

ENVIRONMENT ACT PROPOSAL WASTEWATER TREATMENT LAGOON EXPANSION

VILLAGE OF ST-PIERRE-JOLYS

JUNE 2016

WASTEWATER TREATMENT LAGOON EXPANSION VILLAGE OF ST-PIERRE-JOLYS

Environment Act Proposal Report

Project No. 131-21854-00
Date: June 2016

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June 7, 2016

Ms. Tracey Braun, M.Sc.
Director, Environmental Approvals
MANITOBA CONSERVATION AND WATER STEWARDSHIP
160-123 Main Street
Winnipeg, MB R3C 1A5

**Subject : Environment Act Proposal – Village of St-Pierre-Jolys
Wastewater Treatment Lagoon Expansion**

Dear Ms. Braun,

The Village of St-Pierre-Jolys has an existing three-cell wastewater treatment lagoon operating under Clear Environment Commission Order No. 802V00 dated June 24, 1981. Dictated by growth within the Village, the existing facility requires additional treatment and storage capacity. The major items of the proposed development are a new storage cell, combining the existing primary cells into one primary cell and a new wetland cell.

The enclosed Environment Act Proposal report (4 copies, 1 CD) provides the details and information of the proposed development. It is accompanied by the signed application form and a cheque in the amount of \$7,500.00. We request the opportunity to review the draft Environment Act Licence when it is issued. Please contact the undersigned if further information is required.

Regards,

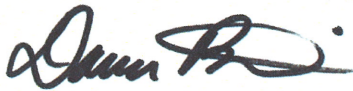
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Manager, Environmental Infrastructure



EXECUTIVE SUMMARY

Leading up to this Environment Act Proposal (EAP), WSP most recently completed a review of the community wastewater treatment capacity for the expansion of St-Pierre-Jolys' wastewater treatment lagoon for the Village of St-Pierre-Jolys. With Council's agreement on a plan for expansion, the Village of St-Pierre-Jolys desired to move forward without delay to the preparation and submission of this EAP report.

The existing wastewater treatment lagoon is located west of the Village of St-Pierre-Jolys and consists of two primary (treatment) cells and one secondary (storage) cell, receiving wastewater from a gravity sewer collection system within the Village. Considering the existing capacities of the lagoon and the anticipated growth within St-Pierre-Jolys, expansion of the existing wastewater facility is required.

The expansion was not designed on the basis of a 20 year projection, but rather on reconfiguring the existing cells and adding additional storage capacity by utilizing the available land, which will provide capacity for a population of approximately 2,000.

The proposed development involves the construction of one new cell to increase the storage capacity of the lagoon facility with a clay core, as well as combining the existing two primary treatment cells to become one larger primary cell. A new wetland cell will also be constructed to reduce the total phosphorus in the effluent. The expanded facility will maintain the existing discharge route from the new and existing secondary cells into the new wetland cell and into the Rat River. The planned seasonal discharge period will be from June 15 through to November 1, with a continuous discharge throughout this time period from the new wetland cell.

Upon approval from Manitoba Conservation and Water Stewardship and the issuance of an Environment Act Licence, it is anticipated that the tender and construction will begin in the spring/summer of 2017.

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1 DEVELOPMENT INFORMATION

Village of St-Pierre-Jolys Wastewater Treatment Lagoon Expansion

Name of development

Village of St-Pierre-Jolys

Legal name of the proponent of the development

Parts of Lots 29, 30 and 31 of the Rat River Settlement

Location of development

Contact Person for Proponent:

Ms. Janine Wiebe
Chief Administrative Officer
Village of St-Pierre-Jolys
Box 218, 555 Hebert Street
St-Pierre-Jolys, MB, R0A 1V0

Contact Person for Environmental Assessment:

Mr. Dana Bredin, P.Eng.
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Winnipeg, MB R3T 6B8

TABLE 1.1: PROPOSAL CONTENTS

Section of Environmental Act Proposal Form		Section Number in Report
DESCRIPTION OF DEVELOPMENT:		
(i)	Legal description and map of development	2.1
(ii)	Mineral rights	2.2
(iii)	Existing land use	2.3
(iv)	Land use designation	2.3
(v)	Previous studies	2.4
(vi)	Proposed development	5.0
(vii)	Storage of gasoline or associated products	6.3.1
(viii)	Potential impacts	6.0
(ix)	Proposed environmental management	7.0
SCHEDULE:		8.0
FUNDING:		8.0

1.1 CANADIAN ENVIRONMENTAL ASSESSMENT INFORMATION

TABLE 1.2: CEAA PROPOSAL CONTENTS

Screening Report Outline		Section Number in Report
1.	Assessment Responsibility - Funding	8.0
2.	Project Description	
	2.1 General	2.0, 4.0, 5.0
	2.2 Project Components	5.2
	2.3 Construction Details	5.2.7
	2.4 Project Scoping	4.0
3.	Description of Environment	
	3.1 Land Uses and Ownership	2.1, 2.2, 2.3
	3.2 Local Soils, Topography, Geology	5.1
	3.3 Hydrology / Hydrogeology	6.3, 6.4
	3.4 Vegetation Communities	6.5
	3.5 Fish, Wildlife, and Habitat	6.5, 6.6, 6.7
	3.6 Endangered or Threatened Species	6.5
	3.7 Historic and Cultural Sites	6.8
4.	Environmental Impacts and Mitigation	
	4.1 Water Quality	6.3
	4.2 Odour	6.1
	4.3 Fisheries	6.3, 6.6
	4.4 Wetland / Wildlife Habitat	6.3
	4.5 Soils and Vegetation	6.2, 6.5
	4.6 Heritage Resources	6.8
	4.7 Navigable Waters	6.3
5.	Cumulative Effects	6.0
6.	Public Involvement	6.10
7.	Follow-Up	7.0
8.	Contacts	1.0
9.	Personal Communication	Appendix E
10.	Attachments	Appendix A, B, C, D, E

2 DESCRIPTION OF DEVELOPMENT

2.1 LEGAL DESCRIPTION AND OWNERSHIP

The existing wastewater treatment lagoon is located within parts of River Lots 29 and 30 of the Rat River Settlement. The Village of St-Pierre-Jolys is the registered owner of the existing lagoon land, as identified in Status of Title No. 2830348/1. Specifically, this area of ownership is Public Works Plan 59011 Winnipeg Land Titles Office (WLTO).

The new development is to be located on the available land adjacent to the existing lagoon facility on the east side within River Lots 29 and 30, as shown in Figure 2.1. According to Status of Title No. 2830348/1, the Village of St-Pierre-Jolys is the registered owner of the land proposed for development. The aforementioned Status of Title is included in Appendix A.

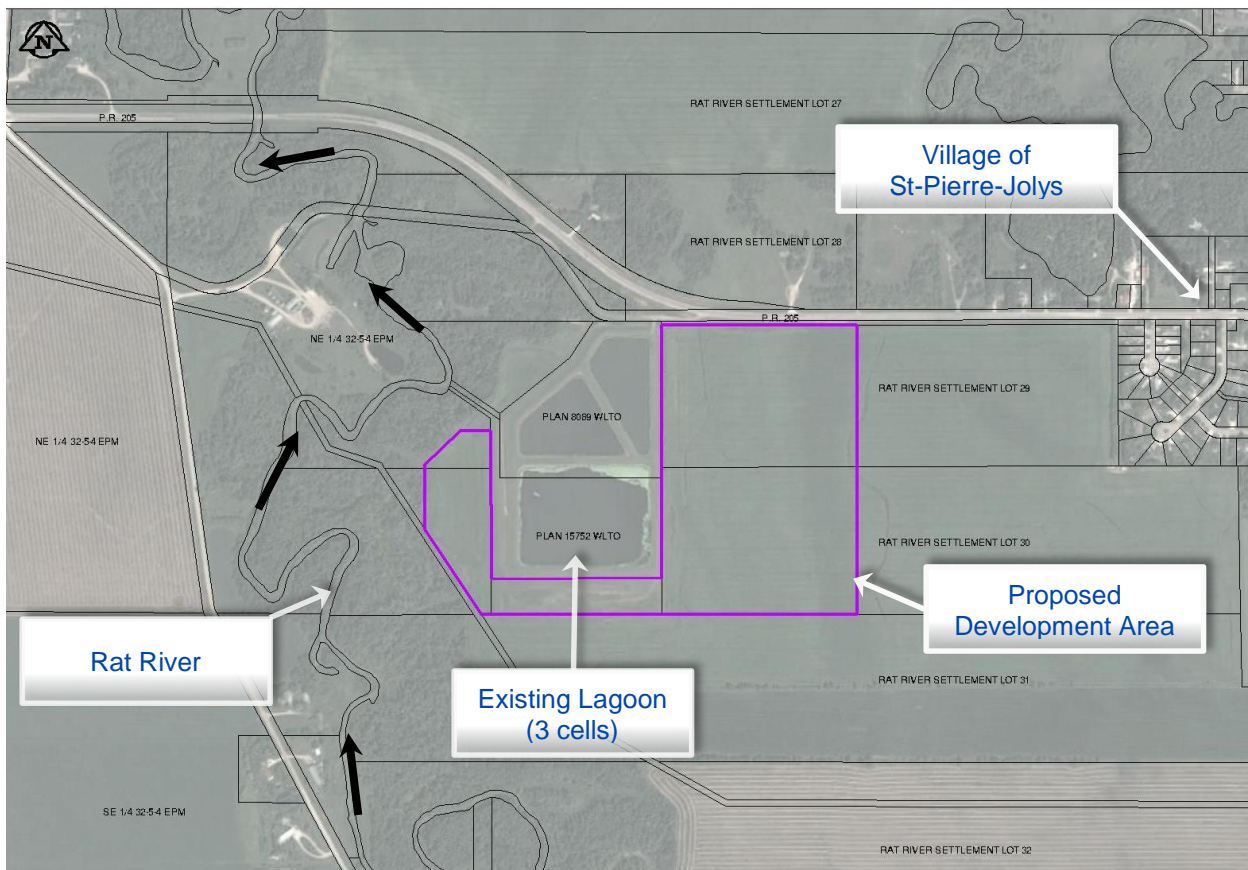


FIGURE 2.1: LOCATION MAP OF THE EXISTING AND PROPOSED DEVELOPMENT

2.2 MINERAL RIGHTS

The Crown Lands and Property Agency – Lands Branch was contacted to provide information on the mines & minerals and sand & gravel ownership of the applicable lands discussed in the previous section. St-Pierre-Jolys acquired Public Works Plan 59011 WLTO within River Lots 29, 30 and 31 of the Rat River Settlement and has ownership of the mines and minerals, and sand and gravel. Correspondence is included in Appendix E.

2.3 DESCRIPTION OF EXISTING LAND USE

Through information provided by the Village of St-Pierre-Jolys, R.M. of De Salaberry, and the Manitoba Department of Local Government – Community Planning Services, the existing lagoon land and the land intended for lagoon development are designated and zoned “Limited Agriculture Zone”. The R.M. of De Salaberry Zoning By-Law Map One illustrating the land zoning is included in Appendix E.

The existing lagoon is surrounded by agricultural land and is bordered on the west by the Rat River, where the lagoon is currently discharging into. Directly to the north of the lagoon lies Provincial Road 205. The expanded lagoon will occupy agricultural land directly east and south of the existing lagoon.

2.4 PREVIOUS STUDIES

2014 ***Geotechnical Report: “Proposed Village of St-Pierre-Jolys WWSP Expansion” prepared by WSP for the Village of St-Pierre-Jolys***

→ This report provides a detailed geotechnical investigation of the proposed development site conducted by WSP on October 30, 2013. The investigation included testhole drilling, sample collection and laboratory testing. The report concluded that based on soil conditions, the proposed expansion should be constructed with a 1 m clay liner utilizing the underlying high plasticity clay.

2014 ***“Pre-Design Report – Village of St-Pierre-Jolys WWSP Expansion Assessment” prepared by WSP for the Village of St-Pierre-Jolys***

→ This report identifies the design capacity of the primary and secondary cells for the St-Pierre-Jolys Lagoon. As of September 2013, the primary cell was at approximately 54% of its organic capacity and the secondary cell is at approximately 150% of its 227-day storage period capacity. The report detailed two options, with two phases each, showing the organic and hydraulic capacity requirements for a population of 2000 (Phase 1) and 3000 (Phase 2). The report concludes with a recommended option for the existing and future loadings.

3 EXISTING WASTEWATER TREATMENT LAGOON

3.1 DESCRIPTION

The existing licence directing lagoon operation is Clean Environment Commission Order No. 802V00, dated June 24, 1981. The first lagoon expansion was constructed at this time. The Licence is attached in Appendix B.

The existing wastewater treatment lagoon is approximately 1.6 kilometres west of St-Pierre-Jolys along Provincial Road 205. The lagoon serves the Village of St-Pierre-Jolys and it was originally constructed and commissioned in 1964. It was then expanded by one cell in 1981. It currently consists of two primary cells and one secondary cell. The lagoon is connected to the gravity sewer system via a lift station and forcemain. This lagoon also receives a small amount of truck-hauled septage throughout the year. Discharge of treated effluent is by pipe into the Rat River directly west of the lagoon which subsequently flows north and west into the Red River.

3.2 EXISTING CAPACITY

The existing St-Pierre-Jolys lagoon has two primary treatment cells and one secondary storage cell that collectively function in the treatment and storage of the wastewater. Information regarding the actual dimensions and elevations of the existing lagoon was based on the “St-Pierre-Jolys Stabilization Pond Extension – Lagoon Extension Plan Section & Details” as well as data from a 2013 WSP topographic survey.

The ability of a lagoon to treat the incoming wastewater is a measure of organic loading capacity. Organic loading refers to the quantity of organic material present in the incoming wastewater and is measured as the five day Biochemical Oxygen Demand (BOD₅). The organic loading becomes the total mass of BOD₅ in kg/d in the wastewater received at the lagoon. The wastewater from piped service areas are consistent on a year-round basis and do not have a seasonal variation.

The ability of a lagoon to store the incoming wastewater is a measure of its hydraulic loading capacity. Hydraulic loading refers to the volume of wastewater flow to the lagoon. Wastewater treatment lagoons are presently designed for a 227-day storage period beginning November 1st and ending June 15th of the following year. Hydraulic loading over the 227-day storage period is used to calculate the volume of storage required in the lagoon facility.

3.2.1 TREATMENT CAPACITY

Most lagoons in the Province of Manitoba, including the St-Pierre-Jolys lagoon, have conventional facultative primary treatment cells. Justification for the selection of conventional primary cells is found in the availability of land at the site, lack of any high strength wastewater to treat, as well as the limited costs associated with an acceptable amount of treatment that conventional primary cells provide.

According to the Manitoba Conservation guideline, a primary treatment cell requires one hectare of liquid surface area per 56 kg-BOD₅/day loading. The existing primary cells have surface areas of approximately 1.47 ha and 1.65 ha respectively at a liquid level of 1.5 m, totalling 3.12 ha. On this basis, the existing primary cells can service a daily organic loading of **174.7 kg-BOD₅**.

Table 3.1 lists the relevant information concerning the existing primary cell, determined from the “St-Pierre-Jolys Stabilization Pond Extension – Lagoon Extension Plan Section & Details” as well as the 2013 WSP topographic survey. Since Manitoba Conservation stipulates that only half of the total volume for primary cells contributes to the hydraulic storage of the lagoon, the storage volume of the existing primary cell is simply half of its total volume.

