a high degree of care in carrying out any such work and, (d) shall perform any such work in such a manner as not to endanger or damage the Pipeline as may be required by the Transferee.

9. The rights, privileges and easement herein granted shall include the right to install, keep, use, operate, service, maintain, repair, remove and/or replace in, on and above the Lands any valves and/or take-offs subject to additional agreements and to fence in such valves and/or take-offs and to keep same fenced in, but for this right the Transferee shall pay to the Transferor (or the person or persons entitled thereto) such additional compensation as may be agreed upon and in default of agreement as may be settled by arbitration under the provisions of The Ontario Energy Board Act, S.O. 1998, or any Act passed in amendment thereof or substitution therefore. The Transferee shall keep down weeds on any lands removed from cultivation by reason of locating any valves and/or take-offs in the Lands.

10. Notwithstanding any rule of law or equity and even though the Pipeline and its appurtenances may become annexed or affixed to the realty, title thereto shall nevertheless remain in the Transferee.

11. Neither this Agreement nor anything herein contained nor anything done hereunder shall affect or prejudice the Transferee's rights to acquire the Lands or any other portion or portions of the Transferor's lands under the provisions of The Ontario Energy Board Act, S.O. 1998, or any other laws, which rights the Transferee may exercise at its discretion in the event of the Transferor being unable or unwilling for any reason to perform this Agreement or give to the Transferee a clear and unencumbered title to the easement herein granted.

12. The Transferor covenants that he has the right to convey this Easement notwithstanding any act on his part, that he will execute such further assurances of this Easement as may be requisite and which the Transferee may at its expense prepare and that the Transferee, performing and observing the covenants and conditions on its part to be performed, shall have quiet possession and enjoyment of the rights, privileges and easement hereby granted. If it shall appear that at the date hereof the Transferor is not the sole owner of the Lands, this Easement shall nevertheless bind the Transferor to the full extent of his interest therein and shall also extend to any after-acquired interest, but all moneys payable hereunder shall be paid to the Transferor only in the proportion that his interest in the Lands bears to the entire interest therein.

13. In the event that the Transferee fails to pay the Consideration as hereinbefore provided, the Transferor shall have the right to declare this Easement cancelled after the expiration of 15 days from personal service upon the Manager, Land Services of the Transferee at its Executive Head Office in Chatham, Ontario, (or at such other point in Ontario as the Transferee may from time to time specify by notice in writing to the Transferor) of notice in writing of such default, unless during such 15 day period the Transferee shall pay the Consideration; upon failing to pay as aforesaid, the Transferee shall forthwith after the expiration of 15 days from the service of such notice execute and deliver to the Transferor at the expense of the Transferee, a valid and registrable release and discharge of this Easement.

14. All payments under these presents may be made either in cash or by cheque of the Transferee and may be made to the Transferor (or person or persons entitled thereto) either personally or by mail. All notices and mail sent pursuant to these presents shall be addressed to:

the Transferor at: Click here to enter text.
Click here to enter text.

and to the Transferee at: Union Gas Limited

P.O. Box 2001
50 Keil Drive North
Chatham, Ontario N7M 5M1
Attention: Manager, Land Services

or to such other address in either case as the Transferor or the Transferee respectively may from time to time appoint in writing.

15. The rights, privileges and easement hereby granted are and shall be of the same force and effect as a covenant running with the Transferor's Land and this Easement, including all the covenants and conditions herein contained, shall extend to, be binding upon and inure to the benefit of the heirs, executors, administrators, successors and assigns of the Parties hereto respectively; and, wherever the singular or masculine is used it shall, where necessary, be construed as if the plural, or feminine or neuter had been used, as the case may be.

16. (a) The Transferee represents that it is registered for the purposes of the Harmonized Goods and Services Tax (hereinafter called "HST") in accordance with the applicable provisions in that regard and pursuant to the Excise Tax Act, (R.S.C., 1985, c. E-15), (hereinafter called "Excise Tax Act"), as amended.

    (b) The Transferee covenants to deliver a Statutory Declaration, Undertaking and Indemnity confirming its HST registration number, which shall be conclusive evidence of such HST registration, and shall preclude the Transferor from collection of HST from the Transferee.

    (c) The Transferee shall undertake to self-assess the HST payable in respect of this transaction pursuant to subparagraphs 221(2) and 228(4) of the Excise Tax Act, and to remit and file a return in respect of HST owing as required under the said Act for the reporting period in which the HST in this transaction became payable.

    (d) The Transferee shall indemnify and save harmless the Transferor from and against any and all claims, liabilities, penalties, interest, costs and other legal expenses incurred, directly or indirectly, in connection with the assessment of HST payable in respect of the transaction contemplated by this Easement. The Transferee's obligations under this Clause shall survive this Easement.

17. The Transferor hereby acknowledges that this Easement will be registered electronically.

Dated this day of 2016

Signature (Transferor)

.
Print Name(s) (and position held if applicable)

I have authority to bind the Corporation.

Click here to enter text.
Address (Transferor)

Signature (Transferor)

.
Print Name(s) (and position held if applicable)

I have authority to bind the Corporation.

Click here to enter text.
Address (Transferor)

UNION GAS LIMITED

Signature (Transferee)

Click here to enter text., Senior Land Specialist
Name & Title (Union Gas Limited)

I have authority to bind the Corporation.

519-436-4673
Telephone Number (Union Gas Limited)

Choose an item.

Province of Ontario

DECLARATION REQUIRED UNDER
SECTION 50 (3) OF THE PLANNING
ACT, R.S.O. 1990, as amended

I , of the , in the Province of Ontario.

DO SOLEMNLY DECLARE THAT

1. I am a Senior Land Specialist, Lands Department of Union Gas Limited, the Transferee in the attached Grant of Easement and as such have knowledge of the matters herein deposed to.

2. The use of or right in the land described in the said Grant of Easement being PIN: Legal Description: acquired by Union Gas Limited for the purpose of a hydrocarbon line within the meaning of Part VI of the Ontario Energy Board Act, 1998.

AND I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath, and by virtue of The Canada Evidence Act.

DECLARED before me at the
Click here to enter text.,
in the Province of Ontario

This day of 2016

_____ _____
A Commissioner, etc.

2016 SUDBURY REPLACEMENT PROJECT

ENVIRONMENTAL PROTECTION PLAN

Prepared By: Union Gas Limited
Environmental Permitting
March, 2016

TABLE OF CONTENTS

1.0 INTRODUCTION

This Environmental Protection Plan (EPP) has been prepared to document a plan by Union Gas Limited (Union) for the protection of the environment during the replacement and upsizing of the Sudbury Lateral Line natural gas system in the City of Greater Sudbury. The project will involve the replacement of approximately 850 metres of NPS12 hydrocarbon (natural gas) pipeline, to replace two sections of the existing Sudbury Lateral NPS10 Line located in the City of Greater Sudbury. Maps showing the general locations of the project areas can be found in Appendix 1.

Specifically this report will:

- Describe the proposed work necessary for the Project.
- Describe the procedures that will be followed during construction of the facilities.
- Identify potential environmental impacts and recommend measures to minimize those impacts.

Union is proposing to construct the pipelines in two (2) sections. Both sections of pipeline to be replaced were predominately installed in 1958 as part of the "Sudbury Lateral System". This system commences at both North Bay and Martin River joining together at Warren where it continues west to the eastern boundary of Sudbury. The pipeline then extends north around Sudbury with branch systems supplying the Towns of Capreol, Val Caron, Rayside, Balfour and Onaping and a branch continuing west to serve Espanola.

Section 1

This project will involve the installation of approximately 700 metres of a new NPS 12 inch steel natural gas pipeline replacing an existing NPS 10 inch pipeline. The replacement is necessary to upgrade the existing NPS 10 pipeline to a NPS 12 pipeline as part of a class location initiative as well as provide additional capacity for future growth on the Sudbury system. The new NPS 12 inch pipeline will commence at a tie-in point along a graveled laneway near the corner of Old Falconbridge Road and Maley Drive. The pipeline will then proceeds north for approximately 225 metres where it will turn west behind a residential area for approximately 350 metres at which time it will proceed north and west for approximately 125 metres to a tie in point to the existing NPS 10 inch pipeline.

Section 2

Union is proposing to replace approximately 150 metres of an existing NPS 10 inch natural gas pipeline with a new NPS 12 inch pipeline located south of the corner of LaSalle Boulevard and Frood Road within the City of Sudbury. Following testing of the existing NPS 10 inch pipeline anomalies were identifies beneath Frood Rd. To ensure the integrity of the pipeline system, the existing NPS 10 pipeline will be upgraded to a NPS 12 pipeline as part of a class location initiative. This project will involve the removal of the portion of the existing NPS 10 inch pipeline from beneath Frood Rd. and replaced with the new NPS 12 inch pipeline.

This EPP defines the environmental features potentially affected by the proposed pipeline and documents the various environmental protection measures that will be implemented by Union during pipeline construction to reduce the effect on these features. Union has retained Azimuth Environmental Consulting (Azimuth) to prepare an Environmental Report. The report addresses the environmental implications of the installation of the new pipeline as they relate to the potential effects on existing and proposed land use and natural heritage features. The report can be found in Appendix 2.

2.0 PLANNING PROCESS

2.1 Key Activities

The following is a summary of the key activities for the development of the Sudbury Expansion Project.

Project Initiation	January, 2016
Determination of Route Alternatives	January, 2015
Agency Contact	January, 2015
Environmental Background Information Collection	January/February 2016
Confirmation of Pipeline Route	February, 2016
Finalize Environmental Report	March, 2016
Ontario Energy Board Application	March, 2016
Ontario Energy Board Decision	Summer, 2016
Phase I Construction	Summer/Fall, 2016
Pipeline In-Service	Fall, 2016
Post Construction Monitoring	Spring 2017

Agencies, First Nations, Métis Nation and directly affected landowners have and will continue to be consulted regarding this project. As a result of the short length of pipe and the limited number of parties impacted by the pipeline replacements, Union determined that a public open house was not required for this project. A notice will be posted in the local newspapers informing the public about the project following the Ontario Energy Board filing. Any issue raised by the general public will be documented and Union will make every effort to resolve the issue prior to construction.

Meetings have been held with the City of Greater Sudbury, First Nations and Métis Nation regarding the project. These groups as well as other agencies will provide Union with general information pertaining to the project areas. No significant environmental concerns, which could not be mitigated using Union's standard construction practices, have been brought forward thus far in response to the meetings. Presently, Union is not aware of any significant landowner or public concerns associated with the construction of this pipeline project.

Landowner later

Union has discussed the project with the Ministry of Natural Resources and Forestry (MNRF) pertaining to Species at Risk information. A permit will be required from Conservation Sudbury (CS) for the watercourse crossings.

3.0 ROUTING

3.1 Route Selection

Union's preferred location for Section 1 will utilize the existing easement or new easement adjacent to the existing NPS 10 inch pipeline. The majority of the eastern section of pipe adjacent to the Hydro One corridor will be abandoned in place. The new pipeline in this area will be directionally drilled. By abandoning the existing pipeline in place and directional drilling the new pipeline, Union is able to minimize the environmental impacts during pipeline construction. The existing pipeline in the middle and western sections, of Section 1 will be removed and replaced with the proposed facilities.

For Section two, the existing pipeline will be removed from under Frood Road and replaced with the NPS 12 inch pipeline. The portions of the existing pipeline that will be abandoned in place will be completed in compliance with TSSA guidelines.

4.0 CUMULATIVE IMPACTS

The following section considers the cumulative effects of construction on the lands due to the project. The definition of cumulative effects used in this report is: "changes to the environment that are likely to result from a particular project in combination with other projects or activities that have been or will be carried out". It is expected that construction of these natural gas pipeline systems will result in both positive and minor negative cumulative effects.

In view of the fact that the sections of pipeline will be installed in existing or adjacent easements or within road allowance, it is not anticipated there will be any cumulative effects. The short lengths of pipeline, the limited number of landowners and the fact that portions of the project will be replaced within an existing trench or installed using the horizontal directional drill (HDD) method, limits the impacts of the project.

5.0 POTENCIAL IMPACTS AND MITIGATION

5.1 General Environmental Features

Watercourse Crossings

It will be necessary to cross one (1) watercourse during the installation of Section 1 during the construction of this project using the horizontal directional drill (HDD) method following the procedures as outlined in Unions Generic Sediment Control Plan – Horizontal directional Drill. The drawing can be found in Appendix 3.

Union will acquire all necessary permits from the Ministry of Natural Resources and Conservation Sudbury when crossing or working in the vicinity of a watercourse.

Tree Clearing

In Section 1 it will be necessary to remove shrubs and sapling size trees predominantly between 1 to 3 metres in height to allow for the setup of the drilling operation. Using the HDD method will result in a small amount of tree/shrub removal as the pipeline will be installed under the majority of the vegetation.

Any necessary tree clearing will be restricted from occurring between April 1 to August 31 in accordance with the Migratory Bird Convention Act and Migratory Bird Regulations, to avoid the avian nesting period. If project scheduling requires the removal of trees or shrubs during the nesting period, a qualified ornithologist will be required to assess the area of removal for evidence of nesting activity prior to removal to avoid any potential loss of active nests.

