

MANITOBA HYDRO

Installation of a Natural Gas Transmission Pipeline near St. Francois Xavier, Manitoba

Environmental Assessment Report

Prepared By:



**Transmission Planning and Design Division
Licensing and Environmental Assessment**

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**Prepared for:
Manitoba Conservation
Environmental Approvals Branch**

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1. INTRODUCTION

Manitoba Hydro is proposing to install a new natural gas transmission pipeline from the west perimeter of the City of Winnipeg to the Rural Municipality (RM) of St. François Xavier. The proposed new natural gas transmission pipeline project (the Project) will include the installation of a new 6 inch (") diameter steel natural gas transmission pipeline from an existing station on Selkirk Avenue (Road 63 North) near Provincial Truck Highway (PTH) 101 west of the City of Winnipeg to a new gate station that will be located on private land in River Lot 216 in the RM of St. Francois Xavier (RL-216-FX) south of PTH1, and the installation of a new 8" medium pressure distribution line that will run parallel to PTH1 from the new gate station in RL-216-FX and tie-in to the existing distribution line located west of the Town of Headingley, Manitoba. The total length of the proposed pipeline is approximately 23 kilometres (km). The Project is defined as the works required to install and operate the new natural gas transmission line and gate station.

The Project will be considered a Class 2 Development and require licensing under the Manitoba *Environment Act*. This report was prepared to provide the environmental information required by the Province of Manitoba to issue an Environment Act License for the Project.

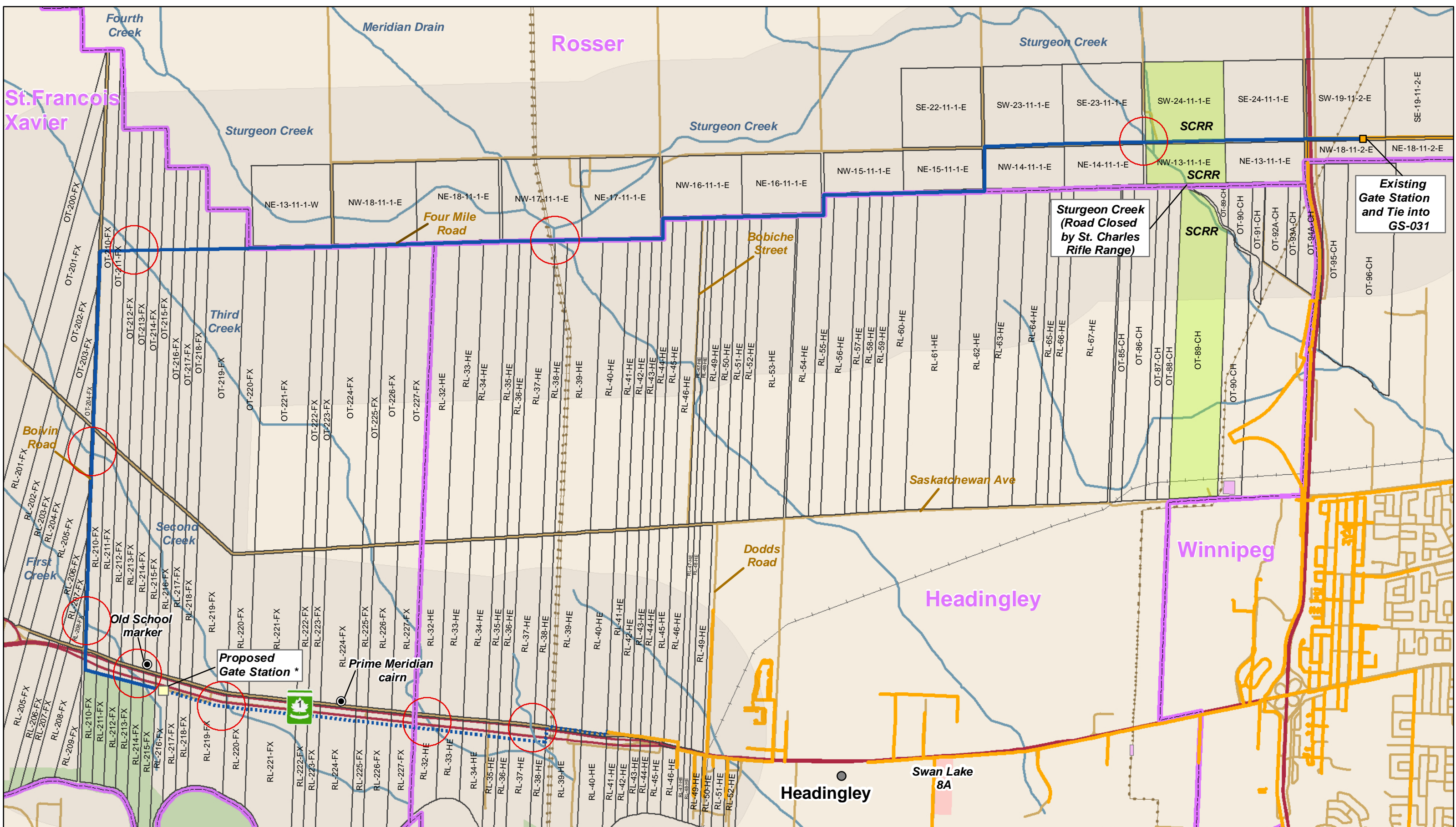
2. PROJECT AREA AND LOCATION

The Project will be located between the City of Winnipeg, the Village of St. Francois Xavier and the Town of Headingley, Manitoba. Figure 1 shows the Project area, the selected route for the proposed new natural gas transmission pipeline, the proposed location for the new gate station and the location of the nine proposed watercourse crossings (shown as red circles). The proposed route begins at the existing gate station located on Selkirk Avenue on the east side of PTH101 in SW-19-11-2-E, proceeds west across PTH101 along Road 63N for about 1.6 km, turns south between NE-15-11-1-E and NW-14-11-1-E to Four Mile Road, continues west for about 9 km to Boivin Road, proceeds south to the south side of PTH1 for about 4.7 km and continues east for about 4.7 km to the location of the existing tie-in located about 1.5 km west of the Town of Headingley. The new gate station will be located south of the PTH1 service road on private land in RL-216-FX, which is located about 0.8 km east of Boivin Road and about 0.2 km northeast of the Beaudry Provincial Park boundary. The Project area was defined as the areas located within 1.6 km (one mile) of either side of the proposed new pipeline route and gate station location (Figure 1).

3. PROJECT DESCRIPTION

3.1. Overview

As noted above, the Project includes the installation of a new natural gas main from the west perimeter of the City of Winnipeg to the RM of St. François Xavier and the installation of a new gate station in RL-216-FX on the south side of the PTH1 service road.



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, ProvMB
 Date Created: Jan 09, 2013

0 0.25 0.5 0.75 1.5 Kilometres
 0 0.2 0.4 0.8 Miles

- Proposed 6 inch Pipeline
 - Existing Gas Line
 - - - Proposed 8 inch Pipeline
 - St Francois-Xavier Gate Station*
 - Provincial Highway
 - Provincial Road
 - Transmission Line
 - Rural Municipalities
 - St. Charles Rifle Range (SCRR)
 - Beaudry Provincial Park
 - 1 Mile Study Area
 - Watercourse Crossings
 - First Nation
- * Approximate location (subject to change)

N

**St. Francois-Xavier Proposed
Natural Gas Distribution Pipeline**

1:35,000

A 6" steel pipeline will run westward from an existing station located on Selkirk Avenue near PTH101 to a new proposed station located near Boivin Road and PTH 1 in RL-216-FX on the south side of PTH1. From there, an 8" polyethylene pipeline will run eastward along PTH 1 and connect to the existing distribution system located about 1.5 km west of the Town of Headingley. The total length of the proposed pipeline is approximately 23 km.

The pipeline will be installed using trenching techniques in non-sensitive areas and Directional Drilling at all road crossings, watercourse crossings and environmentally sensitive areas. The area required for the new gate station is about 30 metres (m) by 30 m.

The set of drawings attached as Appendix A to this report provide additional information on the location, pipeline route, bill of materials, construction and methods that will be used for the Project. The information is provided in a series of views that follow the selected route for the proposed pipeline. The views start at the existing gate station located on Selkirk Avenue on the east side of PTH101 in SW-19-11-2-E, proceed west to Boivin Road, south to PTH1 and east to the tie-in to the existing distribution line located west of the Town of Headingley, Manitoba. The following drawings are included in Appendix A:

- Pipeline Drawings:
 - Drawing CD-16968 – Sheet 1 – Plan View – Location Map – provides the location and route for the proposed pipeline and the bill of materials to be used for the pipeline installation.
 - Drawing CD-16968 – Sheet 2 – Plan View – provides Views 1, 2 and 3 of the proposed pipeline installation and the bill of materials to be used for the pipeline installation.
 - Drawing CD-16968 – Sheet 3 – Plan View - provides Views 4, 5, 6 and 7 of the proposed pipeline installation and the bill of materials to be used for the pipeline installation.
 - Drawing CD-16968 – Sheet 4 – Plan View - provides Views 8, 9, 10 and 11 of the proposed pipeline installation and the bill of materials to be used for the pipeline installation.
 - Drawing CD-16968 – Sheet 5 – Plan View - provides Views 12, 13, 14 and 15 of the proposed pipeline installation and the bill of materials to be used for the pipeline installation.
 - Drawing CD-16968 – Sheet 6 – Plan View - provides Views 16, 17, 18 and 19 of the proposed pipeline installation and the bill of materials to be used for the pipeline installation. View 19 shows the proposed location for the new gate station.
 - Drawing CD-16968 – Sheet 7 – Plan View - provides Views 20, 21, 22 and 23 of the proposed pipeline installation and the bill of materials to be used for the pipeline installation.
- Gate Station Drawings:
 - 1-G0042-DB-91130-0001 0001 00 - Location Plan and Site Layout
 - 1-G0042-DB-91121-0001 0002 00 - Excavation and Compaction Details
 - 1-G0042-DB-91112-0001 0001 00 - Final Layout Isometric View

3.2. Work Activities and Work Sequence

The Project will include the following work activities that will be carried out in the following sequence:

- 1) Project Planning and Design – This phase of the Project includes conducting the environmental assessment, communicating with stakeholders, preparing the site plan and design drawings, and obtaining landowner permissions and land easements, where required.
- 2) Site Preparation – The right-of-way (RoW), pipeline alignment and area for the new gate station will be surveyed and staked out to ensure that the pipeline is installed as designed.
- 3) Mobilization – the Contractor mobilizes to the Project site, obtains all utility locations and permits required to start the work activities.
- 4) Construction/Installation – the construction or installation phase of the Project includes the following activities:
 - a) Pipeline:
 - i) Topsoil Removal: On agricultural land the topsoil will be pushed to the side of the RoW to prevent mixing of the topsoil with the subsoils and to minimize soil compaction. The topsoil will be removed to a maximum depth of 305 mm (12 inches).
 - ii) Pipe Welding: The pipe will be welded together in accordance with CSA Z662 (latest version) and all welds will be non-destructively examined to ensure the highest integrity weld is produced.
 - iii) Trenching: The pipe will be installed in a trench approximately 460 to 915 mm (18 to 36 inches) wide using track-hoes or a large trenching machine.
 - iv) Directional Drilling: All road crossings, watercourse crossings and environmentally sensitive areas will be crossed using Directional Drilling.
 - v) Lowering and Tie-Ins: The majority of the pipeline will be welded above grade and lowered into place. In instances where two long sections of pipeline are tied together, a larger excavation will be made to allow the welder to access the pipeline below grade.
 - vi) Pressure Testing: Prior to putting the pipeline into service, the line will be pressure tested with water to confirm the strength of the pipeline (i.e., hydrostatic testing) and to ensure that there are no leaks. The water required for hydrostatic testing will be obtained from the City of Winnipeg, Town of Headingley or Village of St. Francois Xavier water supply. Hydrostatic testing, including the release of the water used for testing, will be conducted as per the Project Environmental Protection Plan (EnvPP) and Manitoba Conservation and Water Stewardship (MCWS) guidelines and permitting for hydrostatic testing.

- b) Gate Station:
- i) As described on Drawing 1-G0042-DB-91121-0001 0002 00, the area for the gate station is divided into three types of construction zones - Zone 1 is the roadway construction zone, Zone 2 is the site foundation zone and Zone 3 is the site foundation zone where a section of the new pipeline will be located underground. The total area for the new gate station is approximately 30 m by 30 m.
 - ii) As described on Drawing 1-G0042-DB-91121-0001 0002 00, the construction of the gate station will include: removal of 10" of top soil and organic material within the areas of Zones 1, 2 and 3; installation and compaction of the Zone 1 roadway foundation (as per Detail C of the Drawing); installation and compaction of the Zone 2 site foundation (as per Detail D of the Drawing); and installation and compaction of the Zone 3 site foundation (as per Detail B of the Drawing). All new vertical pipe risers will be rock-wrapped along the below grade portions prior to backfilling (as per MB Hydro standard 260.06.) and all exposed and new pipe will be surrounded with 6" of sand prior to backfilling. The backfill material will consist of ¾" down crushed limestone and will be free of organic material, large rocks and stones.
- 5) Site Restoration and Clean-up: After the pipeline and gate station are installed, the topsoil will be re-spread, construction debris will be removed, and the land will be leveled to allow regular land use to resume. Any areas of cultivated lands within or adjacent to the RoW will be seeded by landowners as part of their normal agricultural operations; any other areas of exposed soils that arise as a result of the Project activities will be seeded with an approved seed mix. A Manitoba Hydro Onsite Representative will respond to complaints and provide contact information.
- 6) Operation and Maintenance – The Operations and Maintenance (O&M) phase of the Project will include the following activities for the new gate station and pipeline:
- a) Pipeline:
 - i) Yearly leak survey of the 6" steel pipeline.
 - b) Gate Station:
 - i) Monthly inspection to ensure that there are no leaks on any of the fittings or equipment.
 - ii) Yearly maintenance of the station, which includes checking for leaks and equipment maintenance (greasing of valves, replacing regulator springs, lighting replacements etc.).
 - iii) Snow-clearing of the station site, as necessary.
 - iv) Supervisory Control And Data Acquisition (SCADA) monitoring at the station will identify any emergency situations occurring on the pipeline such as a damage to the pipeline. SCADA monitoring will trigger alarms at specific low pressure settings (monitored in real-time) and the appropriate personnel will be notified to respond and rectify the situation.

- 7) Decommissioning – The gate station and pipeline are expected to be in service indefinitely and will be maintained on a regular basis to extend the service period and ensure safe and efficient delivery of natural gas to area customers. As such, there are no current plans for decommissioning the pipeline.

3.3. Work Areas, Site Access and Construction Equipment

As shown in Figure 1, the majority of the works will take place along existing provincial and municipal roads, ditches, access roads and trails located within the Project area. The total length of the pipeline is about 23 km and the total area required for the new gate station is about 30 m by 30 m. As noted above, all road crossings, watercourse crossings and environmentally sensitive areas will be crossed using Directional Drilling. The remainder of the piping will be placed using an open trench method, which will be about 0.5 m to 1 m wide. All pipeline construction/installation activities will take place within the existing RoW and/or in small areas of private land eased from the landowners. The new gate station will be located on a portion of private land located in the northern part of RL-216-FX adjacent to the PTH1 service road. The pipeline route and new gate station location will be surveyed and staked out prior to construction/installation. The area staked out for the Project will include the land easements obtained from affected landowners. Work areas will be accessed using the existing roads and access trails. The construction equipment that will be used includes: ½ to 1 ton truck, bulldozer, Directional Drill, front end loader, sideboom, tandem/trailer, trackhoe, trencher, vacuum truck and a welding rig.

4. PROJECT SCHEDULE

Construction/installation of the pipeline and gate station is proposed to take place between May 1, 2013 and July 27, 2013, with site restoration and clean up proposed to occur between July 27, 2013 and August 10, 2013. O&M activities will commence after completion of site restoration and clean up. As noted above, there are currently no plans to decommission the pipeline or gate station.

5. BACKGROUND AND NEED FOR THE PROJECT

The purpose of the Project is to provide additional natural gas capacity and service to customers in the Headingley area to maintain natural gas service for the growing community of Headingley and provide for future growth. Ongoing development in the Headingley area has reduced existing natural gas capacity. Recently, a commercial customer requested a significant natural gas load that cannot be supported by the existing system. Manitoba Hydro has met with the affected RMs to discuss the need for additional natural gas pressures in the Headingley area and ensure additional future natural gas loads are available. The Project will serve existing customers and meet future needs in the surrounding areas. The new natural gas line main and gate station will also provide redundancy and increased reliability to the connected customers and overall natural gas system. Surrounding areas will also benefit as natural gas will be more economically available and feasible.

6. PROJECT ALTERNATIVES

There were two alternatives to the Project identified: 1) Do not install the natural gas main and station; or 2) Choose a different route for the natural gas pipeline.

If the new pipeline and gate station are not installed, there would be major upgrades required to the existing natural gas distribution system. Upgrading the existing system would not provide for future long term growth and also would not provide redundancy and reliability to the system.

An alternative route for the natural gas pipeline would be to route natural gas mains from another area. However, this option would require a longer pipeline and would increase the size of the project area. Manitoba Infrastructure and Transportation (MIT) have a proposed highway and interchange for the Centreport Canada Way project that will be located adjacent to the Project area. Therefore, Manitoba Hydro selected the most direct route for the pipeline that will provide the required natural gas capacity and avoid future construction and development by MIT.

Information on the Project, the proposed route and the proposed gate station location was provided to the Project area stakeholders in December 2012 as part of Manitoba Hydro's public engagement program for the Project. During that time, it was proposed that the new gate station be located on the east side of Boivin Road about 0.7 km north of PTH1. However, a landowner attending the open house indicated that he would be willing to provide the land needed for the gate station as Boivin Road is a dirt road that can be difficult to access at some times during the year.

Based on discussions between the landowner and Manitoba Hydro, the new gate station location was revised and is now proposed to be located on a portion of private land located in the northern part of RL-216-FX adjacent to the PTH1 service road. This site was selected as it will provide improved safety and access to the gate station for the Project construction and O&M activities. This change also resulted in the relocation of the pipeline from the north side of PTH1 to the south side of PTH 1.

7. ENVIRONMENTAL ASSESSMENT METHODS

Methods and analysis used to identify and determine potential environmental effects within the Project area consisted of the following:

1. Information on land use, topography and location of protected areas, watercourses, waterbodies, forests, wetlands, roadways, farmyards and other infrastructure was determined by a desk-top review and examination of topographic maps, drainage maps, aerial imagery and published information for the area.
2. The above-noted features were further examined and ground-truthed by a field survey of the Project area. The field survey provided on-site observations and documentation of the presence and location of the pipeline RoW, new gate station location, vegetated areas, cultivated areas, farmyards, potential fish and wildlife habitat, protected areas, roads and other human-made structures or land use practices. The initial field survey was conducted

on October 29, 2102 before snowfall. A second field survey was conducted on January 14, 2013 after snowfall to confirm the environmental conditions at the revised gate station location and revised watercourse crossing locations for First Creek, Second Creek and Third Creek on the south side of PTH1.

3. Provincial (Manitoba Conservation Data Centre [MCDC]) and federal (Committee on the Status of Endangered Wildlife in Canada [COSEWIC], Species at Risk Act [SARA]) databases and registries were reviewed and cross-referenced to species distribution maps, habitat preferences, breeding periods and migration times to determine the potential for the presence of any species listed as endangered, threatened or of special concern within the Project area.
4. Review of information provided in the Manitoba Bird Atlas, Manitoba Herps Atlas, NatureServe Explorer, annual publications released by MCDC on MCDC Rare Plant Surveys and Stewardship Activities and recent Environmental Impact Statements (EIS) completed for projects located within the region.
5. Communication with federal and provincial fisheries and wildlife agencies.
6. A request was submitted to the Manitoba Conservation Data Centre for information on the presence of any rare or endangered species in the Project area.
7. A request was submitted to the Manitoba Historic Resources Branch for information on the presence of any Heritage Resources in the Project area.
8. Review of applicable municipal, provincial and federal environmental regulations, guidelines and/or policies.
9. Potential effects were identified based on knowledge of the Project area, previous experience with similar projects, professional experience in conducting environmental assessments and knowledge of applicable municipal, provincial and federal environmental regulations, guidelines and/or policies.
10. Canadian Environmental Assessment Act (CEAA) criteria were used to determine the potential environmental effects, the presence of residual effects once mitigation measures have been considered, if the remaining residual effects will have an environmental consequence, potential cumulative effects and the need for any follow-up or monitoring activities. Additional information on the criteria used to assess potential environmental effects is provided in Section 12.

8. EXISTING ENVIRONMENT

8.1. Overview of Project Area

The Project area is located about 4.5 km east of the Village of St. François Xavier, about 1.5 km west of the Town of Headingley and is adjacent to the west perimeter highway (PTH101) of the City of Winnipeg. The Project area includes portions of the RM of Rosser, RM of Headingley and RM of St. François Xavier (Figure 1). These areas lie within the Winnipeg Ecodistrict of the Lake Manitoba Plain Ecoregion (Smith et al 1998). The area is very flat with slopes ranging from level to less than 2% (Agriculture and Agri-Food Canada 1999a, 1999b, 1999c). The majority of the Project area consists of farmsteads and cultivated lands, including Sturgeon Creek Colony

Farms Ltd., a large agricultural operation and Hutterite community located in NW-17-1-1-E and NE-17-11-1-E of the Project area. Other facilities and infrastructure located within the Project area include: the St. Charles Rifle Range, a 507 hectare (ha) (Treasury Board of Canada Secretariat 2013) property located in the northeast section of the Project area that is managed by the Canadian Department of National Defence (DND) as a military rifle range and training centre and Tall Grass Prairie refuge; a hydroelectric transmission line that runs in a south-north direction between RL-38-HE, RL-39-HE and NW-17-11-1-E; and a hydroelectric transmission line that runs in a south-northeast direction through OT-90-CH, OT-92A-CH, OT-93A-CH, OT-94A-CH, NW-15-11-2-E and SW-19-11-2-E (Figure 1).

With the exception of the lands contained within the St. Charles Rifle Range, trees and vegetation within the Project area are limited to fringes along watercourses, shelterbelts and occasional patches of wooded or grassy areas. There were no wetland areas observed to be present in the Project area. Watercourses within the Project area include First Creek, Second Creek, Third Creek, Fourth Creek, Meridian Drain and Sturgeon Creek. Heritage Resources identified in the Project area included a cairn on PTH1 that marks the location of the Prime Meridian and an old school marker located on a private residence adjacent to PTH1. Protected areas include: the St. Charles Rifle Range, located within the northeast section of the Project area; Beaudry Provincial Park, located about 0.2 km south of the southern portion of the Project area, and the Grants Lake Wildlife Management Area located about 14 km northwest of the Project area. There were no Aboriginal communities found to be located within the Project area; the closest Aboriginal community is the Swan Lake 8A Reserve, located about 3 km east of the Town of Headingley. The Peguis First Nation (FN) has a Community Interest Zone (CIZ) that overlaps a section of land parallel to Road 63N in the northern portion of the Project area. Based on the agreement made between the Manitoba Métis Federation (MMF) and the Province of Manitoba in September 2012, the Project area lies within Métis Natural Resource Harvesting Zone 26B.

Additional information on the biophysical, cultural and socio-economic environment in the Project area is provided in the following sections.

8.2. Biophysical Environment

8.2.1. Air Quality and Greenhouse Gas Emissions

Air quality and greenhouse gas (GHG) emissions within the Project area are affected by the agricultural, industrial, recreational, rural, transportation and urban activities that occur in the region. The Province of Manitoba and Environment Canada operate air quality monitoring stations in the cities of Brandon, Flin Flon, Thompson and Winnipeg, Manitoba. The air quality monitoring station closest to the Project area is located in the City of Winnipeg at 65 Ellen Street. Air quality parameters that are monitored include: carbon monoxide (CO); particulate matter ≤ 10 microns (PM_{10t}); particulate matter ≤ 2.5 microns (PM_{2.5}), nitric oxide (NO); nitrogen dioxide (NO₂); nitrogen oxides (NO_x); ground level ozone (O₃); sulphur dioxide (SO₂); wind direction; and wind speed (Government of Manitoba 2012a). Recent and historical data for the measured parameters can be obtained online at the Government of Manitoba air quality

website. Table 1 provides a summary of the air quality parameters for Winnipeg, Manitoba on December 17, 2012 as an example of the available information.

Table 1: Air Quality Parameters for Winnipeg, Manitoba on December 17, 2012

| Recent Values - Winnipeg Air Quality | | | | | | | | | | | | |
|--------------------------------------|------------|----------|-------------------|-------------------|-----|----------------|------|-----------------|-----------------|-----------------|----------|------------|
| Station | Date | Time | PM10t | PM2.5s | CO | O ₃ | NO | NO ₂ | NO _x | SO ₂ | Wind Dir | Wind Speed |
| | | | µg/m ³ | µg/m ³ | ppm | ppb | ppb | ppb | ppb | ppb | | |
| Winnipeg Ellen St. | 12/17/2012 | 12:00 PM | 1.9 | 4.3 | 0.3 | 25.4 | -9.5 | -9.9 | -19.5 | 0 | 160 | 4 |

(Source: Government of Manitoba 2012a; PM10t = particulate matter ≤10 microns; µg/m³ = micrograms per cubic metre; PM2.5s = particulate matter ≤2.5 microns; ppm = parts per million; ppb= parts per billion; Dir = wind direction in degrees; Speed = wind speed in kilometers per hour [kph])

The Manitoba Ambient Air Quality Criteria (July 2005) provide the maximum tolerable, maximum acceptable and maximum desirable concentrations of air pollutants required to protect and preserve air quality for human health (Government of Manitoba 2012b). Comparison of the air quality parameters for December 17, 2012 in Table 1 to the Manitoba Ambient Air Quality Criteria (July 2005) shows that all of the measured parameters were in the “maximum desirable” concentrations.