TABLE 3.1: EXISTING PRIMARY CELL PARAMETERS

Parameter	Primary Cell #1	Primary Cell #2
Cell Bottom Dimensions	Irregular	Irregular
Liquid Surface Dimensions (at operating depth)	Irregular	Irregular
Operating Depth	1.5 m	1.5 m
Freeboard Height	1.0 m	1.0 m
Interior Side Slope	4 H : 1 V	4 H : 1 V
Total Volume (at operating depth)	19,800 m ³	22,550 m ³
Storage Volume (½ of total volume)	9,900 m ³	11,275 m ³
Liner System	Surface Clay Liner	Surface Clay Liner

3.2.2 STORAGE CAPACITY

Presently, the existing secondary cell has a storage capacity of approximately 43,500 m³. Calculating the storage capacity is done under the assumption that the bottom 0.3 m of liquid depth is considered “dead” storage, thus the storage volume is the total volume less the “dead” storage volume. Adding the storage capacity of the primary cells, as listed in Table 3.1, the total storage capacity of the lagoon facility is 64,675 m³.

Table 3.2 lists the relevant information concerning the existing secondary cell.

TABLE 3.2: EXISTING SECONDARY CELL PARAMETERS

Parameter	Secondary Cell
Cell Bottom Dimensions	±210.6 m x ±159.5 m
Liquid Surface Dimensions (at operating depth)	±222.6 m x ±171.5 m
Operating Depth	1.5 m
Freeboard Height	1.0 m
Interior Side Slope	4 H : 1 V
Total Volume (at operating depth)	53,700 m ³
Deadspace Volume (bottom 0.3 m of liquid depth)	10,200 m ³
Storage Volume (total volume - deadspace volume)	43,500 m ³
Liner System	Surface Clay Liner

3.3 DISCHARGE ROUTE

The lagoon secondary cell is typically discharged over the course of the allowable discharge period from June 15 to October 31. The effluent is discharged via a 250 mm diameter pipe from the existing secondary cell into a discharge ditch which flows north before entering a catch basin, which discharges into the Rat River via a 300 mm diameter pipe. The distance from the discharge point into the discharge ditch to the Rat River is approximately 250 m. The discharge route is illustrated in Figure 3.1.

The existing and proposed lagoon facility is in the Lower Rat River Watershed (No. 4).

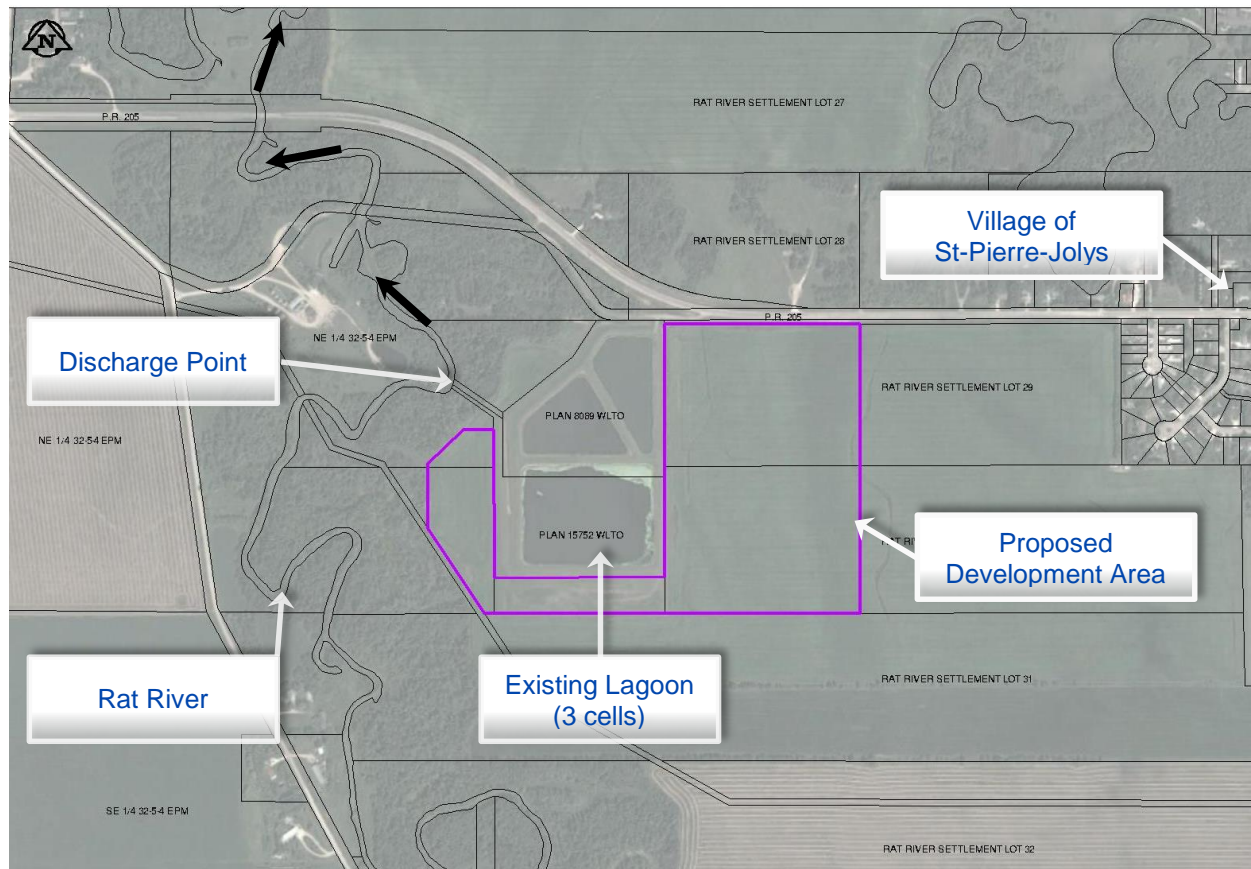


FIGURE 3.1: EFFLUENT DISCHARGE ROUTE FROM THE ST-PIERRE-JOLYS LAGOON

4 POPULATION SERVICED AND DESIGN LOADINGS

4.1 SOURCES OF WASTEWATER

The existing St-Pierre-Jolys lagoon primarily services the domestic wastewater from the Village of St-Pierre-Jolys. There are no significant industrial or high strength contributors. Also, there is a small amount of truck-hauled wastewater that is received at the St-Pierre-Jolys lagoon from the rural area. According to the Village, there are 20 sites that collect their wastewater in septic tanks and this septage is hauled to the lagoon. There is no expected increase in the amount of septage in the future.

4.2 POPULATION

Statistics Canada 2011 census data shows the population for the Village of St-Pierre-Jolys to be 1,099. The current (2015) population of St-Pierre-Jolys remains approximately **1,099 people**, according to information provided by the Village of St-Pierre-Jolys.

In addition to the serviced residents, the Community sewer system serves **257 bussed-in students**. Typically in calculating wastewater flow we use a ratio of 3:1 (3 bussed-in students are equivalent to 1 person in a dwelling). Therefore, the 257 bussed-in students are equivalent to 86 people. As a result, the **total equivalent population is 1,185**.

During this expansion, the Village of St-Pierre-Jolys desires to provide wastewater treatment for a population of at least 2,000 people by using the adjacent land around the existing facility.

4.3 ORGANIC LOADING

As defined in Section 3.2, organic loading refers to the quantity of organic material present in the incoming wastewater and is measured as the five day Biochemical Oxygen Demand (BOD₅). The wastewater from the piped serviced areas are consistent on a year-round basis and do not have a seasonal variation.

On the basis of accepted practice, the daily BOD₅ production for domestic wastewater collected via a piped system is 0.077 kg per person.

With a current (2015) equivalent population of 1,185, the organic loading collected via the piped system to the existing St-Pierre-Jolys lagoon is **91.2 kg-BOD₅/d**.

Septic tank emptying relies on certain assumptions to determine its loading effects. It is estimated that approximately 75% of the total number of septic tanks are emptied in any given year. Typically, peak septic tank emptying occurs within a 45-day period in the fall months. Essentially during this time period, the septic tank systems will contribute the highest volume and therefore the greatest BOD₅ loading to a treatment system. It is estimated that approximately 55% of tanks that are emptied during the year will be emptied into the facility during this peak period. In general, the average volume discharged during a single septic tank emptying is 2,725 L (600 imp. gal.) and the average organic load contribution per tank is calculated to be 12 kg-BOD₅.

As stated in Section 4.1, there are 20 septic tanks that are emptied into the St-Pierre-Jolys Lagoon. Based on the above methodology, 15 out of 20 tanks (75%) are emptied in any given year and approximately 8 of those 15 tanks (~55%) will be emptied into the lagoon facility during the 45-day peak period in the fall months. The wastewater strength of each tank is 12 kg-BOD₅ for an organic loading of **2.2 kg-BOD₅/d**. There is no expected increase in the amount of septage in the future.

Combining the organic loading from the piped system and the septage, the current (2015) total organic loading is **93.4 kg-BOD₅/d**.

As stated in Section 3.2, the existing primary cells provide an organic loading capacity of 174.7 kg-BOD₅/d. Therefore, the existing primary cells are operating at 54% capacity and would have adequate treatment capacity for the present and future loadings, up to a population of 2,240 people.

4.4 HYDRAULIC LOADING

As defined in Section 3.2, hydraulic loading refers to the volume of wastewater flow to the lagoon. Wastewater facilities are presently designed for a 227-day storage period beginning November 1st and ending June 15th of the following year. Hydraulic loading over the 227-day storage period is used to calculate the volume of storage required in the lagoon facility.

The existing lift station that receives the wastewater collected in the Village is a precast below-ground facility built in 1981. There are two submersible Flygt 18 hp units.

WSP has reviewed in detail the wastewater flow data from the existing lift station obtained from the Village of St-Pierre-Jolys for the period of January 2010 to August 2015. Based on the reviewed data, the yearly wastewater generation for the Community was calculated at between 310 and 457 litres per capita per day (Lpcd), which included infiltration. This corresponds to an average of 359 Lpcd. The following Figure 4.1 shows the total monthly wastewater volume by year and Figure 4.2 shows the cumulative volume of wastewater for the past five winter storage periods.

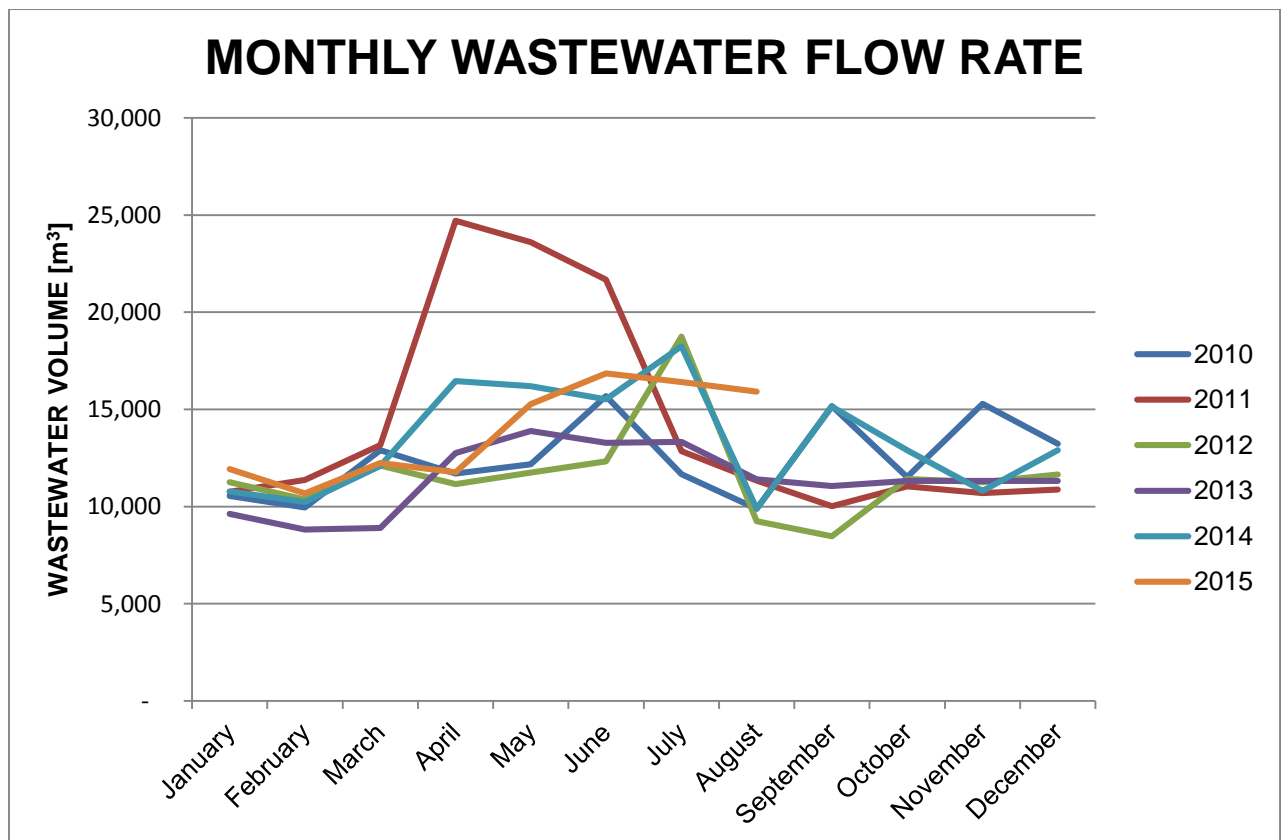


FIGURE 4.1: TOTAL MONTHLY WASTEWATER VOLUME JAN 2010 – AUG 2015

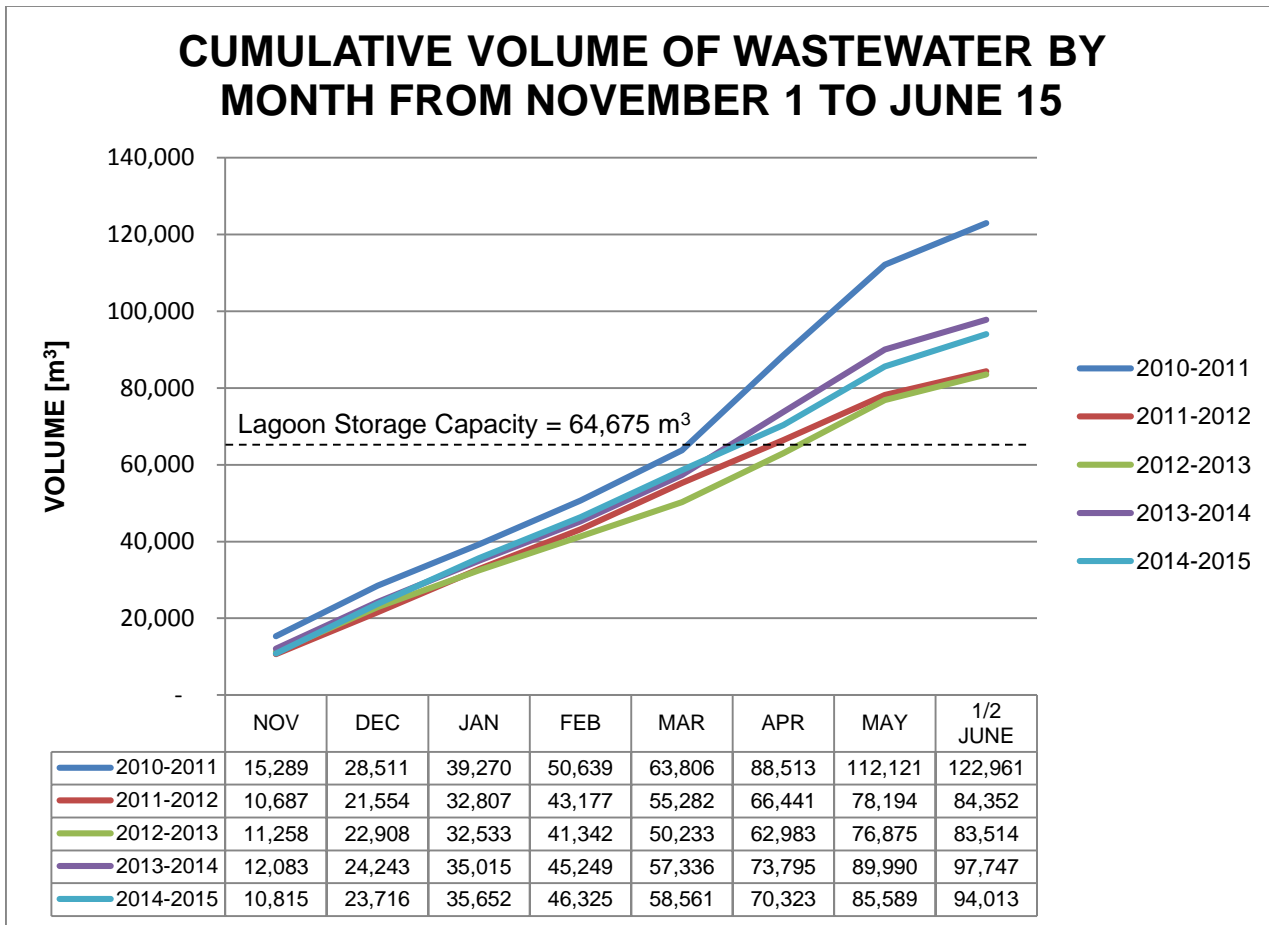


FIGURE 4.2: CUMULATIVE WASTEWATER VOLUME – WINTER STORAGE PERIOD

From the data provided, the total amount of wastewater generated from the five previous winter storage periods was calculated to be between 83,514 m³ and 122,961 m³. This corresponds to an average of 359 Lpcd.