Archaeology

Union will retain the services of an archaeological consultant to initiate a Stage I and Stage II Archaeological Survey. The survey will take place prior to construction in accordance with the Ministry of Tourism, Culture and Sport guidelines to identify known or potential archaeological planning constraints within the project study area. The survey will serve to confirm the presence of significant archaeological resources subject to potential impact from the proposed Project activities.

If deeply buried cultural remains are encountered during construction, all activities will be suspended and the archaeological consultant as well as the Ministry of Culture will be contacted to determine the appropriated course of action.

Water Wells

A hydrogeologist will review the area before construction. Based on this preconstruction assessment, if necessary a water well monitoring program will be implemented in areas where the hydrogeologist believes that pipeline construction may affect water wells. The hydrogeologist will also be available during construction in the event that there are complaints regarding water wells.

Contaminated Soils

Union will follow its standard procedures relating to contaminated soils on the project. Based on the initial review of the sites and previous work completed in the same area, Union does not expect to encounter any contaminated material along the pipeline route.

5.2 Mitigation Summary

Table 1 provides a general summary of the potential impacts as well as the proposed mitigation measures that will be implemented during construction to minimize impacts on the environment.

6.0 CONSTRUCTION, OPERATION AND MAINENANCE

6.1 General Construction Practices

The following is a summary of the general construction of the practices that will occur during pipeline construction:

Clearing and Grading

This prepares the right-of-way to allow for the construction of the pipeline. Brush and trees removed and the ground levelled.

Stringing

The pipe is strung next to the proposed pipeline location. The sections of pipe are laid end to end and set on supports that keep the pipe off the ground and prevent damage to the pipeline coating.

Trenching

To install the pipeline a trench will be dug. The trench is usually excavated using a Backhoe or Hoe-ram. The Hoe-ram is used to break up rock without the use of blasting similar to a jackhammer. Some areas will require blasting however. The excavator will dig the trench and place the spoil in a pile beside the trench. Once the trench is excavated, the pipeline will be installed and if the spoil is suitable, it will be placed back in the trench. Any unsuitable spoil will be removed from the site and disposed of in an appropriate manner.

Horizontal Directional Drilling (HDD)

Where feasible the HDD method will be utilized resulting in less impact to the natural environment. This procedure is essentially drilling a hole under the ground, removing the auger and inserting the pipeline into the hole. To set the auger in place, sending and receiving pits or boring bays must be dug on either end of the pipe length. The length of the crossing and the size of the pipe determine the size of the drilling equipment and bore bays.

Cleaning and Testing

To complete construction, the pipeline is cleaned and pressure tested in accordance with the Energy Act.

Restoration

It is Union's policy to restore the affected areas to "as close to original" condition as practicable.

Frood Road Crossing

Following discussions with City of Sudbury it has been determined that Frood Road will be open cut during the installation of the pipeline. The public will be notified of any road closures. Union will maintain one lane of traffic at all times.

6.2 Operation and Maintenance Practices

Once the pipeline system is installed it has to be maintained and serviced on a regular basis. The following paragraphs will describe the most common work to be performed by Union personnel after the gas main has been installed.

Locates

Union provides a free locate service to any person or business who may be working near a pipeline. The pipeline locator is comprised of two parts, a transmitter and a receiver. To perform a locate, the transmitter is connected to the gas facility. The transmitter sends a small current through the facility, which is picked up by the receiver. The location of the pipeline is then marked using stakes or yellow paint. No excavation is required.

Leak Surveys

To ensure that there are no leaks in the system, a company representative or agent will "leak survey" the pipeline. The leak surveyor will walk along the gas main and carry a small machine that can detect natural gas. No excavation is required to complete the leak survey. However, if leaks are detected, excavations will be required to repair the pipeline. These repairs will be completed as soon as possible after they are detected.

7.0 SUMMARY AND RECOMMENDATIONS

This Environmental Protection Plan describes a strategy for the protection of the environment during the construction of a natural gas pipeline in the Sudbury area. The plan has been developed by noting the environmental features in the area and the potential impacts of construction. The plan recommends a number of measures to reduce the impacts of the development.

It is recommended that the pipeline be monitored the year after construction to ensure that restoration measures were effective. If additional restoration measures are required, they should be completed as soon as possible. It is also recommended that landowners have access to Union personnel in order to address any concerns that may arise during construction.

With the implementation of the recommended mitigation measures, and Union's ongoing landowner and agency communication program, the Sudbury Expansion Project is not anticipated to have any significant adverse environmental or socio-economic effects.

TABLE 1: MITIGATION SUMMARY

Issue	Potential Impact	Proposed Mitigation
Underground Utilities	Disruption of services	• Obtain "locates" from all utilities. • If utilities are damaged, repair as soon as possible.
Archaeology	Disturbance of heritage resources	• Union will retain the services of a qualified archaeologist to survey the area. • Stop construction if artifacts are encountered. • Notify Ontario Ministry of Tourism, Culture and Sport. • Assist archaeologist in developing mitigation measures if necessary.
Water Wells	Disruption to water supply	• A hydrogeologist will review the area before construction. Based on this preconstruction assessment, if necessary a water well monitoring program will be implemented. • If water quality/quantity problems occur as a result of construction activities, the Company will supply potable water until the situation has been corrected.
Vegetation Cover	Loss of vegetative cover leading to soil erosion	• Small trees and shrubs to be removed outside of avian nesting window. • Restore cover by means of seeding or hydro-seeding as soon as possible.
Watercourse Crossings	Water quality concerns	• Union will acquire all necessary permits from Conservation Sudbury and comply with all permit conditions. • Union will adhere to all Company specifications and Department of Fisheries and Oceans endorsed Generic Sediment Control plans for watercourse crossings will be followed.
Natural Areas	Sedimentation run-off	• Ensure sediment barriers such as straw bales/sediment fencing are used where there is a potential for run-off.
Soils: Erosion	Introduction of sediment/ silt to adjacent lands	• Restore disturbed soils as soon as possible after construction following municipal and Company specifications •
Spills	Public safety issue	• Ensure the Ministry of Environment is notified. • Clean up spilled material.
Contaminated Soils	Dealing with contaminated materials Public safety issue	• Ensure the Ministry of Environment and Climate Change is notified, if necessary. • Clean up contaminated material following Company and MOECC procedures.

TABLE 1: MITIGATION SUMMARY (Continued)		
Issue	**Potential Impact**	**Proposed Mitigation**
Roadway	Disruption to public	• Roadway will be open cut. • Implement traffic controls as required.
Traffic	Disruption to local citizens	• Public will be notified of road closure in a timely manner prior to construction and as directed by the City of Sudbury • Flag persons and warning devices will be used to notify traffic of the construction zone in accordance with Ministry of Transportation standards.
Public Safety	Public safety concerns	• Company inspectors to ensure public safety on construction site. • Ensure proper signage and flag persons if required.
Landowner Concerns	Disturbance to landowners.	• The Company to provide landowners with the telephone numbers of supervisory personnel. •
Construction Noise	Disturbance to landowners.	• Construction to be carried out during daylight hours whenever possible. • Ensure equipment is properly muffled.
Nuisance Dust	Disturbance to landowners.	• Control dust as required.
Site Restoration	Disturbance to public and private properties	• Construction area to be restored as soon as possible upon completion of pipe installation. • Disturbed areas to be replaced as close as possible to preconstruction conditions.

APPENDIX 1

LOCATION MAPS

Project Location
Section 1

Project Location
Section 2

APPENDIX 2

ENVIRONMENTAL REPORT

Environmental Report

2016 Sudbury Replacement Project

Prepared for:
Union Gas

Prepared by:
Azimuth Environmental
Consulting, Inc.

March 2016

AEC 16-052

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

March 8, 2016 AEC 16-052

Union Gas
750 Richmond St.
Chatham, ON
N7M 5M1

Attention: Norm Dumouchelle, Environmental Planner

Re: **Environmental Report for 2016 Sudbury Pipeline Replacement, City of Greater Sudbury**

Dear Mr. Dumouchelle:

Azimuth Environmental Consulting, Inc. (Azimuth) is pleased to provide our Environmental Report for the proposed pipeline work described above. The project involves the replacement and upsizing of approximately 850 metres of NPS 12 natural gas pipeline within two sections of the existing Sudbury Lateral NPS10 Line located in the City of Greater Sudbury. The proposed construction projects are part of an ongoing maintenance and class location initiative that will ensure the continued safe operation of the Union Gas natural gas pipeline system. The two pipeline replacements are located near Falconbridge Road and Maley Drive as well as the Frood Road and Lasalle Boulevard area. It is our understanding that the study is required to assess the potential environmental impacts associated with the project and identify the appropriate mitigation/restoration measures to ensure impacts can be minimized during construction and operations of the pipelines.

The results of our assessment indicate that potential habitat for Species at Risk, Candidate Significant Wildlife Habitat and fish habitat are present within the study area. There is no expectation that the features or functions presented in this report will be impacted negatively by the proposed pipeline replacement works assuming recommended mitigation measures are followed.

Wildlife in the area will continue to utilize the naturalized communities of the property and adjacent lands. Given the nature of the development and the use of directional

drilling to install the new pipeline through a portion of the replacement, the natural character of the area will be maintained post development.

Yours truly,

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Paul Neals, B.Sc.Ag., P.Ag.
Vice-President

Lisa Moran, B.Sc.Env.
Terrestrial Ecologist

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1.0 INTRODUCTION

Azimuth Environmental Consulting Inc. (Azimuth) was retained by Union Gas Limited to complete an Environmental Report (ER) for the 2016 Sudbury Pipeline Replacement within the City of Greater Sudbury (Figure 1). The project involves the replacement and upsizing of approximately 850 metres of NPS 12 natural gas pipeline within two sections of the existing Sudbury Lateral NPS10 Line located in the City of Greater Sudbury. The proposed construction projects are part of an ongoing maintenance and class location initiative that will ensure the continued safe operation of the Union Gas natural gas pipeline system. The two pipeline replacements are located within the Frood Road and Lasalle Boulevard area (Figure 2a) in addition to a segment near Falconbridge Road and Maley Drive (Figure 2b).

The objective of this ER is to generally characterize the existing conditions of the natural environment and identify the range of Natural Heritage Features (NHF) within the study area. Background information available from the Ministry of Natural Resources and Forestry (MNRF) and the City of Greater Sudbury is used to address the potential for impacts associated with the proposed pipeline replacement project on NHF in the area. Recommendations for impact avoidance and mitigation are provided.

2.0 PLANNING CONTEXT

This section of the report summarizes the various federal, provincial, and local planning policies and regulations related to natural heritage that apply to the proposed works for the purpose of the ER.

2.1 Provincial Planning Policy (2014)

The *Planning Act* requires that planning decisions shall be consistent with the PPS (2014). According to the PPS development and site alteration shall not be permitted in:

- Significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E, or in Ecoregions 5E, 6E and 7E, and,
- Significant coastal wetlands.

Similarly, unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions, development and site alteration shall not be permitted within:

- *significant wetlands* in the Canadian Shield north of Ecoregions 5E, 6E and 7E1;
- *significant woodlands* in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);

- *significant valleylands* in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
- *significant wildlife habitat*;
- *significant areas of natural and scientific interest*; and
- *coastal wetlands* in Ecoregions 5E, 6E and 7E1 that are not subject to policy 2.1.4(b)

Section 2.1.6 of the PPS states that development and site alteration is not permitted in fish habitat except in accordance with federal and provincial requirements.

Section 2.1.7 of the PPS states that development and site alteration shall not be permitted in habitat of endangered and threatened species, except in accordance with provincial and federal requirements

Furthermore, under Section 2.1.8 of the PPS, no development and site alteration will be permitted on lands adjacent to natural heritage features and areas defined above unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated there will be no negative impacts on the natural features and ecological functions.

The term development (as defined in the PPS) is defined as the creation of a new lot, a change in land use or the construction of buildings and structures, requiring approval under the *Planning Act*, but does not include activities that create or maintain infrastructure authorized under an Environmental Assessment process (MMAH, 2014), as is the case with the proposed pipeline replacement project. Therefore, in this case, the PPS does not apply and has been used as a tool to help identify the natural heritage features within the area. The study area is located within Ecoregion 5E.

2.2 Endangered Species Act

Ontario's *Endangered Species Act, 2007* (ESA) provides regulatory protection to Endangered (END) and Threatened (THR) species prohibiting harassment, harm and/or killing of individuals and destruction of their habitats. Habitat is broadly characterized within the ESA as the area prescribed by a regulation as the habitat of the species or an area on which the species depends, directly or indirectly, to carry on its life processes including reproduction, rearing of young, hibernation, migration or feeding.

The various schedules of the ESA identify SAR in Ontario. These include species listed as Extirpated, END, THR and Special Concern (SC). As noted above, only species listed as END and THR receive protection through the ESA from harm and destruction to habitat on which they depend.

Species listed under O.Reg. 230/08 of the ESA are addressed in this report.