Environment Canada has also developed the “Air Quality Health Index” (AQHI), an index that is based on the relative risk to human health that can be caused by a combination of common air pollutants (Government of Manitoba 2012a). These pollutants include ground-level ozone (O₃), particulate matter (PM2.5) and nitrogen dioxide (NO₂). The AQHI is measured on a colour-coded scale from 1 to 10+ and the values are also grouped into risk categories (low, moderate, high, very high) to identify the level of risk. The higher the number, the greater the health risk associated with local air quality (Environment Canada 2012a). The Province of Manitoba states that “recent monitoring has shown that the health risks associated with air quality for the cities of Brandon and Winnipeg are generally low, with an average AQHI rating of around three or lower in both locations” (Government of Manitoba 2012a). It is expected that the ambient air quality within the Project area is similar to the ambient air quality for the City of Winnipeg.

Environment Canada currently tracks six GHG substances as part of Canada’s efforts to identify, quantify and reduce sources of GHGs. The six substances are carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, perfluorocarbons and hydrofluorocarbons (Environment Canada 2012b). Environment Canada produces an annual “*National Inventory Report on Greenhouse Gas Sources and Sinks in Canada*” for submission to the United Nations Framework Convention on Climate Change (UNFCCC). The report includes a summary of GHG emissions for each province. Table 2 provides a summary of Manitoba’s GHG emissions from 1990 to 2010.

Table 2: Summary of Manitoba’s GHG Emissions from 1990 to 2010

| Year | 1990 | 2000 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| CO ₂ Equivalent | 18,300 | 21,000 | 20,600 | 20,700 | 21,300 | 21,200 | 19,800 | 19,800 |

(Source: Environment Canada 2012b)

Of the 14 provinces and territories, Manitoba had the 7th highest GHG emissions in Canada in 1990, 2009 and 2010. Additional information on the relative amounts of each tracked substance for different GHG categories (i.e., energy, industrial processes, solvent and other product use, agriculture and waste) can be found in the annual National Inventory reports.

Manitoba introduced Bill 213 “*The Greenhouse Gas Emissions Reporting Act*” in the November 20, 2008 to November 29, 2009 legislative session; however, this Bill has not proceeded past the first reading (Government of Manitoba 2009).

The existing air quality and GHG emissions within the Project area are expected to be affected by the following local activities:

- vehicle exhaust and road dust from traffic on the paved and dirt roads and trails within and adjacent to the Project area;
- emissions from agricultural activities, equipment use, livestock;
- emissions from agricultural wastes, wastewater plants and lagoons;
- seasonal applications of fertilizers and manure as part of local agricultural practices;
- seasonal burning of cropped lands as part of agricultural practices; and
- generation and transportation of airborne pollutants from the surrounding agricultural, commercial, industrial, recreational, rural and urban activities in the City of Winnipeg, RM of Headingley, RM of Rosser and RM of St. François Xavier.

8.2.2. Climate

Climate can be defined as the generally prevailing weather conditions of a region throughout the year, and is typically described by variables such as air pressure, cloud cover, humidity, precipitation, hours of sunshine, temperature, wind speed and wind direction. The Project area is located in the Winnipeg Ecodistrict of the Lake Manitoba Plain Ecoregion, which is in the most humid subdivision of the Grassland Transition Ecoclimatic Region in southern Manitoba (Smith et al 1998). The climate within the region is characterized as humid continental with long, cold winters and short, warm summers.

Environment Canada collected climate data for several areas within Canada from 1971 to 2000. The Environment Canada weather reporting station considered to be closest to the Project area is located at the Winnipeg International Airport at 49°55'00 N, 97°14'00 W. Table 3 provides information on a number of climate variables selected from the Canadian Climate Normals data from 1971 to 2000 for the Winnipeg International Airport (Environment Canada 2012c). The mean annual temperature in the Winnipeg Ecodistrict is about 2.4°C. The mean daily temperature in January is about -17.8 °C while in July the mean daily temperature is about 19.5°C. The mean annual precipitation is about 515 mm; less than one quarter of this precipitation falls as snow. The average annual wind speed is 16.9 km/h and is most frequently blowing from the south.

8.2.3. Noise

Existing noise levels in the Project area and areas immediately surrounding the Project area are expected to be typical of a paved highway located in a mainly agricultural area with small urban

centres, residential areas and the presence of commercial, industrial and recreational activities. Sources of noise identified for the Project area include:

- light, medium and heavy vehicle traffic on PTH1, PTH101 and other roads within and surrounding the Project area;
- agricultural equipment use and practices within and surrounding the Project area;
- construction activities related to the development of Centreport in the City of Winnipeg and RM of Rosser;
- commercial, industrial and recreational activities in the RM of Headingley, RM of Rosser, RM of St. François Xavier and west perimeter area of the City of Winnipeg;
- air traffic travelling to and from the City of Winnipeg and other area airports (helicopters, small planes, crop-dusting, commercial air traffic);
- human activities in urban and rural areas; and
- bird migration, nesting and breeding activities.

Table 3: Canadian Climate Normals 1971-2000 for Winnipeg, Manitoba at the Winnipeg International Airport

| Parameter: | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|--------------------------------|---------|----------------|---------|---------|---------|---------|----------------|----------------|---------|---------|---------|---------|
| Daily Average Temperature (°C) | -17.8 | -13.6 | -6.1 | 4 | 12 | 17 | 19.5 | 18.5 | 12.3 | 5.3 | -5.3 | -14.4 |
| Daily Max Temperature (°C) | -12.7 | -8.5 | -1.1 | 10.3 | 19.2 | 23.3 | 25.8 | 25 | 18.6 | 10.8 | -0.9 | -9.7 |
| Daily Min Temperature (°C) | -22.8 | -18.7 | -11 | -2.4 | 4.8 | 10.7 | 13.3 | 11.9 | 6 | -0.3 | -9.6 | -19.1 |
| Extreme Max Temperature (°C) | 7.8 | 11.7 | 23.3 | 34.3 | 37 | 37.8 | 37.8 | 40.6 | 38.8 | 30.5 | 23.9 | 11.7 |
| Date (yyyy/dd) | 1942/23 | 1958/25 | 1946/27 | 1980/21 | 1980/22 | 1995/17 | 1939/12 | 1949/07 | 1983/02 | 1992/01 | 1975/05 | 1939/06 |
| Extreme Minimum (°C) | -42.2 | -45 | -37.8 | -26.3 | -11.1 | -3.3 | 1.1 | 0.6 | -7.2 | -17.2 | -34 | -37.8 |
| Date (yyyy/dd) | 1943/20 | 1966/18 | 1962/01 | 1979/02 | 1958/01 | 1964/03 | 1972/03 | 1965/28 | 1965/26 | 1941/30 | 1985/30 | 1967/31 |
| Rainfall (mm) | 0.2 | 2.5 | 7.5 | 21.5 | 58 | 89.5 | 70.6 | 75.1 | 51.9 | 31 | 6.1 | 1.6 |
| Snowfall (cm) | 23.1 | 14.2 | 15.8 | 10.1 | 0.8 | 0 | 0 | 0 | 0.4 | 5 | 21.4 | 19.8 |
| Precipitation (mm) | 19.7 | 14.9 | 21.5 | 31.9 | 58.8 | 89.5 | 70.6 | 75.1 | 52.3 | 36 | 25 | 18.5 |
| Wind Speed (km/h) | 17.1 | 16.7 | 17.7 | 18.4 | 17.9 | 16.4 | 14.6 | 14.9 | 17.1 | 18 | 17.4 | 17.1 |
| Most Frequent Wind Direction | S | S | S | S | S | S | S | S | S | S | S | S |
| Max Hourly Wind Speed (km/h) | 70 | 80 | 81 | 80 | 72 | 80 | 89 | 74 | 71 | 77 | 87 | 78 |
| Date (yyyy/dd) | 1982/26 | 1960/08 | 1982/13 | 1959/07 | 1955/03 | 1954/07 | 1959/27 | 1982/15 | 1953/09 | 1962/16 | 1999/01 | 1995/05 |
| Max Wind Gust Speed (km/h) | 106 | 129 | 113 | 106 | 109 | 127 | 127 | 122 | 98 | 119 | 124 | 98 |
| Date (yyyy/dd) | 1982/26 | 1965/20 | 1966/04 | 1963/03 | 1959/11 | 1967/29 | 1959/14 | 1973/18 | 1959/09 | 1991/17 | 1960/21 | 1991/01 |
| Direction of Max Wind Gust | SE | NW | N | N | NW | W | S | NW | NW | W | W | W |

(Source: Environment Canada 2012c)

8.2.4. Terrain, Soils and Vegetation

As noted above, the Project area lies within the Winnipeg Ecodistrict of the Lake Manitoba Plain Ecoregion (Smith et al 1998) and the area is very flat with slopes ranging from level to less than 2% (Agriculture and Agri-Food Canada 1999a, 1999b, 1999c). Soils in the area are dominantly clayey, consisting of clayey-lacustrine soils classified as dominantly Black Chernozems and Humic Gleysols of the Red River Association (Agriculture and Agri-Food Canada 1999a, 1999b, 1999c). The clayey consistency of the upper soil layers and flatness of the area causes a lot of the area to be imperfectly or poorly drained (Agriculture and Agri-Food Canada 1999a, 1999b, 1999c).

Vegetation within the Winnipeg Ecodistrict is described by Smith et al (1998) as originally consisting of tall prairie grass, meadow prairie grass and meadow grass communities with tree species such as bur oak (*Quercus macrocarpa*) and trembling aspen (*Populus tremuloides*) found along stream channels and in well-drained areas, and tree species such as basswood (*Tilia americana*), cottonwood (*Populus deltoides*), green ash (*Fraxinus pennsylvanica*), Manitoba maple (*Acer negundo*) and white elm (*Ulmus americana*) (also referred to as American elm) found in areas of alluvial floodplain deposits and lower river terraces. The MCDC lists 101 species of vascular plants that have been documented to be present in the Lake Manitoba Plain Ecoregion (MCDC 2012). Section 8.2.8 below provides information on potential species at risk that may be present within the Project area.

The field survey conducted on October 29, 2012 found that the pipeline, pipeline RoW and new gate station will be located mainly in ditches and other areas previously disturbed by agriculture or other human activities. Photo 1 is a view of the terrain, soils and vegetation along Boivin Road between First Creek and Second Creek, and provides an example of the terrain, soils and vegetation present within the majority of the Project area. This area was also the initially proposed location for the new gate station. Based on discussions between a local landowner and Manitoba Hydro, the gate station is now proposed to be located within a portion of private land in RL-216-FX (Figure 1). The areas south of PTH1 were included as part of the environmental assessment, but there were no photographs collected at the specific site of the revised gate station location during the October 29, 2012 field survey. Therefore, a second field survey was done on January 14, 2013 to confirm the conditions of the terrain, soils and vegetation at the new gate station location and revised pipeline route.

The area was under snowfall, but the flatness of the land, use as an agricultural area and absence of vegetation was evident (Photo 2). Historical Google Earth© satellite imagery for this portion of the Project area was reviewed to examine the terrain, soils and vegetation in this area without snowfall. Imagery was available for 2002 to 2012. The historical images for the new gate station location and revised pipeline route show that it is flat and used for crops or left as fallow. The review of the historical imagery also showed that First Creek does not appear to overflow its banks and inundate the area of land where the new gate station and pipeline will be located.



Photo 1: View facing northeast of the terrain, soils and vegetation along Boivin Road between First Creek and Second Creek, October 29, 2012. The red line shows the approximate location of the pipeline.



Photo 2: View facing southeast of the terrain, soils and vegetation conditions at the new gate station location on private land in RL-216-FX on the south side of PTH1, January 14, 2013.

There were only three areas observed within the Project area where vegetation other than row crops, grasses (Poaceae) or forbs typical of disturbed areas (e.g., dock [*Rumex* spp.], goldenrod [*Solidago* spp.], thistle [*Cirsium* spp.]) was present. The first area was a wooded area located on the north side of PTH1 adjacent to the PTH1 service road (Photo 3). The wooded area is part of a private residence located about 1.8 km west of Headingley and is about 175 m by 170 m in size. A small (1 m to 2 m wetted width) channel drains a wetted area located on the north end of the property. There was a small (<2 m diameter) single barrel box culvert on the south side of the service road that allows drainage from the property to flow to the south side of PTH1 where it connects with Third Creek and drains to the Assiniboine River. Vegetation within the wooded area and along the drainage channel consisted of cattails (*Typha* spp.), elm, grasses, thistle (*Cirsium* spp.), white spruce (*Picea glauca*), wild rose (*Rosa* spp.) and willows (*Salix* spp.). Vegetation within the existing ditch consisted of grasses that are mowed periodically to manage the vegetative growth. This area is not part of the pipeline RoW and will not be disturbed by the Project activities.



Photo 3: View facing northwest of the wooded area located on the north side of PTH1 adjacent to the PTH1 service road, October 29, 2012. This area is not part of the pipeline RoW and will not be disturbed by the Project activities.

The second wooded area was located on private land on the north side of Road 63N about 0.7 km west of the intersection with PTH101. Vegetation in this area consisted of grasses, poplars (*Populus* spp.), dogwood (*Cornus* spp.) and willows (Photo 4). This area is not part of the pipeline RoW and will not be disturbed by the Project activities.



Photo 4: View facing northwest of the wooded area located on the north side of Road 63N, October 29, 2012. This area is not part of the pipeline RoW and will not be disturbed by the Project activities.

The third wooded area was located on the south side of Road 63N at the St. Charles Rifle Range. Vegetation in this area consisted of dogwood, elm, grasses and reeds (*Phragmites* spp.). Photo 5 shows the view of the vegetation facing east from the south side of Road 63N at the Sturgeon Creek crossing, which is located about 1.6 km west of the intersection with PTH101. Photo 6 shows the view of the vegetation facing west from the same location.

The area within the St. Charles Rifle Range includes a section of remnant tall grass prairie that is managed by DND (DND 2012). The tall grass prairie located in the St. Charles Rifle Range was formed over lake bottom sediments, which results in a different species composition and very rare type of tall grass prairie (DND 2012). The area is considered to be one of the largest and highest quality remnants of lake bottom tall grass prairie still remaining within the Red River Valley, and is possibly also the largest remnant remaining in Canada (DND 2012). None of the Project activities will be located in the St. Charles Rifle Range and the tall grass prairie will not be disturbed by the Project activities.



Photo 5: View facing east of the wooded area located at the St. Charles Rifle Range on the south side of Road 63N, October 29, 2012. The pipeline and pipeline RoW will be located along the ditch adjacent to the St. Charles Rifle Range.



Photo 6: View facing west near the wooded area located at the St. Charles Rifle Range on the south side of Road 63N, October 29, 2012. The pipeline and pipeline RoW will be located along the ditch adjacent to the St. Charles Rifle Range.

8.2.5. Wildlife and Wildlife Habitat

Smith et al (1998) states that the Lake Manitoba Plain Ecoregion provides habitat for coyote (*Canis latrans*), ground squirrels, rabbits, waterfowl and white-tailed deer (*Odocoileus virginianus*). The MCDC lists six species of invertebrate animals and 38 species of vertebrate animals that have been documented to be present in the Lake Manitoba Plain Ecoregion (MCDC 2012). Wildlife observed to be present within the Project area during the October 29, 2012 field survey included American crow (*Corvus brachyrhynchos*), Canada geese (*Branta canadensis*) and mallards (*Anas platyrhynchos*). A ground squirrel hole was found near Second Creek along Boivin Road. There were no stick nests, tracks, burrows or other signs of wildlife presence or use observed during the October 29, 2012 field survey. There were no tracks or signs of wildlife noted during the January 14, 2013 field survey. Gooch (2009) studied the effects of white-tailed deer herbivory on the tall grass prairie found within the St. Charles Rifle Range; therefore, this species is known to be present within the Project area.

The Project area consists mainly of cultivated land, with trees and vegetation limited to fringes along watercourses, shelterbelts and occasional patches of wooded or grassy areas. The following information sources were examined to determine potential wildlife species that could be present in the type of habitats provided within the Project area:

- MCDC database (<http://www.gov.mb.ca/conservation/cdc/db.html>);
- Manitoba Breeding Bird Atlas (<http://www.birdatlas.mb.ca>);
- Manitoba Herps Atlas (http://www.naturenorth.com/Herps/Manitoba_Herps_Atlas.html);
- NatureServe Explorer database (<http://www.natureserve.org/explorer/index.htm>);
- MCDC annual reports from 2003 to 2011 on MCDC rare species surveys and stewardship activities (<http://www.gov.mb.ca/conservation/cdc/pubs.html>);
- The Dorsey to Portage South 230 kV Transmission Line Environmental Assessment Report (Manitoba Hydro 2012a); and
- The Bipole III Transmission Project Environmental Impact Statement (Manitoba Hydro 2012b).

Based on review of wildlife information for the Project area, it is expected that the following species could be present at different times of the year as residents or migrants within the Project area: American crow, American robin (*Turdus migratorius*), black-billed magpie (*Pica hudsonia*), coyote, deer mouse (*Peromyscus maniculatus*), ground squirrel (*Spermophilus* spp.), hare (*Lepus townsendii*), killdeer (*Charadrius vociferus*), meadow jumping mouse (*Zapus hudsonius*), meadow vole (*Microtus pennsylvanicus*), mourning dove (*Zenaida macroura*), red-tailed hawk (*Buteo jamaicensis*), red-winged blackbird (*Agelaius phoeniceus*), striped skunk (*Mephitis mephitis*), Western meadowlark (*Sturnella neglecta*), and white-tailed deer. Section 8.2.8 below provides information on potential species at risk that may also be present within the Project area.

8.2.6. Wetlands

There were no wetland areas observed to be present in the Project area. The closest wetland to the Project area is the Grants Lake Wildlife Management Area (WMA), which is located about 14 km northwest of the Project area. The Grants Lake WMA is a managed wetland that provides breeding, nesting, feeding and staging habitat for several types of shorebirds, waterfowl and other bird species. There are areas alongside some of the creeks within the Project area that contain the types of vegetation often found in wetland areas (e.g. *Phragmites* spp, *Typha* spp.); however, these areas are considered to be part of the area of inundation of the creeks during high flows, and not as distinct wetland areas.

8.2.7. Groundwater, Surface Water, Fish and Fish Habitat

8.2.7.1 Groundwater

Groundwater resources within the Project area include groundwater derived from sand and gravel aquifers within the region, and groundwater derived from the Winnipeg Carbonate Aquifer (Gray and Rutulis 1973). The Winnipeg Carbonate Aquifer is the largest freshwater aquifer in Manitoba, stretching from north of The Pas southward through the Interlake region and continuing along the east side of the Red and Rat rivers into Minnesota (Grasby and Betcher 2002). In the RM of Rosser, the depth to the carbonate aquifer ranges from about 10 feet to 90 feet (about 3 m to 27.4 m) and the static level of the carbonate aquifer ranges from about 5 to 25 feet (about 1.5 m to 7.6 m) below ground level (Gray and Rutulis 1974). In the RM of St. Francois Xavier, the depth to the carbonate bedrock ranges from 5 m to 25 m and usually is around 15 m (Rutulis 1988). The Groundwater Management Section of MCWS was contacted for information on groundwater resources in the RM of Headingley, but there were no provincial groundwater reports available for the RM of Headingley (G. Phipps pers.comm.). Given that the area has similar geography, climate, hydrogeology and soil conditions, it is assumed that the groundwater levels and conditions within the RM of Headingley are similar to the groundwater levels and conditions within the RMs of Rosser and St. Francois Xavier.

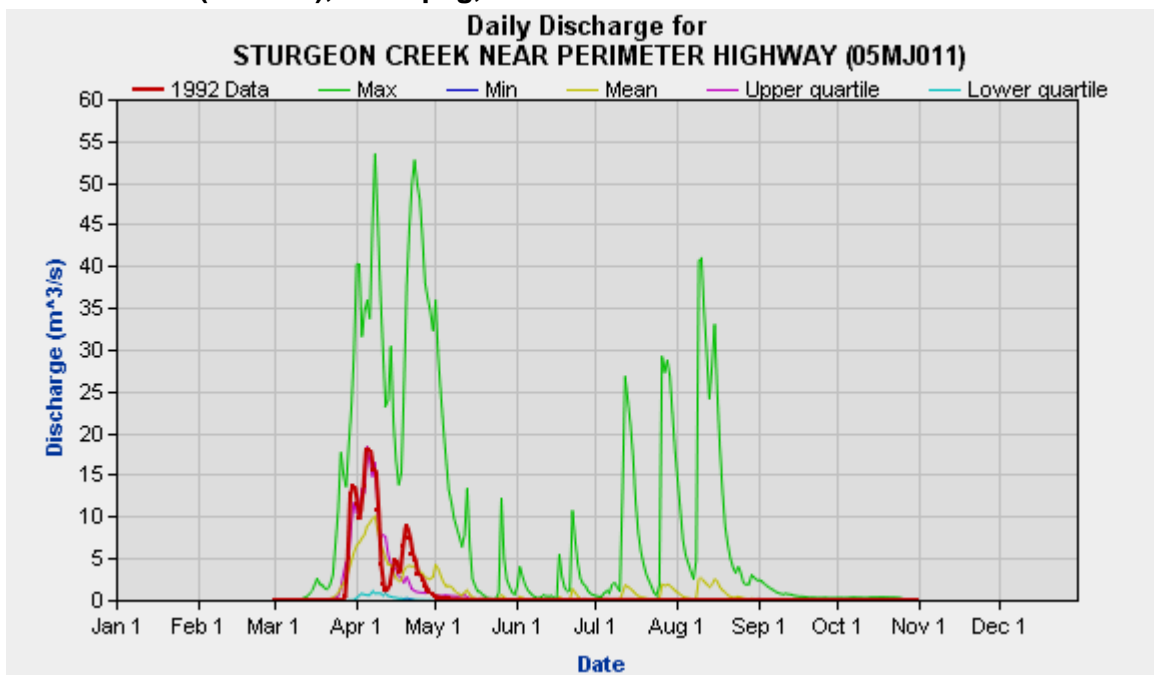
Rutulis (1988) indicated that the majority of the groundwater in the carbonate rock aquifer in the RM of St. Francois Xavier is saline and not potable. Groundwater in the RM of Rosser is considered to be of fair to good quality (Gray and Rutulis 1974). Rutulis (1988) also noted that the carbonate rock aquifer is less susceptible to surface pollution due to the layer of thick clay and glacial till that overlies the carbonate rock layer. The potential for environmental impacts to groundwater due to irrigation is considered to be minimal in 98% of the RM of Headingley, 76% of the RM of St. Francois Xavier and 88% of the RM of Rosser as a result of the soil and slope characteristics in the region (Agriculture and Agri-Food Canada 1999a, 1999b, 1999c). The layer of clay that overlies the majority of the groundwater sources within the Project area reduces the potential for the infiltration of pollutants from surface activities to groundwater sources.

8.2.7.2 Surface Water

Watercourses within the Project area include First Creek, Second Creek, Third Creek, Fourth Creek and Sturgeon Creek (Figure 1). Installation of the pipeline will require the completion of two crossings on First Creek, two crossings on Second Creek, three crossings on Third Creek, one potential crossing on Fourth Creek and one crossing on Sturgeon Creek (shown as red circles on Figure 1). The Fourth Creek crossing is considered as a potential crossing as it is an ephemeral creek in this area. As noted in Section 3.1, all of the crossings will be completed by Directional Drilling.

First Creek, Second Creek and Third Creek all flow in a northwest to southeast direction through the western portion of the Project area and flow past PTH1 to eventually connect with the Assiniboine River. Fourth Creek joins with Sturgeon Creek just outside of the northwest section of the Project area, and continues southeast across the central portion of the Project area from its confluence with Sturgeon Creek in NW-17-11-1-E. Fourth Creek also flows southeast to the Assiniboine River, but the connection to the Assiniboine River is interrupted by several barriers in the John Blumberg golf course. As noted above, the section of Fourth Creek located within and adjacent to the pipeline RoW is ephemeral and does not have permanent flow. Sturgeon Creek meanders across the landscape in a west to east direction just outside of the northern portion of the Project area, and enters the Project area at Road 63N about 1.6 km from the intersection with PTH101 (Figure 1). This segment of Sturgeon Creek flows through the St. Charles Rifle Range and the western portion of the City of Winnipeg and eventually connects to the Assiniboine River. Figure 2 provides a summary of the daily discharge for Sturgeon Creek near PTH101 from 1978 to 1994.

Figure 2: Daily Discharge Data for Sturgeon Creek near the Perimeter Highway (PTH101), Winnipeg, Manitoba from 1978 to 1994



(Source: Environment Canada 2012d)

The graph depicts the maximum, minimum, mean, upper quartile and lower quartile discharge amounts for the period of record. Flows tend to be higher in the spring and late summer and lower during early summer, fall and winter. There were no daily discharge data available for the other creeks found within the Project area. However, the flow regime of peak flows in spring and late summer and lower flows in early summer, fall and winter is characteristic of many creeks in southern Manitoba (Forster 2004). As such, it is assumed that First Creek, Second Creek and Third Creek all exhibit a flow pattern similar to the flow pattern of Sturgeon Creek. It is expected that the section of Fourth Creek located within and adjacent to the pipeline RoW contains water and flow during peak runoff and precipitation events, but is dry or has no to little flow outside of these events. The watercourse crossing and Direction Drilling activities for the Project are scheduled to occur in early summer after peak spring flows have subsided.

8.2.7.3 Fish and Fish Habitat

The watercourses within the Project area provide habitat for a number of fish species. Table 4 provides a summary of the fish species known to be present in the Project area watercourses.

Table 4: Summary of Fish Species Known to be Present in the Project Area Watercourses

| Common Name | Latin Name | Capture Location |
|-------------------------------|------------------------------|--|
| Bigmouth buffalo ^a | <i>Ictiobus cyprinellus</i> | Second Creek |
| Black bullhead | <i>Ameiurus melas</i> | Second Creek |
| Brook stickleback | <i>Culaea inconstans</i> | Second Creek, Sturgeon Creek |
| Central mudminnow | <i>Umbra limi</i> | Second Creek, Sturgeon Creek |
| Channel catfish | <i>Ictalurus punctatus</i> | Second Creek |
| Common carp | <i>Cyprinus carpio</i> | Second Creek, Sturgeon Creek |
| Common shiner | <i>Luxilus cornutus</i> | Sturgeon Creek |
| Emerald shiner | <i>Notropis atherinoides</i> | Second Creek |
| Fathead minnow | <i>Pimephales promelas</i> | Second Creek, Third Creek |
| Freshwater drum | <i>Aplodinotus grunniens</i> | Second Creek |
| Northern pike | <i>Esox lucius</i> | First Creek, Second Creek, Third Creek, Sturgeon Creek |
| Quillback | <i>Carpionodes cyprinus</i> | Second Creek |
| Sand shiner | <i>Notropis stramineus</i> | Second Creek |
| White sucker | <i>Catostomus commersoni</i> | Meridian Drain, Second Creek, Sturgeon Creek |

(Source: City of Winnipeg 2012; DFO 2012; MCWS 2012; D. Milani, pers.comm)

^a Bigmouth buffalo are a Species of Special Concern under the federal Species At Risk Act (SARA) and the MB Endangered Species Act (MESA); see Section 8.2.8 for additional information on Species At Risk.