The current licence allows the Village to discharge as of May 15, though their new licence will extend this until June 15. Over the past 5 winter storage periods, there have been two moderately dry periods, two average periods and one very wet period. The 2010-2011 winter storage period saw an extremely wet April, May and June which forced St-Pierre-Jolys to apply for an emergency discharge. For the remaining periods, they were able to utilize the 1 m freeboard in the cells to store the excess wastewater.

From Figure 4.1, it is apparent that the wastewater flowing to the lagoon via the lift station and forcemain is very susceptible to spring runoff and wet periods. Surface runoff adds to the wastewater as weeping tile systems are connected to the sewer system for a significant portion of the Village.

As stated previously, the average volume of wastewater generated is 359 lpcd. However, for any future development within the Village, we anticipate that the wastewater generation rate will be less than the current rate. For the purposes of this proposal, a prudent approach would suggest designing for **300 Lpcd for all future population.**

Applying the current wastewater generation rate of 359 Lpcd for the current population of 1,185, the design hydraulic loading to the existing St-Pierre-Jolys lagoon is **96,569 m³.**

As stated in Section 3.2, the lagoon provides a hydraulic loading capacity of 64,675 m³.

Thus, using the current wastewater generation rate of 359 Lpcd, the existing lagoon is using 149% of its storage capacity and does not have adequate storage capacity for the present population of 1,185 people and for any future hydraulic loadings for up to a population of 2,000.

Due to the very small amount of outside septic and/or holding tanks emptied into the system each year, the hydraulic loadings were not considered for this lagoon, as the amount of liquid being contributed is negligible.

5 PROPOSED DEVELOPMENT

Rather than sizing the expanded lagoon for a 20-year life, the proposed expansion involves utilizing the current lagoon and the land available to provide wastewater treatment for population of up to 2,000. This would be the equivalent of an annual population increase of 2.6% for 20 years.

The proposed development consists of:

- new secondary cell
- removal of the existing inter-cell dyke between the primary cells
- constructing a new clay core around outside perimeter of the existing lagoon
- new wetland cell
- piping, valves, fencing, signage

The EAP design drawings are appended (Appendix D). The expansion work is to be completed while the facility remains in operation.

The expanded lagoon will provide adequate treatment and storage for a population of approximately 2,000 people.

5.1 SITE CONDITIONS

On October 30, 2013 WSP conducted a geotechnical investigation at the proposed development area during which a drill rig was used to drill a total of 20 testholes (TH1 to TH20) between 4.6 m and 7.6 m depths below grade. The complete Geotechnical Report is included in Appendix C.

5.1.1 LOCAL TOPOGRAPHY

The proposed lagoon site is situated on an area known as the South-Eastern (Lake-Terrace) Complex. This area lies just east of the Red River Plain Sub-Area but is markedly different in appearance. The terrain is a complex of land forms that have resulted from the previous glacial period as well as inundation and the retreat of Glacial Lake Agassiz. Generally, the soil profile consists of thin, sandy to coarse-loamy lacustrine veneers overlying stony, loam textured glacial till. Areas of water worked, extremely calcareous, stony, loam till and local areas of gravelly sand outwash and beach deposits are also common. Dolomitic limestone bedrock below thick clay and till layers underlies much of the surficial deposits.

5.1.2 SOIL CONDITIONS

The general soil profile reveals a topsoil layer of about 50 mm to 325 mm followed by a thick clay layer, which extended to the bottom of each testhole, 7.6 m below grade. Eight (8) out of twenty (20) testholes indicate a fractured clay beneath the topsoil layer for a depth ranging from 0.6 m to 1.2 m below grade, with a cohesive, high plasticity clay encountered beneath this fractured clay layer. The remaining testholes indicate a cohesive, high plasticity clay beneath the topsoil layer.

No seepage and caving conditions were observed from the testholes. A detailed description of the soil profile is presented in Appendix C of the Geotechnical Report.

5.1.3 GROUNDWATER

Currently, there is no preliminary groundwater report prepared by the planning branch of the Water Resources Division near the Village of St-Pierre-Jolys. Based on the well logs and groundwater availability maps, sand and gravel aquifers overlie the carbonate (limestone and dolomite) aquifer and can be found in the general area of the proposed location for the development. The well logs indicate a notable yield of

0.06 L/s to 3.8 L/s with the quality of water ranging from good to excellent. The water is shown to be used for both livestock and domestic consumption.

A review of the Groundwater Pollution Hazard Map shows that the property is located outside a groundwater pollution hazard area.

Based on the drainage map of the area, groundwater flow at the site is west towards the Rat River.

5.1.4 SITE INVESTIGATION

As classified during the field investigation, a portion of the clay layer encountered at the site was identified as highly fractured clay beneath the topsoil/fill layer down to depths of approximately 1.2 m. Due to this reason, the hydraulic conductivity of the in-situ clay at approximately a depth of 1.5 m (TH5) was tested.

The clay material is a CH material based on visual classification. The estimated hydraulic conductivity of this material should range between 10^{-8} to 10^{-9} cm/sec.

The hydraulic conductivity of the in-situ clay obtained at a depth of 1.5 m depth for TH5 was 3.1×10^{-9} cm/sec.

5.2 DESCRIPTION OF PROPOSED DEVELOPMENT

The following sections describe the construction and modifications proposed for the development. No changes are proposed for the existing wastewater collection system or the lift station within the Village of St-Pierre-Jolys.

The lagoon cell construction is based on the information and recommendations provided in the 2014 Geotechnical Report. Organic soil from the new lagoon cell area to be developed will be stockpiled and reapplied at the end of construction on the applicable disturbed areas and on the dykes as shown in the drawings.

For disturbed areas where sediment or erosion control is deemed necessary, the contractor will be required to employ appropriate measures.

5.2.1 PROPOSED NEW SECONDARY CELL

The new secondary cell will be constructed as illustrated in the EAP design drawings (Appendix D) and will be located to the east of the existing lagoon.

The new cell is designed with a 2.0 m (min.) wide clay core extending around the outside perimeter of the proposed new dykes. The clay core will extend at least 0.3 m into the unfractured, insitu clay. The clay core shall have a permeability of 1×10^{-7} cm/s or less, meeting the Manitoba Conservation and Water Stewardship (CWS) guidelines. The remainder of the dykes will be constructed with in-situ material. All embankments will be constructed in 150 mm lifts compacted to 95% Standard Proctor Dry Density.

The new cell will be constructed with 4:1 interior side slopes and 4:1 exterior side slopes and will have a normal operating depth of 1.5 metres with a minimum 1.0 metre freeboard. The interior dykes will be armoured with rip rap to prevent erosion. Table 5.1 provides the details for the preliminary design specifications for the New Secondary Cell.

Perimeter ditching will be maintained and extended around the new cell, as required.

TABLE 5.1: PRELIMINARY DESIGN SPECIFICATIONS FOR THE NEW SECONDARY CELL

Parameter	New Secondary Cell
Cell Bottom Dimensions	185.0 X 366.0 m
Liquid Surface Dimensions (at operating depth)	197.0 X 378.0 m
Top of Dyke (inside to inside)	209.0 X 390.0 m
Operating Depth	1.5 m
Freeboard Height	1.0 m
Interior Side Slope	4 H : 1 V
Exterior Side Slope	4 H : 1 V
Total volume (at operating depth)	106,525 m ³
Dead storage volume (at 0.3 m depth)	20,505 m ³
Storage Volume	86,020 m ³
Liner system	Clay Core

5.2.2 COMBINED PRIMARY CELL

The existing primary cells will be combined as illustrated in the design drawings (Appendix D). The existing inter-cell dyke separating both primary cells will be removed creating a larger, single primary cell. Prior to the removal of the inter-cell dyke, a testhole(s) will be drilled to ensure suitable clay material beneath this dyke. Table 5.2 provides the details for the preliminary design specifications for the combined primary cells.

TABLE 5.2: PRELIMINARY DESIGN SPECIFICATIONS FOR THE COMBINED PRIMARY CELL

Parameter	Combined Primary Cell
Cell Bottom Dimensions	Irregular
Liquid Surface Dimensions (at operating depth)	Irregular
Top of Dyke (inside to inside)	Irregular
Operating Depth	1.5 m
Freeboard Height	1.0 m
Interior Side Slope	4 H : 1 V
Exterior side slope	4 H : 1 V
Total volume (at operating depth)	47,550 m ³
Dead storage volume (at 0.3 m depth)	--
Storage volume	23,775 m ³
Surface Area (at operating depth)	3.32 ha
Liner system	Clay Core

The combined primary cell will have a storage volume of 23,775 m³, a 2,600 m³ increase of capacity from the former primary cells (21,175 m³). This is due to the removal of the inter-cell dyke.

5.2.3 EXISTING PRIMARY AND SECONDARY CELLS – NEW CLAY CORE

A new clay core will be constructed around the existing primary and secondary cells as illustrated in the EAP design drawings (Appendix D).

The existing cells will have a 2.0 m (min.) wide clay core extended around the outside perimeter of the existing dykes. The clay core will extend at least 0.3 m into the unfractured, insitu clay. The clay core shall have a permeability of 1×10^{-7} cm/s or less, meeting the Manitoba Conservation and Water Stewardship (CWS) guidelines.

5.2.4 PROPOSED NEW WETLAND CELL FOR PHOSPHORUS REMOVAL

It is assumed with the new licence that St-Pierre-Jolys will have to achieve the 1 mg/L of total phosphorus (TP) limit in order to meet the requirements of the *Water Quality Standard, Objectives and Guidelines Regulation* under *The Water Protection Act (2011)*. They will reach this new standard through natural means by implementing a new wetland cell. The natural reduction of excess phosphorus using wetland plants is less rigorous and less costly once the new wetland cell is established. It is designed to work over decades, ensuring a functioning lagoon system for St-Pierre-Jolys for decades to come.

There are three mechanisms that remove phosphorus in treatment wetlands; sorption of phosphorus into sediments and soils, storage in biomass (e.g. growth of emergent plants), and formation of new sediments and soils (Kadlec 2005, Kadlec and Wallace 2009).

Plants, algae and microbes play a key role in phosphorus uptake as these communities grow and increase in biomass. Some of the phosphorus in these communities and in plant tissues is deposited as new soils, and thus removed more permanently. Another large portion of the stored phosphorus is moved into the root systems of wetland plants. This phosphorus store is used again the next spring to generate new aboveground plant growth. The building of new soils and the amounts held permanently in the emergent plants accounts for long term storage of phosphorus, and can continue indefinitely (Kadlec and Wallace 2009). Ten to twenty percent of the phosphorus removed by plants can be stored permanently as new soil (Kadlec 2005).

In 2013, three water samples were collected from the secondary cell of the St-Pierre-Jolys Lagoon (Table 5.3).

TABLE 5.3 – 2013 RESULTS OF WATER CHEMISTRY ANALYSIS FOR THE ST-PIERRE-JOLYS SECONDARY CELL

Date	Total Phosphorus (mg/L)	TKN (mg/L)	Total Ammonia (mg/L)	pH	Calcium Carbonate (mg/L)	TSS (mg/L)
23-May-13	6.00	22.9	-	-	-	-
25-Sep-13	4.88	12.5	9.9	8.19	526	11
29-Oct-13	2.66	7.8	4.85	8.16	701	71

Total phosphorus was used to size the treatment cell since TP removal usually requires the largest wetland area for treatment compared to other pollutants (Kadlec 2002). Sizing of the new wetland was determined by using the highest measured concentration of 6.00 mg/L for total phosphorus (Table 5.3) as well as the amount of effluent expected to enter the St-Pierre-Jolys' wetland cell when operating at full capacity, which is 153,285 m³ (Table 5.5). A phosphorus removal rate of 1 kg/ha/day was used (Table 5.4). Phosphorus removal rates of up to 75% have been observed in the Oak Hammock tertiary treatment cell since it was constructed in 1995. The Oak Hammock wetland cell is relatively small and contains only 50% coverage of cattail. St-Pierre-Jolys' new wetland cell will be much larger, and will have close to 100% plant coverage.

TABLE 5.4 – CALCULATION OF TOTAL PHOSPHORUS LOADING RATE AND AREA OF TREATMENT WETLAND REQUIRED

Phosphorus Input [mg/L]	Hydraulic Loading [m ³]	Number of discharge days [day]	Phosphorus Loading Rate [kg]	Phosphorus Removal Rate [kg/ha/day]	Treatment Wetland Area needed [m ²]
6.00	153,285	138	919.7	1	66,646
4.88	153,285	138	748.0	1	54,205
2.66	153,285	138	407.7	1	29,546

The wetland system is designed to release the treated effluent throughout the discharge period (June 15 – Oct 31). The secondary cells will be discharged into the wetland cell at the different discharge points to maximize the phosphorus removal potential of the treatment wetland. The cross ditches are located at the start, end, and spaced throughout the treatment cell to help distribute the flow evenly across the wetland surface and to avoid short circuiting of the flow, so that the effluent is treated properly (Figure 5.1). The size of the tertiary wetland cell is designed so that the minimum residence time of the discharge during peak flow periods is no less than 14 days before arriving at the outlet.