2.3 Species at Risk Act

Schedule 1 of the federal *Species at Risk Act, 2002* (SARA) protects Wildlife SAR. . The SARA provides regulatory protection to Extirpated, END, and THR species through a prohibition on activities which could be considered detrimental (i.e. killing, harming or possession). Further, protection is extended to the "residence" and "critical habitat" of all Schedule 1 species on federal lands with capacity to extend coverage to non-federally owned lands through a special order issued by the Minister. Habitat of Schedule 1 species which is also protected by the *Migratory Breeding Birds Convention Act, 1994* or the *Fisheries Act, 1985* is protected on all lands regardless of ownership.

Species listed under Schedule 1 of the SARA are addressed in this report.

2.4 City of Greater Sudbury

Frood Road

Land use designations along the existing and proposed pipeline route include Parks and Open Space and Mining/Mineral Reserve according to Schedule 1a of the City of Greater Sudbury Official Plan (2015).

Adjacent lands fall within the same designation and are largely undeveloped.

South of Maley Drive

Land use designations along the existing and proposed pipeline route include Living Area 1, General Industrial and Parks and Open Space according to Schedule 1a of the City of Greater Sudbury Official Plan (2015). The existing pipeline currently borders on an area whereby the land use to the south is residential and to the north is industrial. The Parks and Open Space designation is associated with the natural treed areas, watercourse and associated valleylands.

Similarly to the land use where the pipeline is proposed, the adjacent land use of the area is classified as Living Area 1, General Industrial and Parks and Open Space as per Schedule 1a – Land Use Overview of the City of Greater Sudbury Official Plan (2015).

Hazard Lands are identified in Schedule 4 of the Official Plan, and can be classified as natural hazards (flood-prone areas and unstable soils) or hazards that are the result of human activity (mine hazards, abandoned pits and quarries, contaminated sites and waste disposal areas). Floodplain has been identified within the eastern portion of the study

area. The floodplain is associated with the watercourse that the existing and proposed pipeline intersects (City of Greater Sudbury Official Plan (2013b).

2.5 Nickel District Conservation Authority

The study area includes lands within the jurisdiction of the Nickel District Conservation Authority (NDCA) and is subject to Ontario Regulation 156/06 – "Regulation of Development Interference with Wetlands and Alterations to Shorelines and Watercourses" by the NDCA (Appendix A). Approvals will be obtained from the NDCA for works within the regulation limit.

3.0 STUDY APPROACH

A background review of the study area was conducted to determine if there are any environmentally sensitive areas (ESAs), Species at Risk (SAR) or potential SAR habitat, Areas of Natural and Scientific Interest (ANSIs) or other natural areas that could potentially be affected as a result of the proposed works.

Consultation was completed with both the Ministry of Natural Resources and Forestry (MNRF) and the Municipality of Greater Sudbury, as well as with First Nations in the area, in order to receive information on the natural features of the area and understand their opinions/concerns regarding the proposed construction activities.

3.1 Background Data

A review of background documents provided information on study area characteristics, habitat, wildlife, rare species and communities, and general cultural/historic aspects of the proposed alignments. This included a review of the following:

- MNRF's NHIC Make-A-Map: Natural Heritage Areas application;
- Atlas of the Breeding Birds of Ontario (OBBA);
- Ontario Reptile and Amphibian Atlas;
- MNRF's Species at Risk Ontario list;
- Species at Risk Act Schedule 1;
- Air photos (Google, VuMap);
- Government of Canada's Species at Risk Public Registry; and
- Atlas of the Mammals of Ontario (Dobbyn 1994).

3.2 Species at Risk

Part of our assessment is to determine if habitat for any federally or provincially designated species have the potential to utilize the lands within the study areas.

The SAR screening included an initial analysis of the habitat requirements of species with potential to occur in the overall planning area relative to habitat available within and adjacent to the proposed alignments. The screening was based on air photo interpretation identification of potential habitat. For species known or that have the potential to occur within the Greater Sudbury area habitat requirements and designations (END, THR, or SC) are outlined in Table 1. Where it is determined that the species have potential habitat within the general area, preliminary mapping is created to determine if the proposed works can be carried out with a reasonable certainty that no impacts to the species or their habitat will be incurred as a result of the works.

3.3 Candidate Significant Wildlife Habitat

Candidate Significant Wildlife Habitat (SWH) was identified as outlined within the Significant Wildlife Habitat Technical Guideline Ecoregion 5E Criterion Schedule (MNRF, 2015). SWH functions are addressed below.

4.0 EXISTING CONDITIONS

4.1 Land Use

4.1.1 On-site Land Use

Frood Road

The existing pipeline currently runs from the Frood Road Town Border Station under Frood road. All areas are currently void of vegetation. Vegetation along this segment of pipeline was removed in 2015 in preparation of the 2016 pipeline works (Figure 2a).

South of Maley Drive

The existing pipeline currently runs through natural or semi-natural environment including open early successional disturbed land and forested habitat. It appears that the locals utilize the natural areas evidenced through the trails that run through the area, primarily within the open early successional lands (Figure 2b).

4.1.2 Adjacent Land Use

Frood Road

Adjacent land use is largely in its natural state. Union Gas pipeline replacement occurred in 2015 to a segment of pipeline to the east and west of the study area.

South of Maley Drive

Land uses in the general area include natural areas associated with Junction Creek, residential homes, mixed industrial uses including the Hydro One Martindale

Transformer Station and associated Hydro corridors. Canadian National Railway (CNR) has a right-of-way to the east of the existing pipeline.

4.2 Climatology

In Sudbury the mean annual temperature is 4°C, the mean annual daily maximum and minimum is 9°C, and -1°C respectively. The annual frost-free period averages 136 days; the last frost usually occurs around the middle of May and the first frost in early October. The mean annual precipitation is 903 mm; of which 676 millimetres falls as rain, and 263 centimetres as snow. The January average daily minimum and maximum temperatures are -18°C and -8°C respectively, and the July average daily minimum and maximum temperatures are 13°C and 25°C respectively (Environment Canada, 2015).

4.3 Geology

The rock of the area lies within the Southern Province of the Canadian Shield, which is nearby the Sudbury Basin and Sudbury Igneous Complex (SIC) to the north. The Sudbury area is known for having one of the world's largest Ni-Cu-PGE magmatic sulphide deposits. Other significant byproducts of the area include cobalt, platinum, palladium, gold, silver, and iridium (Pearson & Pitblado, 1995).

4.4 Landscape Features

The Sudbury area was shaped by the Laurentide ice sheet more than 12,000 years ago. Along with several previous ice advances, the land was stripped of soil and overburden, which gouged the landscape, deepened existing rock basins, and exposed bare bedrock. The landscape can generally be described as being dominated by rocky hills and ridges, with numerous lakes and rivers throughout the area. Surficial soils are typically well drained, consisting of stoney sandy soils. Vegetation in the Sudbury area ranges from white pine-dominated forest stands further north, to mixed and deciduous stands in the south (Greater Sudbury Natural Heritage Report, 2013; Pearson & Pitblado, 1995).

4.5 Forest and Vegetation Features

Frood Road

There are no Provincially Significant Wetlands PSWs or ANSIs on or within 120m of thestudy area according to provincial mapping. A small non-provincially significant wetland feature has been identified to the east of the study area by MNRF (Appendix B).

The land within the proposed pipeline section is currently void of any vegetation as the work area was cleared in 2015.

South of Maley Drive

There are no PSWs or ANSIs on or within 120m of the study area according to provincial mapping. A small non-provincially significant wetland feature has been identified to the west of the study area by MNRF (Appendix B).

The land within the proposed pipeline section is classified as Developed Land according to Figure 2 – Vegetation Cover Types (City of Greater Sudbury, 2009). However, aerial photos indicate that the study area is composed of cultural vegetation communities (i.e., meadow) and forested lands. These lands are surrounded by urban development. Tree and other vegetation species within the study area appear to be largely deciduous with conifers intermixed. Tree species present in the proposed construction area appear to be those typically found in the Canadian Shield. These include, but are not limited to, Red Maple and American Beech within upland areas, Balsam Fir, White Pine, with Red Oak and Paper Birch dominating successional forests. There appears to be no designated significant woodlands or vegetation features within the existing easement and proposed work areas. All expected vegetative species present are commonly found in Northern Ontario.

4.6 Wildlife

Mammals present within forests in the Sudbury area include Whilte-tailed Deer, Moose, Black Bear, Raccoon and Skunk among others (Greater Sudbury Natural Heritage Report, 2013). Species likely present in proximity to the proposed pipeline replacement and associated work areas are likely more urban adept or 'edge' species (i.e. Raccoon) given its location relative to the residential and industrial areas within the City of Sudbury. Urban adept and edge species are typically more tolerant to noise and light pollution and require smaller natural areas to thrive. None of the abovementioned species are of federal or provincial conservation concern. Northern Myotis (END) is a SAR that have been documented within the City of Greater Sudbury and are known to occur within Northern Ontario. This species will be further discussed below.

The study areas do not appear to provide an abundance of potentially suitable habitat for amphibians due to the lack of wetland features. None of the known amphibian species documented within the area as per the Greater Sudbury Natural Heritage Report (2013) are of federal or provincial conservation concern.

As indicated above, there are no wetlands within the study areas. Potential turtle habitat is limited to incidental occurrences or potentially suitable nesting habitat within open sandy/gravel substrate that may be associated with the road and/or parthways traversing through the study area.

Reptiles likely utilizing the general area are those that use open habitat, forest edge and forest habitat. Species known to occur within the Sudbury area include Eastern Gartersnake, Red-bellied Snake and Northern Ring-necked Snake among others (Greater Sudbury Natural Heritage Report, 2013). Milksnake has been documented within the Greater Sudbury area and is designated as SC in Ontario. Milksnake will be further discussed below.

The Ontario Breeding Bird Atlas (OBBA, 2009) was consulted to identify SAR bird species that could be utilizing the area for breeding purposes. Data for the atlas is presented in 100km^2 data squares, each with a unique identifier. The study area is located within the 17MN05 square. None of the species documented during the second atlas (2000 – 2005) were of federal or provincial conservation concern.

4.7 Species at Risk

There are no known SAR in the proposed construction areas based on available data. A Natural Heritage Report for the Greater Sudbury Area (2013) documented 20 known SAR within the Greater Sudbury Area. Table 1 lists these potential SAR, their associated habitat and indicates whether potentially suitable habitat exists within the study areas. While there is potential habitat for a few species within these pipeline locations, the probability of directly impacting their habitat is low because of the use of an existing pipeline trench, the use of Horizontal Directional Drilling (HDD) or the work area is currently void of vegetation.

MNRF Sudbury district was contacted to obtain any additional SAR information. MNRF has indicated that Whip-poor Will is known to occur to the north of the "south of Maley Drive" study area. Additionally, they indicated that the area to the west of Benita Boulevard (in proximity to South of Maley Drive study area) is deemed to be Category 3 habitat for Blanding's Turtle. There are no known SAR in proximity to Frood Road, although there is potential for Whip-poor-will (Appendix B).

Based on a review of background data, information from MNRF and review of aerial photography, the following species have potential to occur within the City of Greater Sudbury, specifically in proximity to the study areas and were thus considered in our assessment:

- Mammals: Northern Myotis (*Myotis septrentionalis*) [END];

- Reptiles and Amphibians: Blanding's Turtle (*Emydoidea blandingii*) [THR], Milksnake (*Lampropeltis triangulum*) [SC] and Snapping Turtle (*Chelydra serpentina*) [SC];
- Birds: Canada Warbler (*Cardellina canadensis*) [SC and THR*], Eastern Wood-pewee (*Contopus virens*) [SC], Golden-winged Warbler (*Vermivora chrysoptera*)[SC and THR*], Whip-poor-will (*Caprimulgus vociferus*) [THR and THR*] and Wood Thrush (*Hylocichla mustelina*) [SC and THR*]

*denotes federal SARA designation

4.8 Aquatic and Riparian Zones

Frood Road

There are no watercourses within or adjacent to the study area.

South of Maley Drive

A single watercourse, Junction Creek, traverses through the study area. Junction Creek is a small stream that flows southwest through the urban and industrial areas of Sudbury. It has a long history of environmental degradation but has been improving over recent years through improved policy and a consorted effort of various groups. The MNRF has indicated that it provides direct habitat for fish. It is classified as coldwater and is stocked with Brook Trout (Appendix B).

5.0 NATURAL HERITAGE FEATURES AND FUNCTIONS

The results of our review of background information indicate the potential for the following NHF and functions to be located on or adjacent to the study area:

- General or Regulated Habitat of Threatened or Endangered Species;
- Habitat of Threatened or Endangered Migratory Birds (SARA);
- Candidate Significant Wildlife Habitat; and
- Fish Habitat.