The fish capture data in Table 4 are the species that have been captured in or near (within 2 km) the Project area. There are a number of additional species known to be present in Sturgeon Creek in the areas further downstream of PTH101 in the City of Winnipeg. Review of information from the City of Winnipeg, D. Milani, DFO and MCWS showed no records of fish being captured in Fourth Creek.

As noted above, installation of the pipeline will require the completion of two crossings on First Creek, two crossings on Second Creek, three crossings on Third Creek, one potential crossing on Fourth Creek and one crossing on Sturgeon Creek. All of the crossings will be completed by Directional Drilling. Photos 7 to 14 show the habitat conditions at the watercourse crossings as observed during the October 29, 2012 field survey.

As noted in Section 6, the gate station location was revised based on discussions between a local landowner and Manitoba Hydro during the public engagement program for the Project. The relocation of the gate station resulted in a change to a section of the pipeline route and relocation of four of the watercourse crossings. The crossings adjacent to PTH1 at First Creek, Second Creek and Third Creek were originally planned to be located on the north side of the PTH1 service road. However, the revised route relocated these four crossings to the south side of PTH1 (Figure 1). This area was included as part of the environmental assessment, but there were no photos collected for the revised watercourse crossing sites during the October 29, 2012 field survey. Therefore, a second field survey was done on January 14, 2013 to confirm and document the conditions at the new watercourse crossing locations.

The areas were under snowfall, but the general channel morphology, flatness of the land, use as an agricultural area and absence of riparian zone vegetation was evident (Photo 15). Historical Google Earth© satellite imagery for this portion of the Project area was reviewed to examine the revised watercourse crossing areas without snowfall. Imagery was available for 2002 to 2012. The historical images for the revised watercourse crossings show that the habitat conditions in First Creek, Second Creek and Third Creek on the south side of the PTH1 are similar to the habitat conditions found in these creeks on the north side of PTH1. The review of the historical Google Earth© satellite imagery also showed that First Creek does not appear to overflow its banks and inundate the area of land where the new gate station and pipeline will be located.

The watercourses within the Project area have been classified by Fisheries and Oceans Canada (DFO) based on the type of fish species and habitat found within the watercourse. Watercourses are classified by DFO as Type A, B, C, D or E, with Type A habitats providing the highest quality of fish habitat and Type E providing the lowest quality of fish habitat. The habitat classifications are based on field surveys conducted from 2002 to 2006 that documented fish capture data and habitat conditions at several locations within and outside of the Project area (D. Milani, pers. comm.). Table 5 provides a summary of the DFO fish habitat classification at the nine watercourse crossing locations within the Project area.



Photo 7: View facing southeast (downstream) of Third Creek near the crossing location on the north side of PTH1 adjacent to the PTH1 service road, October 29, 2012. The channel was dry at the time of the field survey.



Photo 8: View facing north (upstream) of Second Creek near the crossing location on the north side of PTH1 adjacent to the PTH1 service road, October 29, 2012. There was standing water present but no flow in the channel at the time of the field survey.



Photo 9: View facing northwest (upstream) of First Creek near the crossing location on the north side of PTH1 adjacent to the PTH1 service road, October 29, 2012. There was standing water present but no flow in the channel at the time of the field survey.



Photo 10: View facing southeast (downstream) of First Creek near the crossing location on the east side of Boivin Road, October 29, 2012. There was standing water in a shallow (<10 cm) pool below the culvert, but otherwise the channel was dry at the time of the field survey.



Photo 11: View facing northwest (upstream) of Second Creek near the crossing location on the east side of Boivin Road, October 29, 2012. The channel was dry at the time of the field survey.



Photo 12: View facing east (downstream) of Third Creek near the crossing location on the east side of Boivin Road, October 29, 2012. The channel was dry at the time of the field survey.



Photo 13: View facing west (upstream) of Sturgeon Creek upstream of the Fourth Creek crossing location, October 29, 2012. There was standing water present but no flow in the channel at the time of the field survey.



Photo 14: View facing south (downstream) of Sturgeon Creek near the crossing location on the south side of Road 63N, October 29, 2012. Water was present and flowing in this section of the creek at the time of the field survey.



Photo 15: View facing southeast (downstream) of First Creek near the pipeline crossing location on the south side of PTH1, January 14, 2013. The yellow arrow shows the location of the channel and direction of flow in open water season.

Table 5: Summary of DFO Fish Habitat Classifications at the Nine Watercourse Crossing Locations within the Project Area

| Watercourse | Crossing Location | DFO Habitat Type | Habitat Type Description |
|----------------|---------------------------------|------------------|---|
| First Creek | South side of PTH1 Service Road | A | Intermittent or perennial flows; complex habitat with indicator species (northern pike, walleye, suckers) |
| First Creek | Boivin Road | A | Intermittent or perennial flows; complex habitat with indicator species (northern pike, walleye, suckers) |
| Second Creek | South side of PTH1 Service Road | A | Intermittent or perennial flows; complex habitat with indicator species (northern pike, walleye, suckers) |
| Second Creek | Boivin Road | B | Intermittent or perennial flows; simple habitat with indicator species (northern pike, walleye, suckers) |
| Third Creek | South side of PTH1 Service Road | A | Intermittent or perennial flows; complex habitat with indicator species (northern pike, walleye, suckers) |
| Third Creek | Four Mile Road | E | Ephemeral flows with simple or complex habitat |
| Fourth Creek | Four Mile Road | Unclassified | Classified as Type E downstream of the crossing location and Type B at Sturgeon Creek |
| Sturgeon Creek | Road 63N | A | Intermittent or perennial flows; complex habitat with indicator species (northern pike, walleye, suckers) |

(Source: DFO 2012)

The DFO habitat classification for the watercourse is used to assess the potential risk of harming fish or fish habitat due to different construction, landuse or resource use activities. The assessment of potential risk of harm to fish or fish habitat due to the Project activities, i.e. the assessment of potential environmental effects of the Project on fish or fish habitat, is provided in Section 9.1.7.

8.2.8. Species at Risk

Potential species at risk in the Project area were identified by review of the following information sources:

- COSEWIC database (www.cosewic.gc.ca);
- Species At Risk database (www.speciesatrisk.gc.ca);
- MCDC database (<http://www.gov.mb.ca/conservation/cdc/db.html>);
- Manitoba Breeding Bird Atlas (<http://www.birdatlas.mb.ca>);
- Manitoba Herps Atlas (http://www.naturenorth.com/Herps/Manitoba_Herps_Atlas.html);
- NatureServe Explorer database (<http://www.natureserve.org/explorer/index.htm>);
- MCDC annual reports from 2003 to 2011 on MCDC rare species surveys and stewardship activities; and
- a request was sent to MCDC on October 10, 2012 by Manitoba Hydro to determine if there are any species at risk known to be present within the Project area.

Historical data obtained by Manitoba Hydro indicated that burrowing owl (*Athene cunicularia*), migrant loggerhead shrike (*Lanius ludovicianus migrans*) and the vascular plant white doll's-daisy (*Boltonia asteroides* var. *recognita*) were found within or near to the Project Area (K. Watts, pers.comm.). The burrowing owl was sighted in 1923, the migrant loggerhead shrikes were observed on three occasions between 2002 and 2008, and the white doll's-daisy was recorded in 1897. The MCDC Species At Risk biologist indicated that "burrowing owls used to occur and/or nest in this area 30 years ago, but they vanished in the 1970s or early 1980s; it is possible that the odd pair might nest here occasionally, but certainly there are not many, if any, that nest here on an annual basis" (K. De Smet, pers.comm.). This species was not observed to be present within the Project area during the October 29, 2012 field survey.

The MCDC lists the white doll's-daisy as white boltonia with a global rank of secure to uncommon for the taxon (G5T3T5) and a provincial rank of rare to uncommon (S2S3). This species was not observed to be present within the Project area during the October 29, 2012 field survey and there have been no other documented observations of this species within or near to the Project area since 1897.

The MCDC Species At Risk biologist provided the following information on the status of migrant loggerhead shrike near the Project area: "There is still the occasional report of this species in the Winnipeg area, but it is very rare. There were nesting migrant loggerhead shrike pairs near the City of Winnipeg and at Optimist Park until about three years ago, but none in that area now. It is possible that there are still a few widely scattered pairs in this area, but there are none in the areas where we used to have a few pairs nesting in the 1990s and early 2000s. Perhaps more surveys will reveal pairs, but perhaps they have all disappeared in these areas." (K. De Smet, pers.comm.). This species was not observed to be present within the Project area during the October 29, 2012 field survey.

The response to Manitoba Hydro from MCDC in regards to the presence of species at risk in the Project area indicated that there were no occurrences of rare species within the area of interest at the time of the request (Appendix B). Based on review of the information sources and the type of habitats found within the Project area, a total of 16 species that are listed as endangered, threatened or of special concern are considered to be potentially present within the Project area. Table 6 provides a summary of the 16 species, and the federal and provincial status of each of the species.

As noted in Section 8.2.5, the Project area consists mainly of cultivated land, with trees and vegetation limited to fringes along watercourses, shelterbelts and occasional patches of wooded or grassy areas. The wildlife observed to be present within the Project area during the October 29, 2012 field survey included American crow (*Corvus brachyrhynchos*), Canada geese (*Branta canadensis*) and mallards (*Anas platyrhynchos*). A ground squirrel hole was found near Second Creek along Boivin Road. There were no stick nests or other signs of wildlife presence or use observed during the field survey. There were no tracks or signs of wildlife noted during the January 14, 2013 field survey. Based on the type of habitat available and level of past and present human activity within the Project area, it is not expected that the Project area provides nesting or breeding habitat for any of the identified terrestrial species at risk; habitat use is likely limited to occasional feeding and movement through the Project area.

Table 6: Species Potentially Present Within the Project Area that are Listed as Endangered, Threatened or of Special Concern

| Common Name | Scientific Name | Taxon | MCDC Rank ^a | MESA Status | COSEWIC Status | Schedule | SARA Status |
|-------------------------------|--|------------|------------------------|-------------|-----------------|-------------|-----------------|
| American Badger | <i>Taxidea taxus taxus</i> | Mammals | n/a ^b | n/a | Special Concern | n/a | n/a |
| Baird's Sparrow | <i>Ammodramus bairdii</i> | Birds | G4; S1S2B | Endangered | Special Concern | No schedule | No Status |
| Barn Swallow | <i>Hirundo rustica</i> | Birds | G5; S5B | n/a | Threatened | No schedule | No Status |
| Bigmouth Buffalo ^c | <i>Ictiobus cyprinellus</i> | Fishes | n/a | n/a | Non-active | Schedule 3 | Special Concern |
| Bobolink | <i>Dolichonyx oryzivorus</i> | Birds | G5; S4B | n/a | Threatened | No schedule | No Status |
| Burrowing Owl | <i>Athene cunicularia</i> | Birds | G4; S1B | Endangered | Endangered | Schedule 1 | Endangered |
| Chimney Swift | <i>Chaetura pelagica</i> | Birds | G5; S2B | Threatened | Threatened | Schedule 1 | Threatened |
| Cooper's Hawk | <i>Accipiter cooperii</i> | Birds | G5; S4S5B | n/a | Not at Risk | n/a | n/a |
| Eastern Wood-Pewee | <i>Contopus virens</i> | Birds | n/a | n/a | Special Concern | n/a | n/a |
| Little Brown Myotis | <i>Myotis lucifugus</i> | Mammals | G5; S2N,S5B | n/a | Endangered | No schedule | No Status |
| Loggerhead Shrike | <i>Lanius ludovicianus excubitorides</i> | Birds | G4T4; S2B | Endangered | Threatened | Schedule 1 | Threatened |
| Loggerhead Shrike | <i>Lanius ludovicianus migrans</i> | Birds | G4T3Q; S1B | Endangered | Endangered | Schedule 1 | Endangered |
| Monarch | <i>Danaus plexippus</i> | Arthropods | n/a | n/a | Special Concern | Schedule 1 | Special Concern |
| Northern Leopard Frog | <i>Lithobates pipiens</i> | Amphibians | n/a | n/a | Special Concern | Schedule 1 | Special Concern |
| Red-Headed Woodpecker | <i>Melanerpes erythrocephalus</i> | Birds | G5; S2S3B | Threatened | Threatened | Schedule 1 | Threatened |
| Short-Eared Owl | <i>Asio flammeus</i> | Birds | G5; S2S3B | Threatened | Special Concern | Schedule 1 | Special Concern |

(Sources: MCDC 2012; SARA 2012; MHA 2012; MBA 2012; MBCWS 2012; D. Milani, pers. comm.)

^a Explanation of the MCDC Rank is provided in Appendix C; ^bn/a = not applicable; ^c documented to be present within the Project area

8.3. Cultural and Socio-Economic Environment

8.3.1. Land Use, Resource Use and Protected Areas

The majority of the lands within the Project area are used for annual crops, with smaller areas used for forage crops, rural and urban development, and transportation (Agriculture and Agri-Food Canada 1999a, 1999b, 1999c). Table 7 provides a summary of the landuse classification for the RMs of Headingley, St. Francois Xavier and Rosser.

Table 7: Summary of the Landuse Classification for the RMs of Headingley, St. Francois Xavier and Rosser

| Land Class | Headingley | St. Francois Xavier | Rosser |
|--------------------------|------------|---------------------|--------|
| Annual Crop Land | 76% | 81.9% | 83.6% |
| Forage | 2% | 1.6% | 2.7% |
| Grassland | 10.5% | 7.7% | 6.8% |
| Trees | 4.5% | 4.8% | 1.6% |
| Wetland | 0 | 0.1% | 0.6% |
| Water | 0.9% | 1.6% | 0.1% |
| Urban and transportation | 6.0% | 2.2% | 4.6% |
| Total | 100% | 100% | 100% |

(Source: Agriculture and Agri-Food Canada 1999a, 1999b, 1999c)

Resource use in the Project area is mainly agricultural activities and farmsteads that utilize the soil and water resources within the Project area. Drinking water is supplied to the RMs of Headingley, St. Francois Xavier and Rosser as part of the Cartier Regional Water Supply (CRWS) system, which draws water from the Assiniboine River outside of the Project area (Cartier Regional Water Cooperative 2012). The Project area is located within Game Hunting Area 25B; it is expected that hunting for waterfowl and white-tailed deer occurs within the Project area during the fall hunting season. The Snowmobilers of Manitoba (Snoman Inc.) operates a snowmobile trail in the Project area under adequate snow conditions during the winter season (Snoman Inc. 2012). The Project area lies within Trapping Zone 3. Personal communications with the Winnipeg Natural Resources Office indicated that trapping for animals such as coyotes, raccoons (*Procyon lotor*), beaver (*Castor canadensis*) and mink (*Mustela vison*) occurs in the region, but it is an open trapping area with no established trapping lines (J. Johansson pers. comm.).

The St. Charles Rifle Range is the only protected area located within the Project area. The St. Charles Rifle Range is a 507 ha (Treasury Board of Canada Secretariat 2013) property located in the northeast section of the Project area that is managed by DND as a military rifle range and training centre and Tall Grass Prairie refuge. Other protected areas that are located in proximity to the Project area include Beaudry Provincial Park, located about 0.2 km south of the southern portion of the Project area, and the Grants Lake Wildlife Management Area located about 14 km northwest of the Project area.

8.3.2. Heritage Resources

Heritage Resources identified within the Project area include the Prime Meridian cairn located on the north side of the PTH01 service road about 2.7 km east of Boivin Road (Photo 16), and an old school marker located on private property on the north side of the PTH01 service road about 0.7 km east of Boivin Road (Photo 17).



Photo 16: View facing north of the Prime Meridian cairn located on the north side of the PTH1 service road, October 29, 2012.



Photo 17: View facing north of the old school marker located on private land on the north side of the PTH1 service road, October 29, 2012.

A request was submitted to the Manitoba Historic Resources Branch (MHRB) on October 31, 2012 for information on the presence of any Heritage Resources within the Project area. The response received on November 6, 2012 indicated that the potential to impact significant Heritage Resources is low, and, therefore, the Historic Resources Branch has no concerns with the project. The MHRB instructed that avoidance of the cairns during construction is the required mitigation. A copy of the response is provided as Appendix D.

8.3.3. Stakeholder Issues

Manitoba Hydro conducted a public engagement program for the Project in December 2012 to obtain feedback from the public, local municipalities, First Nations communities, the Manitoba Metis Federation (MMF) and local landowners. Manitoba Hydro undertook Municipal council meetings, provided a contact to all interested parties through a variety of notification methods (which included direct mailings, a postal code drop and newspaper advertisements) and held a public open house to allow the public and interested parties to discuss the Project with Manitoba Hydro representatives. A summary of the public engagement program methods, activities and results is provided in Appendix E. The following issues were identified based on the stakeholder feedback:

- *Pipeline and Gate Station Location* - Many participants were interested in understanding the location of the proposed pipeline in relation to their landholdings in addition to how the location of the pipeline and gate station was determined. Many questioned the proposed location of the new gate station. It was noted that the location was not yet finalized and will continue to be evaluated. No opposition was heard with regards to the location of the proposed natural gas pipeline.
- *Potential for Future Development and Expansion* - Many commercial operators attended the open house and contacted the project line. These individuals were very supportive of the proposed location as they believed that it would facilitate future expansion of natural gas service into the community of St. Francois Xavier. Operators noted that currently they are running on propane, which is a more expensive alternative to natural gas. Many noted they were disappointed with that the municipality did not participate in the initiative to bring gas to rural areas many years ago. One participant raised a concern regarding their rural landscape. This participant noted their belief that bringing natural gas into the area and potential future expansion would be correlated to an increase in subdivisions and residential/commercial development. This participant was concerned that this would encroach on the natural landscape and their current rural surrounding for which they moved into this area.
- *Condition of Boivin Road* - Many participants noted that Boivin Road (location of the north/south alignment) is accessible in dry conditions. During wet conditions the road is very difficult to utilize and is not able to be traveled.
- *Agriculture and Compensation* - Discussions regarding potential damages to crops during the construction phase were mentioned by some participants. There was concern over damaging crops during winter if winter wheat was being sown as well as damages caused by trenching if it were to occur after seeding of the easement area. It was noted that for any damages caused by Manitoba Hydro activities would be compensated for (i.e., loss of seed, creation of ruts, crop damage, etc.).
- *Access* - A landowner was concerned that the construction phase of the Project could interfere with accessing his land parcel. It was outlined to the landowner that contractors will contact landowners before trenching begins to understand any time sensitivities or access issues and will work to minimize any potential issues.
- *Support for the Project* - Many participants were supportive of the Project. Many believed that with this project, future natural gas pipeline expansion could ensue into adjacent municipalities. Many questioned how they could convince Manitoba Hydro or their local municipalities to expand natural gas access as well as the possibility of tapping in to the existing and the proposed infrastructure. Many participants in the public engagement program noted that they felt this Project would only bring benefits. Many indicated they felt access to natural gas in the area would be an economic benefit (transferring operations to gas as opposed to current processes) as well as a potential increase in property values.
- *Future Follow-Up Requirements* - As part of the public engagement program, Manitoba Hydro will notify the public, stakeholders, First Nations and the MMF of the final proposed route of the natural gas pipeline in the area. Manitoba Hydro will include in this notification

that the environmental assessment has been submitted to regulatory authorities (MCWS) and that the assessment is available for public review and comment.

The public engagement program indicated that there was strong support amongst local municipalities, landowners and the general public in the Project area. Many viewed the project as having long term potential benefits with some short term potential inconveniences with regards to agricultural operations.

8.3.4. Aboriginal Engagement

There were no Aboriginal communities found to be located within the Project area. Aboriginal communities located outside of the Project area include the following:

- Swan River 8A, located about 3 km east of the Town of Headingley;
- Roseau River Anishinabe 2B, located about 7 km north of the Project area;
- Long Plain 6, located about 75 km west-southwest of the Project area;
- Indian Gardens 8, located about 80 km west-southwest of the Project area; and
- Dakota Plains 6A, located about 75 km west-southwest of the Project area.

The Peguis First Nation has a Community Interest Zone (CIZ) with a total area of about 11.5 km located parallel to Road 63N in the northern section of the Project. Based on the agreement made between the MMF and the Province of Manitoba in September 2012, the Project area lies within Métis Natural Resource Harvesting Zone 25B, which is also the Province of Manitoba Game Hunting Area 25B.

As part of Manitoba Hydro's public engagement program for the Project (Appendix E), three First Nations were notified regarding the Project and received the materials outlined in Appendix E. Manitoba Hydro offered to meet with these communities if there was community interest. The following First Nations communities were notified of the Project by direct mailing:

- Peguis First Nation;
- Roseau River First Nation; and
- Swan Lake First Nation.

The MMF was notified regarding the Project by direct mailing and included all available mapping as well as the Project newsletter.

As noted above, Manitoba Hydro will notify the First Nations and the MMF of the final proposed route of the natural gas pipeline in the area and that the environmental assessment has been submitted and is available for public review and comment.

9. POTENTIAL ENVIRONMENTAL EFFECTS

9.1. Biophysical Effects

9.1.1. Air Quality and Greenhouse Gases

During the Project construction activities, there will be air emissions due to exhaust and/or dust from the use of stationary and mobile project equipment. These emissions may cause a minor, temporary, localized effect on air quality and GHG emissions during the Project construction phase. The Project will require the temporary disturbance of some of the vegetation present within the RoW and alteration of the vegetation at the new gate station location, but there will be no permanent loss of vegetation within the Project area that would significantly affect existing carbon resources in the area. During the O&M phase of the Project, there is the potential for natural gas leaks along the pipeline and/or from leaks on fittings or equipment at the gate station. Manitoba Hydro will conduct monthly inspections of the gate station and annual maintenance and inspections of the pipeline to reduce the potential for the occurrence of leaks.

9.1.2. Noise

During the Project construction activities, the types of noises emitted will be dominated by equipment engines with miscellaneous short-term noise emissions from the use of a ½ to 1 ton truck, bulldozer, Directional Drilling, front end loader, sideboom, tandem/trailer, trackhoe, trencher, vacuum truck, welding rig and tools. These noises may cause a minor, temporary, localized effect on noise within the Project area. The Project O&M activities are not expected to have an effect on noise within the Project area.

9.1.3. Climate

The Project construction and O&M activities are not expected to have an effect on the local climate (i.e., no effect on air pressure, cloud cover, humidity, precipitation, hours of sunshine, temperature, wind speed and wind direction).

9.1.4. Terrain, Soils and Vegetation

As described in Section 3.3, the Project construction and O&M activities will take place in the RoW and in the area designated for the new gate station on private land in RL-216-FX south of the PTH1 service road. Potential effects to terrain, soils and vegetation due to the Project construction activities include:

- Alteration of the existing terrain, i.e., change in grade, slope or stability.
- Contamination from improper waste disposal, petroleum spills or release of hazardous materials as a result of accidents and malfunctions that may occur during the Project construction activities.
- Contamination from release of water used for hydrostatic testing.
- Disturbance, compaction and/or loss of soils and vegetation that are present within the work areas identified in Section 3.3.
- Introduction of invasive plant species from equipment and vehicles.

- Increased potential for wildfires due to the use of gasoline, oil and electronically operated equipment in the Project area.

The construction activities will take place within an existing RoW for the length of the pipeline and in a previously disturbed area for the new gate station. The terrain, soils and vegetation in the existing RoW have been previously disturbed and the vegetation is regularly mowed as part of road and drainage maintenance. Based on the field survey, MCDC data, RoW maintenance activities and amount of disturbance that has previously occurred in the Project area, it is expected that the vegetation in the RoW consists of grasses and forbs that commonly occur in disturbed and agricultural areas. Based on review of historical and recent Google Earth® satellite imagery for the new gate station location, vegetation in the area of the new gate station consist of crops or is left fallow. It is not expected that there are any plant species listed as endangered, threatened or of special concern present within the Project RoW or new gate station location. Potential effects to terrain, soils and vegetation due to the Project O&M activities include:

- Release of hazardous materials as a result of accidents and malfunctions that may occur during the Project O&M activities.

During the O&M phase of the Project, there is the potential for natural gas leaks along the pipeline and/or from leaks on fittings or equipment at the gate station. Manitoba Hydro will conduct monthly inspections of the gate station and annual maintenance and inspections of the pipeline to reduce the potential for the occurrence of leaks.

9.1.5. Wildlife and Wildlife Habitat

Potential effects to wildlife and wildlife habitat due to the Project construction and O&M activities include:

- Wildlife species present in the Project area may be temporarily disturbed by noise and activity during the Project construction and/or O&M activities.
- Alteration and loss of habitat at the new gate station location.

It is expected that the wildlife species known to be present or potentially present within the Project area would not be nesting or breeding in the RoW or at the new gate station location, and that these species are habituated to the presence of humans and human activity.

9.1.6. Wetlands

There were no wetland areas observed to be present in the Project area. As such, there were no potential effects to wetlands identified for the Project.

9.1.7. Groundwater, Surface Water, Fish and Fish Habitat

Potential effects to groundwater, surface water or fish and fish habitat due to the Project construction activities include:

- Accidental release of drilling mud and/or drilling mud additives to the Project area watercourses if a frac-out (i.e., release of drilling mud) occurs during the directional drilling activities.
- Accidental release and/or transport of fuel, grease, mud, soil or other deleterious substances to the Project area watercourses during the Project construction activities.
- Accidental release and/or transport of water used for hydrostatic testing.