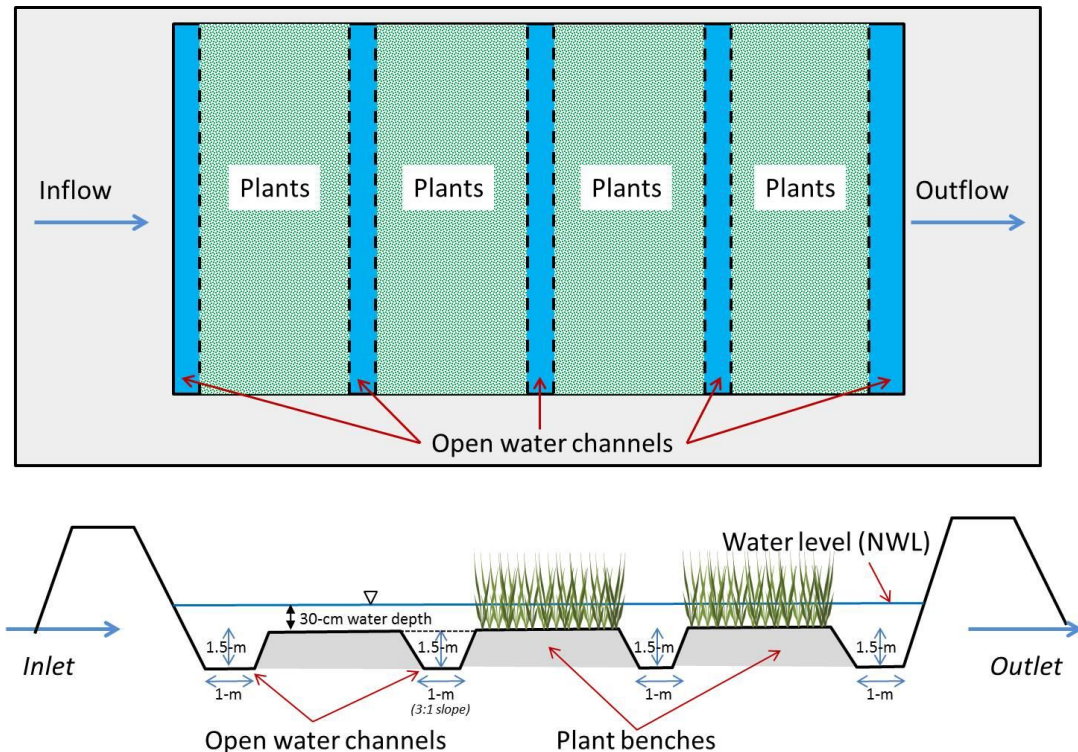


FIGURE 5.1 – TYPICAL DESIGN OF A WETLAND CELL

The new wetland cell will be constructed to the east, south and west of the new and existing lagoon, see drawings (Appendix D). The wetland cell will have approximately 86,650 m² of plant area and will discharge into the existing manhole and outfall pipe. The wetland cell will be constructed with 4:1 interior side slopes and 4:1 exterior side slopes and will have a normal operating depth of 0.3 metres with a minimum 1.0 metre freeboard. The seven (7) open water channels will be no deeper than 1.5 metres and will be 1 m wide at the bottom with 3:1 side slopes.

5.2.5 EFFLUENT QUALITY

To date, there have been no issues in the Village of St-Pierre-Jolys' ability to meet the discharge requirements of their existing Environment Act Licence. As discussed, we anticipate a 1.0 mg/L phosphorus limit to be applied to the facility.

According to the Federal Wastewater Systems Effluent Regulations (WSER), the St-Pierre-Jolys wastewater treatment lagoon is considered an *Intermittent Wastewater System* as it has a hydraulic retention of at least 90 days discharging at most four periods per calendar year.

This type of wastewater system treatment lagoon must manage the release of the following deleterious substances:

- (a) carbonaceous biochemical oxygen demanding matter;
- (b) suspended solids;
- (c) total residual chlorine; and
- (d) un-ionized ammonia.

The discharge of treated effluent must comply with the following conditions:

- (a) the average carbonaceous biochemical oxygen demand due to the quantity of CBOD matter in the effluent does not exceed 25 mg/L;
- (b) the average concentration of suspended solids in the effluent does not exceed 25 mg/L;
- (c) the average concentration of total residual chlorine in the effluent does not exceed 0.02 mg/L, if chlorine, or one of its compounds, is used in the treatment of wastewater; and
- (d) the maximum concentration of un-ionized ammonia in the effluent does not exceed than 1.25 mg/L, expressed as nitrogen (N), at $15^{\circ}\text{C} \pm 1^{\circ}\text{C}$.

These parameters already appear in presently issued Environment Act Licences, bringing greater order and unity to the Provincial and Federal standards. WSER also calls for acute lethality testing on the discharging treated effluent, with the sampling frequency dependent on the annual average daily volume.

The effluent quality will also be restricted to a fecal coliform limit, as indicated by the MPN index, of 200 per 100 mL.

There is little concern that a well maintained lagoon system will have issues with meeting any of these conditions, with the exception of the phosphorus limit. With the use of the proposed new wetland cell, the plant life is to absorb and utilize the excess nutrients in the effluent (such as phosphorus), the effluent quality is expected to meet all federal and provincial requirements.

5.2.6 SUMMARY

After expansion, the St-Pierre-Jolys lagoon will be a three-cell lagoon. With the removal of the inter-cell dyke separating the existing primary cells, the proposed combined primary cell will provide adequate treatment for a population of approximately 2,386 people, while the storage capacity of the system will provide storage (359 Lpcd for the existing population and 300 Lpcd for the future population, 227 days) for a population of approximately 2,013 people. Table 5.5 summarizes the expanded lagoon capacities.

TABLE 5.5: EXPANDED WASTEWATER TREATMENT LAGOON CAPACITIES

Cell Type	Liquid Surface Area [ha]	Total Volume [m ³]	Dead Storage Volume [m ³]	Storage Volume [m ³]
Primary Cell 1 (combined cells)	3.32	47,550	--	23,775
Secondary Cell 1 (existing cell)	--	53,690	10,200	43,490
Secondary Cell 2 (new cell)	--	106,525	20,505	86,020
Total	3.32	207,765	30,705	153,285

5.2.7 CONSTRUCTION DETAILS

According to the subsurface profiles in the 2014 Geotechnical Report, the depth of topsoil in the proposed area was approximately 50 mm - 325 mm. Organic soil from the lagoon area will be stockpiled and reapplied at the end of construction on the applicable disturbed areas and on the dykes as shown in the drawings.

For lagoon construction, Manitoba Conservation's Environmental guidelines require that the proposed dykes and bottom of the proposed cells be provided with a layer consisting of at least one metre of soil having a permeability of less than 1×10^{-7} cm/s. The proposed expansion location consists where such clay

is present. The cohesive, high plasticity brown clay at a depth of 1.5 m was tested and achieved a hydraulic conductivity test result of 3.1×10^{-9} cm/s, thus meeting the guidelines.

The new cells will be constructed as detailed in the drawings. The interior and exterior side slopes of the constructed cell will be 4:1. The proposed secondary cell will have a 1.5 metre operating depth with a minimum 1.0 metre freeboard. The dykes will be constructed with in-situ material in 150 mm lifts compacted to 95% Standard Proctor density. The moisture content of the material should be minus two percent to plus 3 percent of optimum moisture as determined by the Standard Proctor test. Any unsuitable material such as coarse gravel and boulders should be removed. The top of the dykes will be 3.0 m wide. The clay core of the new secondary cell and the existing lagoon cells will be tested and the results of the testing will be reported to Manitoba Conservation.

A perimeter drainage ditch will be constructed around the new cells, if required. Other ditching will be located as shown on the drawings. For disturbed areas where sediment or erosion control is deemed necessary, the contractor will be required to employ appropriate measures.

The interior dykes will be armoured with rip rap to prevent wave erosion. Rip rap is also proposed for the inlet and outlet areas of the inter-cell and discharge piping. All inter-cell and discharge piping and valves will be located as shown on the design drawings.

6 ENVIRONMENTAL IMPACTS

6.1 ODOUR CONSIDERATIONS

It is expected that the expanded facility will operate without causing any significant odour problems. The combined primary cell is designed for the flows with a 56 kg-BOD₅/ha/d loading. The only time of the year that some minor odours may be present is during the spring while the ice thaws. During the winter, ice cover largely prevents free oxygen from entering the water. This condition leads to the production of hydrogen sulphide gas (H₂S) during the winter by bacteria that do not require free oxygen. These accumulated gases dissipate quickly into the atmosphere when the ice breaks and the pond returns to a non-odorous condition.

The closest residence to the lagoon is located approximately 230 metres away (to the northwest) of the existing primary cell. This residence was constructed after the initial construction of the lagoon. The proposed new secondary cell, will be constructed partially within the 300 m setback distance, but farther east of the existing primary cell. Therefore, an expansion of this lagoon should not adversely affect this homeowner.

6.2 LAND IMPACT

The existing lagoon was constructed in the year 1964 and was expanded in 1981, and the surrounding land has continued in its agricultural use without issue. The existing lagoon was constructed with a surface clay liner and there has been some indication that the existing lagoon is seeping into the surrounding lands, specifically along the east dyke of the existing primary cell no. 1, where Testhole #20 (TH20) noted a silt layer with seepage. This will be addressed during the construction of the proposed new secondary cell and clay core.

The Village has purchased the surrounding land where the expanded lagoon and wetland will be situated, and it was previously used as agricultural land. Therefore, the only pre-excavation work required is topsoil stripping and stockpiling.

Section 2.3 Description of Existing Land Use should be consulted for additional information.

6.3 SURFACE WATER

From the discharge point into the new wetland cell, the treated effluent will flow slowly through the wetland cell into a manhole and then travel through a pipe into the Rat River. Perimeter ditching will be maintained and extended to provide positive drainage for surface water around the lagoon, if required. Any local field drains that are interrupted by construction will be acceptably re-established or rerouted if no other alternative exists.

The Village of St-Pierre-Jolys and the proposed lagoon facility are in the Lower Rat River Watershed (No. 4). Figure 3.1 illustrates this beginning of the discharge route in the specified watershed.

The water licensing branch of Manitoba Water Stewardship was consulted to provide a list of water users along the drainage route. There is one licensed water user for irrigation, approximately 10 km downstream from the discharge point into the Rat River (Appendix E).

6.3.1 FUEL STORAGE ON SITE

The proposed facility does not require the onsite storage of gasoline or diesel fuel. During construction and upgrading, the contractor will be required to ensure that all equipment is properly maintained to prevent

leaks and spills of fuel and motor fluids. Refuelling of equipment will not be within 100 metres of a water body, stream or wetland.

6.4 GROUNDWATER

Presently, there is no preliminary groundwater report prepared by the planning branch of the Water Resources Division near the Village of St-Pierre-Jolys. Based on the well logs and groundwater availability maps, sand and gravel aquifers overlie the carbonate (limestone and dolomite) aquifer and can be found in the general area of the proposed location for the development. The well logs indicate a notable yield of 0.06 L/s to 3.8 L/s with the quality of water ranging from good to excellent. The water is shown to be used for both livestock and domestic consumption.

A review of the Groundwater Pollution Hazard Map shows that the property is located outside a groundwater pollution hazard area.

Based on the drainage map of the area, groundwater flow at the site is west towards the Rat River.

The design of the new lagoon complies with Manitoba Conservation guidelines and will therefore sufficiently contain the influent wastewater. There has been some indication in the 50+ years of operation that the existing lagoon may be seeping into the surrounding land along the east side of the lagoon dyke. A new clay core and the proposed secondary cell will remediate any issue with the existing lagoon potentially seeping into the surrounding lands. The treated effluent intended for discharge will comply with the parameters listed in the new Environment Act Licence.

6.5 SPECIES IMPACT

A file search with the Biodiversity Conservation Wildlife and Ecosystem Protection Branch of Manitoba Conservation resulted in no occurrences in the specified area of Rivers Lots 29 - 31 in the Rat River Settlement. Correspondence is included in Appendix E.

6.6 FISHERIES

According to the 2013 Milani Report, the receiving watercourse of the treated effluent (filtrate) from the St-Pierre-Jolys lagoon system is the Rat River which is considered type A habitat (complex habitat, indicators present). A map of the area is included in Appendix E.

In order to protect any potential fish in the critical springtime spawning season, when effluent un-ionized ammonia tends to be high, the lagoon has been designed to the 227-day storage period. The lagoon will discharge after June 15th and will allow for significant conversion of toxic un-ionized ammonia into relatively benign nitrates.

6.6.1 FISHERIES ACT INFORMATION

The *Fisheries Act* controls and regulates the deposit of deleterious substances into water frequented by fish. According to subsection 36(3) of the *Fisheries Act*,

“no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water.”

6.7 FORESTRY

There is no forestry activity in the area. No treed areas should be affected by the construction associated with the development.

6.8 HERITAGE RESOURCES

In an email dated November 24, 2015 from the Historic Resources Branch (Appendix E), it was stated that the potential to impact significant heritage resources is low, and therefore, the Historic Resources Branch has no concerns with the project.

6.9 SOCIO-ECONOMIC IMPACTS

The lagoon construction will result in a short-term boost to the construction industry in the area.

The construction equipment will be operated within the noise by-law restrictions of the Village of St-Pierre-Jolys and the R.M. of De Salaberry.

6.10 PUBLIC INVOLVEMENT

Comments from concerned members of the public will be solicited as part of Manitoba Conservation and Water Stewardship review prior to issuing a licence. The Village of St-Pierre-Jolys also held a public open house for the proposed wastewater treatment lagoon expansion on January 14, 2016.

7 MANAGEMENT PRACTICE

The expanded wastewater treatment facility is specifically designed to provide wastewater treatment and storage capacity for the existing infrastructure and proposed developments up to a population of 2,013. The expanded St-Pierre-Jolys wastewater treatment lagoon is designed to treat wastewater up to an average loading of 185.9 kg-BOD₅/d and store the treated effluent for 227 days. The facility will be discharged during the allowable period from June 15th to October 31st. After the new development, the lagoon will consist of one primary and two secondary cells as well as a wetland cell.

The proposed management and operation of the facility is discussed in the following sections.

7.1 OPERATION

Operation of the expanded wastewater treatment lagoon must comply with the specifications, limits, terms and conditions of the new Environment Act Licence, as is the case with the existing Licence. The Village of St-Pierre-Jolys must also be in compliance with WSER and the associated reporting outlined in the Regulation.

7.1.1 DISCHARGE

The expanded lagoon facility will be capable of storing the Village of St-Pierre-Jolys' wastewater for 227 days at the design loading. In effect, until the design loads are reached, the lagoon will provide storage in excess of 227 days, if the need should arise for any reason.

The planned seasonal discharge will be from June 15 through to November 1. A minimum of three weeks prior to the June 15th, valves will be manipulated to isolate one of the secondary cells for a period of two weeks prior to testing. This schedule allows for one week to obtain the laboratory results. The other non-isolated secondary cell will continue to receive the primary treated effluent. Testing shall be conducted according to the current *Environment Act Licence* and the *Wastewater Systems Effluent Regulation*. All testing, with the exception of the total phosphorus, will occur in the isolated secondary cell prior to discharge into the wetland cell.

Manitoba Conservation and Water Stewardship generally requires treated effluent to have total suspended solids <25 mg/L, BOD₅ < 25 mg/L, fecal coliform MPN of <200 organisms/100 mL, and chlorine <0.02 mg/L and some nutrients removal requirements, which will be tested at the discharge point of the wetland cell.

Once the test results of the effluent meet or exceed all parameters that should be satisfied prior to discharge, instituted by the new Environment Act Licence, the isolated cell may be discharged into the wetland cell.

Once the isolated secondary cell is discharged into the wetland cell, the discharge valve(s) will be closed, and the inter-cell valve between the primary cell and the secondary cell will be re-opened. This will allow the water levels in the cells to equalize. In many cases a sufficient amount of treated effluent is discharged from the secondary cell(s) using this procedure to permit operation until the next scheduled discharge period. However, it may be necessary to discharge additional treated effluent to have enough storage for the wastewater flows in the following operational season.

The wetland system is designed to release the treated effluent throughout the discharge period (June 15 – November 1). To meet the Provincial regulations, a 30 day rolling average is used for total phosphorus levels when the discharge occurs from the wetland cell. This means any data collected in the previous 30 days is used to calculate the average total phosphorus. Samples should be taken every two weeks from June 15 to November 1, or 10 samples per year plus 1 sample prior to releasing the treated effluent from the wetland cell.

The discharge of the wetland cell should be stopped at or before the November 1 deadline.

7.1.2 MAINTENANCE, RECORD KEEPING AND INSPECTION

The Village of St-Pierre-Jolys already has a routine maintenance, record keeping and inspection schedule in place. The record keeping and inspection list will include but is not limited to:

1. Daily Records – Water consumption and lift station pumping records should be collected and retained for future estimation of flows to the wastewater treatment lagoon. Septic hauling records (dates and volumes) from the individual haulers trucking to the lagoon should also be collected and retained.
2. Weekly Records - The summer inspection would consist of recording the following: the water level, presence of odours and their source, and presence of floating objects (removal). The summer maintenance should also include grass cutting on the dykes, if necessary, elimination of emergent vegetation, extermination of burrowing animals, repair of the dykes and rip rap if damaged by wind erosion and wave action, repair of the fence and gate.
3. Periodic Winter Inspection is confined to inspecting for frozen piping, checking if the water level in the cells is as it should be.
4. Discharge Records - The records should contain all treated effluent quality analyses, dates of discharge, discharge procedure followed, water levels and other pertinent data.