5.1 General or Regulated Habitat of Threatened and Endangered Species (ESA)

Potential habitat for Species listed as THR or END was identified within the general area. Our preliminary investigation has identified habitat potential as follows:

- Potential Habitat for Threatened Turtle Species – Blanding's Turtle
- Potential Habitat for Threatened Bird Species – Eastern Whip-poor-will
- Potential Habitat for Endangered Bat species – Northern Myotis

5.1.1 Blanding's Turtle – General Habitat

Blanding's Turtle currently has individual and general habitat protection. Blanding's Turtle is an aquatic turtle that occurs in a variety of wetland habitats. Largely a habitat generalist, the species is described as inhabiting 'lakes, permanent ponds, temporary ponds, slow flowing brooks, creeks, marshes, river sloughs, marshy meadows, man-made channels, farm fields, coastal areas, and the bays of Lake Erie' (COSEWIC, 2005). Key habitat also includes areas of fen, marsh, swamp, open areas of sand or fine gravel, and Rock Barren. Potential habitat areas for Blanding's Turtle including nesting habitat may exist within the study area along the gravel road Hydro right of way.

The General Habitat Description guidance document produced by the MNRF for the Blanding's Turtle describes habitat as follows:

- Category 1 habitat is considered to be a confirmed nesting or overwintering location and an area within 30 meters of that site.
- Category 2 habitat is the wetland complex that extends up to 2km from an occurrence, and the area within 30m around those suitable wetlands or water bodies.
- Category 3 habitat is considered to be an area between 30m and 250 m around suitable wetlands/waterbodies identified in Category 2, within 2km of an occurrence.

The MNRF has indicated that the area to the west of Benita Boulevard has been identified as Category 3 habitat. Category 3 habitat is considered to have a highest level of tolerance to alteration before their function is compromised.

5.1.2 Eastern Whip-poor-will – General Habitat

Eastern Whip-poor-will currently has individual and general habitat protection. The Whip-poor-will is a bird that lays its eggs directly on the ground and utilizes a mix of open and forested habitats such as open woodlands or openings in mature forests. Open areas are utilized for foraging and roosts in forested lands.

The General Habitat Description guidance document produced by the MNRF for the Eastern Whip-poor-will describes habitat as follows:

- Category 1 habitat is considered to be a confirmed nesting location and an area within 20m of the nest.
- Category 2 habitat is the area between 20m and 170m of the nest or centre of the approximated defended territory.

- Category 3 habitat is between 170m and 500m of the nest site or centre of the approximated defended territory. This area supports various life processes, primarily feeding.
-

MNRF has indicated that Whip-poor-will have been documented on Maley Drive which is evidence that they occur within the general area.

5.1.3 Threatened and Endangered Bat Species – General Habitat

Northern Myotis receives individual and General Habitat protection. At the time of submission, the MNRF has not provided direction for the interpretation of general habitat protection in the form of a General Habitat Description guidance document. For the purpose of the assessment of the subject study area, general habitat is limited to potential maternity roost habitat. It is our understanding that high quality maternity roost habitat would be associated with clusters of large diameter potential roost trees in early stages of decay with favourable characteristics including open canopy, and cavities greater than 10 m from the ground. Based on this description, potentially suitable maternity habitat for Northern Myotis could potentially be found within the forested community associated with Junction Creek.

5.2 Habitat of Threatened or Endangered Migratory Birds (SARA)

Potential habitat for bird species listed as THR or END federally was identified within the general area. Our preliminary investigation has identified habitat potential as follows:

- Potential Habitat for Canada Warbler, Golden-winged Warbler, Eastern Whip-poor-will and Wood Thrush (THR bird species according to SARA).

The general habitat requirements for these species are listed in Table 1. According to SARA, species that are also protected by the *Migratory Breeding Birds Convention Act*, are protected on all lands regardless of ownership.

5.3 Significant Wildlife Habitat

It is ultimately the responsibility of the Province and/or the Municipality to designate areas identified as potential Significant Wildlife Habitat as significant. Generally, areas which could be considered habitat of species listed as SC exist within or adjacent to the study areas. Species list as SC according to the ESA have the potential to reside within the general area, including the study area. These species are listed within Table 1.

5.4 Fish Habitat

Junction Creek provides fish habitat, as defined by the Federal *Fisheries Act*. The *Fisheries Act* requires that projects avoid causing serious harm to fish unless authorized by the Minister of Fisheries and Oceans Canada (DFO).

6.0 PROPOSED WORKS

Frood Road

The project involves the replacement of approximately 150m of existing NPS 10 inch pipeline with an NPS 12 inch pipeline. The proposed NPS 12 replacement pipeline will be placed within the existing easement.

South of Maley Drive

The project involves the replacement of approximately 700 m of existing NPS 10 inch pipeline with an NPS 12 inch pipeline. The proposed NPS 12 replacement pipeline will be placed within or adjacent to the existing easement. Temporary work areas located adjacent to the easement will be required for machinery access and as work areas.

7.0 IMPACT ASSESSMENT

Frood Rood

The proposed construction works associated with the 2016 Sudbury Pipeline Replacement Project should not have any significant impacts on surrounding natural heritage features or wildlife. The use of an existing trench/easement to install the pipeline through a portion of the study area will not increase the footprint of the pipeline on the landscape. Vegetation clearing for this segment occurred in 2015; therefore, there will be no additional requirement for clearing within this segment of pipeline.

South of Maley Drive

The proposed construction works associated with the 2016 Sudbury Pipeline Replacement Project should not have any significant impacts on surrounding natural heritage features or wildlife. The use of an existing trench/easement to install the pipeline through a portion of the study area will not increase the footprint of the pipeline on the landscape. The remainder of the pipeline will be installed through Horizontal Directional Drilling (HDD) thus further minimizing impacts.

7.1 Habitat for Endangered & Threatened Species (ESA)

Impacts with regards to the ESA and habitat of THR or END species are covered under Section 9 and 10 of the ESA. Section 9 deals directly with killing, harming, or harassing living members of a species while Section 10 covers destruction or damage to habitat of

threatened or endangered species. As indicated in the prior sections of this report, potential habitat for species listed as THR or END has been identified in the general areas of the proposed alignments.

7.1.1 Blanding's Turtle

Frood Road

There are no mapped wetlands present within the study areas. The lands located to the east of Frood Road are mapped as wetland according to MNRF. Blanding's Turtles are documented with the Greater Sudbury Area and the wetland present to the east of the study area may provide suitable habitat for the species. Additionally, turtles, in general, may utilize of open sandy/gravel roadside. There is no expectation that potential Blanding's Turtles or their associated habitat will be impacted as a result of the proposed pipeline replacement if proper mitigation measures are adhered to. Recommendations for mitigation are highlighted below.

South of Maley Drive

There are no mapped wetlands present within the study area. The lands located to the west of Benita Boulevard have been deemed to be Category 3 lands according to MNRF. Category 3 lands have the highest tolerance to alteration as these lands may be utilized as movement corridors between nests and their wetland habitat. Based on this information and the lack of mapped wetlands and/or semi-permanent aquatic habitat (i.e. ponds), occurrences of Blanding's Turtles within the study area may be incidental. Utilization of open sandy/gravel areas for nesting is possible. There is no expectation that potential Blanding's Turtles or their associated habitat will be impacted as a result of the proposed pipeline replacement if proper mitigation measures are adhered to. Recommendations for mitigation are highlighted below.

7.1.2 Eastern Whip-poor-will

Frood Road

Vegetation removal occurred in 2015; therefore, there is no potentially suitable habitat for the species within the study area.

South of Maley Drive

Potential Eastern Whip-poor-will habitat is associated with the semi-open treed areas within the study area. Vegetation removal will be limited to that required to facilitate the replacement of the pipeline. There is no expectation that potential Eastern Whip-poor-will or their associated habitat will be impacted as a result of the proposed pipeline replacement if property mitigation measures are adhered to. Recommendations for mitigation are highlighted below.

7.1.3 Northern Myotis

Frood Road

Vegetation removal occurred in 2015; therefore, there is no potentially suitable habitat for the species within the study area.

South of Maley Drive

Ontario's ESA affords Northern Myotis individual and habitat protection as Endangered species. If present locally, a maternity colony could potentially utilize habitat within the forested lands (in proximity to Junction Creek) of the study area outside of the winter season (i.e., the cavity trees do not provide winter denning habitat and bats are inactive during winter). Bats do not show fidelity to a particular cavity tree during the maternity season or among years. Within a maternity season, bats frequently move pups among cavity trees. Between seasons, cavity trees – as large/old and decrepit individuals (hence the cavities) -are subject to natural tree fall and hence at the outset of each maternity season, bats must select among standing trees that persist from one year to the next (i.e., a given cavity tree is not consistently or predictably "habitat" from one year to the next). Therefore, as long as potential cavity trees within the study area are cut outside the maternity season (i.e., late May through mid to late August), there will be no harm to individual bats or bat habitat consistent with Ontario's ESA.

It is our understanding that tree removal to facilitate works in proximity to the forested lands will be minimal as HDD technology will be utilized to install the new section of pipeline that runs under the forested lands. A new easement will be created for the new pipeline and the old decommissioned pipeline will be abandoned (according to TSSA standard) and left in place. Tree removal within this area will be limited to those trees required for removal in order to establish a work area for machinery. In proximity to the forested lands, the work areas will be established in proximity to the north side of residential lots and the Hydro Electric Power Commission of Ontario (H.E.P.C.) Easement which is limited to a scattering of small diameter trees (i.e. poplar saplings) and shrubs. Therefore, there is no expectation that any larger diameter trees within the forested community will be removed therefore eliminating potential impacts to potential bat roosting habitat.

7.2 Habitat of Threatened or Endangered Migratory Birds (SARA)

Frood Road

Vegetation removal occurred in 2015; therefore, there is no potentially suitable habitat for the species within the study area.

South of Maley Drive
Potential Canada Warbler, Golden-winged Warbler, Eastern Whip-poor-will and Wood Thrush habitat habitat is associated with the forested and semi-open treed areas within the study area. Vegetation removal will be limited to that required to facilitate the replacement of the pipeline. There is no expectation that the above species or their associated habitat will be impacted as a result of the proposed pipeline replacement if property mitigation measures are adhered to. Recommendations for mitigation are highlighted below.

7.3 Candidate Significant Wildlife Habitat

Table 1 highlights SAR that have the potential to reside within and adjacent to the study areas. This includes several species that are designated as SC. There should be no impacts to these species provided the mitigation measures described below for birds and turtles are adhered to.

7.4 Fish Habitat

Frood Road
There are no watercourses within the study area.

South of Maley Drive
Junction Creek provides direct fish habitat. Potential impacts to this watercourse are limited to temporary disturbance associated with construction. As indicated above, HDD technology will be employed for the installation of the new pipeline in proximity to the watercourse. This alternative crossing methods with the associated sediment control and restoration measures have all been reviewed and endorsed by the MNRF, DFO and conservation authorities as acceptable construction methods.

A permit must be obtained from the Nickel District Conservation Authority according to Regulation 156/06 within all regulated areas and will be required prior to crossing any watercourse.

8.0 RECOMMENDATIONS

To help minimize any potential for impact to NHFs during construction, the following mitigation measures should be followed within each of the study areas, where applicable.

8.1 General

Mitigation and restoration measures will be completed in accordance with established procedures as outlined in the Ontario Energy Board, *Environmental Guidelines For*

Locating, Constructing and Operating Hydrocarbon Pipelines in Ontario, 2011, Sixth Edition. Union Gas has developed operating and construction practices, in consultation with the approval agencies (e.g., DFO, MNRF, Ministry of the Environment & Climate Change, Conservation Authorities) that effectively mitigate and restore disturbances to the affected lands during construction. Union Gas construction procedures detailing the standard methods of construction on watercourse crossings, topsoil conservation, grading, trenching, and cleanup will be applied to the construction and restoration phases of the project. These procedures will be adhered to during construction unless modified in specific conditions to minimize any environmental impacts, in consultation with the environmental inspector and notification of the property owner.

The following summarizes information from Unions' construction practices and regulatory agencies regarding mitigation and restoration measures.

8.1.1 Backfilling

Backfill material shall be of good quality and approved by Union Gas. Roads and driveways shall be backfilled to design specifications. Topsoil shall be returned to areas from which it was removed in a satisfactory condition.

8.1.2 Trees

All cutting and removal of trees shall be carried out in accordance with company specifications. The number of trees removed shall be kept to a minimum.

8.1.3 Vegetation Removal

Construction activities involving the removal of vegetation should be restricted from occurring during the bird breeding and bat maternity roosting seasons. Migratory birds, nests, and eggs are protected by the *Migratory Birds Convention Act*, and the *Fish and Wildlife Conservation Act*. Environment Canada outlines dates when activities in any region have potential to impact nests at the Environment Canada Website (http://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=4F39A78F-1#_03).

In Zones C3 vegetation clearing should be avoided between April 1st through August 30th of any given year. If work requires that vegetation clearing is required between these dates, screening by an ecologist with knowledge of bird species present in the area could be undertaken to ensure that the vegetation has been confirmed to be free of nests prior to clearing.

Vegetation clearing should occur outside the bat maternity season (i.e., late May through mid to late August), there will be no harm to individual bats or bat habitat.

Vegetation including trees and shrubs should be protected, especially when requested by landowners. Suitable measures, such as protection of tree roots within the drip line, pruning any damaged branches or roots, protection of trees with earth, gravel fill or fencing, transplanting of vegetation and boring under specimen trees should be used.