The Project O&M activities will include: a yearly leak survey of the 6" steel pipeline; monthly inspection of the gate station to ensure that there are no leaks on any of the fittings or equipment; yearly maintenance of the station, which includes checking for leaks and equipment maintenance (greasing of valves, replacing regulator springs, lighting replacements etc.); snow-clearing of the station site, as necessary; and SCADA monitoring at the station will identify any emergency situations occurring on the pipeline such as a damage to the pipeline. SCADA monitoring will trigger alarms at specific low pressure settings (monitored in real-time) and the appropriate personnel will be notified to respond and rectify the situation.

As such, the Project O&M activities are not expected to have an effect on groundwater, surface water or fish and fish habitat within the Project area.

9.1.8. Species At Risk

Potential effects to species at risk due to the Project construction and/or O&M activities include:

- Terrestrial species at risk present in the Project area may be temporarily disturbed by noise and activity during the Project construction and/or O&M activities.
- Alteration and loss of terrestrial habitat at the new gate station location.
- For bigmouth buffalo, accidental release of drilling mud and/or drilling mud additives to Second Creek if a frac-out (i.e., release of drilling mud) occurs during the directional drilling activities.
- For bigmouth buffalo, accidental release and/or transport of fuel, grease, mud, soil or other deleterious substances to Second Creek during the Project construction activities, including water used for hydrostatic testing.

9.2. Cultural and Socio-Economic Effects

9.2.1. Land Use and Heritage Resources

During the Project construction activities, local traffic may need to be periodically rerouted or stopped due to the use and operation of equipment in the RoW and at the new gate station location. These traffic interruptions are required for the Health and Safety of the public, Manitoba Hydro employees and Manitoba Hydro contractors. This traffic interruption may cause a minor, temporary, localized effect on land use for local residents.

The field survey identified two Heritage Resources sites within the Project area, the Prime Meridian cairn and an old school marker, which were both located on the north side of the PTH01 service road. MHRB indicated that avoidance of the cairns during construction is the

required mitigation (Appendix D). MHRB also provided a memorandum stating that the potential to impact significant Heritage Resources is low, and, therefore, the Historic Resources Branch has no concerns with the Project (Appendix D). Manitoba Hydro's Environmental Protection Plan (EPP) for the Project includes a stop work order in the event that Heritage Resources are discovered. When archaeological and historic artifacts are uncovered during construction, work at the location will cease immediately, and discovery will be reported to the Construction Supervisor. The Construction Supervisor will contact the Manitoba Hydro Environmental and Licensing Department for further instructions.

The Project O&M activities are not expected to have an effect on land use or Heritage Resources within the Project area.

9.2.2. Stakeholder Issues

Stakeholder issues were identified and addressed through a public engagement program. The public engagement program (Appendix E) indicated that there was strong support for the Project amongst local municipalities, landowners and the general public in the Project area. Many viewed the project as having long term potential benefits with some short term potential inconveniences with regards to agricultural operations.

9.2.3. Aboriginal Engagement

There are no Aboriginal communities located within the Project area. The closest Aboriginal communities are Swan River 8A, located about 3 km east of the Town of Headingley, and the Roseau River Anishinabe 2B, located about 7 km north of the Project area. The Peguis First Nation has a Community Interest Zone (CIZ) with a total area of about 11.5 km located parallel to Road 63N in the northern section of the Project area. The Project area lies within Métis Natural Resource Harvesting Zone 25B.

Manitoba Hydro contacted the Swan River 8A FN, Roseau River Anishinabe 2B FN, Peguis FN and the MMF to notify these groups of the Project and solicit any comments, questions or concerns. The MMF attended the open house put on by Manitoba Hydro in December 2012 as part of the Project public engagement program. There were no comments, questions or concerns in regards to the Project or Project activities received by Manitoba Hydro from the Swan River 8A FN, Roseau River Anishinabe 2B FN, Peguis FN or MMF.

The majority of the landbase within the Project area is private land that it is used for mainly for agriculture. Based on the wildlife species present or potentially present in the Project area and information provided by the Winnipeg Natural Resources Office (J. Johansson pers. comm.), hunting is likely limited to deer and waterfowl, and trapping is likely limited to coyotes. Therefore, it is expected that traditional resource activities (hunting, trapping, fishing, gathering of plants) are not likely being practiced in the Project area.

10. PUBLIC ENGAGEMENT PROGRAM

A summary of the public engagement program methods, activities and results is provided in Appendix E.

11. PROPOSED MITIGATION

Manitoba Hydro supports the need to protect and preserve the natural environment and Heritage Resources affected by its projects and facilities. This goal can only be achieved with the full commitment of Manitoba Hydro employees, consultants and contractors at all stages of projects, from planning and design through construction and operational phases. As stated in the Corporate Environmental Management Policy:

Manitoba Hydro is committed to protecting the environment. In full recognition of the fact that corporate facilities and activities affect the environment, Manitoba Hydro integrates environmentally responsible practices into its businesses, thereby:

- preventing or minimizing any adverse impacts, including pollution, on the environment, and enhancing positive impacts;
- continually improving our Environmental Management System;
- meeting or surpassing regulatory requirements and other commitments;
- considering the interests and utilizing the knowledge of our customers, employees, communities, and stakeholders who may be affected by our actions;
- reviewing our environment objectives and targets annually to ensure improvement in our environmental performance; and
- documenting and reporting our activities and environmental performance.

In keeping with this policy, Manitoba Hydro's Environmental Protection Program for this Project will include:

- the development of a Project-specific EPP, which will include general environmental protection measures for construction activities, mitigation measures specific to pipeline construction and installation, erosion and sediment control plans and a frac-out contingency plan;
- inspection of work areas and work activities during construction;
- post-construction monitoring, and
- adherence to all applicable federal, provincial and municipal acts and regulations.

In addition to the above, the Directional Drilling contractor must use the approved Manitoba Hydro "*Horizontal Directional Drilling Execution Plan*" or other format as approved by the Project engineer. Directional Drilling activities will not commence until this execution plan is in place, reviewed and accepted by Manitoba Hydro. The potential environmental effects identified in Section 9 will be mitigated using the measures outlined in Manitoba Hydro's EPP and in the following regulatory guidance documents:

- The Pipeline Industry and the Migratory Birds Act (Canadian Pipeline Environment Committee 2004)
- Petroleum Industry Activity Guidelines for Wildlife Species at Risk in the Prairie and Northern Region (Environment Canada 2009)

- DFO Manitoba Operational Statement for High Pressure Directional Drilling, Version 3.0
- Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (DFO and MNR 1996)
- Manitoba Natural Gas and Petroleum Liquid Pipeline Hydrostatic Test Discharge Guidelines (Manitoba Water Stewardship 2007)
- Transport Canada Navigable Waters Protection Act. Pipeline crossings.TP 14593 (12/2009)

Table 8 provides a summary of the measures proposed to mitigate the potential environmental effects of the Project with construction in the late spring to mid-summer season.

Table 8: Summary of Proposed Mitigation Measures for Late Spring to Mid-Summer Season Work Activities

| Project Component | Environmental Issue | Mitigation Plans |
|-------------------------------|--|---|
| General Project Mitigation | <ul style="list-style-type: none"> Site management, overall environmental management. | <ul style="list-style-type: none"> Implementation of measures outlined in Manitoba Hydro's EPP for the Project including erosion and sediment control measures. Isolation of the work areas as needed to prevent the release or transport of deleterious substances (e.g., fuel, grease, mud) or debris within the Project area. Safety signage and safe work practices will be used at all work areas for the Project as part of site management practices. Performance of work inspections and monitoring before, during and after construction activities. |
| Air Quality and GHG | <ul style="list-style-type: none"> During the pipeline and gate station construction activities, there will be air emissions due to exhaust and/or dust from the use of stationary and mobile project equipment. These emissions may cause a minor, temporary, localized effect on air quality. The Project will require the temporary disturbance of some of the vegetation present within the RoW and alteration of the vegetation at the new gate station location. During the O&M phase of the Project, there is the potential for natural gas leaks along the pipeline and/or from leaks on fittings or equipment at the gate station. | <ul style="list-style-type: none"> Mobile and stationary construction equipment will be required to meet appropriate federal emission standards. Dust control measures such as spraying access roads/areas with water will be implemented as needed. There will be no permanent loss of vegetation within the Project area that would significantly affect existing carbon resources in the area. Manitoba Hydro will conduct monthly inspections of the gate station and annual maintenance and inspections of the pipeline to reduce the potential for the occurrence of leaks. |
| Noise | <ul style="list-style-type: none"> During the pipeline and gate station construction activities, there will be noises emitted by equipment engines. These noises may cause a minor, temporary, localized effect on noise. | <ul style="list-style-type: none"> Project activities will occur during day-time hours to minimize the effects of noise to landowners and local wildlife. Manitoba Hydro will follow all applicable noise bylaws. All equipment used on site will be fitted with appropriate mufflers and be well maintained to minimize noise levels off the site. |
| Climate | <ul style="list-style-type: none"> No effects identified. | <ul style="list-style-type: none"> None required as no effects to climate were identified. |
| Terrain, Soils and Vegetation | Construction: <ul style="list-style-type: none"> Alteration of the existing terrain, i.e., | <ul style="list-style-type: none"> Implementation of measures outlined in Manitoba Hydro's EPP for the Project. Compliance with all applicable federal, provincial and municipal legislation, |

| Project Component | Environmental Issue | Mitigation Plans |
|-------------------|---|--|
| | <p>change in grade, slope or stability.</p> <ul style="list-style-type: none"> • Contamination from improper waste disposal, petroleum spills or release of hazardous materials as a result of accidents and malfunctions that may occur during the Project construction activities. • Contamination from release of water used for hydrostatic testing. • Disturbance, compaction and/or loss of soils and vegetation that are present within the work areas identified in Section 3.3. • Introduction of invasive plant species from equipment and vehicles. • Increased potential for wildfires due to the use of gasoline, oil and electronically operated equipment in the Project area. <p>O&M:</p> <ul style="list-style-type: none"> • Release of hazardous materials as a result of accidents and malfunctions that may occur during the Project O&M activities. | <p>codes and guidelines.</p> <ul style="list-style-type: none"> • Storage and disposal of dangerous goods will occur according to <i>Workplace Safety and Health Act</i> and Storage and Handling of Petroleum Products and Allied Products Regulation 188/2001. • Storage and disposal of all waste generated at the site will adhere to municipal by-laws and applicable provincial regulations. • All spills will be reported to the appropriate authority and remediation will be in accordance with applicable regulations (Storage and Handling of Petroleum Products and Allied Products Regulation 188/2001). • Hydrostatic testing will be carried out in accordance with Manitoba Hydro's EPP for the Project and the <i>Manitoba Natural Gas and Petroleum Liquid Pipeline Hydrostatic Test Discharge Guidelines</i> (Manitoba Water Stewardship 2007). Water from the City of Winnipeg, Town of Headingley, or Village of St. Francois Xavier will be used for hydrostatic testing. Testing of the required water chemistry parameters will be completed before and after the hydrostatic testing. Erosion and sediment control measures will be implemented to dissipate the discharged water. All necessary approvals will be obtained prior to discharging test water to road side ditches or to non-cultivated land. There will be no discharges to cultivated land unless approved by the landowner/lessee. • All Project material used at the site will be removed and the area will be restored to the pre-existing appearance. • The Project activities will take place in defined work areas located within the Pipeline RoW. The Pipeline RoW is an area that has been previously disturbed and where vegetation is managed to maintain access to and within the RoW. The vegetation observed to be present in the Project area consisted of commonly occurring grasses and forbs and it is considered unlikely that the vegetative growth would include any listed plant species. • All construction equipment mobilized from outside the construction area shall arrive on the RoW or construction site in clean condition to minimize the risk of weed or pest introduction. • Vehicle and equipment access will be limited to the RoW and existing roads and paths wherever possible. • Vehicle traffic on range or pasture land shall be restricted to one-way travel where practicable to minimize disturbance of the sod layer. • Work will be halted under very wet or muddy conditions. |

| Project Component | Environmental Issue | Mitigation Plans |
|-------------------------------|--|---|
| | | <ul style="list-style-type: none"> • Exhaust and engine systems of equipment and vehicles shall be in good working condition and free of dried grass and other combustibles. • Each construction crew shall carry firefighting equipment. The landowners and authorities having jurisdiction shall be notified immediately should a fire occur. All equipment and personnel shall be made available to control a fire. • Manitoba Hydro will conduct monthly inspections of the gate station and annual maintenance and inspections of the pipeline to reduce the potential for the occurrence of leaks. |
| Wildlife and Wildlife Habitat | <ul style="list-style-type: none"> • Wildlife species present in the Project area may be temporarily disturbed by noise and activity during the Project construction and/or O&M activities. • Alteration and loss of habitat at the new gate station location. | <ul style="list-style-type: none"> • Implementation of measures outlined in Manitoba Hydro's EPP for the Project. • Compliance with all applicable federal, provincial and municipal legislation, codes and guidelines. • Noise levels will be more concentrated (primarily during construction), but are not expected to exceed noise levels generated by typical agricultural and industrial activities (including traffic) that occur in the area. • It is expected that the wildlife species known to be present or potentially present within the Project area would not be nesting or breeding in the RoW or new gate station location, and that these species are habituated to the presence of humans and human activity. • The area of habitat that will be altered and lost is a 30m by 30m area of previously cultivated land that has low habitat value for most wildlife species. |

| Project Component | Environmental Issue | Mitigation Plans |
|---|---|--|
| Wetlands | <ul style="list-style-type: none"> No effects identified. | <ul style="list-style-type: none"> None required as there are no wetland areas that will be affected due to the Project. |
| Groundwater, Surface Water, Fish and Fish Habitat | <ul style="list-style-type: none"> Accidental release of drilling mud and/or drilling mud additives to the watercourse areas present within the Project area if a frac-out (i.e., release of drilling mud) occurs during the Directional Drilling activities. Accidental release and/or transport of fuel, grease, mud, soil or other deleterious substances to the watercourse areas present within the Project area during the pipeline and gate station construction activities. Accidental release and/or transport of water used for hydrostatic testing. | <ul style="list-style-type: none"> Implementation of measures outlined in Manitoba Hydro's EPP for the Project, which includes a frac-out contingency plan. No work will occur instream or below the Ordinary High Water Mark (OHWM) of the watercourses as part of the Project activities. Work will be conducted in accordance with the DFO Manitoba <i>Operational Statement for High Pressure Directional Drilling</i> (Version 3.0) and the <i>Manitoba Stream Crossing Guidelines</i> (DFO and MNR 1996). Hydrostatic testing will be carried out in accordance with Manitoba Hydro's EPP for the Project and the <i>Manitoba Natural Gas and Petroleum Liquid Pipeline Hydrostatic Test Discharge Guidelines</i> (Manitoba Water Stewardship 2007). Water from the City of Winnipeg, Town of Headingley, or Village of St. Francois Xavier will be used for hydrostatic testing. Testing of the required water chemistry parameters will be completed before and after the hydrostatic testing. Erosion and sediment control measures will be implemented to dissipate the discharged water. All necessary approvals will be obtained prior to discharging test water to road side ditches or to non-cultivated land. There will be no discharges to cultivated land unless approved by the landowner/lessee. Compliance with all applicable federal, provincial and municipal legislation, codes and guidelines. Oil changes, refuelling and lubricating of mobile construction equipment will be conducted a minimum of 100 m from any watercourse to minimize the potential for the release of these substances to any watercourse. Storage and disposal of dangerous goods will occur according to <i>Workplace Safety and Health Act</i> and <i>Storage and Handling of Petroleum Products and Allied Products Regulation 188/2001</i>. Storage and disposal of all waste generated at the site will adhere to municipal by-laws and applicable provincial regulations. All spills will be reported to the appropriate authority and remediation will be in accordance with applicable regulations (<i>Storage and Handling of Petroleum Products and Allied Products Regulation 188/2001</i>). |
| Species at Risk | <ul style="list-style-type: none"> Terrestrial species at risk present in the Project area may be temporarily disturbed by noise and activity during | <ul style="list-style-type: none"> Implementation of measures outlined in Manitoba Hydro's EPP for the Project, which includes a frac-out contingency plan. Compliance with all applicable federal, provincial and municipal legislation, |

| Project Component | Environmental Issue | Mitigation Plans |
|-------------------|--|--|
| | <p>the Project construction and/or O&M activities.</p> <ul style="list-style-type: none"> • Alteration and loss of terrestrial habitat at the new gate station location. • For bigmouth buffalo, accidental release of drilling mud and/or drilling mud additives to Second Creek if a frac-out (i.e., release of drilling mud) occurs during the directional drilling activities. • For bigmouth buffalo, accidental release and/or transport of fuel, grease, mud, soil or other deleterious substances to Second Creek during the Project construction activities, including water used for hydrostatic testing. | <p>codes and guidelines.</p> <ul style="list-style-type: none"> • Noise levels will be more concentrated (primarily during construction), but are not expected to exceed noise levels generated by typical agricultural and industrial activities (including traffic) that occur in the area. • The area of habitat that will be altered and lost is a 30m by 30m area of previously cultivated land that has low habitat value for most wildlife species. • Based on the type of habitat available and level of human activity within the Project area, it is not expected that the Project area provides nesting or breeding habitat for any of the identified terrestrial species at risk; habitat use is likely limited to occasional feeding and movement through the Project area. • If nests, burrows or breeding areas for the identified species at risk are discovered during construction activities, construction activities will be halted and appropriate set back distances will be implemented. • No work will occur instream or below the Ordinary High Water Mark (OHWM) of the watercourses as part of the Project activities. • Work will be conducted in accordance with the DFO Manitoba <i>Operational Statement for High Pressure Directional Drilling</i> (Version 3.0) and the <i>Manitoba Stream Crossing Guidelines</i> (DFO and MNR 1996). • Hydrostatic testing will be carried out in accordance with Manitoba Hydro's EPP for the Project and the <i>Manitoba Natural Gas and Petroleum Liquid Pipeline Hydrostatic Test Discharge Guidelines</i> (Manitoba Water Stewardship 2007). Water from the City of Winnipeg, Town of Headingley, or Village of St. Francois Xavier will be used for hydrostatic testing. Testing of the required water chemistry parameters will be completed before and after the hydrostatic testing. Erosion and sediment control measures will be implemented to dissipate the discharged water. All necessary approvals will be obtained prior to discharging test water to road side ditches or to non-cultivated land. There will be no discharges to cultivated land unless approved by the landowner/lessee. • Oil changes, refuelling and lubricating of mobile construction equipment will be conducted a minimum of 100 m from any watercourse to minimize the potential for the release of these substances to any watercourse. • Storage and disposal of dangerous goods will occur according to <i>Workplace Safety and Health Act</i> and <i>Storage and Handling of Petroleum Products and Allied Products Regulation 188/2001</i>. • Storage and disposal of all waste generated at the site will adhere to municipal |

| Project Component | Environmental Issue | Mitigation Plans |
|---------------------------------|--|---|
| | | <p>by-laws and applicable provincial regulations.</p> <ul style="list-style-type: none"> All spills will be reported to the appropriate authority and remediation will be in accordance with applicable regulations (Storage and Handling of Petroleum Products and Allied Products Regulation 188/2001). |
| Land Use and Heritage Resources | <ul style="list-style-type: none"> During the Project construction activities, local traffic may need to be periodically rerouted or stopped due to the use and operation of equipment in the RoW and at the new gate station location. These traffic interruptions are required for the Health and Safety of the public, Manitoba Hydro employees and Manitoba Hydro contractors. This traffic interruption may cause a minor, temporary, localized effect on land use for local residents. The field survey identified two Heritage Resources sites within the Project area, the Prime Meridian cairn and an old school marker, which were both located on the north side of the PTH01 service road. | <ul style="list-style-type: none"> Use of the Pipeline RoW and gate station location for the Project activities and equipment is an unavoidable component of the proposed Project. These effects will be mitigated by scheduling the works to be conducted on weekdays during daylight hours where feasible, restricting the works to the RoW and notifying affected landowners about the proposed Project in advance of Project start-up and activities. Safety signage and safe work practices will be used at all work areas for the Project as part of site management practices. Notification of the Project activities and schedule to the landowners, RM of Headingley, RM of Rosser, RM of St. Francois Xavier. MHRB indicated that avoidance of the cairns during construction is the required mitigation and provided a memorandum stating that the potential to impact significant Heritage Resources is low, and, therefore, the Historic Resources Branch has no concerns with the Project (Appendix D). |
| Stakeholder Issues | <ul style="list-style-type: none"> Stakeholder issues were identified and addressed through a public engagement program. | <ul style="list-style-type: none"> The public engagement program indicated that there was strong support amongst local municipalities, landowners and the general public in the Project area. Many viewed the project as having long term potential benefits with some short term potential inconveniences with regards to agricultural operations. |
| Aboriginal Engagement | <ul style="list-style-type: none"> There are no Aboriginal communities located within the Project area. The Swan River 8A FN is located about 3km east of the Project area and the Roseau River Anishinabe 2B FN is located about 7km north of the Project area The Peguis First Nation has a Community Interest Zone (CIZ) with a | <ul style="list-style-type: none"> Manitoba Hydro contacted the Swan River 8A FN, Roseau River Anishinabe 2B FN, Peguis FN and the MMF to notify these groups of the Project and solicit any comments, questions or concerns. The MMF attended the Open House put on by Manitoba Hydro in December 2012 as part of the Project Public Consultation activities. There were no comments, questions or concerns in regards to the Project or Project activities received by Manitoba Hydro from the Swan River 8A FN, Roseau River Anishinabe 2B FN, Peguis FN or MMF. Based on the wildlife species present or potentially present in the Project area |

| Project Component | Environmental Issue | Mitigation Plans |
|-------------------|---|---|
| | <p>total area of about 11.5 km located parallel to Road 63N in the northern section of the Project area.</p> <ul style="list-style-type: none"><li data-bbox="472 337 942 391">• The Project area is within Métis Natural Resource Harvesting Zone 25B. | <p>and information provided by the Winnipeg Natural Resources Office (J. Johannson pers. comm.), hunting is likely limited to deer and waterfowl, and trapping is likely limited to coyotes. Therefore, it is expected that traditional resource activities (hunting, trapping, fishing, gathering of plants) are not likely being practiced in the Project area.</p> |

12. RESIDUAL EFFECTS

12.1. Residual Effects Assessment Criteria

Residual effects are the anticipated effects that are remaining after consideration of the application of all mitigation measures. Residual effects of the Project were defined by the following criteria:

Direction – the direction of the effect may be positive, neutral, or negative with respect to beneficial or adverse effects from the Project on the existing environment.

Magnitude – a measure of the degree or intensity of change that can occur as the Project proceeds, which can be low (above background conditions, but within established criteria or scientific threshold and the range of natural variability), medium (substantially above background conditions, but within established criteria or scientific threshold and the range of natural variability), or high (predicted to exceed established criteria or scientific threshold and will likely cause detectable change beyond the range of natural variability).

Geographic extent – refers to the area potentially affected by the effect, whether it is the site (i.e. gate station location, pipeline RoW and work areas within the RoW), locally (i.e., the Project area), the region (i.e., within 5 km of the Project area) or beyond regional.

Duration – refers to the length of time that the environmental effect occurs and whether the effect is reversible once the disturbance has been completed (i.e., reclamation of disturbed areas). Duration can be short-term, medium-term or long-term. Short-term effects occur only during the construction time period (i.e., less than three months), medium-term effects occur over the entire construction period and extend to the time required for site reclamation (i.e., from one to four months), and a long-term effect implies that the disturbance occurs beyond the time required for completion of construction and site reclamation.

Frequency - refers to the frequency at which the effect occurs over the specified duration and is described as: infrequent (occurs once over the duration of the disturbance), frequent (occurs periodically over the duration of disturbance), or continuous (occurs continuously over the duration of disturbance).

Likelihood – refers to the probability of occurrence (i.e., the risk of an event occurring) and is described as very unlikely, unlikely, likely and very likely.

The activities associated with the proposed Project were first assessed according to the above criteria, and then evaluated together to predict the overall environmental consequence. Environmental consequence was determined as:

Minimal - effects with a low magnitude, short- to medium-term duration, infrequent to continuous occurrence, and are restricted to the proposed Project area in geographic extent. The potential effect may result in a slight decline in the resource in the Project area during construction phase, but the resource should return to pre-construction levels.

Low - effects with a low magnitude, short- to long-term duration, infrequent to continuous occurrence, and are restricted to the proposed Project area in geographic extent. The potential effect may result in a slight decline in the resource in the Project area during the life of the Project. Research, monitoring, and/or recovery initiatives would not normally be required.

Moderate - effects with a medium magnitude, short- to long-term duration, frequent to continuous occurrence, and extend outside the proposed Project area to adjacent areas. Potential effect could result in a decline in resource to lower-than-baseline but stable levels in the Project area after Project closure and into the foreseeable future. Regional management actions such as research, monitoring, and/or recovery initiatives may be required.

High - refers to major effects that are long-term in duration, continuous in occurrence, and extend outside the proposed Project area to adjacent areas. Potential effect could threaten sustainability of the resource and should be considered a management concern. Research, monitoring, and/or recover initiatives should be considered.

The effect is considered to be significant if the environmental consequence is determined to be moderate or high, and is considered to be not significant if the environmental consequence is determined to be minimal or low.

12.2. Summary of Residual Effects

Residual effects, i.e., the effects that remain after application of mitigation measures, are expected to occur for the following environmental components: air quality and GHG; noise; terrain, soils and vegetation; wildlife and wildlife habitat; groundwater, surface water and fish and fish habitat; species at risk; land use; and stakeholder issues. The residual effects were assessed in terms of their direction, magnitude, geographic extent, duration, frequency and likelihood as described in Section 10.1. Table 9 provides a summary of the residual effects and assessed environmental consequence of residual effect for each of the environmental components examined in the environmental review and assessment for the Project.

12.3. Environmental Effects Summary

Based on the assessment of the environmental effects that will remain after implementation of the mitigation measures described in Section 11, the residual effects associated with the Project were found to be minimal or low. As such, the environmental effects of the Project are expected to be not significant.