8 SCHEDULE AND FUNDING

It is anticipated that the Environment Act Licence process will be finalized by the fall of 2016 and tendering of the project will begin in the winter/spring 2017 (Figure 8.1). Construction is proposed for summer 2017.

Project funding will be from designated municipal reserves, developer contributions and any grant funding that is available.

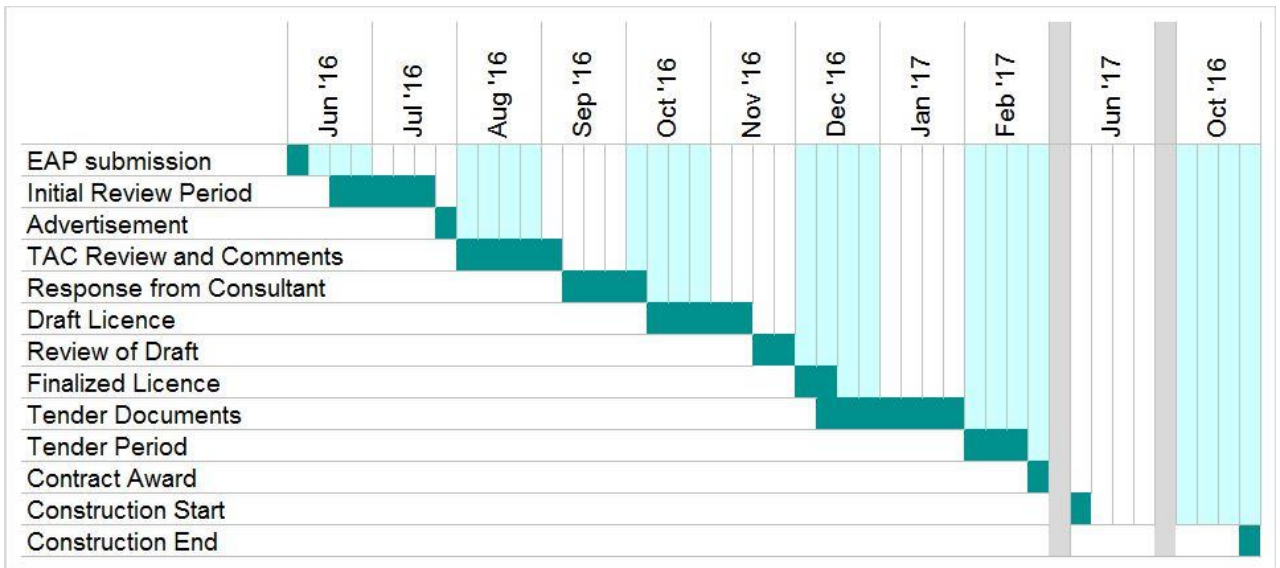


FIGURE 8.1: SCHEDULE – EAP SUBMISSION TO END OF CONSTRUCTION

9 REFERENCES

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Appendix A

STATUS OF TITLE

McCANDLESS TRAMLEY
Municipal Lawyers

Michael W. McCandless, LL.M.
Carey D. Tramley, B.A., LL.B.
Greg Tramley, B.A., LL.B.

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Greg Tramley and Carey Tramley carry on practice through Tramley Law Corporation

29 March 2016

Janine Wiebe CAO
Village of St-Pierre-Jolys
Box 218
St-Pierre-Jolys MB R0A 1V0

Dear Janine:

**Re: Lagoon
Land acquisition from Raffard**

Registrations are complete and title has issued to the Village as follows:

- Title 2830348/1 to Parcels A and B Works Plan 59011 WLTO, the lagoon expansion site.
- Title 2830377/1 to Parcel E Plan 59011 WLTO, the balance of the Village's land.

The registrations for pipeline (Inter-City Gas Transmission Ltd) and hydro and telephone easements have been carried forward to these titles.

Enclosed are the Statuses of Title for your records.

Best regards,



STATUS OF TITLE

Title Number **2830348/1**
Title Status **Accepted**
Client File **357-1 ST PIERRE-JOLYS**

The Property Registry

A Service Provider for the Province of Manitoba



1. REGISTERED OWNERS, TENANCY AND LAND DESCRIPTION

THE VILLAGE OF ST. PIERRE-JOLYS

IS REGISTERED OWNER SUBJECT TO SUCH ENTRIES RECORDED HEREON
IN THE FOLLOWING DESCRIBED LAND

PARCELS "A" AND "B" WORKS PLAN 59011 WTLO
IN LOTS 29 TO 31 RAT RIVER SETTLEMENT

The land in this title is, unless the contrary is expressly declared, deemed to be subject to the reservations and restrictions set out in section 58 of *The Real Property Act*.

2. ACTIVE INSTRUMENTS

Instrument Type: **Caveat**
Registration Number: **184369/1**
Instrument Status: **Accepted**

Registration Date: 1962-03-21
From/By: INTER-CITY GAS TRANSM. LTD.
To:

Amount:
Notes: No notes
Description: No description

Instrument Type: **Caveat**
Registration Number: **184370/1**
Instrument Status: **Accepted**

Registration Date: 1962-03-21
From/By: INTER-CITY GAS TRANSMISSION LTD.
To:

Amount:
Notes: No notes
Description: No description

Instrument Type: Caveat
Registration Number: 185231/1
Instrument Status: Accepted

Registration Date: 1962-05-30
From/By: INTER-CITY GAS TRANSM. LTD.
To:

Amount:
Notes: No notes
Description: No description

Instrument Type: Caveat
Registration Number: 185232/1
Instrument Status: Accepted

Registration Date: 1962-05-30
From/By: INTER-CITY GAS TRANSMISSION LTD.
To:

Amount:
Notes: No notes
Description: No description

Instrument Type: Caveat
Registration Number: 264675/1
Instrument Status: Accepted

Registration Date: 1979-09-19
From/By: MANITOBA TELEPHONE SYSTEM
To:

Amount:
Notes: No notes
Description: No description

Instrument Type: **Caveat**
Registration Number: **1408687/1**
Instrument Status: **Accepted**

Registration Date: 1991-04-17
From/By: THE MANTIOBA TELEPHONE SYSTEM
To:

Amount:
Notes: AFF:WTN LIMITS PL 26752
Description: EASEMENT

Instrument Type: **Caveat**
Registration Number: **2994520/1**
Instrument Status: **Accepted**

Registration Date: 2004-06-15
From/By: THE MANTIOBA HYDRO-ELECTRIC BOARD
To:

Amount:
Notes: No notes
Description: EASEMENT

3. ADDRESSES FOR SERVICE

VILLAGE OF ST. PIERRE-JOLYS
555 HEBERT AVENUE
BOX 218
ST. PIERRE-JOLYS MB
R0A 1V0

4. TITLE NOTES

No title notes

5. LAND TITLES DISTRICT

Winnipeg

6. DUPLICATE TITLE INFORMATION

Duplicate not produced

7. FROM TITLE NUMBERS

1478195/1 Partial
2711419/1 Partial

8. REAL PROPERTY APPLICATION / CROWN GRANT NUMBERS

No real property application or grant information

9. ORIGINATING INSTRUMENTS

Instrument Type:	Request To Issue Title
Registration Number:	4700902/1
Registration Date:	2016-03-04
From/By:	THE VILLAGE OF ST. PIERRE-JOLYS
To:	
Amount:	

10. LAND INDEX

Lot A Plan 59011
WORKS

Lot B Plan 59011
WORKS

CERTIFIED TRUE EXTRACT PRODUCED FROM THE LAND TITLES DATA STORAGE
SYSTEM OF TITLE NUMBER 2830348/1

Page 4 of 4

Appendix B

EXISTING ENVIRONMENT ACT LICENCE

AN ORDER OF THE CLEAN ENVIRONMENT COMMISSION
UNDER THE CLEAN ENVIRONMENT ACT

7-1-10
RE: THE CLEAN ENVIRONMENT COMMISSION and the VILLAGE OF ST. PIERRE-JOLYS,
Applicant,

- WHEREAS pursuant to the provisions of The Clean Environment Act, the Village of St. Pierre-Jolys filed an application with the Department of Mines, Resources and Environmental Management in connection with the operation of a sewage lagoon system with discharge of effluent to the Rat River via an open ditch, the said operation being located on Parcels B/C, Plan 8069 in the Rural Municipality of De Salaberry;
- AND WHEREAS in the absence of limits being prescribed by a Regulation under the said Act, the said application was referred to The Clean Environment Commission for the prescribing of limits;
- AND WHEREAS no representation was made to the Commission by any person who is or who is likely to be affected by an order of the Commission prescribing limits in connection with the said operation;
- AND WHEREAS the Commission was made aware of the said sewage lagoon system is hydraulically overloaded and cannot provide adequate winter storage;
- AND WHEREAS the Commission considered the said application on the 8th day of May, 1978, and issued Order No. 802 on the 17th day of May, 1978, prescribing limits for the said operation;
- AND WHEREAS pursuant to section 17(1) of The Clean Environment Act, an appeal was filed with the office of the Minister by certain residents adjacent to the Rat River on the 7th day of June, 1978;
- AND WHEREAS on the 22nd day of September, 1978, the Commission issued varied Order No. 802V0 to comply with the intent of Order-in-Council No. 843 dated the 6th day of September, 1978;
- AND WHEREAS the Village of St. Pierre-Jolys requested a further variation to Order No. 802V0;
- AND WHEREAS upon direction of the Minister, the Commission held a hearing on the 27th day of October, 1980, and submitted its report and recommendations to the Minister;

AND WHEREAS after considering the matter, he, the Minister, directed the Commission to vary Order No. 802VO to comply with the intent of Order-in-Council No. 552 dated the 10th day of June, 1981;

IT IS HEREBY ORDERED THAT ORDER NO. 802VO BE VARIED TO READ AS FOLLOWS:

1. The Applicant shall ensure that the said sewage lagoon system is maintained and operated in such a manner that:
 - (a) the release of offensive odours is minimized;
 - (b) the organic loading on the primary cell of the said system, in terms of five-day biochemical oxygen demand, is not in excess of 50 pounds per acre per day;
 - (c) no discharge of effluent takes place between the 1st day of November of any year and the 15th day of May of the following year without express written permission from the Environmental Management Division of the Department of Consumer and Corporate Affairs and Environment;
 - (d) the quality of the effluent from the said system is such that the total coliform content, as indicated by the MPN index, is not in excess of 1500 per 100 millilitres of sample;
 - (e) the Environmental Management Division of the Department of Consumer and Corporate Affairs and Environment is notified, in writing, of the intent of the Village to discharge effluent or of the possibility that an overflow of effluent will occur, at least 5 days in advance of such a discharge or overflow.
2. The Applicant shall ensure that on or before the 1st day of April, 1979, a proposal is submitted to the said Division detailing the proposed expansion, alteration or replacement of the said sewage lagoon system such that the altered, expanded, or new system will meet the requirements set out in Clause 3 of this order.
3. The Applicant shall ensure that the said operation is expanded, altered, or replaced on or before the 1st day of November, 1981, and that the altered, expanded, or new sewage lagoon system is maintained and operated in such a manner that:
 - (a) the contamination of groundwater is prevented;

3. (b) the release of offensive odours is minimized;
- (c) the organic loading on the primary cell in terms of five-day biochemical oxygen demand is not in excess of 50 pounds per acre per day;
- (d) no discharge of effluent takes place between the 1st day of November of any year and the 15th day of May of the following year without express written permission from the said Division;
- (e) the quality of the effluent is such that:
 - (i) the five-day biochemical oxygen demand is not in excess of 30 milligrams per litre;
 - (ii) the total coliform content as indicated by the MPN index is not in excess of 1500 per 100 millilitres of sample.
4. Order No. 802VO as varied to comply with the intent of Order-in-Council 552 is hereby designated, as Order No. 802V00.

Order No. 802V00

Dated at the City of Winnipeg
this 24th day of June, 1981.



Chairman,
The Clean Environment Commission.

File: 84.1

File: 84.1

R E G I S T E R E D

MANITIBA

CLEAN ENVIRONMENT COMMISSION

Office of the Chairman
Telephone: 895-5333
Box 4, 139 Tuxedo Avenue
Winnipeg, Manitoba
R3N 0H6

June 24, 1981

Mrs. C. Bourgeois,
Secretary-Treasurer,
Village of St. Pierre-Jolys,
P.O. Box 218,
ST. PIERRE-JOLYS, Manitoba.
ROA 1VO

Dear Mrs. Bourgeois:

Herewith varied Order No. 802V00 of The Clean Environment Commission dated June 24, 1981, varied to comply with the intent of Order-in-Council No. 552 of June 10, 1981.

Should you require further clarification with respect to any of the clauses of this order, please contact the Environmental Control Services at Box 7, Building 2, 139 Tuxedo Avenue, Winnipeg, Manitoba R3C 0V8 or by telephone at 895-5241.

Yours truly,

O. Stanley Eagleton,
Chairman.

Mr. L. Strachan, Chief,
Environmental Control Programs,
Box 7, Building 2,
139 Tuxedo Avenue,
WINNIPEG, Manitoba. R3C 0V8

Mr. D. D. Blevins,
Departmental Solicitor,
Civil Litigation Branch,
628 Woodsworth Building,
405 Broadway Avenue,
WINNIPEG, Manitoba. R3C 3L6

Mr. John Heath,
Information Officer,
Information Services,
Room 29 Legislative Building,
WINNIPEG, Manitoba. R3C 0V8

Provincial Library,
200 Vaughan Street,
WINNIPEG, Manitoba. R3C 1T5

Mr. F. N. Steele,
City Solicitor,
City of Winnipeg Law Department,
Civic Centre,
510 Main Street,
WINNIPEG, Manitoba. R3B 1B9

Mr. Wm. Manchulenko,
Lot 24 River Road,
ST. PIERRE-JOLYS, Manitoba.
ROA 1V0

Mr. Albert Bedard,
Lot 21 Rat River Division,
ST. PIERRE-JOLYS, Manitoba.
ROA 1V0

Mr. Frank Gagne,
P.O. Box 14,
OTTERBURN, Manitoba.
ROA 1G0

Mr. Gilbert Carriere,
P.O. Box 27,
OTTERBURN, Manitoba.
ROA 1G0

Mr. Kenneth P. Leppky,
Lot C,
OTTERBURN, Manitoba.
ROA 1G0

Mr. & Mrs. Joubert,
Lot 16,
ST. PIERRE-JOLYS, Manitoba.
ROA 1V0

Mr. Ernest Nicolas,
Lot 7,
OTTERBURN, Manitoba.
ROA 1G0

Mr. Remi Gregoire,
P.O. Box 144,
ST. PIERRE-JOLYS, Manitoba.
ROA 1V0

Mr. Oswald Carriere,
Lot 10 River Road,
ST. PIERRE-JOLYS, Manitoba.
ROA 1V0

Mr. Rene Saucier,
Lot 1,
OTTERBURN, Manitoba.
ROA 1G0

Mr. A. Dumont,
Lot 9,
OTTERBURN, Manitoba.
ROA 1G0

Mr. Lucien Cure,
ST. PIERRE-JOLYS, Manitoba.
ROA 1V0

Mr. & Mrs. Wilfred Carriere,
Lot 17,
ST. PIERRE-JOLYS, Manitoba.
ROA 1V0

Mr. & Mrs. Bedard,
Lot 21 River Road,
ST. PIERRE-JOLYS, Manitoba.
ROA 1V0

Mr. Gus Laroche,
Lot 16 Rat River Settlement,
ST. PIERRE-JOLYS, Manitoba.
ROA 1V0

Mr. Eugene Labelle,
Lot 13 Rat River Settlement,
ST. PIERRE-JOLYS, Manitoba.
ROA 1VO

Mr. T. F. Tetreault,
Secretary-Treasurer,
R. M. of De Salaberry,
ST. PIERRE-JOLYS, Manitoba.
ROA 1VO

Mr. Lucien Audette,
P.O. Box 3,
ST. PIERRE-JOLYS, Manitoba.
ROA 1VO

Appendix C

GEOTECHNICAL REPORT

GEOTECHNICAL REPORT
PROPOSED VILLAGE OF ST.PIERRE-JOLYS WWSP EXPANSION
ST.PIERRE-JOLYS, MANITOBA

Prepared for:
Village of St. Pierre-Jolys
466 Sabourin Street
Box 218
St. Pierre-Jolys, MB
R0A 1V0

Project No: 131-21854-00
February, 2014



WSP Canada Inc.
1600 Buffalo Place
Winnipeg, MB R3T 6B8
Phone: (204) 477-6650 ~ Fax: (204) 474-2864

www.wspgroup.com

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APPENDICES

Appendix A – Site Plan

Appendix B – Testhole Logs and Well Logs

Appendix C – Laboratory Test Results

1.0 INTRODUCTION

The Village of St.Pierre-Jolys is located 30 minutes south of Winnipeg's perimeter highway. As part of future development for Village of St. Pierre-Jolys, a geotechnical investigation of the proposed wastewater lagoon expansion site located at River Lots 29 to 31 of Rat River was conducted.