8.2 Habitat for Threatened and Endangered Species (ESA)

Currently, the habitat of species designated as SC is not protected. However, these species habitat overlap habitat for potential THR and END species that may occur within the area. General mitigation as it pertains to SAR is highlighted below:

- Pre-construction meeting on site with wildlife biologist/ecologist knowledgeable about SAR to inform everyone on site (inspectors, contractors etc.) are aware of potential SAR within the area.
- Distribution of pamphlets to all on site workers to raise awareness of potential SAR.
- On-site contractors keep a log of SAR sightings along the pipeline route and on adjacent lands. The District MNRF should be contacted to report any SAR sightings within the work area.
- If any SAR were identified within the area, work would be required to stop until the SAR left the area.

8.2.1 Blanding's Turtle

Exclusionary fencing should be erected around any work area that contains potential turtle nesting habitat (i.e. open sand/gravel areas). Fencing should be installed prior to the turtle activity season (May 1 – September 30).

8.2.2 Eastern Whip-poor-will

As per Section 8.1.3, all vegetation should be removed outside of the breeding bird 'window'. Similar to other bird species, Whip-poor-will are active/nesting season extends from April 1 – August 30. Alternatively, evening Whip-poor-will surveys can be conducted as per MNRF accepted protocol to determine if the species is present.

8.2.3 Northern Myotis

To protect bat species, vegetation removal should be restricted so that it generally aligns with restrictions / timing windows associated with vegetation removal for Migratory Breeding Birds. Construction activities involving the removal of vegetation, specifically large diameter trees containing snags within the forested community (i.e. does not include trees situated in proximity to residential homes), should be restricted from occurring

between May 1 to the end of August. This will ensure that no bats actively roosting in trees will be killed or harmed as a result of clearing activities.

8.3 Habitat for Threatened or Endangered Migratory Birds (SARA)

As per Section 8.1.3, all vegetation should be removed outside of the breeding bird 'window'. If work requires that vegetation clearing is required between these dates, screening by an ecologist with knowledge of bird species present in the area could be undertaken to ensure that the vegetation has been confirmed to be free of nests prior to clearing. However, we would not recommend nest surveys for the ground nesting Whip-poor-will. If required, Whip-poor-will surveys can be conducted as per MNRF accepted protocol to determine if the species is present.

8.4 Candidate Significant Wildlife Habitat

On-site contractors should be aware of SC species, particularly the Eastern Milksnake and Snapping Turtle, which could be present within the general area. General mitigation measures should be adhered to as per those outlined in Section 8.2 above. Again, adherence to the Migratory Breeding Bird timing window will avoid disturbance to the SC bird species during their active nesting season.

8.5 Fish Habitat and Sediment and Erosion Control

HDD techniques will be employed to cross Junction Creek. There is no in water work proposed.

Diligent application of sediment and erosion controls (e.g., erosion and sediment control fencing) is recommended during construction work in proximity to the Junction Creek. This should alleviate the risk of sediment runoff into adjacent water feature.

9.0 CONCLUSIONS

The results of our assessment indicate that potential habitat for SAR, Candidate Significant Wildlife Habitat and fish habitat are present within the study area. There is no expectation that the features or functions presented in this report will be impacted negatively by the proposed pipeline replacement works assuming recommended mitigation measures are followed.

Wildlife in the area will continue to utilize the naturalized communities of proposed alignments and adjacent lands where the pipeline replacement/installations are proposed. Given the nature of the development and the use of existing easements and HDD techniques for a portion of the replacement, the natural character of the area will be

maintained post development. Implementation of standard mitigation and restoration measures will effectively minimize the potential environmental impacts.

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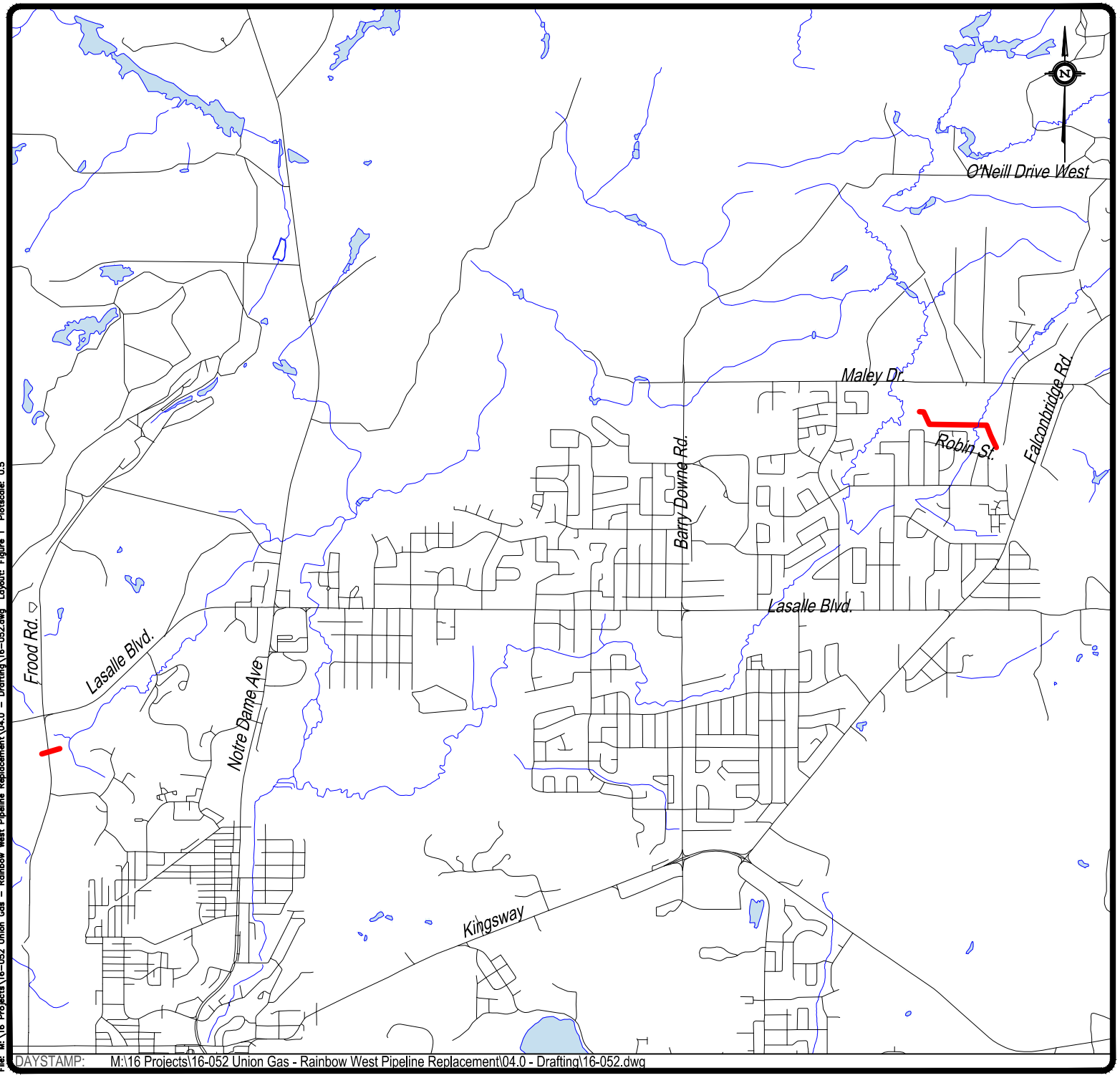

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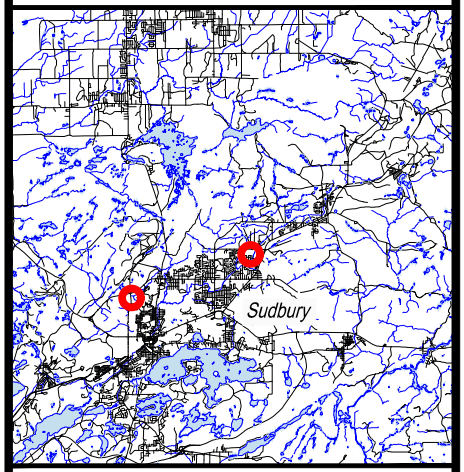
NPS 12 Inch Pipeline Location



REG MAP

600m 0 1200m

HORIZONTAL SCALE 1: 40,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Study Area Location

Rainbow West Pipeline Replacement
Union Gas Ltd. - Sudbury, ON

DATE ISSUED:	February 2016
CREATED BY:	JLM
PROJECT NO.:	16-052
REFERENCE:	LIO

Figure No.

1

DAYSTAMP: M:\16 Projects\16-052 Union Gas - Rainbow West Pipeline Replacement\04.0 - Drafting\16-052.dwg

Plotted by: JMCCARTNEY on February 26, 2016 at 1:25pm
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LEGEND:

- NPS 12 Inch Pipeline Location
- Watercourse (LIO)
- Road Segments (LIO)

25m 0 75m

HORIZONTAL SCALE 1:2,500

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Proposed Pipeline Replacement Location

Rainbow West Pipeline Replacement
Union Gas Ltd. - Sudbury, ON

DATE ISSUED:	February 2016	Figure No. 2a
CREATED BY:	JLM	
PROJECT NO.:	16-052	
REFERENCE:	First Base Solutions	

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Plotted by: JMCCARTNEY on February 26, 2016 at 1:22pm
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LEGEND:

- NPS 12 Inch Pipeline Location
- Watercourse (LIO)
- Road Segments (LIO)

25m 0 75m

HORIZONTAL SCALE 1:2,500

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Proposed Pipeline Replacement Location

Rainbow West Pipeline Replacement
Union Gas Ltd. - Sudbury, ON

DATE ISSUED:	February 2016	Figure No.
CREATED BY:	JLM	
PROJECT NO.:	16-052	
REFERENCE:	First Base Solutions	

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Table1: Species at Risk Habitat Summary

Common Name	Species Name	MNR	SARA	Key Habitats Used By Species[1]	Initial Assessment (Frood Road)	Initial Assessment (South of Maley Drive)
Bald Eagle	*Haliaeetus leucocephalus*	SC	NAR	Nests in a variety of habitats and forest types Winter perching areas around winter feeding areas ESA Protection: N/A	Require large continuous area of deciduous or mixed woods around large lakes and rivers. Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.	Require large continuous area of deciduous or mixed woods around large lakes and rivers. Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.
Barn Swallow	*Hirundo rustica*	THR	THR	Ledges and walls of man-made structures such as buildings, barns, boathouses Cliffs or caves ESA Protection: Species and general habitat protection	Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.	Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.
Black Tern	*Chlidonias niger*	SC	NAR	Colonial nesters typically within cattail marshes and other shallow marsh types. Floating nests. ESA Protection: N/A	Build floating nests in loose colonies in shallow marshes, especially in cattails. Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.	Build floating nests in loose colonies in shallow marshes, especially in cattails. Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.
Blanding's Turtle	***Enydoidea blandingii***	**THR**	**THR**	**Blanding's Turtles are a primarily aquatic species that prefer wetland habitats, lakes, ponds, slow-moving streams, etc., however they may utilize upland areas to search for suitable basking and nesting sites. In general, preferred wetland sites are eutrophic and characterized by shallow water, organic substrates, and a high density of aquatic vegetation (COSEWIC, 2005).** **ESA Protection: Species and regulated habitat protection**	**Potential exists for this species to be present adjacent to the study area. Lands to the east of the study area is composed of wetland.**	**Potential exists for this species to be present on or adjacent to the study area. Lands to the west of the study area have been identified as Cetegory 3 lands. Although there is no wetland mapped within the study area, the natural areas, including Junction Creek could act as a movement corridor. Any sand/gravel road or pathways have the potential to act as nesting substrate for the species.**
Bobolink	*Dolichonyx oryzivorus*	THR	Not Listed	Large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; requires tracts of grassland >4ha (MNRF, 2000) ESA Protection: Species and general habitat protection	Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.	Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.
Canada Warbler	***Wilsonia canadensis***	**SC**	**THR**	**Wet, mixed deciduous-coniferous forests with a well developed shrub layer. Shrub marshes, red-maple stands, cedar stands, black spruce swamps, larch and riparian woodlands along rivers and lakes. (COSEWIC, 2008)** **ESA Protection: N/A**	**Potential exists for this species to be present djacent to the study area.**	**Potential exists for this species to be present on or adjacent to the study area.**
Cerulean Warbler	*Dendroica cerulea*	END	SC	Forests; generally those with large mature deciduous trees and an open understory. ESA Protection: Species and general habitat protection	Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.	Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.
Chimney Swift	*Chaetura pelagica*	THR	THR	Nests primarily in chimneys though some populations (i.e. in rural areas) may nest in cavity trees (Cadman 2007). Recent changes in chimney design and covering of openings to prevent wildlife access may be a significant factor in recent declines in numbers (Adams and Lindsey 2010). ESA Protection: Species and general habitat protection	Species not expected to be present within the study area itself as there are no structures present. Habitat is not representative of key habitat. Chimney Swift may occur in the general area since it is located within an urban setting.	Species not expected to be present within the study area itself as there are no structures present. Habitat is not representative of key habitat. Chimney Swift may occur in the general area since it is located within an urban setting.
Common Nighthawk	*Chordeiles minor*	SC	THR	Open habitats including sand dunes, beaches recently logged/burned over areas, forest clearings, short grass prairies, pastures, open forests, bogs, marshes, lakeshores, gravel roads, mine tailings, quarries, and other open relatively clear areas. (COSEWIC, 2007) ESA Protection: N/A	Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.	Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.
Eastern Meadowlark	*Sturnella magna*	THR	Not Listed	Open, grassy meadows, farmland, pastures, hayfields or grasslands with elevated singing perches; cultivated land and weedy areas with trees. Old orchards with adjacent, open grassy areas >4 ha in size (MNRF, 2000) ESA Protection: Species and general habitat protection	Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.	Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.
Eastern Wood-pewee	***Contopus virens***	**SC**	**SC**	**Typically associated with deciduous and mixed forests with little understory vegetation; Often found in clearings or on edges of deciduous and mixed forests (MNRF, 2015).** **ESA Protection: N/A**	**Potential exists for this species to be present adjacent to the study area.**	**Potential exists for this species to be present on or adjacent to the study area.**
Golden-winged Warbler	***Vermivora chrysoptera***	**SC**	**THR**	**Areas of early successional scrub surrounded by Mature Forests including dry uplands, swamp forests, and marshes (COSEWIC, 2006#).** **ESA Protection: N/A**	**Potential exists for this species to be present adjacent to the study area.**	**Potential exists for this species to be present on or adjacen to the study area.**
Eastern Milksnake	***Lampropeltis triangulum***	**SC**	**SC**	**Eastern Milksnake commonly utilizes a wide variety of habitats. In the COSEWIC Assessment and Status report dated 2002, Milksnake is described as a species which uses everything from rock outcrops to natural meadows and agricultural hayrfields. Milksnake is also commonly identified within a broad diversity of forest types. The COSEWIC Report concludes the habitat section with the statement "It is apparent that the Eastern Milksnake can live in almost any habitat that provides shelter and a source of food" (COSEWIC, 2002b).** **ESA Protection: N/A**	**Potential exists for this species to be present adjacent to the study area.**	**Potential exists for this species to be present on or adjacen to the study area.**