Table 9: Residual Effects and Assessed Environmental Consequence of Residual Effects

| Project Component | Predicted Residual Effect | Direction | Magnitude | Geographic Extent | Duration | Frequency | Likelihood | Environmental Consequence |
|-------------------------------|---|-----------|-----------|--------------------|-------------|-----------|--------------------|---------------------------|
| Air Quality and GHG | <ul style="list-style-type: none"> During the pipeline and gate station construction activities, there will be air emissions due to exhaust and/or dust from the use of stationary and mobile project equipment. | Negative | Low | Project work areas | Short-term | Frequent | Likely | Minimal |
| Noise | <ul style="list-style-type: none"> During the pipeline and gate station construction activities, there will be noises emitted by equipment engines. | Negative | Low | Project work areas | Short-term | Frequent | Likely | Minimal |
| Climate | None | - | - | - | - | - | - | - |
| Terrain, Soils and Vegetation | <ul style="list-style-type: none"> Contamination from improper waste disposal, petroleum spills or release of hazardous materials as a result of accidents and malfunctions that may occur during the pipeline and gate station construction activities. | Negative | Low | Project work areas | Medium-term | Frequent | Unlikely to Likely | Minimal |
| | <ul style="list-style-type: none"> Contamination from release of water used for hydrostatic testing. | Negative | Low | Project work areas | Short-term | Frequent | Unlikely to Likely | Minimal |
| | <ul style="list-style-type: none"> Disturbance and/or loss of soils and vegetation that are present within the work areas identified in Section 3.3. | Negative | Low | Project work areas | Medium-term | Frequent | Likely | Minimal |

| Project Component | Predicted Residual Effect | Direction | Magnitude | Geographic Extent | Duration | Frequency | Likelihood | Environmental Consequence |
|---|--|-----------|-----------|--------------------|-------------|-----------|--------------------|---------------------------|
| | <ul style="list-style-type: none"> Introduction of invasive plant species from equipment and vehicles. | Negative | Low | Project work areas | Medium-term | Frequent | Unlikely to Likely | Minimal |
| | <ul style="list-style-type: none"> Increased potential for wildfires due to the use of gasoline, oil and electronically operated equipment in the Project area | Negative | Low | Project work areas | Medium-term | Frequent | Unlikely to Likely | Minimal |
| | <ul style="list-style-type: none"> Release of hazardous materials as a result of accidents and malfunctions that may occur during the Project O&M activities. | Negative | Low | Project work areas | Long-term | Frequent | Unlikely to Likely | Low |
| Wildlife and Wildlife Habitat | <ul style="list-style-type: none"> Wildlife species present in the Project area may be temporarily disturbed by noise and activity during the Project construction and/or O&M activities. | Negative | Low | Project work areas | Medium-term | Frequent | Unlikely to Likely | Minimal |
| | <ul style="list-style-type: none"> Alteration and loss of habitat at the new gate station location. | Negative | Low | Project work areas | Long-term | Frequent | Likely | Low |
| Wetlands | None | - | - | - | - | - | - | - |
| Groundwater, Surface Water, Fish and Fish Habitat | <ul style="list-style-type: none"> Accidental release of drilling mud and/or drilling mud additives to the watercourse areas present within the Project area if a frac-out (i.e., release of drilling mud) occurs during the Directional Drilling activities. | Negative | Low | Project work areas | Short-term | Frequent | Unlikely to Likely | Minimal |

| Project Component | Predicted Residual Effect | Direction | Magnitude | Geographic Extent | Duration | Frequency | Likelihood | Environmental Consequence |
|-------------------|---|-----------|-----------|--------------------|-------------|-----------|--------------------|---------------------------|
| | <ul style="list-style-type: none"> Accidental release and/or transport of water used for hydrostatic testing. | Negative | Low | Project work areas | Short-term | Frequent | Unlikely to Likely | Minimal |
| Species At Risk | <ul style="list-style-type: none"> Terrestrial species at risk present in the Project area may be temporarily disturbed by noise and activity during the Project construction and/or O&M activities. | Negative | Low | Project work areas | Medium-term | Frequent | Unlikely to Likely | Minimal |
| | <ul style="list-style-type: none"> Alteration and loss of terrestrial habitat at the new gate station location. | Negative | Low | Project work areas | Long-term | Frequent | Likely | Low |
| | <ul style="list-style-type: none"> For bigmouth buffalo: Accidental release of drilling mud and/or drilling mud additives to Second Creek if a frac-out (i.e., release of drilling mud) occurs during the Directional Drilling activities. | Negative | Low | Project work areas | Short-term | Frequent | Unlikely to Likely | Minimal |

| Project Component | Predicted Residual Effect | Direction | Magnitude | Geographic Extent | Duration | Frequency | Likelihood | Environmental Consequence |
|-------------------|--|-----------|-----------|--------------------|------------|-----------|--------------------|---------------------------|
| | <ul style="list-style-type: none"> For bigmouth buffalo, accidental release and/or transport of fuel, grease, mud, soil or other deleterious substances to Second Creek during the Project construction activities, including water used for hydrostatic testing. | Negative | Low | Project work areas | Short-term | Frequent | Unlikely to Likely | Minimal |
| Land Use | <ul style="list-style-type: none"> During the Project construction activities, local traffic may need to be periodically rerouted or stopped due to the use and operation of equipment in the RoW and at the new gate station location. | Negative | Low | Project work areas | Short-term | Frequent | Unlikely to Likely | Minimal |

| Project Component | Predicted Residual Effect | Direction | Magnitude | Geographic Extent | Duration | Frequency | Likelihood | Environmental Consequence |
|-----------------------|--|-----------|-----------|-------------------|-----------|-----------|------------|---------------------------|
| Heritage Resources | None | - | - | - | - | - | - | - |
| Stakeholder Issues | <ul style="list-style-type: none"> The public engagement program indicated that there was strong support amongst local municipalities, landowners and the general public in the Project area. Many viewed the project as having long term potential benefits with some short term potential inconveniences with regards to agricultural operations. | Positive | Low | Project area | Long-term | Frequent | Likely | Low |
| Aboriginal Engagement | None | - | - | - | - | - | - | - |

13. CUMULATIVE EFFECTS ASSESSMENT

The cumulative effects assessment (CEA) considered the potential cumulative effect of the residual effects of the Project in combination with the environmental effects of past, present or reasonably foreseeable future projects or activities within the region. Past projects considered for the CEA included the agricultural, commercial, recreational, rural and urban development that has occurred within and adjacent to the Project area. Existing projects considered for the CEA included: MIT's Centreport Canada Way Project; the construction and operation of a wastewater treatment lagoon by Sturgeon Creek Holding Co. Ltd. - Meadow View Colony Farms in the southwest quarter of Section 34-11-1 WPM in the RM of Rosser (Environment Act Licence No. 3020, October 2012); and the construction and operation of a transformer substation at 5975 Portage Avenue in the RM of Headingley by Siculus Canada Ltd. (Environment Act License 3029, December 10, 2012). Foreseeable future projects considered for the CEA included Manitoba Hydro's Bipole III Transmission Project and Manitoba Hydro's Dorsey to Portage South Transmission Line Project.

Past projects and activities within the Project area have resulted in a combination of mostly agricultural lands with small areas of industry, recreation, transportation and rural and urban developments. The RoW within the Project area has been previously disturbed and used for drainage, road maintenance and utility lines. Based on the past projects and activities within the Project area and the residual effects found for the Project, the residual effects of the Project are not expected to have a significant interaction with the air quality, GHGs, noise, terrain, soils, vegetation, wildlife, wildlife habitat, groundwater, surface water, fish and fish habitat, species at risk, landuse or stakeholder issues found in the Project Area due to the past projects and activities within the Project area.

The Centreport Canada Way Project began in 2010 and is an ongoing project. MIT have a proposed highway and interchange for the Centreport Canada Way project that will be located adjacent to the Project area. Therefore, Manitoba Hydro selected the most direct route for the pipeline that will provide the required natural gas capacity and avoid future construction and development by MIT. Based on the location and activities associated with the construction and operation of the Centreport Canada Way Project and the residual effects found for the Project, the construction and operation of the Centreport Canada Way Project is not expected to interact with the residual effects found for the Project.

The construction and operation dates for the Meadow View Colony Farms wastewater treatment lagoon are unknown; however, the lagoon will be located outside of the Project area. Based on the location and activities associated with the construction and operation of the lagoon and the residual effects found for the Project, the construction and operation of the lagoon is not expected to interact with the residual effects found for the Project.

The construction of the transformer station by Siculus Canada Ltd is proposed to begin in April 2013, with a planned in-service date of February 2014. The transformer station will be located at 5975 Portage Avenue, about 0.6 km east of Gaol Road. Based on the location and activities associated with the construction and operation of the transformer station and the residual

effects found for the Project, the construction and operation of the transformer station is not expected to interact with the residual effects found for the Project.

Environmental licensing for Manitoba Hydro's Bipole III Transmission Project had not been completed at the time of this writing; as such, the dates for construction and operation of the Bipole III Transmission Project were not known at the time of this writing. The project schedule indicates a desired in-service date of 2017. Review of the preferred route for the Bipole III Transmission Project shows that the Bipole III Transmission Project area does not overlap with the Project area. Based on the schedule, location and activities associated with the construction and operation of the transmission line and the residual effects found for the Project, the construction and operation of the Bipole III Transmission Project is not expected to interact with the residual effects found for the Project.

The construction and operation of Manitoba Hydro's Dorsey to Portage South Transmission Line Project is scheduled to begin clearing activities in October 2014, with transmission line construction in March 2015 and an in-service date of April 2015. The Dorsey to Portage South Transmission Line Project is located to the northwest and west of the Project. Based on the schedule, location and activities associated with the construction and operation of the transmission line and the residual effects found for the Project, the construction and operation of the Dorsey to Portage South Transmission Line Project is not expected to interact with the residual effects found for the Project.

14. MONITORING AND FOLLOW-UP ACTIVITIES

14.1. Construction Monitoring

Manitoba Hydro's Environmental Protection Program for this project will include field inspections during construction, adherence to all applicable federal, provincial and municipal acts and regulations, and adherence to the environmental protection provisions outlined in the Project EPP. The Manitoba Hydro Construction Field Supervisor will act as the environmental inspector for this Project. The Manitoba Hydro Construction Field Supervisor will be responsible for performing inspections of the work site and documenting any deficiencies noted in the environmental protection measures in the inspection reports. The Manitoba Hydro Construction Field Supervisor will inspect the site routinely to ensure that the site is managed in accordance with the construction documentation and the project EPP.

14.2. Drilling Plan and Frac-out Contingency Plan

In addition to construction monitoring, the EPP for the Project will include a drilling plan and a frac-out contingency plan.

14.2.1. Drilling Plan

The drilling plan will include but not be limited to the following:

- The contractor must submit a written Directional Drilling execution plan that meets or exceeds the requirements of CSA Z662, current edition, prior to conducting any construction work within 100 metres of a watercourse.
- The submission must include but is not limited to:
 - Workspace requirements for equipment at entry and exit points
 - Workspace requirements to construct and lay-out the pipeline drag section
 - Drilling mud and water requirements
 - Environmental protection and monitoring plan
 - Drilling fluid management plan (trucking, tanks, pits, etc.)
 - Spill or fluid loss contingency, response, clean-up and mitigation plans
 - Equipment specifications, condition and integrity
 - Mitigation of potential detrimental effects of geological formations
- The contractor must use the approved Manitoba Hydro “*Horizontal Directional Drilling Execution Plan*” or other format as approved by the Project engineer.

14.2.2. Frac-Out Contingency Plan

The frac-out contingency plan will include but not be limited to the following:

- The materials and equipment needed to contain and clean-up a frac-out will be available on site during the Directional Drilling activities, e.g., vacuum truck, large-diameter stand pipe, turbidity barriers, silt fencing, hay bales, plastic sheeting, shovels, pails, push brooms, squeegees, pumps and hose, mud storage containers.
- If an abnormal loss of fluid, drop in pressure, or visible plume is observed indicating a frac-out or possible frac-out, drilling is to stop immediately and appropriate containment measures as needed to contain and recover the lost drilling fluids will be carried out as follows:
 - Where conditions warrant and permit (i.e., readily accessible by a vacuum truck, shallow depth, clear water, not a potentially sensitive habitat, and low water velocity) and where a frac-out has been visually detected in a watercourse, attempts will be made to isolate the fluid release using a large diameter stand-pipe such as a 45 gallon drum with both ends cut out, or a short piece of culvert.
 - If the frac-out occurs on ground it shall be contained using appropriate methods as proposed by the contractor.
- The contractor will inform the Manitoba Hydro construction supervisor of the frac-out condition or potential condition, and jointly decide on the appropriate action as follows:
 - Assign a person to monitor (visual or using a turbidity meter) for the presence of a muddy plume;
 - Make adjustments to the mud mixture (e.g., add lost circulation material to the drilling fluid in an attempt to prevent further loss of fluid to the ground formation and/or the watercourse);

- Prior to commencing any pumping to deliver the lost circulation material to plug the fracture, have the vacuum truck in position to recover any fluids that otherwise may escape to the watercourse.
- The Manitoba Hydro construction supervisor will make the final decision on the next course of action, but the discussions will be a joint effort between the contractor and Manitoba Hydro.
 - Under circumstances where a frac-out has occurred, has been confirmed visually, and where conditions do not permit containment and the prevention of drilling fluids release to the watercourse, attempts to plug the fracture by pumping lost circulation material are not to continue for more than 10 minutes of pumping time.
 - If the frac-out is not contained within this time, the Manitoba Hydro construction supervisor will halt any further attempts until a course of action (either abandon directional drilling or continue following consultation with the Manitoba Hydro Project engineer) is decided upon.
- Any recovered drilling fluids will be recycled or disposed of at a stable upland location at least 100 m from any wetland, watercourse or waterbody or at a disposal facility.

14.3. Post-Construction Monitoring

The work areas for the Project will be examined by an environmental inspector after completion of the Project activities to ensure that the measures outlined in the Project EPP were followed and any areas disturbed by the Project were restored to pre-construction conditions.

15. EFFECT OF THE ENVIRONMENT ON THE PROJECT

The effects of the environment on the project were identified as:

- existing hydrological and hydraulic conditions, i.e. seasonal changes in water flow levels and areas of inundation;
- existing condition and use of the landbase in the project area, i.e., the majority of the land is currently used for agriculture; and
- seasonal changes in climate that affect access to and development of the landbase.

These effects have been addressed by:

- planning and design of the project to incorporate existing hydrologic and hydraulic conditions;
- consideration of the condition and use of the landbase in the project planning and design; and
- incorporation of the necessary environmental protection measures into project planning and design, including erosion and sediment control planning, salvage of soils and vegetation, and water protection and management.

As such, the environment is not expected to have any effect on the proposed Project.

16. SIGNIFICANCE OF EFFECTS AND CUMULATIVE EFFECTS

The potential environmental effects of the Project are expected to be not significant. The potential environmental effects can be minimized or prevented through the use of mitigation measures, adherence to the Manitoba Hydro EPP for the Project and compliance with applicable municipal, provincial and federal environmental regulations, guidelines and/or policies. The residual effects of the Project are not expected to significantly interact with the environmental effects of past, present or reasonably foreseeable future projects or activities within the region. Therefore, there were no cumulative effects identified for the proposed Project.

17. CLOSURE

We trust that the above information meets your present requirements. If you have any questions or require additional details, please contact the undersigned.

Best regards,



Maureen Forster, M.Sc., EP

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Appendix A: Preliminary Design Drawings



1-72705-Df-91420-0001

BILL OF MATERIAL

| No. | Qty | Description |
|-----|--------|---|
| 1 | 3902m | 219.1 mm SDR 11 *No Std* 2708 PE PIPE |
| 2 | 18814m | 168.3 mm x 4.78 mm WT Beveled End, Category 1, GR 290, ERW, sweet service pipe to meet most recent version of 'CAN/CSA-Z245.1 Steel Line Pipe' specifications. Pipe shall be provided in triple random lengths and Yellow Jacket coated according to the attached Manitoba Hydro standard, 210.02 SII 2 Wm TOR Unsc |
| 3 | 2 | PE 8 BF Cap |
| 4 | 2 | PE 8 BF 90 Elb |
| 5 | 16 | PE 8 BF 90 Elb |
| 6 | 2 | PE 8 BF 6 Cap |
| 7 | 2 | PE 8 BF 6 Cap |
| 8 | 100 | 4 Denso Wrap |
| 9 | 100 | 4 Poly Tape |
| 10 | 8 | Fiberglass Warning Signs |
| 11 | 3902m | Tracer Wire |
| 12 | 100 | Plastic (Fusmatic) 8 Couplings |
| 13 | 12 | Galvanized Steel Warning Signs |

**PRELIMINARY
NOT TO BE USED FOR
CONSTRUCTION**

| GAS MAIN TEST | | | |
|----------------------------------|-------|-------|--------------|
| Start Pressure: | Date: | Time: | Temperature: |
| End Pressure: | Date: | Time: | Temperature: |
| Pressure Gauge Calibration Date: | | | |
| Test Medium: | | | |
| Contractor: | | | |
| Inspector: | | | |
| Remarks: | | | |
| GAS MAIN TEST | | | |
| Start Pressure: | Date: | Time: | Temperature: |
| End Pressure: | Date: | Time: | Temperature: |
| Pressure Gauge Calibration Date: | | | |
| Test Medium: | | | |
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| Remarks: | | | |
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| End Pressure: | Date: | Time: | Temperature: |
| Pressure Gauge Calibration Date: | | | |
| Test Medium: | | | |
| Contractor: | | | |
| Inspector: | | | |
| Remarks: | | | |

Comments/Notes

| | |
|-------------------------------|--------------------|
| Manufacturer/Properties/Size: | SDR/Cat/Date Mode: |
| Line/Rein: | |
| Manufacturer/Properties/Size: | SDR/Cat/Date Mode: |
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| Manufacturer/Properties/Size: | SDR/Cat/Date Mode: |
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| Manufacturer/Properties/Size: | SDR/Cat/Date Mode: |
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| Manufacturer/Properties/Size: | SDR/Cat/Date Mode: |
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| | | | |
|---|----------------------------------|---|---------------|
| Construction Coordinator: Bruce Leaf (204) 360 - 7494 | Designer: Your Name (204) number | Issued For Approval: | Reference(s): |
| | Sealing Engineer: | Issued For Construction: | |
| | Engineering: | Easement: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | |
| | | No. Date Revision Appr. | |

Notes:
 1. MOP : 4830 kPa FARM TAP kPa
 Test Pressure : 6762 kPa
 2. Perform all work on this drawing in accordance with the applicable standards, specifications, and procedures.
 3. Locate all existing above grade and below grade structures prior to commencing construction.
 4. Call 360-7751 when Gas main is installed and/or energized.
 5. Maximum Operating Pressure (MOP) is 420 kPa unless otherwise noted.
 6. Outside Diameter (O.D.) of pipe in millimeters unless otherwise noted.

| | |
|-------------------------|--|
| Eng. Check: | In my opinion, the plans and specifications submitted are in accordance with CSA 288-11 Oil and Gas Pipeline Systems and the facilities proposed herein will not endanger Public safety. |
| Cathodic Check: | |
| Network/Activity # | |
| 6" SII - 4313505 - 3105 | |
| 8" SII - 4313505 - | |
| Station - 4313505 - | |
| Drawn By: nbruce | |
| Drawn Date: 2013/01/17 | |

**CENTRA GAS
WINNIPEG, MANITOBA**

Proposed 168.3 mm STI TP natural gas pipeline from GS-031 to the new Gate Station located along Boivin Road in the RM of St. Francois-Xavier. From the new station, installation of 219mm SII MP pipeline along PTH 1 to tie-into existing 114.3 mm PE gas main at the Town of Headingly, as indicated.

St. Francois-Xavier - RM
 Rosser - RM
 Headingly - R.M.

WBS #: P:20342
 MER #: 2012-01042

DRAWING NUMBER: CD-16968

1-72705-Df-91420-0001

| GAS MAIN TEST | | | |
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| Start Pressure: | Date: | Time: | Temperature: |
| End Pressure: | Date: | Time: | Temperature: |
| Pressure Gauge Calibration Date: | | | |
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| Remarks: | | | |

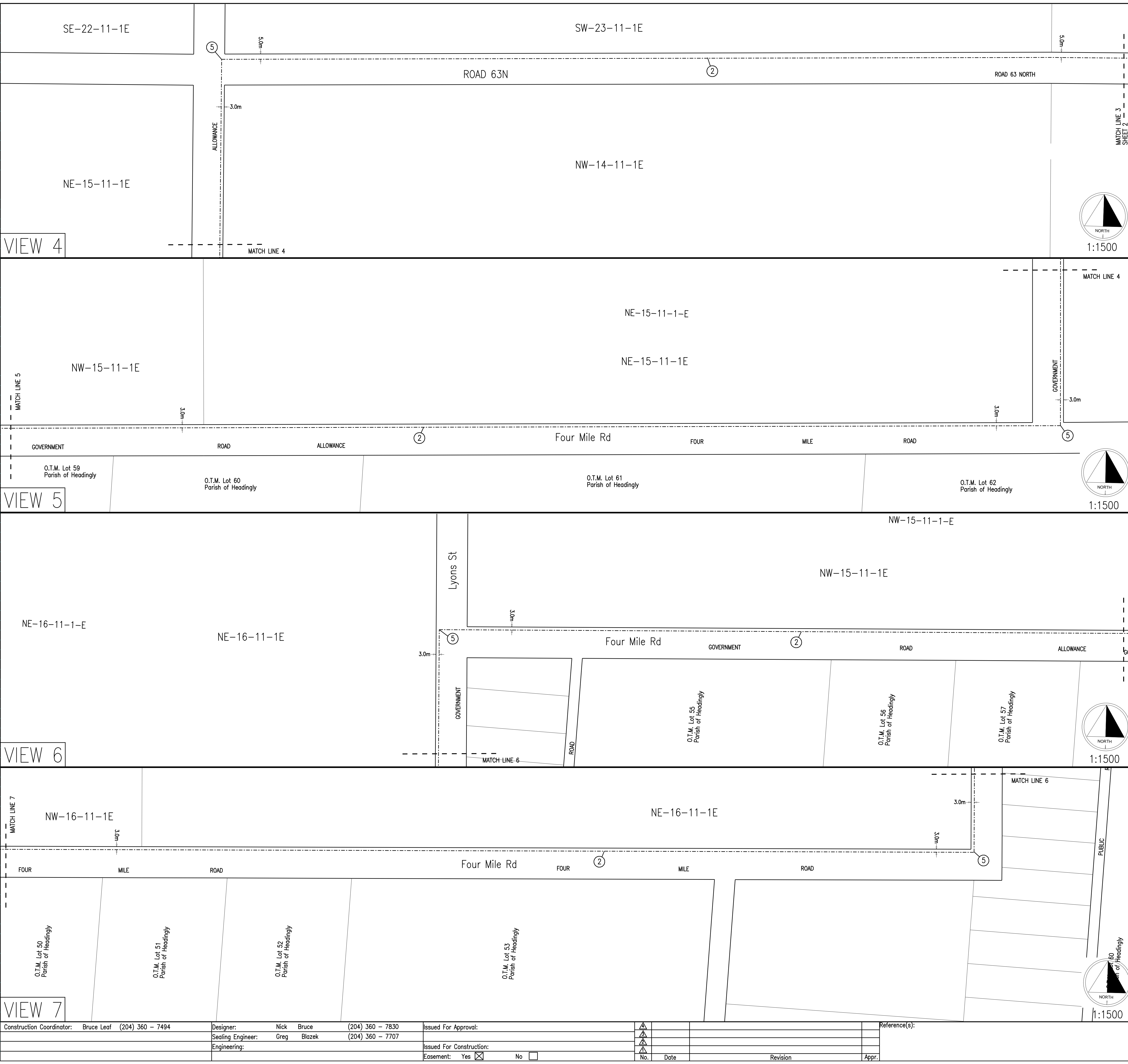
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| Pressure Gauge Calibration Date: | | | |
| Test Medium: | | | |
| Contractor: | | | |
| Inspector: | | | |
| Remarks: | | | |



| 1-12705-DP-91420-0001 | | SH | REV |
|-----------------------|--------|---|-----|
| | | 03 | 00 |
| BILL OF MATERIAL | | | |
| No. | Qty | Description | |
| ① | 3902m | 219.1 mm SDR 11 *No Std* 2708 PE PIPE | |
| ② | 18814m | 168.3 mm x 4.78 mm WT Beveled End, Category 1, GR 290, ERW, sweet service pipe to meet most recent version of 'CAN/CSA-Z245.1 Steel Line Pipe' specifications. Pipe shall be provided in triple random lengths and Yellow Jacket coated according to the attached Manitoba Hydro standard, 210.02 SJI 2 Wm TOR Unsc | |
| ③ | 2 | PE 8 BF Cap | |
| ④ | 2 | SJI BW 6 90 Elb | |
| ⑤ | 16 | SJI BW 6 90 Elb | |
| ⑥ | 2 | PE 8 BF 90 Elb | |
| ⑦ | 2 | SJI BW 6 Cap | |
| ⑧ | 100 | 4 Denso Wrap | |
| ⑨ | 100 | 4 Poly Tape | |
| ⑩ | 8 | Fiberglass Warning Signs | |
| ⑪ | 3902m | Tracer Wire | |
| ⑫ | 100 | Plastic (Fusmatic) 8 Couplings | |
| ⑬ | 12 | Galvanized Steel Warning Signs | |

**PRELIMINARY
NOT TO BE USED FOR
CONSTRUCTION**

| Notes: | GAS MAIN | FARM TAP |
|-----------------|----------|----------|
| 1. MOP : | 4830 kPa | kPa |
| Test Pressure : | 6762 kPa | kPa |

- Perform all work on this drawing in accordance with the applicable standards, specifications, and procedures.
- Locate all existing above grade and below grade structures prior to commencing construction.
- Call 360-7751 when Gas main is installed and/or energized.
- Maximum Operating Pressure (MOP) is 420 kpa unless otherwise noted.
- Outside Diameter (O.D.) of pipe in millimeters unless otherwise noted.

| Eng. Check: | In my opinion, the plans and specifications submitted are in accordance with CSA Z245-11 Oil and Gas Pipeline Systems and the facilities proposed herein will not endanger Public safety. | | |
|-----------------|---|---|----------------|
| Cathodic Check: | Network/Activity # | | |
| | 6" SJI | - | 4313505 - 3105 |
| | 8" SJI | - | 4313505 - |
| | Station | - | 4313505 - |

Drawn By: nbruce
Drawn Date: 2013/01/17

CENTRA GAS
WINNIPEG, MANITOBA

Proposed 168.3 mm SJI TP natural gas pipeline from GS-031 to the new Gate Station located along Boivin Road in the RM of St. Francois-Xavier. From the new station, installation of 219mm SJI MP pipeline along PTH 1 to tie-into existing 114.3 mm PE gas main at the Town of Headingly, as indicated.