This report deals with the site selection of the future wastewater lagoon based on the soil conditions with respect to the recent Environmental Act passed in 1988. Manitoba Conservation's Environmental guidelines now require that the dykes and the bottom of any lagoon be provided with a layer consisting of at least one metre of soil having a permeability of 1×10^{-7} cm/s or less or equivalence, i.e. the used of plastic liner.

2.0 BACKGROUND

At present, the existing Village of St. Pierre-Jolys has an existing wastewater storage pond comprised of one primary cell and two secondary cells located at River Lots 29-31 of Rat River.

3.0 TOPOGRAPHY

The proposed lagoon site is situated on an area known as the South-Eastern (Lake-Terrace) Complex. This area lies just east of the Red River Plain Sub-Area but is markedly different in appearance. The terrain is a complex of land forms that have resulted from the previous glacial period as well as inundation and the retreat of Glacial Lake Agassiz. Generally, the soil profile consists of thin, sandy to coarse-loamy lacustrine veneers overlying stony, loam textured glacial till. Areas of water worked, extremely calcareous, stony, loam till and local areas of gravelly sand outwash and beach deposits are also common.

Dolomitic limestone bedrock below thick clay and till layers underlies much of the surficial deposits.

4.0 FIELD METHODOLOGY AND TESTING

The subsoils encountered were visually classified to the full extent in the testhole and representative soil samples were recovered at regular depth intervals and some samples were submitted for moisture content tests. Pocket penetrometer tests were conducted on the cohesive soil to determine the approximate unconfined compressive strength and relative density respectively. In addition, one shelly tube soil sample was obtained and tested for hydraulic conductivity test. Any groundwater seepage and sloughing encountered in the testholes were noted.

The field investigation was undertaken on October 30, 2013. A tracked-drill rig was used to drill a total of 20 testholes between 4.6 and 7.6m depths below grade. The testhole locations are shown on the site plan in Appendix A. Detailed descriptions of the soil profiles in each testhole are shown on the attached logs, TH1 to TH20 in Appendix B. Laboratory test results for moisture contents and hydraulic conductivity are attached in Appendix C.

5.0 SUBSURFACE CONDITIONS

5.1 SOIL PROFILE/GROUNDWATER

The general soil profile reveals a topsoil layer of about 50mm to 325mm followed by a thick clay layer, which extended to the bottom of the testholes at 7.6m below grade. The exception is at testholes TH18 to TH20 (existing dykes testholes) where clay fill thickness ranged between 1.8m and 2.1m depths.

Highly fractured clay with high plasticity was observed beneath the topsoil layer down to 1.2m. The fractured clay is followed by cohesive clay with high plasticity down to 7.6m depth. The exception is at TH12 where a SILTY CLAY layer was encountered near the surface down to 2.4m depth.

No seepage and caving conditions were observed from the testholes except TH20 where WET conditions were observed between 1.8m and 3m below top of dykes. Detailed description of testholes, TH1 to TH20 are shown in Appendix B, Testhole Logs.

Groundwater

Currently, there is no preliminary groundwater report prepared by the planning branch of the Water Resources Division near the Village of St. Pierre-Jolys. Based on the attached well logs (Appendix B) and groundwater availability maps, sand and gravel aquifers overlie the carbonate (limestone and dolomite) aquifer and can be found within the proposed location for the development. The well logs indicate a notable yield of 0.06L/s to 3.8L/s with the quality of water ranging from good to excellent. The water is shown to be used for both livestock and domestic consumption.

A review of the Groundwater Pollution Hazard Map - Winnipeg Area shows the property is located outside the groundwater pollution hazard area.

Based on the drainage map of the area, the local groundwater flow at the site is west towards Joubert Creek.

5.2 LABORATORY TESTING

In the laboratory, selected samples as shown in Appendix C were submitted for moisture contents and one sample for hydraulic conductivity. The test results are shown in Appendix C.

As classified during our field investigation, the clay layer encountered at the site is heavily fractured beneath the topsoil layer down to at least 1.2m below grade; the average depth of the clay with less fracture (cohesive) is about 1.2m below grade. Due to this reason, hydraulic conductivity of the in-situ clay at 1.5m depth (TH5-1.5m) was tested.

The clay material of the upper 1.5m depths is a CH material based on visual classification. The estimated hydraulic conductivity of this material should range between 10^{-8} to 10^{-9} cm/sec.

The hydraulic conductivity of the in-situ clay obtained at 1.5m depth for TH5 was 3.1×10^{-9} cm/sec.

6.0 DESIGN CONSIDERATIONS

The proposed WWSP will be designed in accordance with the Province of Manitoba Design Objectives for Standard Sewage Lagoons (1985).

The proposed cell will contain a liquid depth of 1.5m and 1m freeboard to minimize the effects of wave action and to provide stability. The inside and outside side slopes of the dykes will be 4:1. The top of the dykes will be designed to be 3m wide to permit vehicles to be driven on the dyke crest. *Depths of more than 2.5m (vertical height from top of dyke to bottom of lagoon) should not be attempted without further analysis (slope or settlement).*

For lagoon construction, Manitoba Conservation's Environmental guidelines require that the proposed dykes and bottom of the proposed cells be provided with a layer consisting of at least one metre of soil having a permeability of less than 1×10^{-7} cm/s. The proposed lagoon site consists mainly of an area where such clay is present.

The selected area, unfortunately, consists mainly of upper CH clay with fracture structure, which may not meet the specified hydraulic conductivity of 1×10^{-7} cm/s. Beneath the fractured clay is a high plasticity clay down to 7.6m below grade and which achieved a hydraulic conductivity test result of less than 1.0×10^{-7} cm/s, thus meeting the guideline for clay liner. The intention is to cut at least 1.5m from grade. The entire area should be excavated to at least 1.2m below grade where less fractured clay is encountered. Otherwise, the fractured clay should be recompacted with at least 10 passes of heavy vibratory roller to meet the guideline for clay liner.

Based on our field investigation, well logs from Manitoba Water Well reports and laboratory analysis, *the proposed pond liner (base and interior) for this site should be constructed with a 1m liner.*

Ensure that the outside slopes of existing dykes should be covered with at least 1m of CH material compacted to at least 95% STD proctor density during the construction of the expansion.

During construction of the proposed expansion cells, the following steps should be followed.

1. The entire area for the proposed pond should be stripped of vegetation, topsoil and organic material; the depth of stripping is approximately 50mm to 325mm. The stripped materials should be stockpiled and reused later for the outer slopes and top of the dykes.
2. Layout the proposed pond to the dimensions indicated in the design drawings.
3. For the proposed bottom and interior dykes, the liner and the key should be compacted to 95% standard Proctor density at ± 2 to 3% of optimum moisture content with a sheepsfoot roller. *Any unsuitable material such as sand or high percentage silt materials should be removed and replaced with the recommended liner and compacted to 95% standard Proctor density.* Ensure that the liner(1m clay liner) consists of at least one metre width of impervious clay compacted to at least a minimum of 95% standard Proctor maximum density in 150mm to 200mm lifts. A shrinkage factor of about 25% should be used in calculating volumes of material to be used.
4. The unsuitable material can be used as backfill on the outside face of the dykes. The embankment material should be placed in 150mm lifts compacted with at least eight passes with a sheepsfoot roller having a foot pressure of no less than 700 kPa.

Further erosion control against wind and rain action using riprap placement on the dykes should be provided, if needed, after construction. A well-developed and maintained grass cover above the riprap should add integrity to the dykes.

The entire completed pond system should be fenced to keep people, children in particular away from the pond. All gates should be locked to prevent access.

Appropriate warning signs should be provided on the fence around the pond, to designate the nature of the facility, and advice against trespassing.

We recommend that a minimum distance of 5 meters be maintained between the outside toe of the embankment and the fence.

7.0 ADDITIONAL CONSIDERATIONS (CONNECTION TO EXISTING CELLS AND ACCESS ROADS)

The outer slope of existing dykes should be covered with 1m clay liner and connected to the proposed cells. The exception is TH20 where a wet SILT layer was encountered at 1.8m to 3m below top of dyke. This SILT layer should be removed and replaced with a CH and impervious clay material. This method should seal the observed leak from the existing cell around TH20 location.

On the basis of the soil conditions encountered during drilling (i.e. mainly a brown clay subgrade), the recommended road pavement construction at this site should be as follows:

Pavement Thicknesses

	Truck Route	% Compaction
Base Coarse	150 mm	100% Std Proctor
Subbase	225 mm	100% Std Proctor

The above pavement sections should be constructed on a prepared stiff clay subgrade, which should be free of any fibrous organics, softened and disturbed soils. The average depth of site stripping is about 50 to 325mm below ground surface. The prepared

subgrade should be proof rolled with a heavy sheepsfoot roller (min. 20 passes) which translates to at least 95% Std Proctor and inspected by a qualified geotechnical engineer prior to the placement of the overlying granular fill.

The granular base course and subbase materials should include organic-free, non-frozen, aggregate conforming to the Manitoba Highway gradation limits.

Where soft spots are encountered at the subgrade level, construction traffic should be restricted. Soft spots should be excavated with a large backhoe fitted with a smooth bucket, to at least 300mm below the underside of the subbase and replaced with a 300mm thick layer of 100mm down crushed aggregate/limestone. In this regard, the total granular fill thickness would be 675mm for truck access.

Sieve analysis and compaction testing of the granular base and subbase materials should be conducted by qualified geotechnical personnel to ensure that the materials supplied and percent compactions are in accordance with design specifications.

8.0 STANDARD LIMITATIONS

The factual data, interpretations and recommendations contained in this report pertain to the specific project as described in this report and are not applicable to any other project, site location or party. The comments given in this report are intended only for the guidance of the design engineer. Contractors bidding on, or undertaking the work, should rely on their own investigations, as well as their own interpretations of the factual test data, as to how subsurface conditions may affect their work.

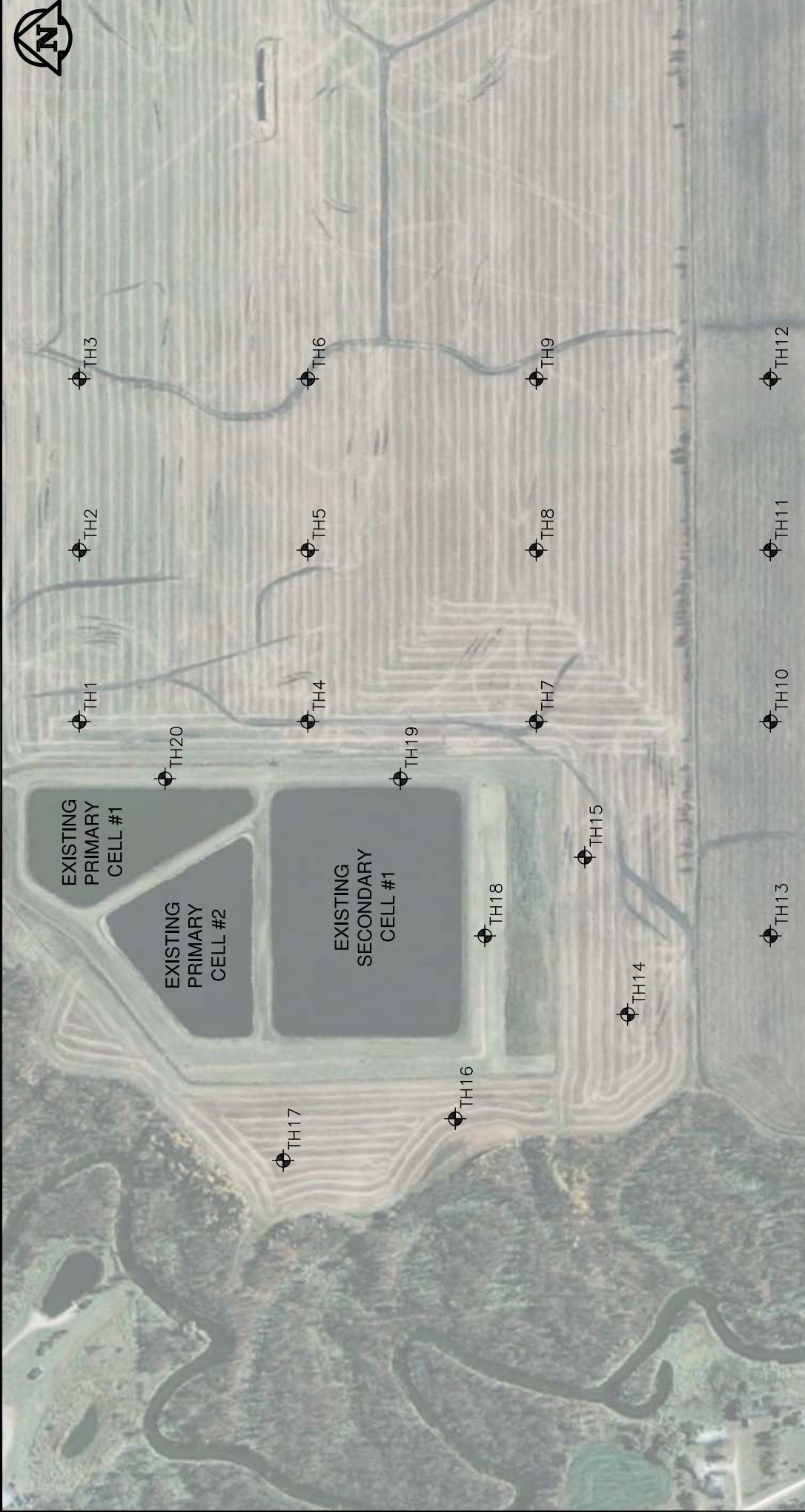
Soil descriptions in this report are based on commonly accepted methods of classification and identification employed in professional geotechnical practice. Classification and identification of soil involves judgement and WSP Canada Inc. does not guarantee descriptions as exact, but infers accuracy only to the extent that is common in current geotechnical practice.

Soil formations are variable to a greater or lesser extent. The testhole logs indicate the approximate subsurface conditions only at the locations of the testhole. Boundaries between zones on the logs are often not distinct, but rather transitional, and have been interpreted. Subsurface conditions between test holes are inferred and may vary significantly from conditions encountered at the testhole.

Where conditions encountered at the site differ significantly from those anticipated in the report, either due to natural variability of subsurface conditions or construction activities, it is a condition of the use, or reliance by the client, of this report that WSP Canada Inc. is notified of the changes and provided with an opportunity to review the recommendations of this report.