Table1: Species at Risk Habitat Summary

Common Name	Species Name	MNR	SARA	Key Habitats Used By Species[1]	Initial Assessment (Frood Road)	Initial Assessment (South of Maley Drive)
Eastern Wolf	*Canis lupus lycaon*	SC	SC	The Eastern Wolf lives in forests – deciduous and mixed forests in the southern part of their range, and mixed and coniferous forests further north. Wolf packs require relatively large areas of unbroken forest, with home ranges as large as 500 square kilometres (MNRF, 2015)	Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.	Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.
Monarch Butterfly	*Danaus plexippus*	SC	SC	Caterpillars - Milkweed in meadows and open areas Adults - Meadows and diverse habitats with a variety of wildflowers (MNRF, 2015) ESA Protection: N/A	Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.	Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.
Northern Long-eared Bat	***Myotis septentrionalis***	**END**	**END**	**Maternity roost sites are generally located within deciduous and mixed forests and focused in snags including loose bark and cavities of trees. Overwintering sites are characteristically mines or caves.** **ESA Protection: Species and general habitat protection**	**Potential exists for this species to be present adjacent to the study area.**	**Potential exists for this species to be present on or adjacen to the study area. Potentially suitable habitat would be restricted to snags/loose bark within larger diameter trees within the forest community associated with Junction Creek.**
Olive-sided Flycatcher	*Contopus cooperi*	SC	THR	Natural forest openings, forest edges near natural openings (such as wetlands) or open to semi-open forest stands. Occasionally human made openings (such as clear cuts). Presence of tall snags and residual live trees is essential. (COSEWIC, 2007 and MNRF, 2015)) ESA Protection: N/A	Potentially suitable habitat is present adjacent to the study area.	Species has a preference for coniferous forests. Species not expected to be present on or adjacne to the study area. Habitat is not representative of key habitat.
Peregrine Falcon	*Falco peregrinus*	THR	SC	Peregrine Falcons nest on tall, steep cliff ledges close to large bodies of water. Urban falcons raise their young on ledges of tall buildings. ESA Protection: Species and regulated habitat protection	Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.	Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.
Short Eared Owl	*Asio flammeus*	SC	SC	Short-eared Owl prefer large, dense, well-drained grasslands (such as tallgrass prairie) for breeding and nesting, preferably in proximity to large, coastal wetland units (COSEWIC, 2008b). Often Nest on the ground. ESA Protection: N/A	Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.	Species not expected to be present on or adjacent to the study area. Habitat is not representative of key habitat.
Snapping Turtle	***Chelydra serpentina***	**SC**	**SC**	**Snapping Turtle utilize a wide variety of aquatic habitat, but prefer shallow waters with abundant leaf litter. Femals travel overland during the nesting season in search of suitable nesting sites such as gravel shoulders of roadways, dams, and aggregate pite (MNRF, 2015).** **ESA Protection: N/A**	**Potential exists for this species to be present adjacent to the study area. Any sand/gravel road have the potential to act as nesting substrate for the species.**	**Potential exists for this species to be present on or adjacent to the study area. Although there is no wetland mapped within the study area, the natural areas, including Junction Creek could act as a movement corridor. Any sand/gravel road or pathways have the potential to act as nesting substrate for the species.**
Whip-Poor-Will	***Caprimulgus vociferus***	**THR**	**THR**	**Whip-poor-will prefer areas with a mix of open and forested habitat, open woodlands, or openings in mature forests (MNRF, 2015).** **ESA Protection: Species and general habitat protection**	**No suitable habitat within the study area. Potentially suitable habitat present within the general area.**	**Whip-poor-will have been documented within the general area. Based on this information, it has the potential to inhabit any of the open habitats located in proximity to treed lands.**
Wood Thrush	***Hylocichla mustelina***	**SC**	**THR**	**Typically associated with moist mature deciduous and mixed forests with a well developed understory.** **ESA Protection: N/A**	**Potential exists for this species to be present adjacent to the study area.**	**Potential exists for this species to be present on or adjacen to the study area.**

1. Habitat as outlined within the Species at Risk in MNR's Parry Sound District Excel file version 3, updated as of May 10, 2012, MNRF's Species at Risk in Ontario website files (https://www.ontario.ca/environment-and-energy/species-risk-ontario-list), or Species Specific COSEWIC Reports referenced in this document.

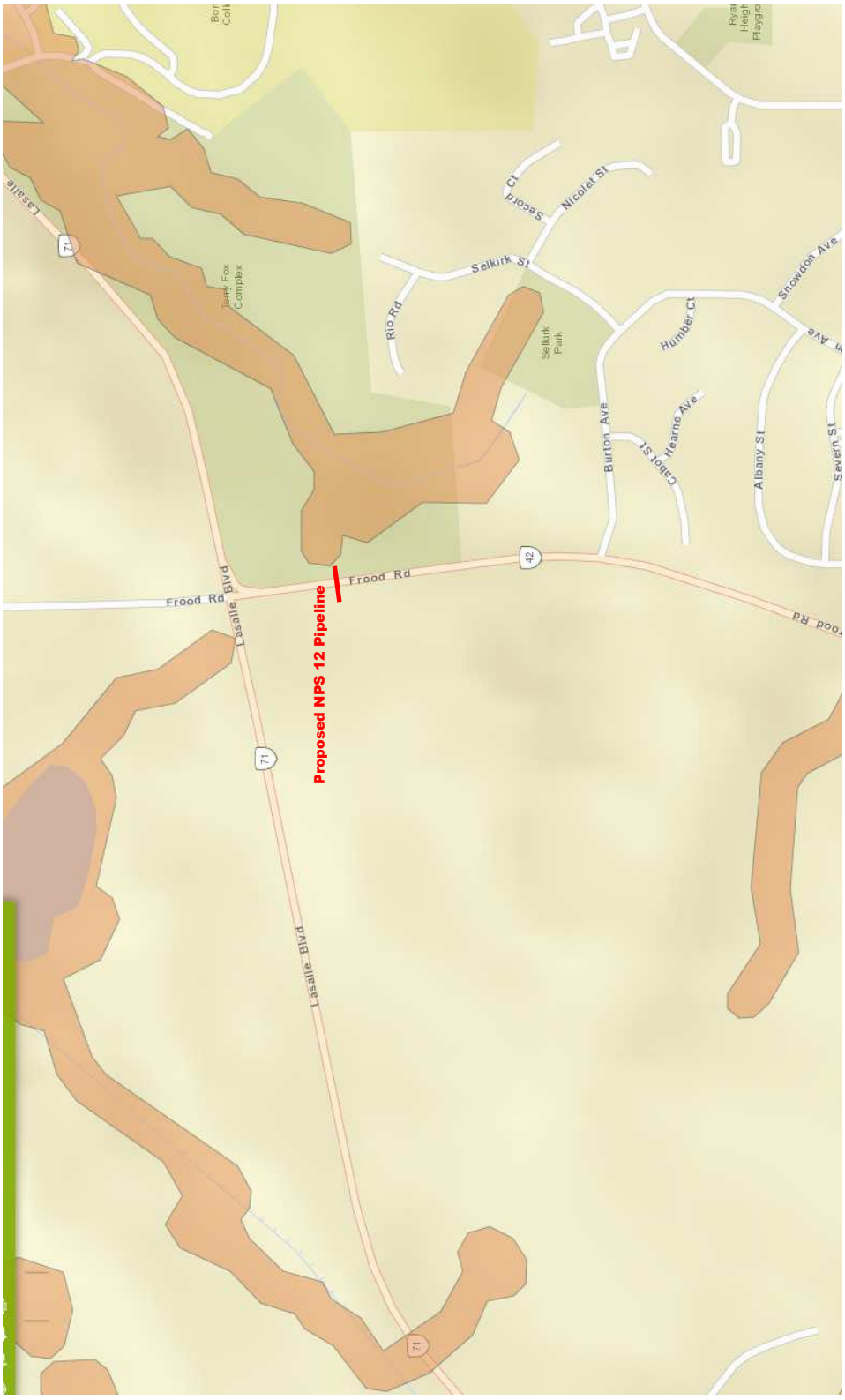
APPENDICES

Appendix A: Conservation Authority Information
Appendix B: Provincial Information

APPENDIX A

Conservation Authority Information

Nickel District Conservation Authority Regulated Lands: South of Maley Drive



Nickel District Conservation Authority Regulated Lands: Frood Road

APPENDIX B

Provincial Information

Ontario

Ministry of Natural Resources and Forestry

Make-a-Map: Natural Heritage Areas

Enter map title

Notes:
Enter map notes

Legend

- Assessment Parcel
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System
- Ecoregion

Wetland
- Provincially Significant Wetland Evaluated
- Non - Provincially Significant Wetland Evaluated
- Unevaluated Wetland

Area of Natural Heritage & Scientific Interest (ANSI)
- Provincially Significant Life Science ANSI
- Provincially Significant Earth Science ANSI

Greenbelt Plan
- Boundary
- River Valley Connections

Land Use Designations
- Protected Countryside
- Towns and Villages
- Hamlets
- Urban River Valley
- Specialty Crop Area

Niagara Escarpment Plan (NEP)
- Boundary
- Parks and Open Space System

Land Use Designations
- Escarpment Natural Area
- Escarpment Protection Area
- Escarpment Rural Area
- Mineral Resource Extraction Area
- Escarpment Recreation Area
- Urban Area
- Minor Urban Centre

Oak Ridges Moraine Conservation Plan (ORM)
- Boundary

Land Use Designations
- Natural Core Area
- Natural Linkage Area
- Countryside Area
- Rural Settlement
- Palgrave Estates Residential Community
- Settlement Area

0 0.2 km

Projection: Web Mercator

Ministry of Natural Resources and Forestry

Make-a-Map: Natural Heritage Areas

Enter map title

Notes:
Enter map notes

Legend

- Assessment Parcel
- Woodland
- Conservation Reserve
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- Ecoregion

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0 0.2 km

Projection: Web Mercator

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

January 27th, 2016 AEC 16-052

Ministry of Natural Resources and Forestry
Sudbury District Office
3767 Hwy 69 S, Suite 5
Sudbury, ON
P3G 1E7

Attention: Eric Cobb, District Planner

RE: **Background Information and Species at Risk Information Request**
Rainbow West Pipeline Replacement - Union Gas Limited

Dear Mr. Cobb:

Azimuth Environmental Consulting (Azimuth) has been retained by Union Gas Ltd. to prepare an Environmental Report for the above mentioned pipeline works (mapping attached). The purpose of this letter is to request additional information regarding Species at Risk and sensitive areas associated with the study area.

The pipeline replacement works include the replacement of approximately 700 m of existing NPS 10 inch pipeline with an NPS 12 inch pipeline in the City of Greater Sudbury (see attached photographs). The proposed construction work is part of an ongoing maintenance program that will ensure the continued safe operation of the Union Gas natural gas pipeline system. All pipeline replacement work is located in the Greater Sudbury area and will take place where existing pipelines already exist.