St. Francois-Xavier - RM
Rosser - RM
Headingly - R.M.

WBS #: P:20342
MER #: 2012-01042

DRAWING NUMBER: CD-16968

| No. | Date | Revision | Appr. |
|-----|------|----------|-------|
| | | | |
| | | | |
| | | | |

1-12705-DP-91420-0001

| | |
|----|-----|
| SH | REV |
| 03 | 00 |

| GAS MAIN TEST | | | |
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| Start Pressure: | Date: | Time: | Temperature: |
| End Pressure: | Date: | Time: | Temperature: |
| Pressure Gauge Calibration Date: | | | |
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| Contractor: | | | |
| Inspector: | | | |
| Remarks: | | | |

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| GAS MAIN TEST | | | |
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| Start Pressure: | Date: | Time: | Temperature: |
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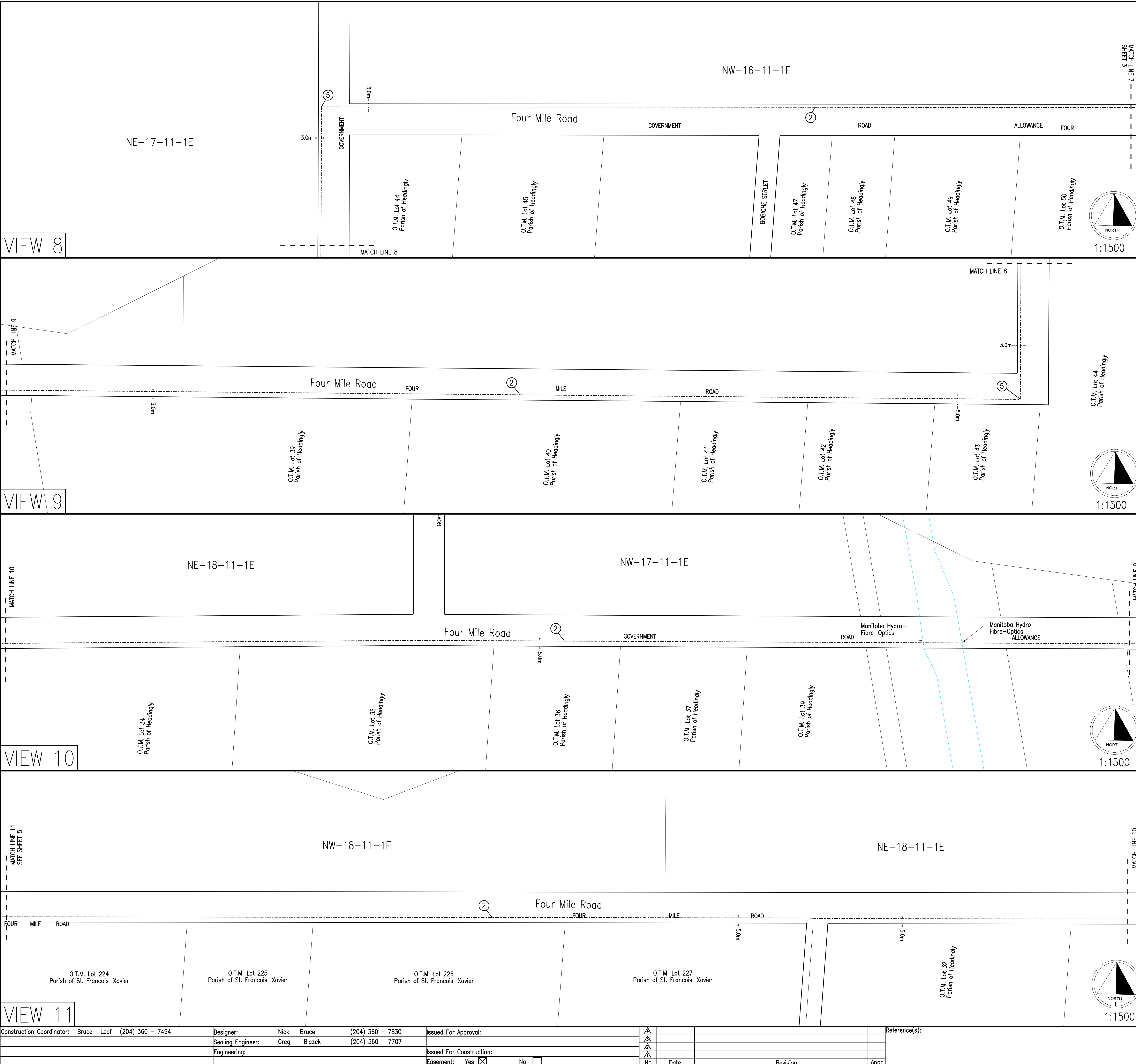
VIEW 8

VIEW 9

VIEW 10

VIEW 11

| | | | | | | |
|---------------------------|-----------------------------|-------------------|------------------------------|--------------------------|---|--|
| Construction Coordinator: | Bruce Leaf (204) 360 - 7494 | Designer: | Nick Bruce (204) 360 - 7830 | Issued For Approval: | | |
| | | Sealing Engineer: | Greg Blazek (204) 360 - 7707 | Issued For Construction: | | |
| | | Engineering: | | Easement: | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | |



| No. | Qty | Description |
|-----|--------|--|
| ① | 3902m | 219.1 mm SDR 11 *No Std* 2708 PE PIPE |
| ② | 18814m | 168.3 mm x 4.78 mm WT Beveled End, Category 1, GR 290, ERW, sweet service pipe to meet most recent version of 'CAN/CSA-Z245.1 Steel Line Pipe' specifications. Pipe shall be provided in triple random lengths and Yellow Jacket coated according to the attached Manitoba Hydro standard, 210.02 SH 2 Wm TOR Unsc |
| ③ | 2 | PE 8 BF Cap |
| ④ | 2 | PE 8 BF 90 Elb |
| ⑤ | 16 | SH BW 6 90 Elb |
| ⑥ | 2 | PE 8 BF 90 Elb |
| ⑦ | 2 | SH BW 6 Cap |
| ⑧ | 100 | 4 Denso Wrap |
| ⑨ | 100 | 4 Poly Tape |
| ⑩ | 8 | Fiberglass Warning Signs |
| ⑪ | 3902m | Tracer Wire |
| ⑫ | 100 | Plastic (Fusmatic) 8 Couplings |
| ⑬ | 12 | Galvanized Steel Warning Signs |

**PRELIMINARY
NOT TO BE USED FOR
CONSTRUCTION**

| | | | | | |
|-----------------|------|----------|--|----------|-----|
| Notes: | | GAS MAIN | | FARM TAP | |
| 1. MOP : | 4830 | kPa | | | kPa |
| Test Pressure : | 6762 | kPa | | | kPa |

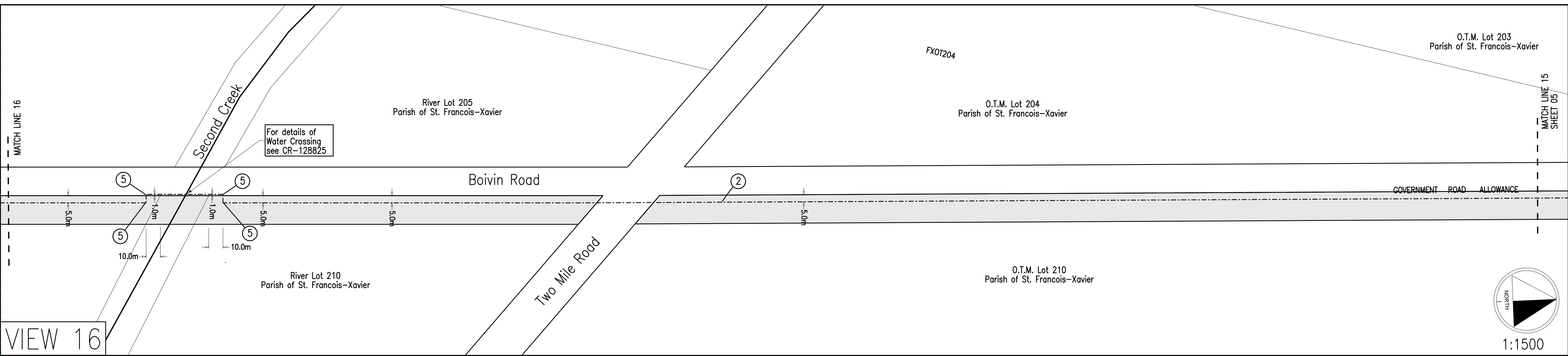
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| | | |
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| Eng. Check: | In my opinion, the plans and specifications submitted are in accordance with CSA Z245-11 Oil and Gas Pipeline Systems and the facilities proposed therein will not endanger Public safety. | |
| Cathodic Check: | | |
| Network/Activity # | | |
| 6" SH | - | 4313505 - 3105 |
| 8" SH | - | 4313505 - |
| Station | - | 4313505 - |

Drawn By: nbruce
Drawn Date: 2013/01/17

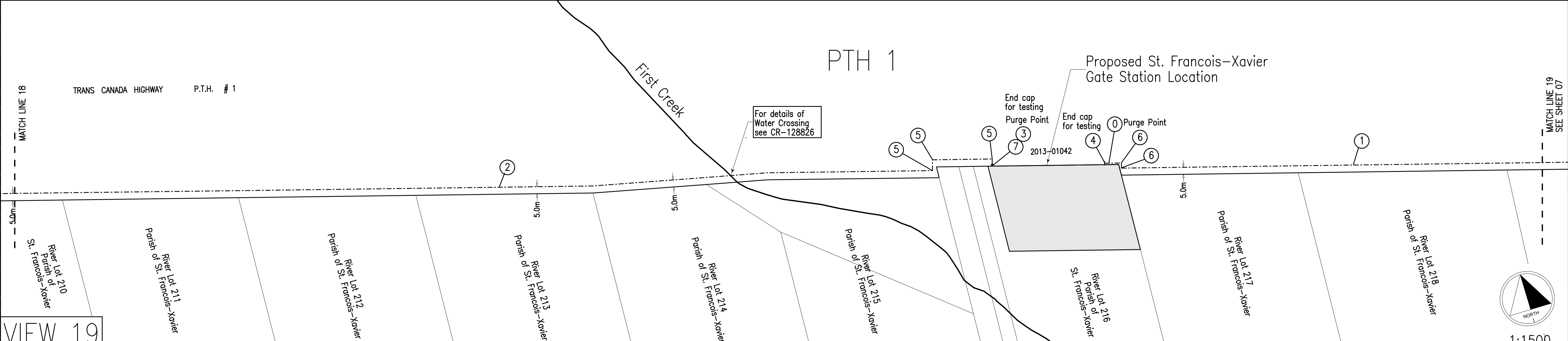
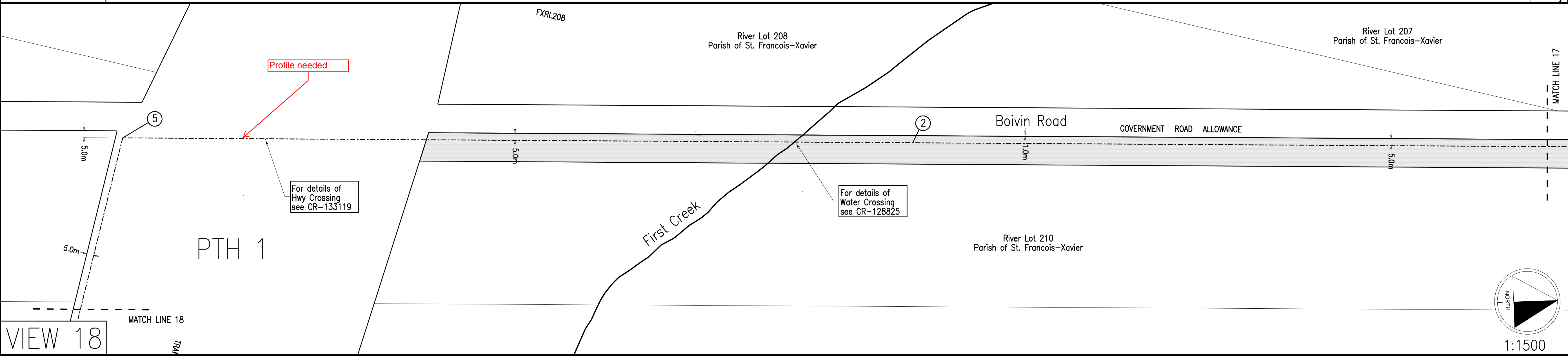
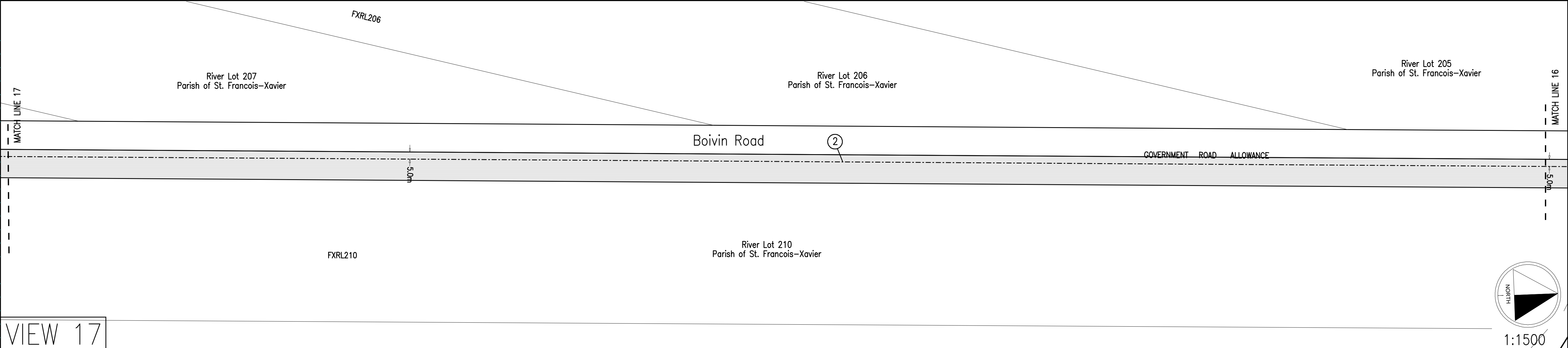
| | | | |
|--|----|--------------------|--|
| CENTRA GAS | | WINNIPEG, MANITOBA | |
| Proposed 168.3 mm SH TP natural gas pipeline from GS-031 to the new Gate Station located along Boivin Road in the RM of St. Francois-Xavier. From the new station, installation of 219.1mm SH MP pipeline along PTH 1 to tie-into existing 114.3 mm PE gas main at the Town of Headingley, as indicated. | | | |
| St. Francois-Xavier - RM | | WBS #: P:20342 | |
| Rosser - RM | | MER #: 2012-01042 | |
| DRAWING NUMBER: CD-16968 | | | |
| 1-72705-DF-91420-0001 | SH | REV | |
| | 04 | 00 | |

| GAS MAIN TEST | | | | |
|----------------------------------|-------|-------|--------------|--|
| Start Pressure: | Date: | Time: | Temperature: | |
| End Pressure: | Date: | Time: | Temperature: | |
| Pressure Gauge Calibration Date: | | | | |
| Test Medium: | | | | |
| Contractor: | | | | |
| Inspector: | | | | |
| Remarks: | | | | |
| GAS MAIN TEST | | | | |
| Start Pressure: | Date: | Time: | Temperature: | |
| End Pressure: | Date: | Time: | Temperature: | |
| Pressure Gauge Calibration Date: | | | | |
| Test Medium: | | | | |
| Contractor: | | | | |
| Inspector: | | | | |
| Remarks: | | | | |
| GAS MAIN TEST | | | | |
| Start Pressure: | Date: | Time: | Temperature: | |
| End Pressure: | Date: | Time: | Temperature: | |
| Pressure Gauge Calibration Date: | | | | |
| Test Medium: | | | | |
| Contractor: | | | | |
| Inspector: | | | | |
| Remarks: | | | | |



| BILL OF MATERIAL | | SH# | REV |
|------------------|-------|---|-----|
| No. | Qty | Description | |
| ① | | 3902m 219.1 mm SDR 11 *No Std* 2708 PE PIPE | |
| ② | | 168.3 mm x 4.78 mm WT Beveled End, Category 1, GR 290, ERW, sweet service pipe to meet most recent version of 'CAN/CSA-Z245.1 Steel Line Pipe' specifications. Pipe shall be provided in triple random lengths and Yellow Jacket coated according to the attached | |
| ③ | 2 | Manitoba Hydro standard, 210.02 SII 2 Wm TOR Unsc | |
| ④ | 2 | PE 8 BF Cap | |
| ⑤ | 16 | SII BW 6 90 Elb | |
| ⑥ | 2 | PE 8 BF 90 Elb | |
| ⑦ | 2 | SII BW 6 Cap | |
| ⑧ | 100 | 4 Denso Wrap | |
| ⑨ | 100 | 4 Poly Tape | |
| ⑩ | 8 | Fiberglass Warning Signs | |
| ⑪ | 3902m | Tracer Wire | |
| ⑫ | 100 | Plastic (Fusmatic) 8 Couplings | |
| ⑬ | 12 | Galvanized Steel Warning Signs | |

| GAS MAIN TEST | | | | |
|----------------------------------|-------|-------|--------------|--|
| Start Pressure: | Date: | Time: | Temperature: | |
| End Pressure: | Date: | Time: | Temperature: | |
| Pressure Gauge Calibration Date: | | | | |
| Test Medium: | | | | |
| Contractor: | | | | |
| Inspector: | | | | |
| Remarks: | | | | |
| GAS MAIN TEST | | | | |
| Start Pressure: | Date: | Time: | Temperature: | |
| End Pressure: | Date: | Time: | Temperature: | |
| Pressure Gauge Calibration Date: | | | | |
| Test Medium: | | | | |
| Contractor: | | | | |
| Inspector: | | | | |
| Remarks: | | | | |



PRELIMINARY
NOT TO BE USED FOR
CONSTRUCTION

Notes:
 1. MOP : 4830 kPa FARM TAP kPa
 Test Pressure : 6762 kPa
 2. Perform all work on this drawing in accordance with the applicable standards, specifications, and procedures.
 3. Locate all existing above grade and below grade structures prior to commencing construction.
 4. Call 360-7751 when Gas main is installed and/or energized.
 5. Maximum Operating Pressure (MOP) is 420 kPa unless otherwise noted.
 6. Outside Diameter (O.D.) of pipe in millimeters unless otherwise noted.

| | |
|-------------------------|---|
| Eng. Check: | In my opinion, the plans and specifications submitted are in accordance with CSA Z462-11 Oil and Gas Pipeline Systems and the facilities proposed herein will not endanger Public safety. |
| Cathodic Check: | |
| Network/Activity # | |
| 6" SII - 4313505 - 3105 | |
| 8" SII - 4313505 - | |
| Station - 4313505 - | |
| Drawn By: nrbuce | |
| Drawn Date: 2013/01/17 | |

CENTRA GAS
WINNIPEG, MANITOBA

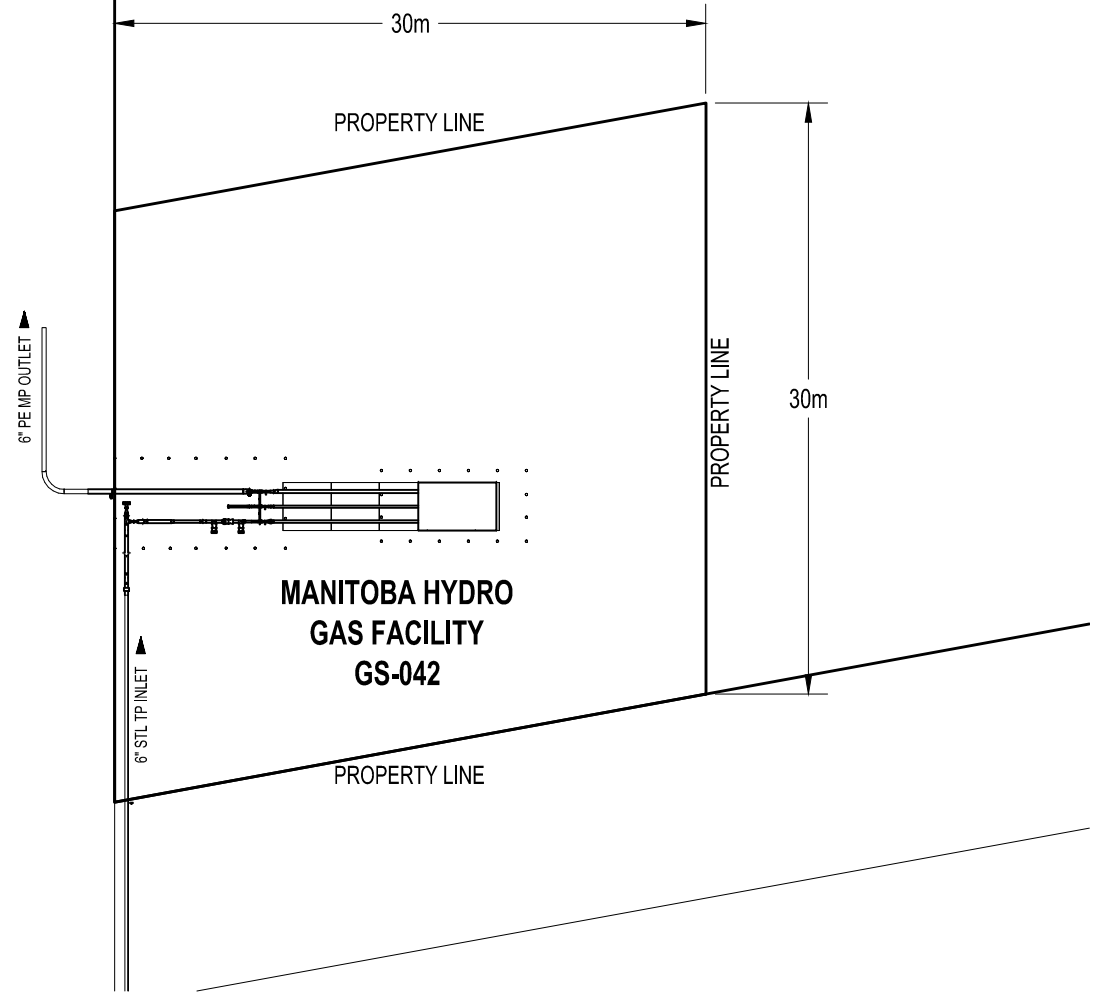
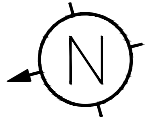
Proposed 168.3 mm SII TP natural gas pipeline from GS-031 to the new Gate Station located along Boivin Road in the RM of St. Francois-Xavier. From the new station, installation of 219.1mm SII MP pipeline along PTH 1 to tie-into existing 114.3 mm PE gas main at the Town of Headingley, as indicated.