To date, a search of the Ontario Breeding Bird Atlas has been completed. Square 17MN05 was queried and it was determined that species such as Loggerhead Shrike, Golden Eagle, Bobolink, Eastern Meadowlark, Barn Swallow, Whip-poor-will, and Chimney Swift have been observed within the 100km^2 data square.

Azimuth would like to take this opportunity to confirm the findings of our background investigation and enquire if you hold any additional information with respect to natural heritage data for the study area including, but not limited to the following:

- Any known occurrences of Species at Risk within the study area
- Identified natural areas such as ESA's or any other sensitive natural heritage features.

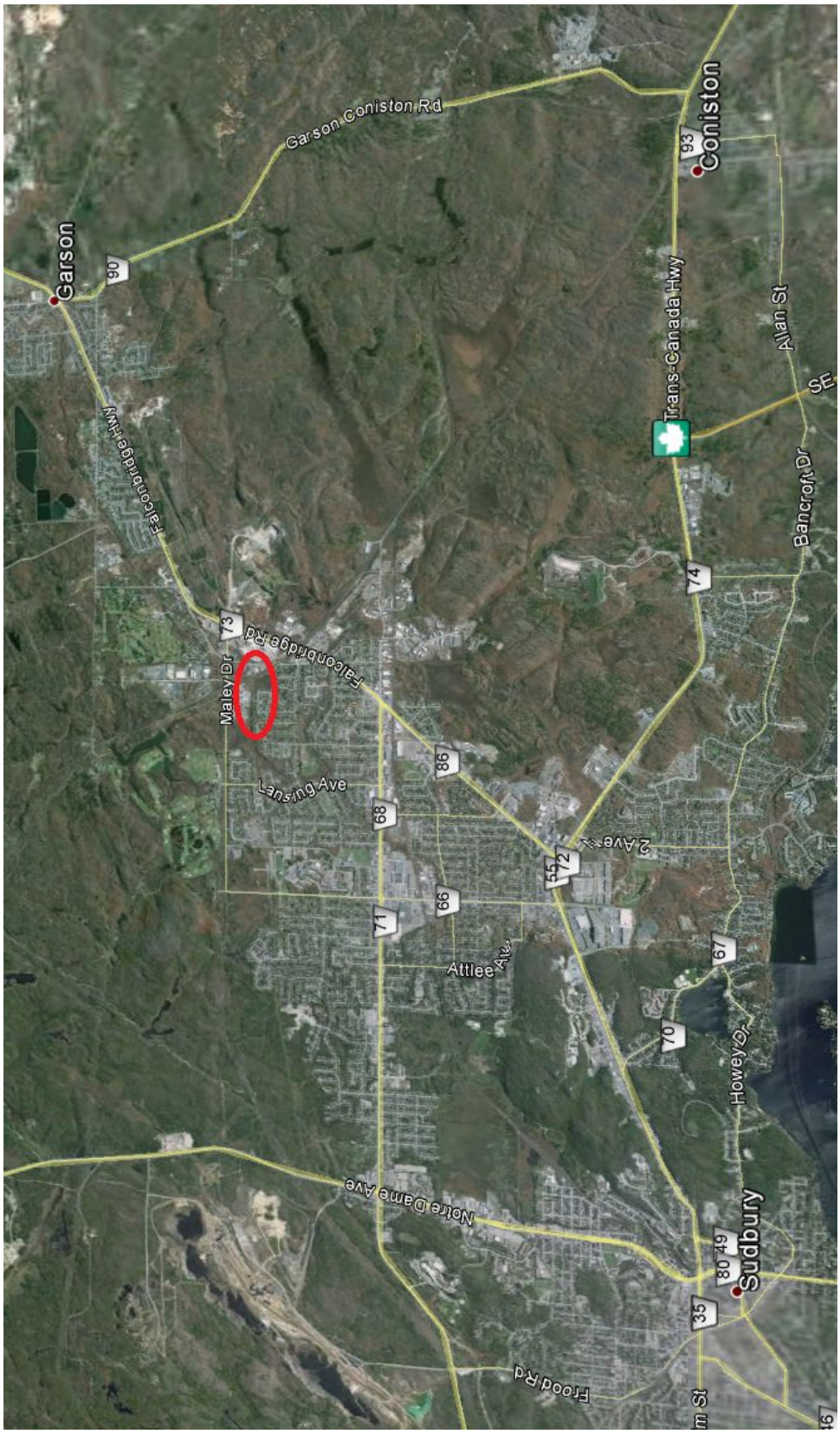
Additionally, Junction Creek flows through the study area. We request that MNRF complete the attached table to identify any available information on fish communities and aquatic habitat. The table includes a request for any historical fish community data, fish habitat sensitivity, aquatic Species at Risk (SAR), permanency, thermal regime, and MNRF fisheries timing restrictions that should be considered for this project.

Thank you very much for your assistance in this matter. If you have any questions regarding this project please do not hesitate to contact us.

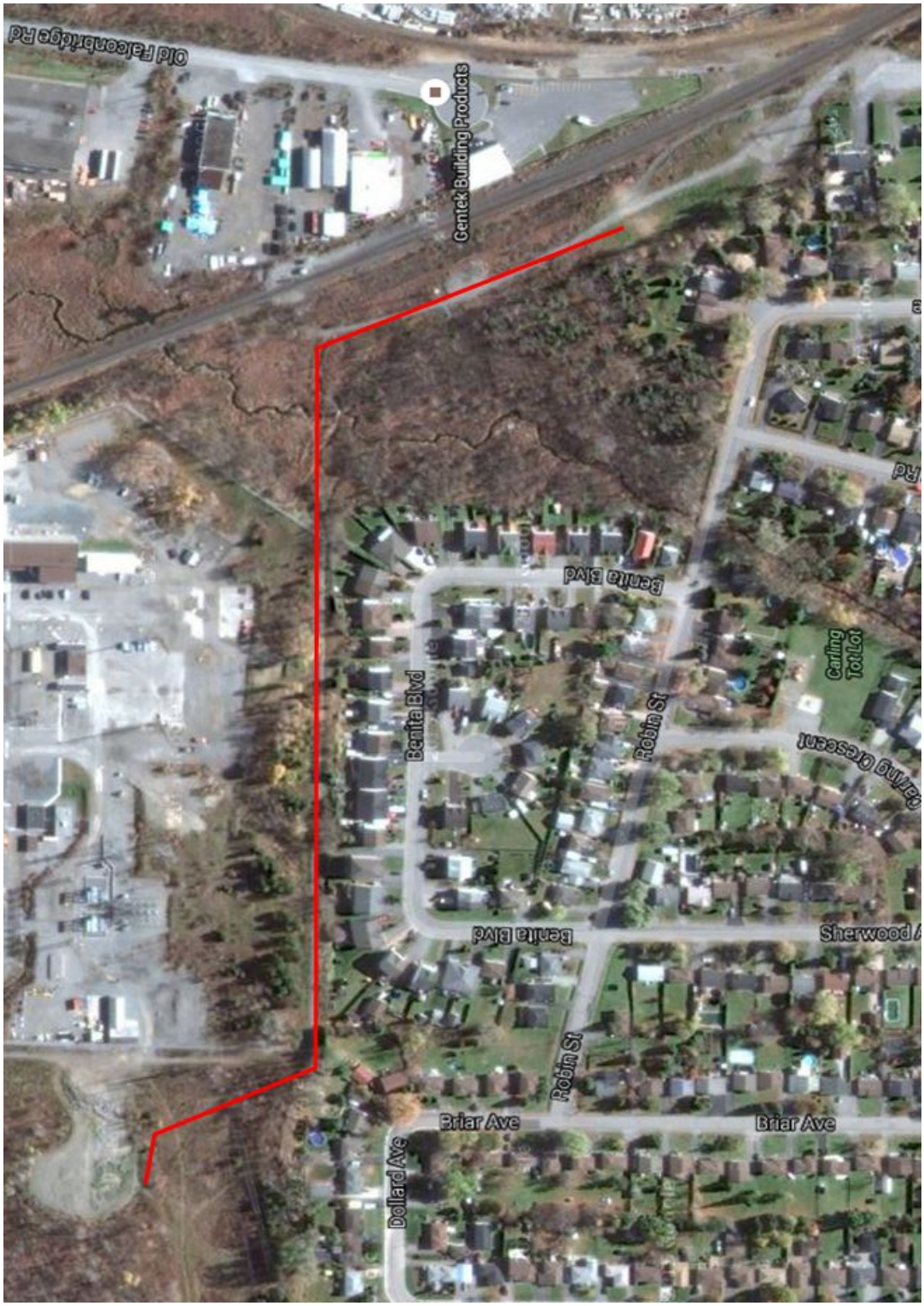
Yours truly,

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Roger Holmes, MSc.
Aquatic Ecologist



General Study Area (red circle)



Study Location (red line indicates proposed pipeline replacement location)

Lisa Moran

From: Cobb, Eric (MNRF) [eric.cobb@ontario.ca]
Sent: February-10-16 3:29 PM
To: Lisa Moran
Subject: FW: Request for background infomation
Attachments: Junction Creek Background Information Response.docx

Good Day Lisa:

I'm forwarding MNRF's response to you, as per Roger's instructions.

Cheers

Eric Cobb | District Planner | Ministry of Natural Resources and Forestry | Sudbury District | 3767 Highway 69 South, Suite 5, Sudbury, ON, P3G 1E7 | Tel: (705) 564-7876 | Fax: (705) 564-7879

From: Hall, Mike (MNRF)
Sent: February 10, 2016 2:59 PM
To: rholmes@azimuthenvironmental.com
Cc: Cobb, Eric (MNRF)
Subject: RE: Request for background infomation

Hi Roger,

As the Management Biologist for the Sudbury area Eric has passed your request on to me.

A review of the natural heritage information you have compiled is necessarily limited by the fact that there are no Crown lands associated with your area of interest; i.e. our knowledge is largely incidental rather than based on any first hand inventories or assessments. With that caveat, Whip-poor-will (threatened) have been documented on Maley Drive and the area west of Benita Boulevard is deemed to be Category 3 habitat for Blanding's turtle (threatened).

Available information regarding Junction Creek is attached.

Regards,

Mike

Mike Hall
Management Biologist
Sudbury District
(705) 564-7862
mike.hall@ontario.ca

From: Roger Holmes [mailto:rholmes@azimuthenvironmental.com]
Sent: January 27, 2016 4:34 PM
To: Cobb, Eric (MNRF)
Subject: Request for background infomation

Hello Eric,

Azimuth has been retained to complete an Environmental Report for the replacement of approximately 700 m of pipeline in Sudbury. Please see attached a request for background information for terrestrial, Species at Risk, and fisheries in the area.

If you have any questions, please feel free to give me a call.
Thanks,

Roger Holmes, M.Sc.,
Aquatic Ecologist

Please note, our office has moved:
Azimuth Environmental Consulting, Inc.
642 Welham Road
Barrie, ON, L4N 9A1
office: (705) 721-8451
fax: (705) 721-8926
cell: 705-795-7101
rholmes@azimuthenvironmental.com

www.azimuthenvironmental.com

Providing services in hydrogeology, terrestrial and aquatic ecology & environmental engineering

Lisa Moran

From: Cobb, Eric (MNRF) [eric.cobb@ontario.ca]
Sent: March-04-16 3:09 PM
To: Lisa Moran
Subject: FW: Request for background infomation

Hi Lisa:

Our biologist's response below.

Cheers

Eric Cobb | District Planner | Ministry of Natural Resources and Forestry | Sudbury District | 3767 Highway 69 South, Suite 5, Sudbury, ON, P3G 1E7 | Tel: (705) 564-7876 | Fax: (705) 564-7879

From: Hall, Mike (MNRF)
Sent: March 4, 2016 3:06 PM
To: Cobb, Eric (MNRF)
Subject: RE: Request for background infomation

HI Eric,

No known SAR occurrences related to location depicted as Section 2. There may be potential for Whip-poor-will.

Mike

From: Cobb, Eric (MNRF)
Sent: February-29-16 9:46 AM
To: Hall, Mike (MNRF)
Subject: FW: Request for background infomation

Hey Mike:

Let me know if you have any fish, wildlife or SAR concerns with this pipeline replacement.

Thanks

Eric Cobb | District Planner | Ministry of Natural Resources and Forestry | Sudbury District | 3767 Highway 69 South, Suite 5, Sudbury, ON, P3G 1E7 | Tel: (705) 564-7876 | Fax: (705) 564-7879

From: Lisa Moran [mailto:Lisa@Azimuthenvironmental.Com]
Sent: February 26, 2016 9:25 AM
To: Cobb, Eric (MNRF)
Subject: RE: Request for background infomation

Hi Eric,

There is one additional section of pipeline that will be replaced as a part of this endeavour that was not included within our original information request. This additional segment of pipeline to be replaced is approximately 150m in length. I have attached a figure to depict its location. Please advise if there are any additional SAR or background information that we should be aware of within the Frood Road Area.

Do not hesitate to contact me if you require additional details or to discuss.

Regards,

Lisa Moran
Terrestrial Ecologist

Please note, our office has moved:
Azimuth Environmental Consulting, Inc
642 Welham Road
Barrie, ON, L4N 9A1
ph: (705) 721-8451 ext 202
cell: (705) 794-0975
lisa@azimuthenvironmental.com
www.azimuthenvironmental.com

*Providing services in **hydrogeology**, **terrestrial** and **aquatic ecology** & **environmental engineering***

From: Cobb, Eric (MNRF) [mailto:eric.cobb@ontario.ca]
Sent: February-10-16 3:29 PM
To: Lisa Moran
Subject: FW: Request for background infomation

Good Day Lisa:

I'm forwarding MNRF's response to you, as per Roger's instructions.

Cheers

Eric Cobb ı District Planner ı Ministry of Natural Resources and Forestry ı Sudbury District ı 3767 Highway 69 South, Suite 5, Sudbury, ON, P3G 1E7 ı Tel: (705) 564-7876 ı Fax: (705) 564-7879

From: Hall, Mike (MNRF)
Sent: February 10, 2016 2:59 PM
To: rholmes@azimuthenvironmental.com
Cc: Cobb, Eric (MNRF)
Subject: RE: Request for background infomation

Hi Roger,

As the Management Biologist for the Sudbury area Eric has passed your request on to me.

A review of the natural heritage information you have compiled is necessarily limited by the fact that there are no Crown lands associated with your area of interest; i.e. our knowledge is largely incidental rather than based on any first hand inventories or assessments. With that caveat, Whip-poor-will (threatened) have been documented on Maley Drive and the area west of Benita Boulevard is deemed to be Category 3 habitat for Blanding's turtle (threatened).

Available information regarding Junction Creek is attached.

Regards,

Mike

Mike Hall
Management Biologist
Sudbury District
(705) 564-7862
mike.hall@ontario.ca

From: Roger Holmes [mailto:rholmes@azimuthenvironmental.com]
Sent: January 27, 2016 4:34 PM
To: Cobb, Eric (MNRF)
Subject: Request for background infomation

Hello Eric,

Azimuth has been retained to complete an Environmental Report for the replacement of approximately 700 m of pipeline in Sudbury. Please see attached a request for background information for terrestrial, Species at Risk, and fisheries in the area.

If you have any questions, please feel free to give me a call.
Thanks,

Roger Holmes, M.Sc.,
Aquatic Ecologist

Please note, our office has moved:
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Background Information Request

No.	Waterbody Name	Waterbody location (decimal degrees)		Watercourse classification (i.e. warmwater, coldwater)	Habitat information/ locations (fish passage barriers, knownspawning habitats etc.)	Historical data on fish species present, including whether the subject waterbodies are considered to support any vulnerable, threatened or endangered species	MNR fisheries management objectives, if applicable	MNR interpretation of fish and fish habitat sensitivity (scale of high, moderate, low or unknown as per DFO's Risk Management Framework	In-water timing windows for construction
1	Junction Creek	44.534732°	-80.915428°	Cold water	Unsurveyed	Stocked with brook trout; may wish to contact Junction Creek Stewardship Committee at http://www.junctioncreek.com/	Maintain existing populations	unknown	June 16 – August 31
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APPENDIX 3

GENERIC SEDIMENT CONTROL PLAN - HDD

Generic Sediment Control Plan – Horizontal Directional Drill

Fisheries and Oceans Canada (DFO) is responsible for protecting fish and fish habitat across Canada. Under the Fisheries Act no one may carry out a work or undertaking that will cause the harmful alteration, disruption or destruction (HADD) of fish habitat unless it has been authorized by the DFO. By following the conditions and measures set out in the Stream Crossing Review and this Drawing, you will be in compliance with subsection 35(1) of the Fisheries Act.

This plan sets out the measures that will be taken by Union Gas Limited (company) and its contractors in order to avoid negative impacts to fish habitat during horizontal directional drill crossings. The conditions and techniques set out on this plan are to be followed unless approved otherwise by the DFO.

Measures to Protect Fish and Fish Habitat when Horizontal Directional Drilling

The company must use materials, construction practices, mitigation techniques and monitoring of operations of every water crossing in order to prevent an unauthorized HADD or the impairment of water quality. The following requirements apply to any permanent or intermittent waterbody (stream, river, pond) and areas adjacent to it.

* Design the drill path to an appropriate depth below the watercourse to minimize the risk of frac-out and to a depth to prevent the line from becoming exposed due to natural scouring of the stream bed. Ensure the drill entry and exit points are far enough from the banks of the water course to have minimal impact on these areas.
* The company will adhere to all permits and approvals of federal and provincial agencies related to watercourse crossings.
* The company will notify the appropriate federal or provincial agencies related to watercourse crossings.
* Use existing trails, roads or cut lines wherever possible, as accesss routes to avoid disturbance to the riparian vegetation.
* Sediment fence must be installed between the work site and the watercourse. Ensure all fencing is properly keyed into the ground.
* Prior to removal of the low vegetative cover, effective mitigation techniques for erosion and sediment control must be in place to protect water quality. Limit the areal extent of disturbance to the minimum and within the road or utility right-of-way. Delay grubbing to immediately prior to the crossing operation.
* Materials removed or stockpiled during construction must be deposited in a manner to ensure sediment does not enter into a waterbody. This material must be protected with appropriate erosion and sediment controls devices (sediment fencing, strawbales).
* All vehicles, machinery and other construction equipment shall not enter the water. There must be no fording of any waterbody. The company is to adhere to the Generic Sediment Control Plan For Temporary Vehicle Crossings. This plan is endorsed by the DFO.
* Refuelling and lubrication of equipment will be conducted in areas that will allow any accidental spill of deleterious substance to be disposed of in an approved location before it reaches any waterbody. Appropriate spill prevention kits shall be readily available on site.
* Monitor the watercourse to observe signs of surface migration (frac-out) of drilling mud during all phases of construction.
* There are no in-stream timing restrictions on this work.
* The company will be held responsible for implementation of this plan.

Crossing Procedures

* Sediment fences are to be established between the entry and exit points and the watercourse (potential for sediment to enter watercourse)
* At a minimum the entry and exit points must be located as identified on this plan.
* Mud sump pits are to be excavated at the entry and exit points of the drill to contain drilling fluids to prevent sediment and other deleterious substances from entering the watercourse. If this cannot be achieved, use silt fences or other effective sediment and erosion control measures to prevent drilling mud from entering the watercourse. These pits must be excavated prior to back reaming.
* All drilling fluids are to be contained during the entire drilling process and promptly removed as sump pits are filled and/or when the drill is completed.
* All excess material is to be removed from the construction site to an approved location.
* Monitoring of the watercourse must be completed during all phases of the crossing attempt.

Emergency Frac-out Response and Contingency Planning

* Keep all material and equipment needed to contain and clean up drilling mud releases on site and readily accessible in the event of a frac-out.
* The drilling procedure will be closely monitored throughout the crossing attempt to limit the extent of a "fracture" (frac out).
* If the pilot drill results in a "fracture" (drill fluids enter the stream bed or stream banks), drilling should be stopped immediately and the procedures outlined in the Environmental Compliance section should be followed.
* Measures must be taken to contain the drilling mud and prevent its further migration into the watercourse. Measures to control fracturing will include, stopping the drill, the use of vacuum trucks, excavation of relief pits (dry land) and any other measure deemed appropriate by the company.
* Prioritize cleanup activities relative to the risk of potential harm and dispose of the drilling mud in a manner that prevents re-entry into the watercourse.
* Ensure clean up measures do not result in greater damage to the banks and watercourse than from leaving the drilling mud in place.
* Once the site has been deemed secure and the risk of drilling mud entering the watercourse has been addressed, the drill shall be pulled back and can be restarted with a new deeper attempt and/or a change to the existing running line, to attempt to avoid the fracturing problem.
* If subsequent drill attempts result in additional fracturing, then the crossing shall be halted and the Environmental Planning group should be contacted. Additional permits or authorizations to continue the drill using in-stream mitigation or to change the crossing technique, may be required.
* In the event that the horizontal directional drill cannot be completed a dam and pump or flumed crossing technique will be implemented following the specific Generic Sediment Control Plan endorsed by DFO under the DFO-OGLA AGREEMENT 2008.

Environmental Compliance

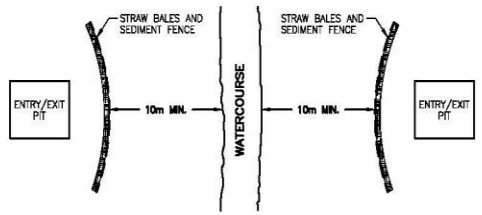
Contractor

* In the event that drilling fluids enter the watercourse or turbidity is generated by air migration, the Ministry of the Environment (MOE) shall be contacted by the contractor in compliance with their spills policy
* Such an incident is to be phoned into the MOE Spills Action Centre at 1-800-268-6060 by the contractor. The Spills Action Centre will require the following information:
  * The nature of the incident (what happened and what materials were involved).
  * Approximate volume of material involved.
  * The incident location (lot, concession, township, county and/or city).
  * Actions that have or will be taken.
  * The name and telephone number of the person calling.
* The incident should be monitored:
  * The date, time and duration of the event should be recorded, as well as the content of the call to the MOE Spills Action Centre.

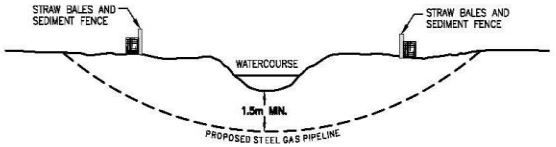
Company

* In the event that drilling fluids enter the watercourse or turbidity is generated by air migration, the Department of Fisheries and Oceans or local Conservation Authority (CA) shall be contacted by the Company Inspector. DFO contact information is provided on the Stream Crossing Review and CA contact information can be found on the permit.
* When this has been completed, Union's Environmental Planning Department or Lands Department staff shall also be notified.
* All calls identified above are mandatory and are to be completed immediately after the incident has occurred.

Minimum Horizontal Directional Drill Setback and Depth.



PLAN



PROFILE

NOTES:
- STRAW BALES AND SEDIMENT FENCE TO BE SET UP A MINIMUM OF 10m FROM WATERCOURSE.
- HORIZONTAL DIRECTIONAL DRILL TO BE SET UP BEHIND STRAW BALES AND SEDIMENT FENCE.
- MINIMUM OF 1.5m COVER FROM TOP OF PIPE TO BED OF WATERCOURSE.
- ALL DISTURBED AREAS TO BE RESTORED TO PRE-CONSTRUCTION CONDITIONS OR AS CLOSE AS POSSIBLE.

Restoration

The following conditions should be adhered to for the restoration of the construction site and adjacent lands:

* Ensure the entry and exit pits are cleaned of drilling fluids and the fluids are disposed of in an approved location.
* Any disturbed areas adjacent to the watercourse will be seeded, covered with erosion control matting or equivalent and restored as close as possible to preconstruction conditions.
* Vegetation on watercourse banks will either remain in place or will be replaced following construction.
* All seeding and vegetation replacement will be with native species to Ontario.
* If post construction monitoring reveals erosion problems, remedial work will be undertaken as quickly as possible.
* All debris/garbage shall be removed from construction site to an approved location.
* If there is insufficient time remaining in the growing season, the site should be stabilized (e.g., cover exposed areas with erosion control blankets to keep the soil in place and prevent erosion) and vegetated the following spring.
* Maintain effective sediment and erosion control measures until revegetation of disturbed areas is achieved.

Contingency Plan

If, for any reason, the attempt to cross this watercourse by means outlined above is not successful, the Environmental Planner will be contacted to discuss an alternative crossing method. It should be noted that under no circumstances shall an alternative crossing method be attempted for any crossing without prior notification. Any changes to this Stream Crossing Review may require permit amendments or governmental agency approval.

If unforeseen events cause the strategies set out in this plan to be insufficient or inappropriate to meet the objective, the company is expected to respond in a safe and timely manner with all reasonable measures to prevent, counteract or remedy any effects on fish or fish habitat that may result. DFO or CA is to be notified as soon as practical.

Spill reporting procedures established by MOE shall be used to report any unexpected discharge of silt or sediment or other deleterious substance at the water crossing. The spill/incident shall also be reported to the DFO or CA as soon as possible in these circumstances.

If DFO determines that long term damage to fish habitat has occurred due to failure of this plan to control sediment, a restoration plan will be developed by the company, in consultation with and approval from DFO for implementation by the company.

NOTES

Union Gas is responsible for implementation of appropriate sediment and erosion control to mitigate impacts to fish and fish habitat.

DATE	REV NO	REVISION	BY	APP'D

union gas
A Spectra Energy Company

PROJECT
UNION GAS LIMITED
CONSTRUCTION PROGRAM

LOCATION
ALL HORIZONTAL DIRECTIONAL DRILL CROSSINGS IN ONTARIO

DRAWING TITLE
GENERIC SEDIMENT CONTROL PLAN
HORIZONTAL DIRECTIONAL DRILL

SCALE	NTS	DATE	MAY 16/12
FILE No.		PROJECT NO	
DRAWN	CHECKED	DRAWING	REV
GTH		4 of 4	0

APPROVED