St. Francois-Xavier - RM
 Rosser - RM
 Headingley - R.M.
 WBS #: P:20342
 MER #: 2012-01042

DRAWING NUMBER: CD-16968

| 1-12705-DF-91420-0001 | SH# | REV |
|-----------------------|-----|-----|
| | 06 | 00 |

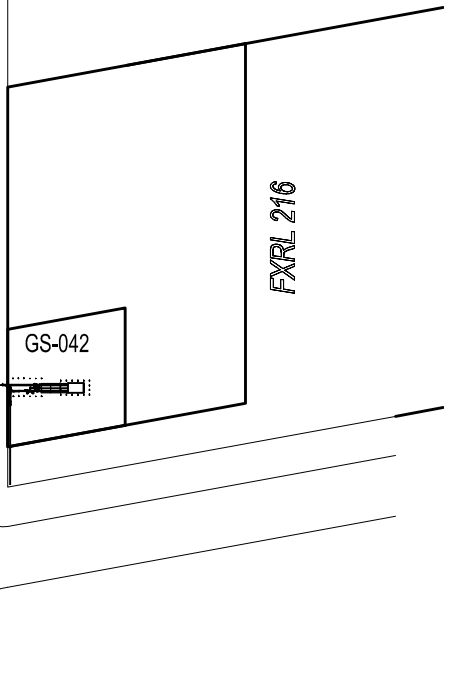
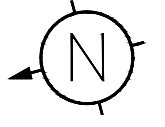
| | | |
|---|---------------------------------------|--------------------------|
| Construction Coordinator: Bruce Leaf (204) 360 - 7494 | Designer: Nick Bruce (204) 360 - 7830 | Issued For Approval: |
| Sealing Engineer: Greg Blazek (204) 360 - 7707 | Engineering: | Issued For Construction: |
| Easement: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | | Reference(s): |
| | | No. Date Revision Appr. |



SITE PLAN VIEW
SCALE: NTS

PTH 1


SERVICE ROAD



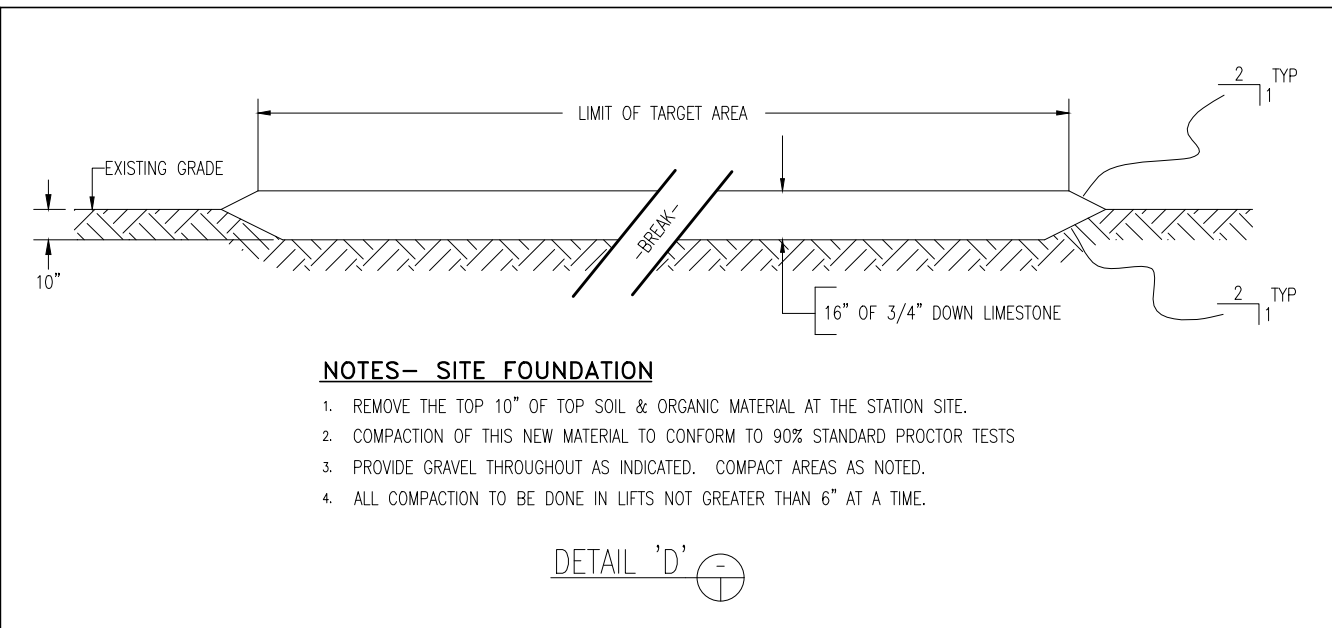
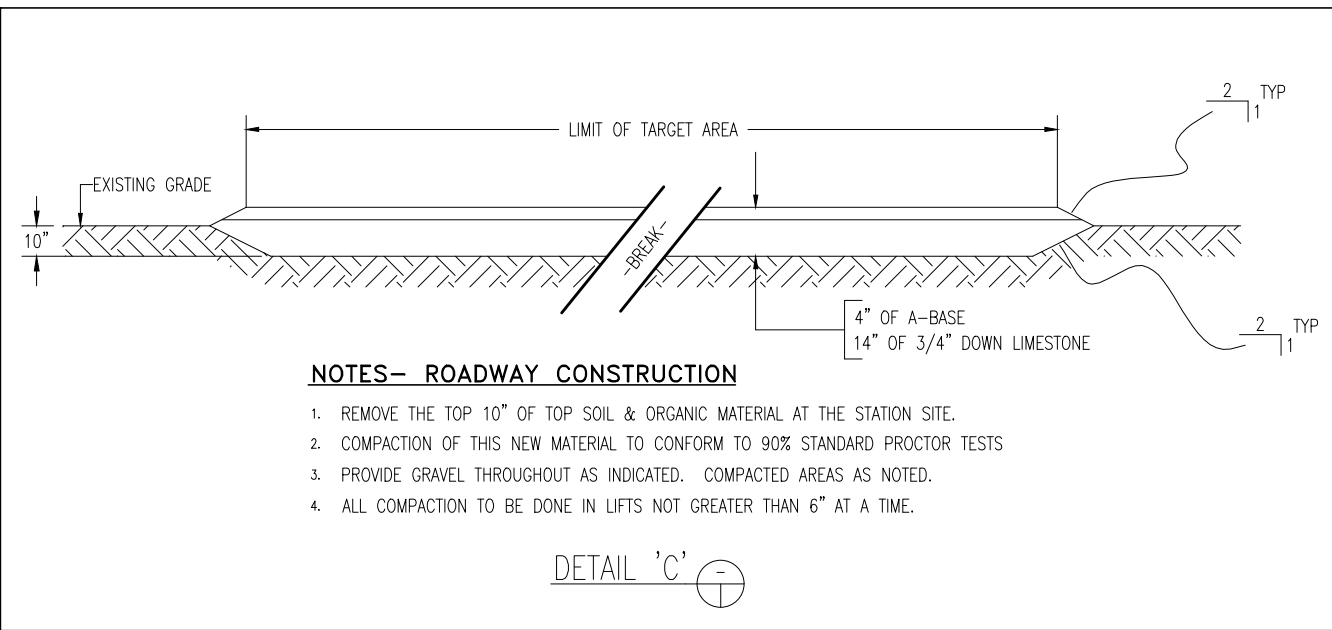
LOCATION PLAN
SCALE: NTS

FOR MICROFILM USE ONLY

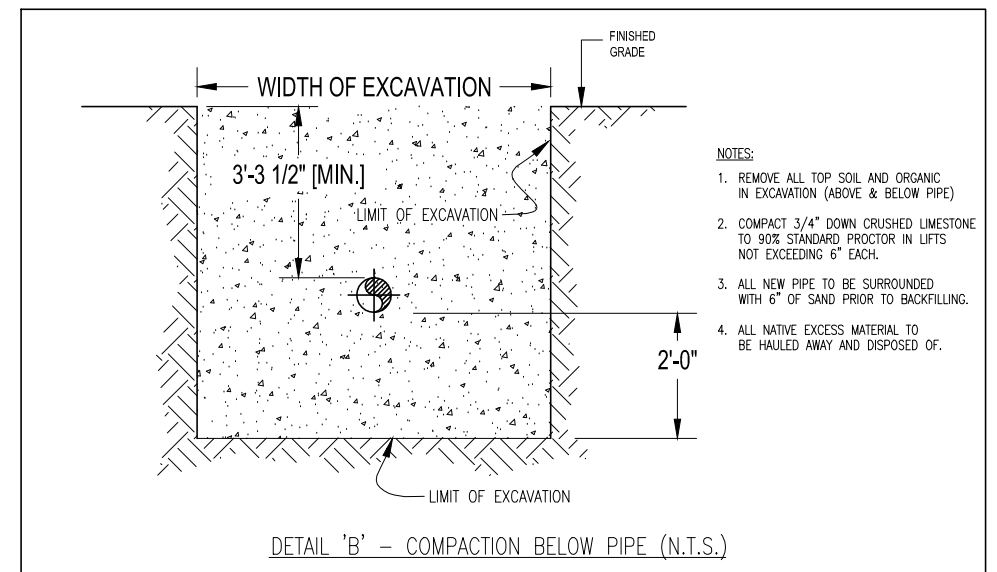
IN MY OPINION, THE PLANS AND SPECIFICATIONS SUBMITTED ARE IN ACCORDANCE WITH CSA Z662-11 GAS PIPELINE SYSTEMS AND THE CONSTRUCTION OF THE FACILITIES PROPOSED HEREIN WILL NOT ENDANGER THE PUBLIC.

| REFERENCE DOCUMENTS: | NO. | DATE | REVISIONS | APP. |
|---|-----|------|-----------------|------|
| SCALE: AS NOTED | | | | |
| DRAWN: J.DUVAL | | | | |
| DATE: 2012-DEC-11 | | | | |
| NETWORK: 4313505-3151 | | | | |
| CHECK: - | | | | |
| CATH: - | | | | |
| GIS GRID: 0258-0309 | | | | |
|  GAS DISTRIBUTION | | | -DESIGN- | |
| LOCATION PLAN AND SITE LAYOUT FOR CONSTRUCTION OF GS-042 ST.FRANCOIS XAVIER, MANITOBA | | | | |
| DRAWING NO. | | | SHT. | REV. |
| 1-G0042-DB-91130-0001 | | | 0001 | 00 |

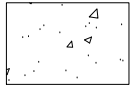


AUTOCAD ORIGINAL



- EXCAVATION AND SITE FOUNDATION NOTES:**
1. REMOVE 10" OF TOP SOIL AND ORGANIC MATERIAL WITHIN AREAS COMPRISED OF ZONES 1, 2 & 3.
 2. ZONE 1- FOLLOW SITE ROADWAY INSTALLATION AND COMPACTION INSTRUCTIONS FOUND IN DETAIL 'C'.
 3. ZONE 2- FOLLOW SITE FOUNDATION INSTALLATION AND COMPACTION INSTRUCTIONS FOUND IN DETAIL 'D'.
 4. ZONE 3- FOLLOW COMPACTION BELOW STYROFOAM INSTRUCTIONS FOUND IN DETAIL 'B'.
 5. ALL FINISHED COMPACTED AREAS TO CONFORM TO 90% STANDARD PROCTOR TESTS.
 6. ALL NEW VERTICAL PIPE RISERS TO BE ROCK WRAPPED ALONG BELOW GRADE PORTIONS AS PER MB HYDRO STANDARD 260.08 PRIOR TO BACKFILLING.
 7. ALL EXPOSED AND NEW PIPE TO BE SURROUNDED WITH 6" OF SAND PRIOR TO BACKFILLING.
 8. BACKFILL MATERIAL TO BE FREE OF ORGANIC MATERIAL, LARGE ROCKS AND STONES.
 9. APPROX 100 CUBIC YARDS OF 3/4" DOWN CRUSHED LIMESTONE IS REQUIRED.
 10. APPROX 14 CUBIC YARDS OF SAND REQUIRED.




FOR MICROFILM USE ONLY

-  ZONE 1 - LIMIT OF AREA REQUIRING MATERIALS FOR ROADWAY CONSTRUCTION, SEE DETAIL 'C' FOR SPECIFICATION.
-  ZONE 2 - LIMIT OF AREA REQUIRING MATERIALS FOR SITE FOUNDATION CONSTRUCTION, SEE DETAIL 'D' FOR SPECIFICATION.
-  ZONE 3 - LIMIT OF AREA REQUIRING MATERIALS FOR SITE FOUNDATION CONSTRUCTION, SEE DETAIL 'B' FOR SPECIFICATION.

IN MY OPINION, THE PLANS AND SPECIFICATIONS SUBMITTED ARE IN ACCORDANCE WITH CSA Z662-11 GAS PIPE SYSTEMS AND THE CONSTRUCTION OF THE FACILITIES PROPOSED WILL NOT ENDANGER THE PUBLIC.

PRELIMINARY

| | | | | | |
|----------------------|--------------|------|---|-----------------|------|
| REFERENCE DOCUMENTS: | NO. | DATE | ISSUED FOR CONSTRUCTION | REVISIONS | APP. |
| SCALE: AS NOTED | | |  GAS DISTRIBUTION | -DESIGN- | |
| DRAWN: J.DUVAL | | | | | |
| | 2012-DEC-11 | | EXCAVATION PLAN & FOUNDATION NOTES FOR CONSTRUCTION OF GS-042 ST.FRANCOIS XAVIER, MANITOBA | | |
| | 4313505-3151 | | | | |
| CATH: - | | | DRAWING NO. | SHT. | REV. |
| GIS GRID: | | | 1-G0042-DB-91121-0001 | 0002 | 00 |

AUTOCAD ORIGINAL



REGULATION BUILDING & EQUIPMENT

BLOCK & BY-PASS ASSEMBLY

PIG RECEIVER EQUIPMENT CONNECTION

8" STL MP - OUTLET

4" STL TP - INLET

FUTURE LINE HEATER CONNECTIONS


8" PE MP

6" STL TP

ISOMETRIC VIEW
SCALE: 0'-1/8" = 1'-0"

FOR MICROFILM USE ONLY

IN MY OPINION, THE PLANS AND SPECIFICATIONS SUBMITTED ARE IN ACCORDANCE WITH CSA Z662-11 GAS PIPELINE SYSTEMS AND THE CONSTRUCTION OF THE FACILITIES PROPOSED HEREIN WILL NOT ENDANGER THE PUBLIC.

| | | | | |
|---|-----|--|-----------|---------|
| REFERENCE DOCUMENTS: | NO. | DATE | REVISIONS | APP. |
| SCALE: AS NOTED | | | | |
| DRAWN: J.DUVAL | | | | |
| DATE: 2012-DEC-11 | | | | |
| NETWORK: 4313505-3151 | | | | |
| CHECK: - | | | | |
| CATH: - | | | | |
| GIS GRID: 0258-0309 | | | | |
|  | | GAS DISTRIBUTION -DESIGN- | | |
| ISOMETRIC VIEW SHOWING FINAL LAYOUT OF GS-042 ST.FRANCOIS XAVIER, MANITOBA | | | | |
| DRAWING NO. 1-G0042-DB-91112-0001 | | | SHT. 0001 | REV. 00 |

AUTOCAD ORIGINAL

Appendix B: Response from Manitoba Conservation Data Centre Regarding Rare Species Potentially Present in the Project Area

Watts, Kristopher

From: Friesen, Chris (CON) [Chris.Friesen@gov.mb.ca]
Sent: Monday, October 15, 2012 10:39 AM
To: Watts, Kristopher
Subject: RE: St. Francois Xavier Gasline

Kris

Thank you for your information request. I completed a search of the Manitoba Conservation Data Centre's rare species database and found no occurrences at this time for your area of interest.

The information provided in this letter is based on existing data known to the Manitoba Conservation Data Centre at the time of the request. These data are dependent on the research and observations of CDC staff and others who have shared their data, and reflect our current state of knowledge. **An absence of data in any particular geographic area does not necessarily mean that species or ecological communities of concern are not present**; in many areas, comprehensive surveys have never been completed. Therefore, this information should be regarded neither as a final statement on the occurrence of any species of concern, nor as a substitute for on-site surveys for species as part of environmental assessments. Also, because the Manitoba CDC's Biotics database is continually updated and because information requests are evaluated by type of action, any given response is only appropriate for its respective request.

Please contact the Manitoba CDC for an update on this natural heritage information if more than six months pass before it is utilized.

Third party requests for products wholly or partially derived from Biotics must be approved by the Manitoba CDC before information is released. Once approved, the primary user will identify the Manitoba CDC as data contributors on any map or publication using Biotics data, as follows as: Data developed by the Manitoba Conservation Data Centre; Wildlife and Ecosystem Protection Branch, Manitoba Conservation.

We would be interested in receiving a copy of the results of any field surveys that you may undertake, to update our database with the most current knowledge of the area.

If you have any questions or require further information please contact me directly at (204) 945- 7747.

Chris Friesen
Biodiversity Information Manager
Manitoba Conservation Data Centre
204-945-7747
chris.friesen@gov.mb.ca
<http://www.gov.mb.ca/conservation/cdc/>

From: Watts, Kristopher [<mailto:kwatts@hydro.mb.ca>]
Sent: October-10-12 11:35 AM
To: Friesen, Chris (CON)
Subject: St. Francois Xavier Gasline

Hello Chris,

The next project that we are screening for sensitive sites and species at risk, is St. Francois Xavier
Thank you again,
Kris Watts

Project specifics listed below:

Project Name: St. Francois Xavier

Project Description: The purpose of this project is to increase reliability of the supply system and consists of two lines west of the City of Winnipeg near headingley. One line is approximately 17.5 km of 6" (163.3 mm) Transmission Pressure Pipe and the second is a 5.7 km's of 8" (219.1 mm) Medium Pressure pipe along PTH #1. A Gate Station will also be installed between the two lines and its area would have a footprint of 30m X 30m square. Directional drilling is planned for crossing all waterways that are present along the route (indicated by a red circle)
The remainder of the piping will be placed using an open trench method which will be approximately 1 meter wide. Some MCDC species are identified on the map, sourced by a data set dated June 1st 2009

Project Site / Location: see attached maps and Shapefiles for further information.

Output Requested: Any data you have for occurrences of terrestrial, aquatic species of concern in the vicinity of the proposed route. Output in ArcGIS Shapefile please.

Date requested for: Oct 23rd if at all possible.

Should you need more information please don't hesitate to contact me

Thank you for your assistance,

Kris Watts, B.Sc.

Technical Support
Licensing & Environmental Assessment
Transmission Planning and Design
Manitoba Hydro
820 Taylor Ave (3)
Winnipeg, MB R3C 2P4
☎ (204) 360-7859
✉ kwatts@hydro.mb.ca



Please consider the environment before printing this e-mail

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. This message contains confidential information. If you are not the named addressee you should not disseminate, distribute or copy this e-mail. Please notify the sender immediately by e-mail if you have received this e-mail by mistake and delete this e-mail from your system. If you are not the intended recipient you are notified that disclosing, copying, distributing or taking any action in reliance on the contents of this information is strictly prohibited.

Appendix C: Explanation of MCDC Ranks

Manitoba Conservation Data Centre ranks and codes (Global and Provincial):

| Rank | Definition |
|------|---|
| 1 | Very rare throughout its range or in the province (5 or fewer occurrences, or very few remaining individuals). May be especially vulnerable to extirpation. |
| 2 | Rare throughout its range or in the province (6 to 20 occurrences). May be vulnerable to extirpation. |
| 3 | Uncommon throughout its range or in the province (21 to 100 occurrences). |
| 4 | Widespread, abundant, and apparently secure throughout its range or in the province, with many occurrences, but the element is of long-term concern (>100 occurrences). |
| 5 | Demonstrably widespread, abundant, and secure throughout its range or in the province, and essentially impossible to eradicate under present conditions. |
| U | Possibly in peril, but status uncertain; more information needed. |
| H | Historically known; may be rediscovered. |
| X | Believed to be extinct; historical records only, continue search. |
| SNR | A species not ranked. A rank has not yet assigned or the species has not been evaluated. |
| SNA | A conservation status rank is not applicable to the element. |

| Code | Definition |
|--------------|--|
| G#G# S#S# | Numeric range rank: A range between two of the numeric ranks. Denotes range of uncertainty about the exact rarity of the species. |
| T | Rank for subspecific taxon (subspecies, variety, or population); appended to the global rank for the full species, e.g. G4T3. |
| B | Breeding status of a migratory species. Example: S1B,SZN - breeding occurrences for the species are ranked S1 (critically imperilled) in the province, nonbreeding occurrences are not ranked in the province. |
| N | Non-breeding status of a migratory species. Example: S1B,SZN - breeding occurrences for the species are ranked S1 (critically imperilled) in the province, nonbreeding occurrences are not ranked in the province. |
| Q | Taxonomic questions or problems involved, more information needed; appended to the global rank. |
| T | Rank for subspecific taxon (subspecies, variety, or population); appended to the global rank for the full species. |
| # | A modifier to SX or SH; the species has been reintroduced but the population is not yet established. |
| ? | Inexact or uncertain; for numeric ranks, denotes inexactness. |

**Appendix D: Response from Manitoba Historic Resources
Branch Regarding Heritage Resources
Potentially Present in the Project Area**

DATE: November 6, 2012

TO: Maureen Forster
447 Strathmillan Road
Winnipeg MB

FROM: Gordon Hill
Impact Assessment
Archaeologist
Historic Resources
Branch
Main Floor 213 Notre
Dame Avenue
Winnipeg MB
R3B 1N3
PHONE NO: (204) 945-7730

SUBJECT: HERITAGE RESOURCES

NATURAL GAS PIPELINE
HEADINGLEY/ST. FRANCOIS XAVIER

In response to your memo regarding the above-noted proposed project, I have examined Branch records for areas of potential concern. The potential to impact significant heritage resources is low, and, therefore, the Historic Resources Branch has no concerns with the project.

Avoidance of the cairns during construction is the required mitigation.

If you have any questions or comments, please contact me at 945-7730.

C. Gordon Hill

**Appendix E: St. Francois-Xavier Natural Gas Transmission
Pipeline – Public Engagement Program**

St. Francois-Xavier Natural Gas Transmission Pipeline – Public Engagement Program

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- 2.0 Process 3
- 3.0 Notification Methods 3
 - 3.1 Direct Mailings 3
 - 3.2 Postal Code Drop 4
 - 3.3 Newspaper Advertising..... 4
- 4.0 Phone Line 5
- 5.0 Municipal Council Meetings..... 5
- 6.0 Landowner Meetings 5
- 7.0 Public Open House 5
- 8.0 Materials Presented..... 6
 - 8.1 Newsletter 6
 - 8.2 Mapping & Photography..... 6
 - 8.3 Project Tangibles 7
- 9.0 Participant Comments 7
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 - 9.2 Pipeline & Gate Station Location 8
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1.0 Introduction

Manitoba Hydro is proposing to develop a natural gas transmission line which connects to the existing infrastructure in the Municipality of Headingley, west of the City of Winnipeg. The pipeline will originate from an existing gate station at Saskatchewan Avenue, travel west through the municipality of Rosser to Boivin Road in the Municipality of St. Francois Xavier. From there, the pipeline will travel south along Boivin Road to PTH 1, travel east and connect to the existing infrastructure located on the north side of Provincial Trunk Highway (PTH) #1.

As part of the regulatory process, Manitoba Hydro initiated a public engagement program to obtain feedback from the public, local municipalities, First Nations communities, the Manitoba Metis Federation and local landowners.

Maps denoting the proposed route are provided as Appendix A.

2.0 Process

As part of the Environmental Assessment process, Manitoba Hydro undertook a public engagement program to achieve the following goals,

- inform the public regarding the project, timelines and proposed location;
- to gather feedback on the proposed location of the pipeline and associated gate station; and
- to provide an opportunity for the public to have questions answered and concerns addressed by Manitoba Hydro representatives.

As part of the engagement program, Manitoba Hydro aimed to engage;

- Landowners within the Project study area;
- Rural Municipalities (RM);
- First Nation Communities;
- Manitoba Metis Federation; and
- Members of the general public.

Manitoba Hydro, undertook Municipal council meetings, provided a contact to all interested parties through a variety of notification methods (which included direct mailings, a postal code drop and newspaper advertisements) and held a public open house to allow the public and interested parties to discuss the Project with Manitoba Hydro representatives.

3.0 Notification Methods

Manitoba Hydro utilized three (3) notification methods to ensure that the public was aware of Manitoba Hydro's Project activities in the area which included direct mailings, a postal code drop and newspaper advertisement which are discussed in detail below.

3.1 Direct Mailings

Manitoba Hydro notified 164 landowners within the Project Study Area by direct letters dated November 30th, 2012. These letters outlined the project details, noted the time and location of the public open house,

and provided a Manitoba Hydro contact which individuals were encouraged to contact to discuss any potential concerns with the Project. These direct mailings consisted of the following materials,

- Personalized letter;
- Project Newsletter; and
- 1:35,000 Topographic maps of the location of the pipeline

Four (4) landowners where an easement would be necessary were notified regarding the Project by direct mailing. These mailings included all materials listed above as well as 1:15,000 topographic mapping of the location of the pipeline as it traverses land where easements would be required (north/south alignment which follows Boivin Road) in the RM of St. Francois Xavier.

Three (3) RMs were also notified of the Project. Packages containing the materials listed above were sent to the Rural Municipalities of Rosser, St. Francois Xavier and Headingley. These letters were followed up with a phone call to set a time for Manitoba Hydro to present the Project to council members.

Three (3) First Nations were notified regarding the Project and received all the material listed above. Manitoba Hydro offered to meet with these communities if there was community interest. The following First Nations communities were notified of the Project by direct mailing;

- Peguis First Nation;
- Roseau River First Nation; and
- Swan Lake First Nation.

The Manitoba Metis Federation was notified regarding the Project by direct mailing and included all available mapping as well as the Project newsletter.

An example of the direct letter is provided in Appendix B.

3.2 Postal Code Drop

As part of the public engagement program, Manitoba Hydro undertook a postal code drop to inform the general public of the proposed Project. 340 individual mailers (both residential and commercial) were sent out to postal code “R4H” in the vicinity of Headingley, Manitoba. These mailers were 10” x 6” (color) and included a brief project summary, a simplified map of the proposed location of the Project as well as time, date and location of the Public Open House. Manitoba Hydro contact information was also provided on each mailer.

3.3 Newspaper Advertising

Manitoba Hydro utilized the Winnipeg Free Press to notify the general public of the public open house. The open house advertisement ran in the Weekend Edition of December 8th and December 15th 2012. This advertisement included a brief project summary, a simplified map of the proposed location of the Project as well as time, date and location of the Public Open House. Manitoba Hydro contact information was also provided in the newspaper advertisement.

4.0 Phone Line

Manitoba Hydro provided contact information in all direct mailings, materials and advertisements. In total twelve (12) individuals contacted Manitoba Hydro to discuss a variety of topics regarding the project. One caller submitted a letter following a discussion with a Manitoba Hydro representative.

Manitoba Hydro contacted the four (4) landowners where an easement would be required to set up a meeting to discuss the project, construction processes as well as compensation being offered for the Project.

Manitoba Hydro also contacted Peguis First Nation by phone as the Project falls within Peguis First Nations' Community Interest Zone.

5.0 Municipal Council Meetings

Two (2) municipal council meetings were held with the RM of St. Francois Xavier and the RM of Rosser. These meetings were held on December 4th and December 17th respectively. The RM of Headingley declined a presentation and noted in a phone conversation that the RM would review the package and would send a letter or call if there were any concerns raised by the council regarding the Project.

At the council meetings, a Manitoba Hydro representative gave an outline of the Project, discussed the environmental assessment process for the project, discussed project timelines as well as topics related to design and construction. Following the presentation, a question and answer period was offered to council members.

A summary of these meetings is available upon request.

6.0 Landowner Meetings

Manitoba Hydro requested a meeting with directly affected landowners by direct mailing and follow up phone calls. In total, four (4) meetings were anticipated to occur.

Following discussions with one landowner who called the information line, it was possible to schedule one (1) meeting with two of the landowners involved. This meeting was held January 4th 2013 at the residence of one of the affected landowners. One landowner was unable to attend as they reside out of Province yet the lessee of that land parcel was present to ask questions regarding the Project. Manitoba Hydro representatives included two project engineers, a senior environmental specialist as well as a property agent.

A summary of this meeting is available upon request.

7.0 Public Open House

One (1) public open house was held at the Headingley Community Centre located on PTH 1 (5353 Portage Avenue). This open house was held on December 17th 2012, from 4:00pm to 8:00pm as a drop-in event. This venue was open to all members of the public to come and discuss the Project. In total, 19 individuals signed in as a participant.

The Open House was formatted into five (5) specific “station” areas. Each “station” had a brief synopsis of the topic at hand as well as photography related to the topic. The five (5) topics were;

- Pipeline Safety;
- Gate Station;
- Environmental Assessment;
- Construction; and
- Project Study Area topographic mapping (1:35,000 & 1:15,000 scale mapping – poster size)

Participants were greeted by a Manitoba Hydro representative and a Manitoba Hydro representative toured them through the material. Comment sheets were provided to each participant as well as a Project Newsletter. Comments and concerns regarding the Project are discussed in Section 9.0 of this report.

8.0 Materials Presented

Manitoba Hydro utilized a variety of materials to outline the Project to participants through the direct mailings and public open houses.

8.1 Newsletter

A newsletter was created for the Project and outlined the following topics;

- Project Description;
- Environmental Licensing;
- Project Schedule;
- Environmental Assessment & Public Notification;
- Design Details;
- Construction;
- Safely Living and Working Around Pipelines; and
- Maintenance and Operation.

These newsletters were sent to all landowners within the study area, RM councils, First Nations Communities, the MMF and to all participants who attended the public open house.

The newsletter contained a contact phone number and email address for a Manitoba Hydro representative to discuss any questions or concerns regarding the Project if unable to attend the open house

A copy of the newsletter is provided as Appendix C.

8.2 Mapping & Photography

Project mapping was an integral piece to the public engagement program. Project mapping was provided in direct mailings, in public advertising and used as a central focus at the public open house.

Topographic mapping was utilized at the 1:35,000 and 1:15,000 scales. Poster sized mapping was placed in the center of the open house venue. These maps allowed individuals to situate their landholdings in relation to the proposed location of the natural gas pipeline as well as provide commentary on specific sites along the proposed route.

Photographs assisted participants in understanding the natural gas pipeline construction process. Photographs of previous Manitoba Hydro projects denoting the following phases of natural gas pipeline construction were used;

- Surveying;
- Trenching;
- Clearing;
- Installation; and
- Reclamation.

Photography utilized at the public open house assisted participants in understanding what to expect if this proposed project were to be licensed and construction was to be undertaken.

Photographs of existing gate stations proved to be valuable for the public to understand the function these stations play for the project. Many were interested in size, appearance and scale as this will be the only remaining “visible” piece of the Project following installation of the pipeline.

Project maps are provided as Appendix A.

8.3 Project Tangibles

At the public open house, Manitoba Hydro provided tangibles for participants to assist participants in understanding the materials that would be required for this project. The following tangible items were provided at the open house;

- Piece of 6” natural gas pipeline;
- Piece of 8” natural gas pipeline;
- Safety/Warning signs that will be utilized for the Project; and
- “Checkpoint” marker that allows Manitoba Hydro to locate the line below ground.

9.0 Participant Comments

A comment sheet was developed for the Project to assist the Project team in collecting information from participants as well as allowing a method to track specific discussions. The comment sheet is provided as Appendix D.

In total 19 individuals participated in the public open house and 12 individuals contacted Manitoba Hydro through the phone line, and 8 comment sheets were submitted to the Project Team.

The following provides a breakdown of the discussions which were held with participants, the concerns raised and questions which were asked to Manitoba Hydro representatives.

9.1 Method of Notification

From discussions at the open house, all notification methods utilized were well accepted by participants. Newspaper advertising and direct mailing were the most common methods in which individuals became informed of the Project and the location of the open house. Others noted that the postal code drop was also of benefit in informing them of Manitoba Hydro’s activities.

9.2 Pipeline & Gate Station Location

Many participants were interested in understanding the location of the proposed pipeline in relation to their landholdings in addition to how the location of the pipeline and gate station was determined. It was noted to participants that following existing unused road rights-of-way was preferred to minimize any private land easements necessary for the project. It was also noted that the north-south alignment minimized the need to cross private lands, provided access to the gate station and allowed for future expansion if markets west were to become feasible.

Many questioned the proposed location of the new gate station. It was noted that the location was not yet finalized and will continue to be evaluated. Many questioned how far the gate station would be from PTH #1 and it was noted that the current proposed location was due to the potential future expansion of Centerport Way.

One participant noted that they owned land which was already subdivided and that it had access from a service road which follows PTH #1. This land is located on the southern side of PTH #1. This individual noted that he would be willing to lease or sell the land to Manitoba Hydro to host the proposed gate station. Two Manitoba Hydro representatives viewed the parcel in question with the landowner.

Another landowner noted that they would be willing to provide a 5 acre parcel along Boivin Road for use by the construction team as a potential staging area for project materials.

No opposition was heard with regards to the location of the proposed natural gas pipeline.

9.3 Potential for Future Development and Expansion

Many commercial operators attended the open house and contacted the project line. These individuals were very supportive of the proposed location as they believed that it would facilitate future expansion of natural gas service into the community of St. Francois Xavier. Operators noted that currently they are running on propane which is a more expensive alternative to natural gas. Many noted they were disappointed with that the municipality did not participate in the initiative to bring gas to rural areas many years ago.

Individuals who operate commercially in the area were quite interested in the process in which they and other landowners could convince their municipality or Manitoba Hydro to expand further west into the community of St. Francois Xavier. These individuals were put into contact with the Gas Marketing Department within Manitoba Hydro.

One participant raised a concern regarding their rural landscape. This participant noted their belief that bringing natural gas into the area and potential future expansion would be correlated to an increase in subdivisions and residential/commercial development. This participant was concerned that this would encroach on the natural landscape and their current rural surrounding for which they moved into this area.

9.4 Condition of Boivin Road

Many participants noted that Boivin Road (location of the north/south alignment) is accessible in dry conditions. During wet conditions the road is very difficult to utilize and is not able to be traveled.

9.5 Agriculture & Compensation

Discussions regarding potential damages to crops during the construction phase were mentioned by some participants. There was concern over damaging crops during winter if winter wheat was being sown as well as damages caused by trenching if it were to occur after seeding of the easement area. It was noted that for any damages caused by Manitoba Hydro activities would be compensated for (i.e., loss of seed, creation of ruts, crop damage, etc.).

Manitoba Hydro informed landowners that they will be paid 75% of market value for the 30- or 20-metre wide easement across private property as well as any potential construction related damages.

9.6 Access

A landowner was concerned that the construction phase of the Project could interfere with accessing his land parcel. It was outlined to the landowner that contractors will contact landowners before trenching begins to understand any time sensitivities or access issues and will work to minimize any potential issues.

9.7 Support for the Project

Many participants were supportive of the Project. Many believed that with this project, future natural gas pipeline expansion could ensue into adjacent municipalities. Many questioned how they could convince Manitoba Hydro or their local municipalities to expand natural gas access as well as the possibility of tapping in to the existing and the proposed infrastructure.

Many participants in the public engagement program noted that they felt this Project would only bring benefits. Many indicated they felt access to natural gas in the area would be an economic benefit (transferring operations to gas as opposed to current processes) as well as a potential increase in property values.

10.0 Feedback Incorporation

Following the open house and discussions with stakeholders, landowners and members of the public, Manitoba Hydro is considering modifications to the route presented. As a result of the feedback received regarding the condition of Boivin Road (access concerns and poor access during wet conditions), and the offer to discuss a location south of PTH #1, Manitoba Hydro is in the process of discussing land acquisition with the landowner who offered to lease/sell property located south of PTH #1. This land acquisition would provide a new site for the gate station and would provide consistent all-season access via a service road located on the south side of PTH #1.

The potential route adjustment map is presented as Appendix E.

11.0 Future Follow-Up Requirements

As part of the public engagement program, Manitoba Hydro will notify the public, stakeholders, First Nations and the MMF of the final proposed route of the natural gas pipeline in the area. Manitoba Hydro will include in this notification that the environmental assessment has been submitted to regulatory

authorities (Manitoba Conservation and Water Stewardship) and that the assessment is available for public review and comment.

12.0 Conclusions

Manitoba Hydro undertook a public engagement program to inform the public of the activities proposed by Manitoba Hydro. Utilizing a variety of notification methods and venues in which to discuss the Project, Manitoba Hydro received valuable feedback regarding the project and achieved the goals which were set forth at the onset of the program.

The public engagement program indicated that there was strong support amongst local municipalities, landowners and the general public in the Study Area. Many viewed the project as having long term potential benefits with some short term potential inconveniences with regards to agricultural operations.

Appendix A – Project Mapping

St. Francois Xavier

Rosser

Headingley

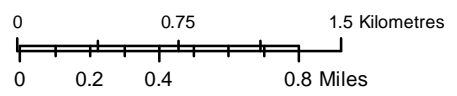
Winnipeg

Existing Gate Station

Proposed Gate Station*

Headingley

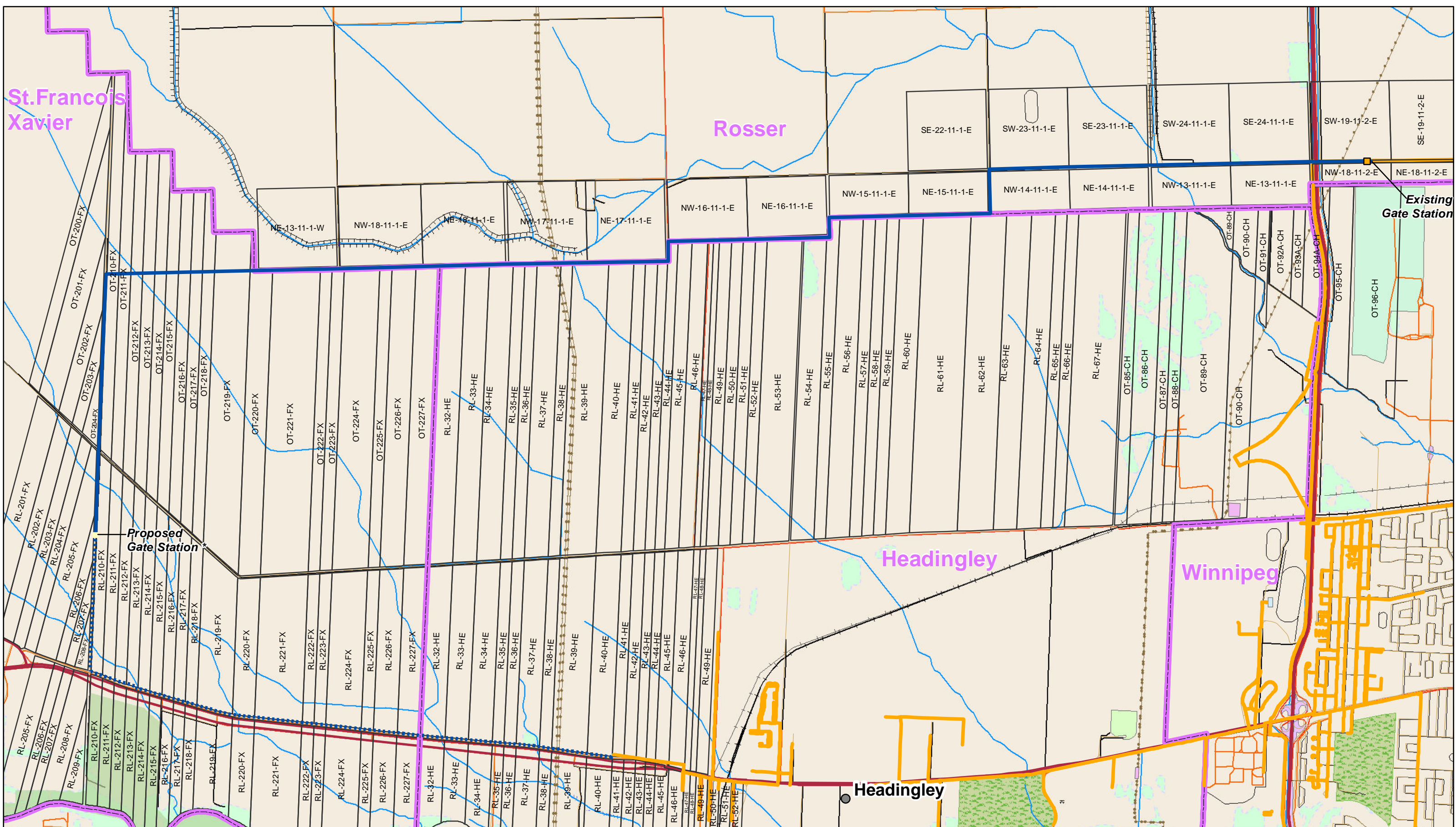
Coordinate System: UTM Zone 14N NAD83
Data Source: MB Hydro, ProvMB
Date Created: Nov 11, 2012

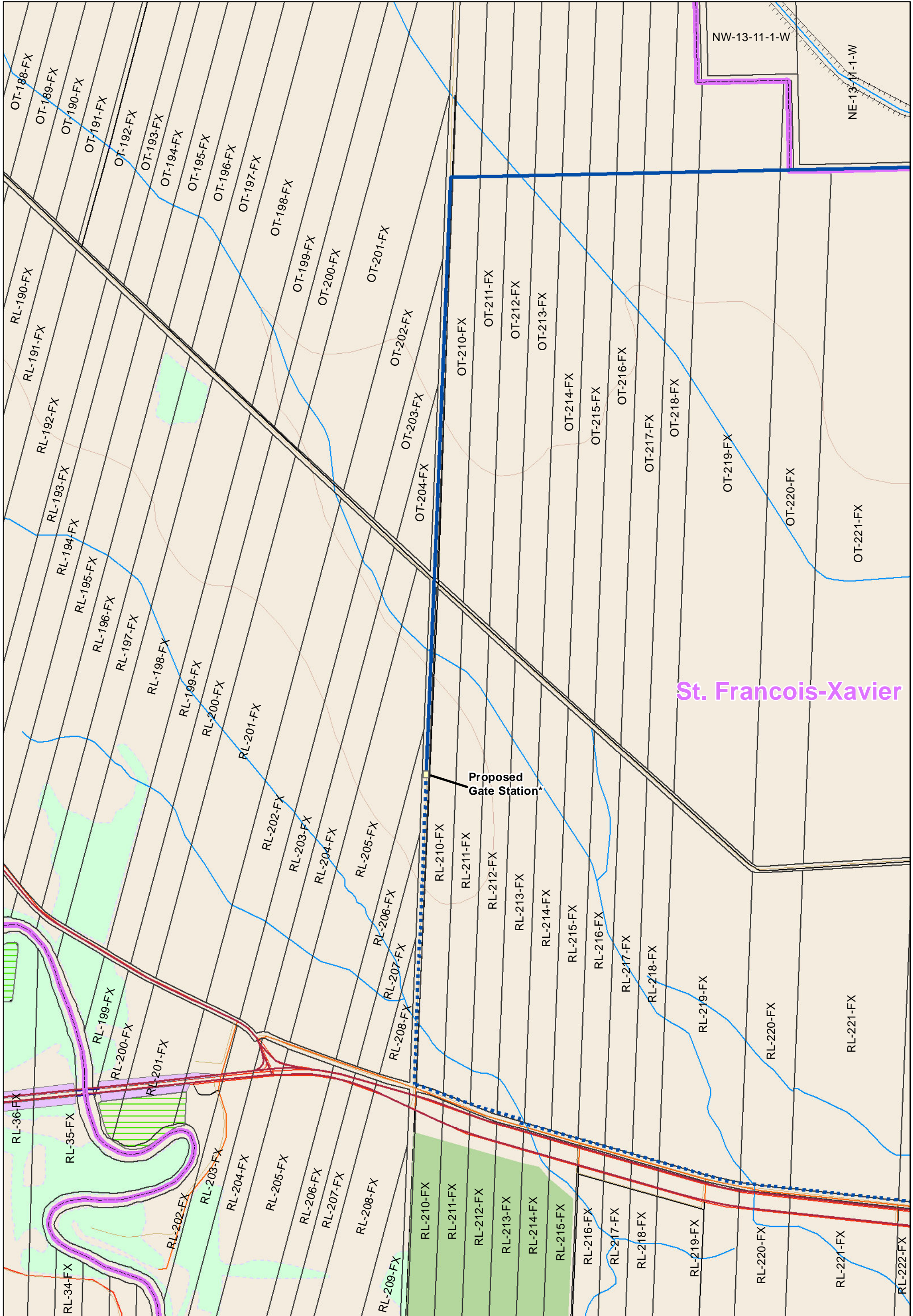


- Existing Gas Line
 - Proposed 6 inch Pipeline
 - Proposed 8 inch Pipeline
 - St Francois-Xavier Gate Station
 - Rural Municipalities
 - Provincial Highway
 - Provincial Road
 - Transmission Line
- * Approximate location (subject to change)



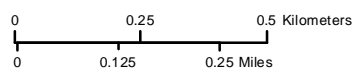
St. Francois-Xavier Proposed Natural Gas Distribution Pipeline





Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, ProvMB, NRCAN
 Date Created: Nov 11, 2012

- Rural Municipalities
- Provincial Highway
- Provincial Road
- Proposed 6 Inch Pipeline
- Proposed 8 Inch Pipeline
- St. Francois-Xavier Gate Station* Approximate Location (subject to change)



1:15,000



St. Francois-Xavier Proposed Natural Gas Distribution Pipeline

Appendix B – Project Letters



P.O. Box 7950 Stn Main, 820 Taylor Avenue • Winnipeg Manitoba Canada • R3C 0J1
Telephone / N° de téléphone : (204) 360-4305 • Fax / N° de télécopieur : (204) 360-3734

November 30th, 2012

Dear Landowner:

Re: St. Francois-Xavier Proposed Natural Gas Transmission Pipeline

Manitoba Hydro would like to advise you of a proposed natural gas transmission pipeline project in your area. This new pipeline is needed to serve the growing demand for natural gas in the Headingley area, and to provide for any potential future expansion of natural gas supply into adjacent Municipalities.

The project requires installation of approximately 17 km of steel natural gas pipe, 6 km of plastic natural gas pipe as well as a gate station (which will be used to modify pressure among the two differing pipes). In order to facilitate the installation and safe operation of the new pipeline, the pipeline will be installed in existing road rights-of-way on an approved alignment granted by the Rural Municipalities, as well as 30 metre wide easements where there is no existing road right-of-way available.

The attached newsletter and map denotes the proposed route of the pipeline and the location of the associated gate station. The new 6" diameter pipeline will originate at PTH 101 and Selkirk Avenue and will continue to the new gate station along Boivin Road in the RM of St. Francois-Xavier. From there, an 8" pipeline will continue south down Boivin Road and head due-east along PTH 1 and tie-into the existing natural gas distribution system at the west end of Headingley.

This project requires a Class 2 Licence under the Manitoba *Environment Act* and an environmental assessment will be submitted to Manitoba Conservation and Water Stewardship (MCWS) as part of the approval process. Manitoba Hydro will adhere to all guidelines and licence conditions outlined by MCWS which will be specific to this project. All environmentally sensitive areas will be crossed using directional drilling methods in order to minimize any potential impacts from construction.

Manitoba Hydro will be holding a drop-in Public Open House in the RM of Headingley to respond to questions and address concerns with local residents. The open house will be held at the;

Headingley Community Centre
5353 Portage Avenue
December 17th 2012
4:00pm to 8:00pm

In addition to the open house, Manitoba Hydro is interested in discussing the details of the Project with landowners that own property where an easement will be required. A Manitoba Hydro representative will be in contact with you in the near future to set up a meeting time to discuss the project.

If you wish to ask any questions or would like to have your concerns or questions addressed prior to the arrangement of a meeting, please contact me directly at 204-360-4305.

We look forward to discussing this Project with you.

Sincerely,

Trevor Joyal
Environmental Specialist
Licensing & Environmental Assessment Department

Appendix C – Project Newsletter

St. Francois-Xavier Natural Gas Pipeline Project

Safely Living and Working Around Pipelines

The pipeline easement allows for normal agricultural operations to occur with minimal limitations and will help ensure that the pipeline is operated safely. Landowners are strongly encouraged to contact Manitoba Hydro's "Call Before You Dig" line prior to starting any activities such as fencing, installing drainage systems, augering or other activities where there is a risk of impacting the pipeline. Permanent structures cannot be built within the easement at any time, and for safety reasons the landowner must notify Manitoba Hydro if there are going to be any activities within the easement other than the expected agricultural operations.

Manitoba Hydro will adhere to all guidelines to ensure safety during construction and operation of this pipeline.

Maintenance and Operation

After the pipeline is operational it will be maintained to ensure that it is operating safely. Manitoba Hydro has a formal Integrity Management Program that assesses potential risk to the pipeline and specifies programs that will be used to monitor the condition of the pipeline. The frequency that the programs are run is dependent upon the risk to the pipeline, and examples of these maintenance programs are:

- Leak Detection Surveys - a gas detection device is used to inspect the entire length of the pipeline to detect any natural gas leaks.
- Right-Of-Way Patrols - maintenance personnel will inspect the right-of-way for signs of damage or potential risks to the pipeline.
- Cathodic Protection Monitoring - qualified technicians will assess the condition of the cathodic protection that is applied to the pipeline.
- Depth of Cover Surveys - measurements of the depth of soil cover above the pipeline will be taken to ensure that the pipeline is adequately protected from potential damage.



Contact us with any questions, comments or concerns

Trevor Joyal
Environmental Specialist
Licensing and Environmental Assessment Department

Phone: (204)360-4305
Email: tjoyal@hydro.mb.ca



ST. FRANCOIS-XAVIER NATURAL GAS PIPELINE



WINTER 2012 — MANITOBA HYDRO

Project Description

Manitoba Hydro is planning to install a new natural gas pipeline which is needed to serve the growing demand for natural gas in the Headingley area, and to allow for any potential future expansion of natural gas supply into adjacent Municipalities if it becomes economically feasible.

The project requires installation of approximately 17 km of steel natural gas pipe, 6 km of plastic natural gas pipe and a pressure regulating station.

The pipeline will be installed in existing road rights-of-way on an approved alignment granted by the Rural Municipalities, as well as 30 metre wide easements where there is no existing road right-of-way available.



Trenching being undertaken for a past gas pipeline project by Manitoba Hydro

Environmental Licensing

This project will require a Class 2 licence under Manitoba's *Environment Act*. An environmental assessment will be undertaken regarding the Project and will be submitted to regulators for review. The licensing process to obtain approval for construction by Manitoba Conservation and Water Stewardship has commenced.

Manitoba Hydro will adhere to all guidelines as outlined by Manitoba Conservation and Water Stewardship which will be specific to this project. All environmentally sensitive areas will be crossed using construction techniques that minimize surface disruption.

Project Schedule

- Landowner Notification: **November-December 2012**
- Easement Acquisitions: **January-February 2013**
 - Final Design: **January 2013**
 - Pipeline Construction: **May to August 2013**
- Clean-up and Land Restoration: **August-September 2013**
 - In-Service Date: **August 2013**

Environmental Assessment & Public Notification

Manitoba Hydro will undertake an environmental Assessment of the Project for submittal to Manitoba Conservation and Water Stewardship. The environmental assessment will;

- Identify project components and characterize the environment
- Identify potential effects the Project may have on the environment
- Determine ways to avoid or reduce potential adverse effects
- Develop mitigation and monitoring programs.



Manitoba Hydro is notifying all landowners directly adjacent to the proposed route and will be discussing the Project with potentially affected landowners. Feedback received throughout the process will be incorporated into the environmental assessment and mitigation measures.

The inserted map outlines the location of the St. Francois-Xavier Natural Gas Pipeline Project. Manitoba Hydro is interested in meeting with any landowner in the vicinity of the line with inquiries or concerns they may have regarding the Project. Contact information can be found on the back side of this newsletter.

Design Details

Meets or exceeds the requirements of the Manitoba Public Utilities boards, the CSA Z662-11 Oil and Gas Pipeline Systems Code and all applicable Manitoba Hydro Gas Standards.

- Pipe installation 1.0 m (3.3 ft) below grade. This depth will allow for adequate protection of the pipeline when farm equipment or other large machinery travel over the pipeline.
- Isolation valves installed at both ends of the new pipeline to control the natural gas flow.
- Above grade piping will be installed within Manitoba Hydro owned property and protected by bollards and fencing.
- The pipeline location will be marked at each mile road and in any location where the pipeline crosses waterways or other service roads.
- Corrosion on the pipeline will be controlled through a factory pipe coating and cathodic protection. Cathodic test points will be installed approximately every mile.

Construction

The pipeline will be installed to meet industry standards and Manitoba Hydro representatives will be onsite to monitor the construction. It is our intent to construct the pipeline in the safest manner possible and best efforts will be made to minimize the disruption to agricultural operations during the project. During construction some of the activities will be:

- Survey: The right-of-way and pipeline alignment will be staked out to ensure that the pipeline is installed exactly as designed.
- Topsoil Removal: On agricultural land the topsoil will be pushed to the side of the right-of-way to prevent mixing of the topsoil with the subsoil and to minimize compaction. The topsoil will be removed to a maximum of 12 inches.
- Pipe Welding: The pipe will be welded together in accordance with CSA Z662-11 and all welds will be non-destructively examined to confirm quality.
- Trenching: The pipe will be installed in a trench approximately 18-24 inches wide using track-hoes or a large trenching machine.
- Directional Drilling: All waterways and environmentally sensitive areas will be installed by directional drilling to minimize the impacts to these areas.
- Lowering and Tie-Ins: The majority of the pipeline will be welded above grade and lowered into place. When two long sections of pipeline are tied together a larger excavation will be made to allow the welder to access the pipeline below grade.
- Pressure Testing: Prior to putting the pipeline into service it will be pressure tested to confirm the pipeline's strength and to ensure there are no leaks.
- Restoration/Clean-up: After the pipeline is energized the topsoil will be re-spread and leveled to allow regular land-use to resume.



Left photograph: Preparation for trenching and pipeline installation.

Right photograph: Post construction and restoration

Appendix D - Project Comment Sheet

Comment Sheet

How did you hear about this Open House?

Postcard Letter Newspaper Word of Mouth Website Other: _____

Do you have any concerns regarding the location of the proposed pipeline?

Are there any sensitive sites you believe Manitoba Hydro should be aware of during the installation of this pipeline? (Please feel free to attach a map to this comment sheet if necessary)

Do you have recommendations for Manitoba Hydro on minimizing any potential effect of this Project?

What are your predominant concerns regarding this Project? (Check all that apply)

| | | | | | |
|-------------------|--|---------------|--|-----------|--|
| Access | | Health/Safety | | Wetlands | |
| Aesthetics/Visual | | Location | | Wildlife: | |
| Agricultural | | Property | | Other: | |
| Construction | | Reclamation | | Other: | |
| Economic | | Vegetation | | Other: | |



Please provide any general comments regarding the project

Please return this completed comment sheet to a Manitoba Hydro representative at the Open House or please feel free to complete at home and fax or mail in your response:

820 Taylor (3)
Attn: Trevor Joyal
Winnipeg, Manitoba
R3M 3T1

Fax: (204) 360-6176

If you wish to discuss the project any further please feel free to contact us at (204) 360-4305

Appendix E – Route Adjustment Map