Prepared by: S.S. Urbano Jr., P. Eng.

APPENDIX A
SITE PLAN



PROJECT:	ST-PIERRE-JOLYS WWSP EXPANSION	SUPPLEMENTAL:	<input type="checkbox"/>
TITLE:	TESTHOLE LOCATIONS	ADDENDUM:	<input type="checkbox"/>
DRAWN BY:	DTGB	DIRECTIVE:	<input type="checkbox"/>
CHECKED BY:	SSU	CHANGE ORDER:	<input type="checkbox"/>
SCALE:	1:5000	REVISION:	0
PROJECT NO:	131-21854-00	DATE:	2014-02-03
		SUPPLEMENTAL NO:	

PROJECT:	ST-PIERRE-JOLYS WWSP EXPANSION
TITLE:	TESTHOLE LOCATIONS
DRAWN BY:	DTGB
CHECKED BY:	SSU
SCALE:	1:5000
PROJECT NO:	131-21854-00



1600 BUFFALO PLACE
 WINNEPEG, MANITOBA
 R3S 0P5
 PHONE: 204-477-6660 FAX: 204-474-2864
 WWW.WSPGROUP.COM

APPENDIX B

TESTHOLE LOGS and WELL LOGS

Project No: 131-21854-00

Client: Town of St.Pierre-Joly

TH1

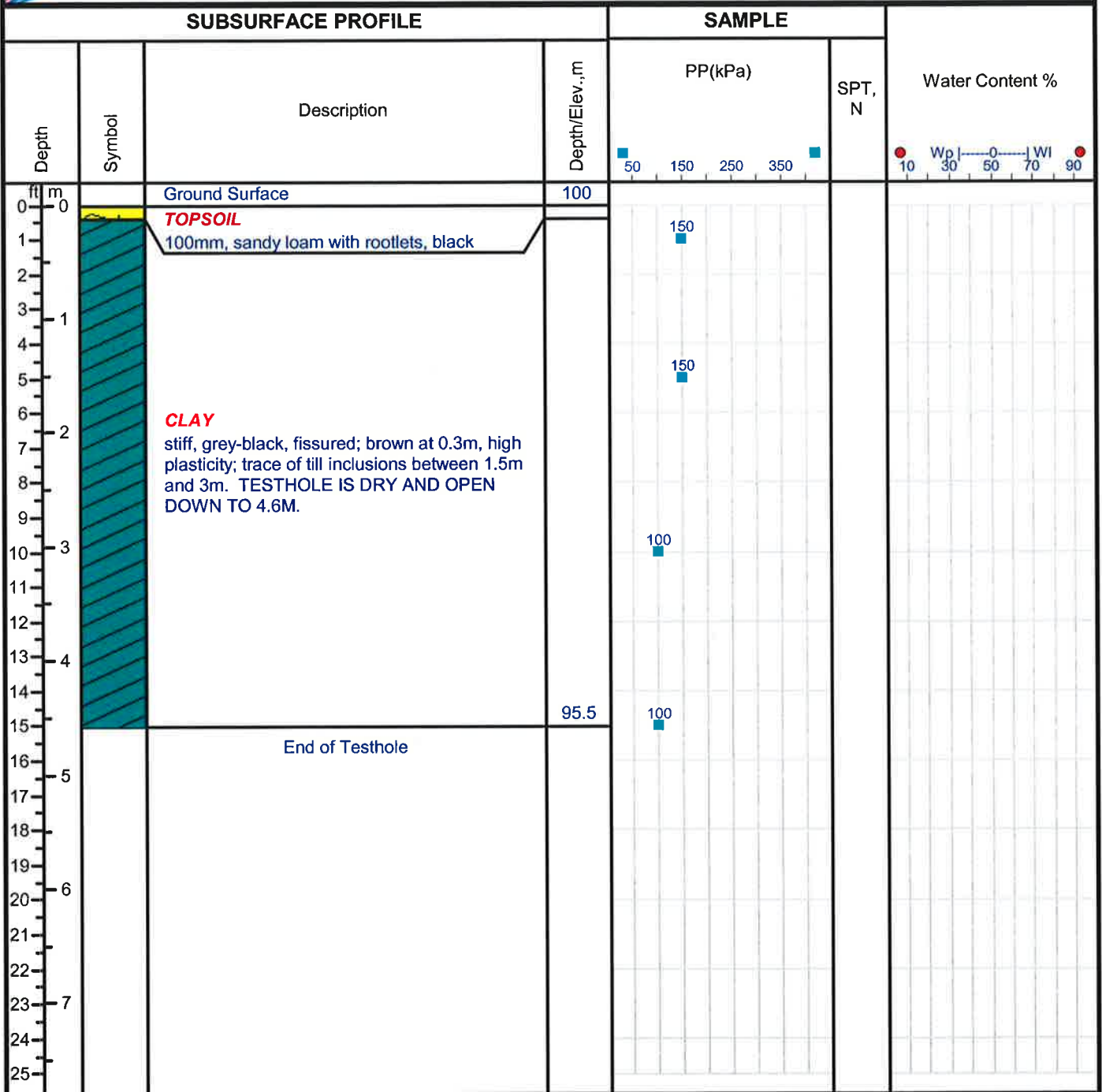
Project: Town of St.Pierre-Joly WWSP Expansion

Location: St.Pierre-Joly, MB. (River Lots 29-31)



Enclosure:

Engineer: SSU



Drill Method: S/S Auger

WSP Canada Inc.
1600 Buffalo Place
Winnipeg, MB.
R3T 6B8

Elevation:

Drill Date: 10/30/13

Checked by: SSU

Hole Size: 125 mm

Sheet: 1 of 1

Project No: 131-21854-00

Client: Town of St.Pierre-Joly

TH2

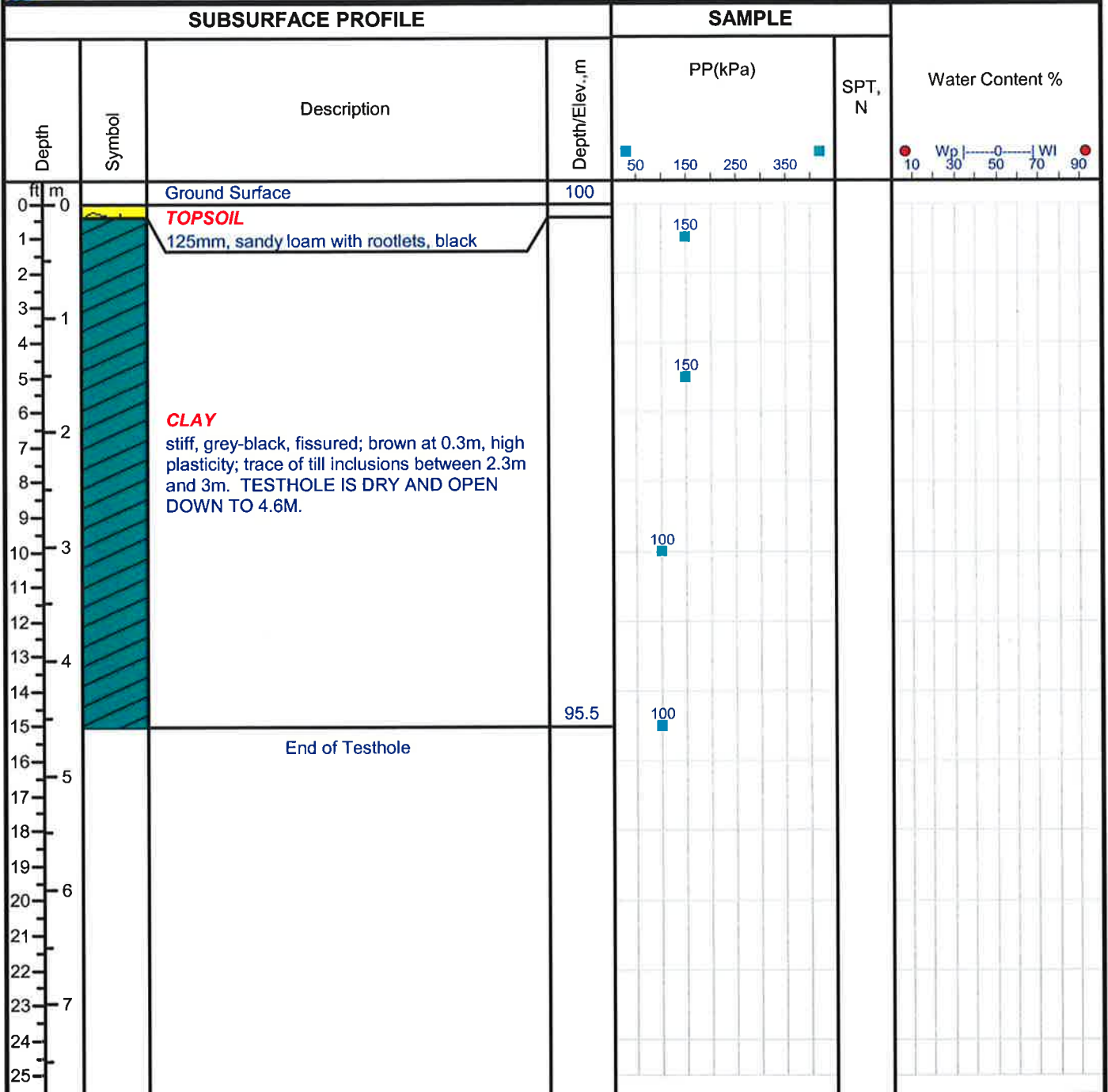
Project: Town of St.Pierre-Joly WWSP Expansion

Location: St.Pierre-Joly, MB. (River Lots 29-31)



Enclosure:

Engineer: SSU



Drill Method: S/S Auger

WSP Canada Inc.
1600 Buffalo Place
Winnipeg, MB.
R3T 6B8

Elevation:

Drill Date: 10/30/13

Checked by: SSU

Hole Size: 125 mm

Sheet: 1 of 1

Project No: 131-21854-00

Client: Town of St.Pierre-Joly

TH3

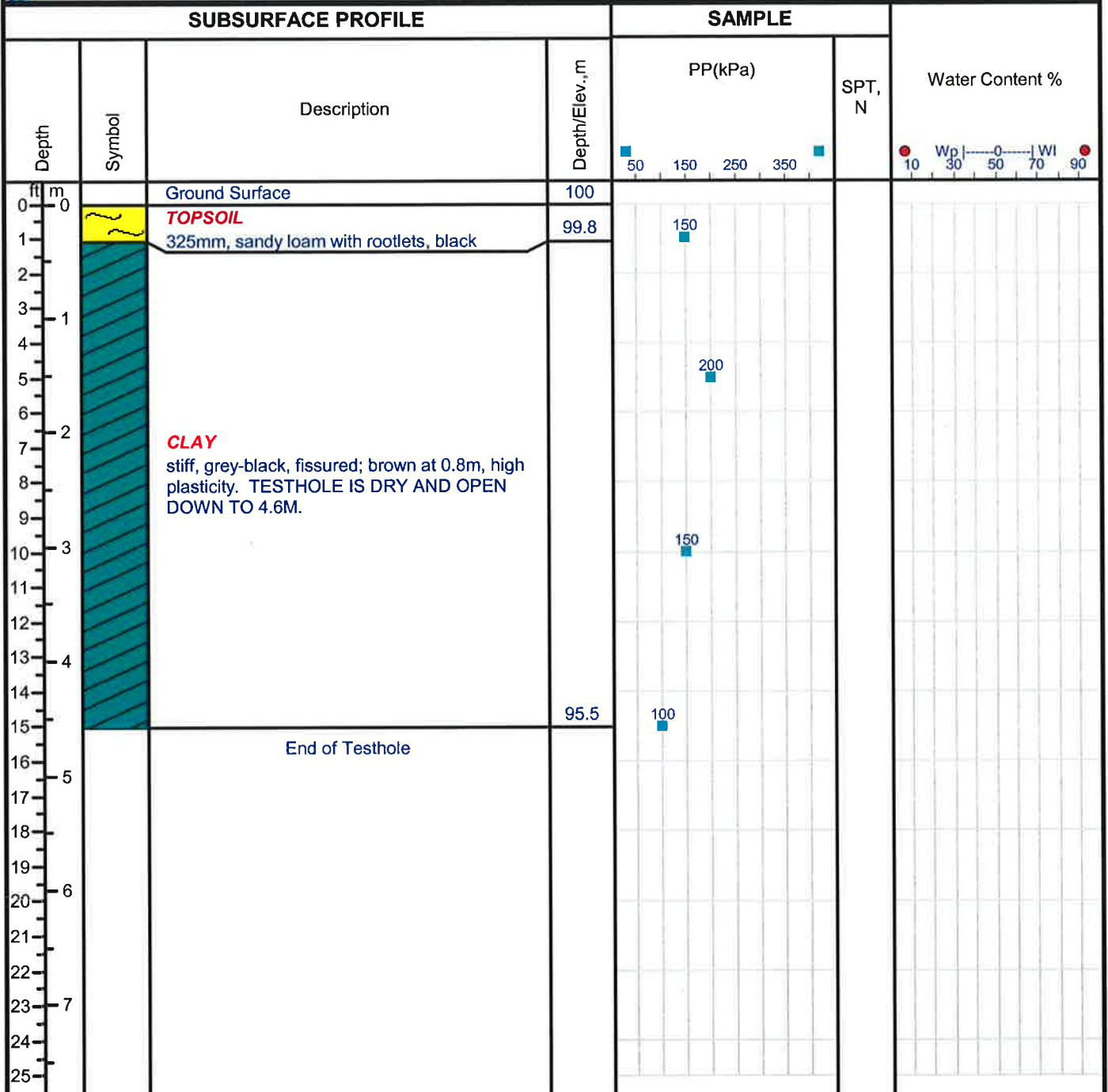
Project: Town of St.Pierre-Joly WWSP Expansion

Location: St.Pierre-Joly, MB. (River Lots 29-31)



Enclosure:

Engineer: SSU



Drill Method: S/S Auger

WSP Canada Inc.
1600 Buffalo Place
Winnipeg, MB.
R3T 6B8

Elevation:

Drill Date: 10/30/13

Checked by: SSU

Hole Size: 125 mm

Sheet: 1 of 1

Project No: 131-21854-00

Client: Town of St.Pierre-Joly

TH4

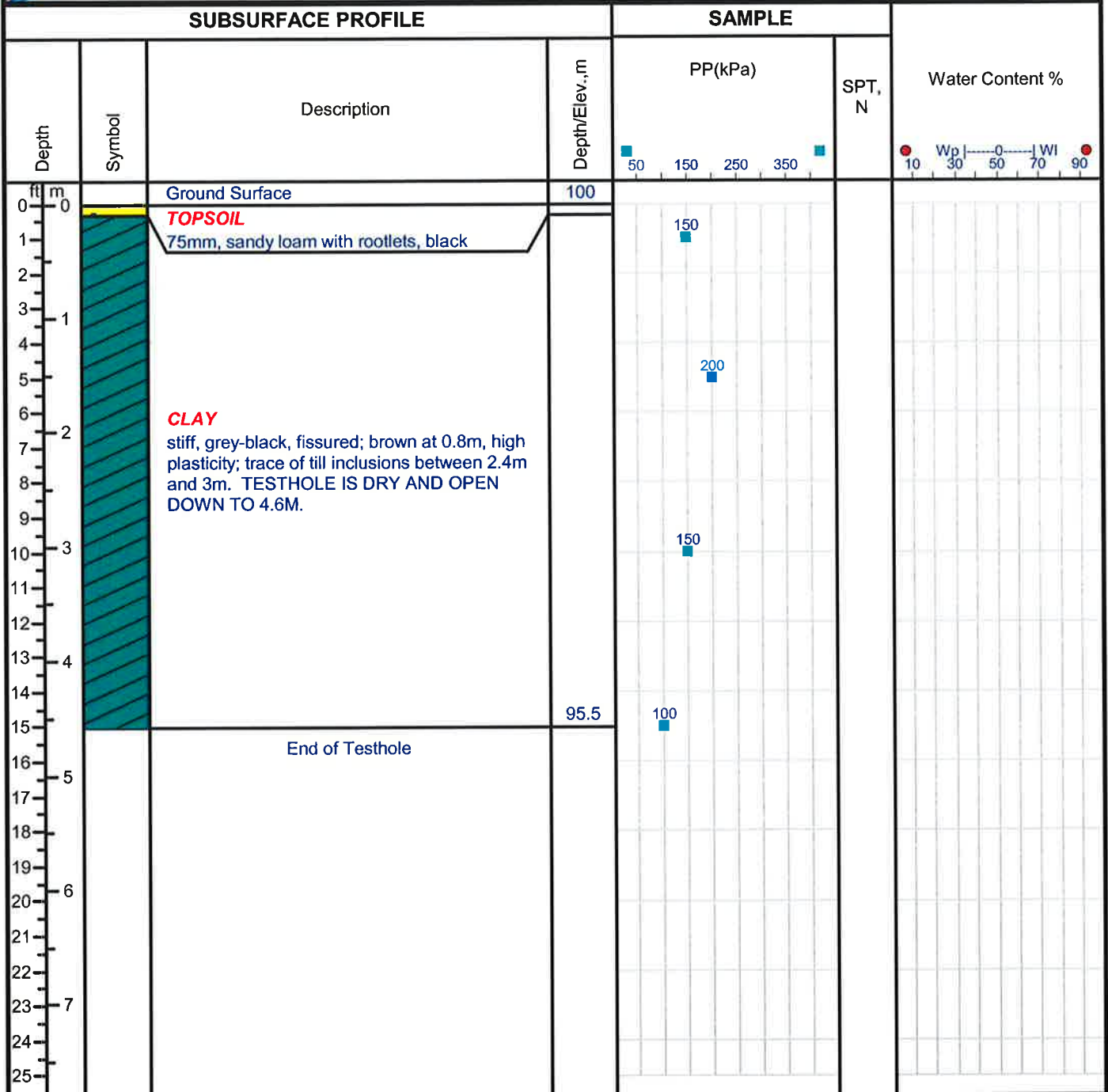
Project: Town of St.Pierre-Joly WWSP Expansion

Location: St.Pierre-Joly, MB. (River Lots 29-31)



Enclosure:

Engineer: SSU



Drill Method: S/S Auger

WSP Canada Inc.
1600 Buffalo Place
Winnipeg, MB.
R3T 6B8

Elevation:

Drill Date: 10/30/13

Checked by: SSU

Hole Size: 125 mm

Sheet: 1 of 1

Project No: 131-21854-00

Client: Town of St.Pierre-Joly

TH5

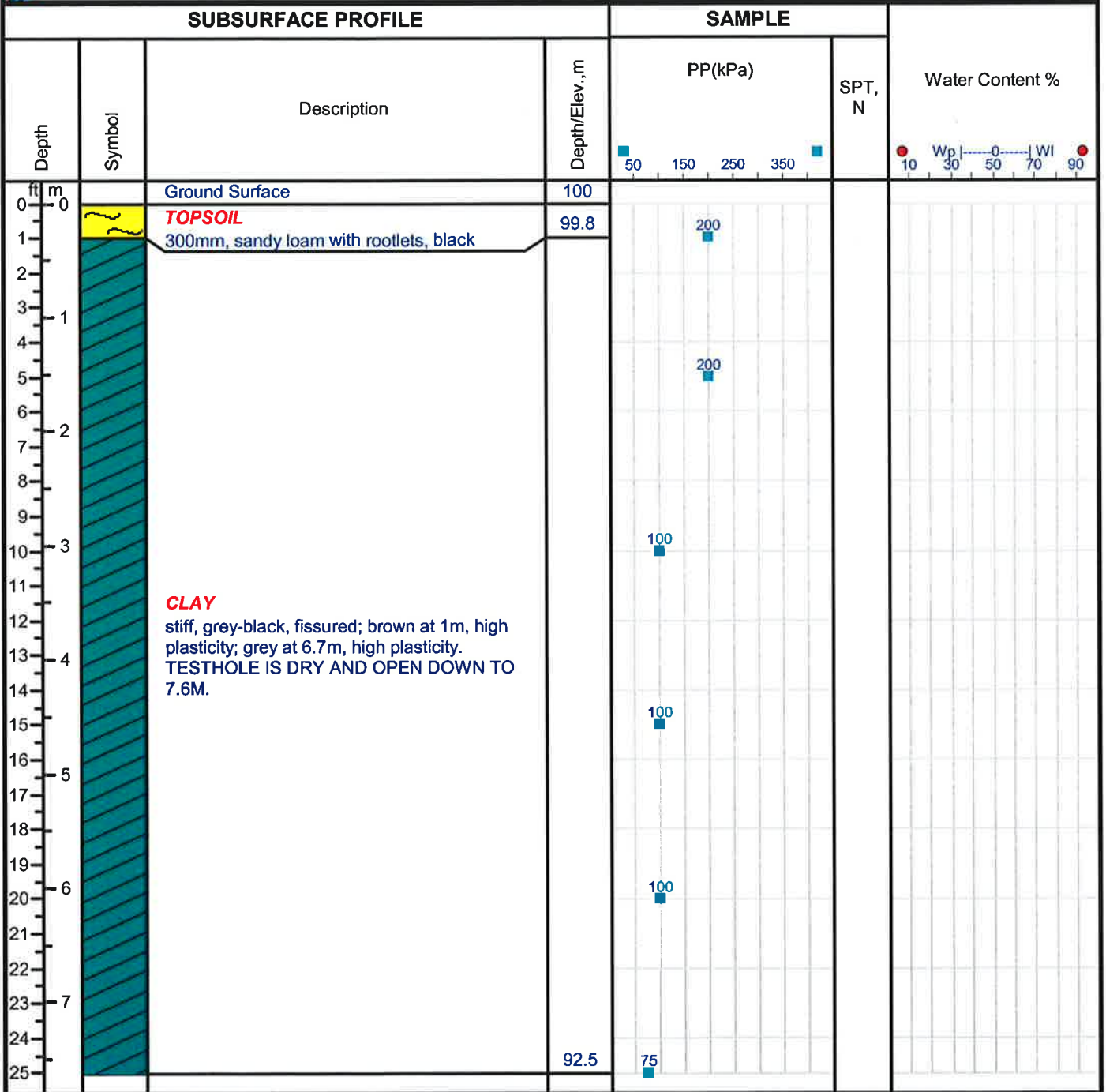
Project: Town of St.Pierre-Joly WWSP Expansion

Location: St.Pierre-Joly, MB. (River Lots 29-31)



Enclosure:

Engineer: SSU



Drill Method: S/S Auger

WSP Canada Inc.
1600 Buffalo Place
Winnipeg, MB.
R3T 6B8

Elevation:

Drill Date: 10/30/13

Checked by: SSU

Hole Size: 125 mm

Sheet: 1 of 1

Project No: 131-21854-00

Client: Town of St.Pierre-Joly

TH6

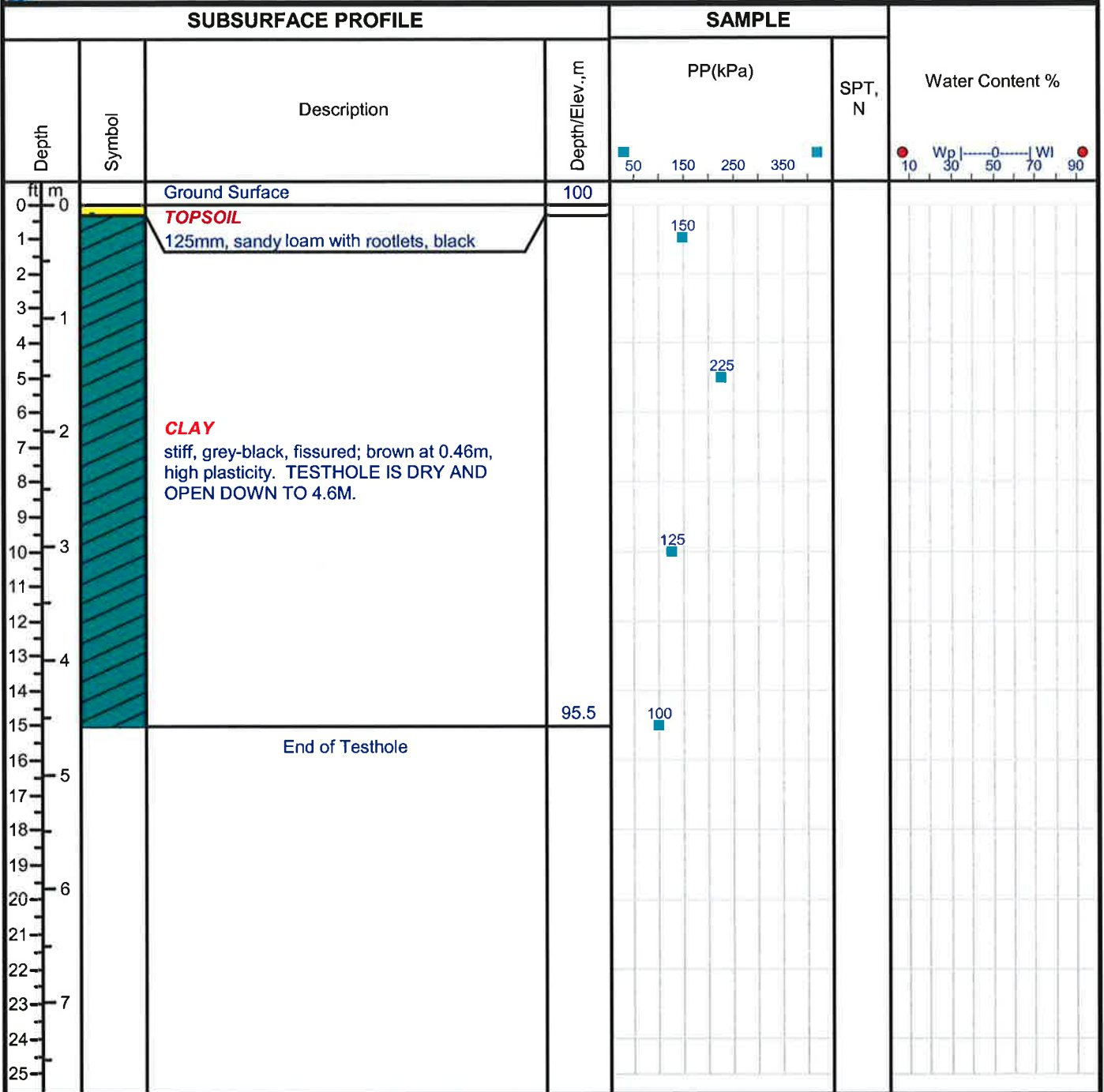
Project: Town of St.Pierre-Joly WWSP Expansion

Location: St.Pierre-Joly, MB. (River Lots 29-31)



Enclosure:

Engineer: SSU



Drill Method: S/S Auger

WSP Canada Inc.
1600 Buffalo Place
Winnipeg, MB.
R3T 6B8

Elevation:

Drill Date: 10/30/13

Checked by: SSU

Hole Size: 125 mm

Sheet: 1 of 1

Project No: 131-21854-00

Client: Town of St.Pierre-Joly

TH7

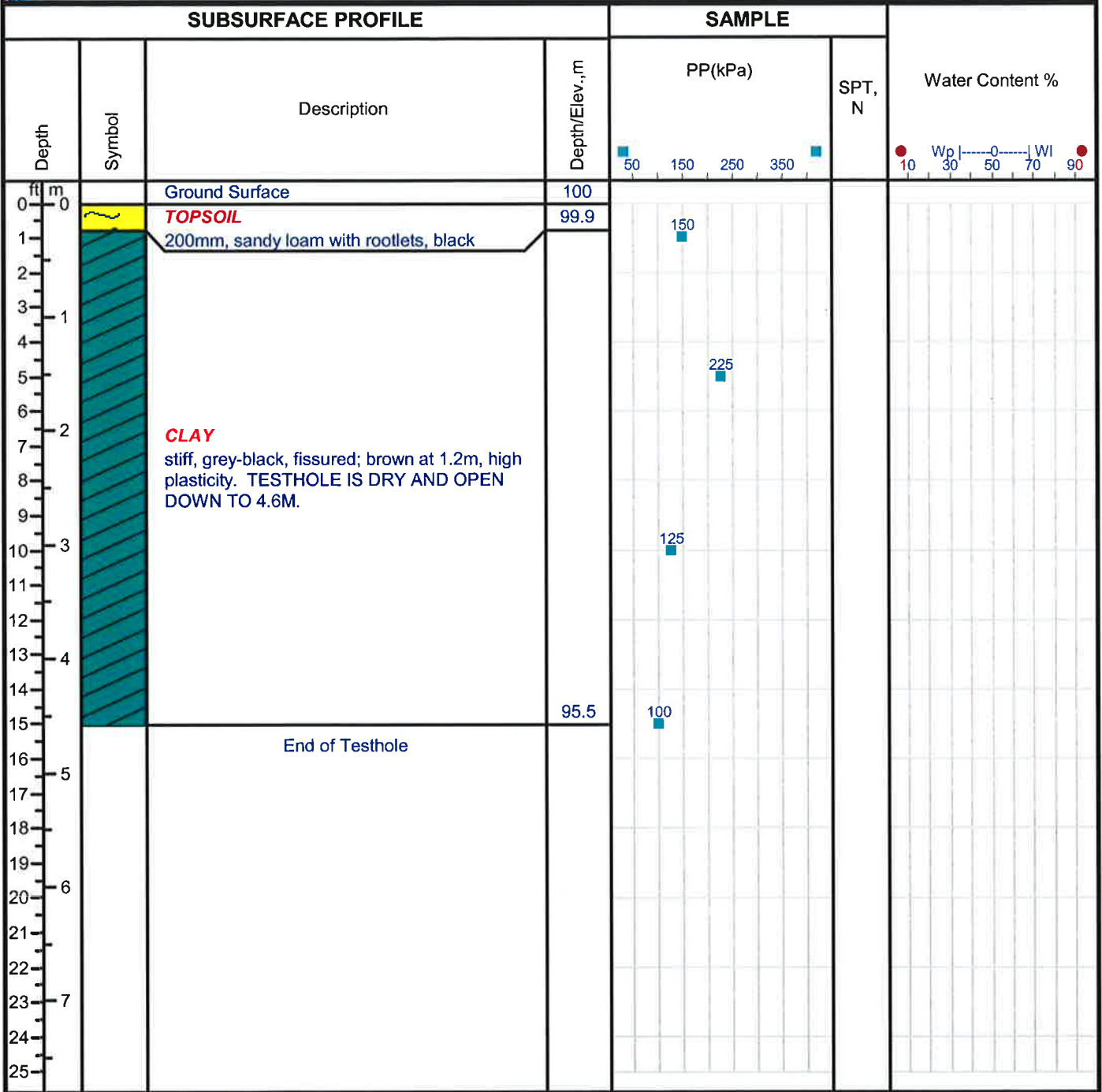
Project: Town of St.Pierre-Joly WWSP Expansion

Location: St.Pierre-Joly, MB. (River Lots 29-31)



Enclosure:

Engineer: SSU



Drill Method: S/S Auger

Drill Date: 10/30/13

Hole Size: 125 mm

WSP Canada Inc.
1600 Buffalo Place
Winnipeg, MB.
R3T 6B8

Elevation:

Checked by: SSU

Sheet: 1 of 1

Project No: 131-21854-00

Client: Town of St.Pierre-Joly

TH8

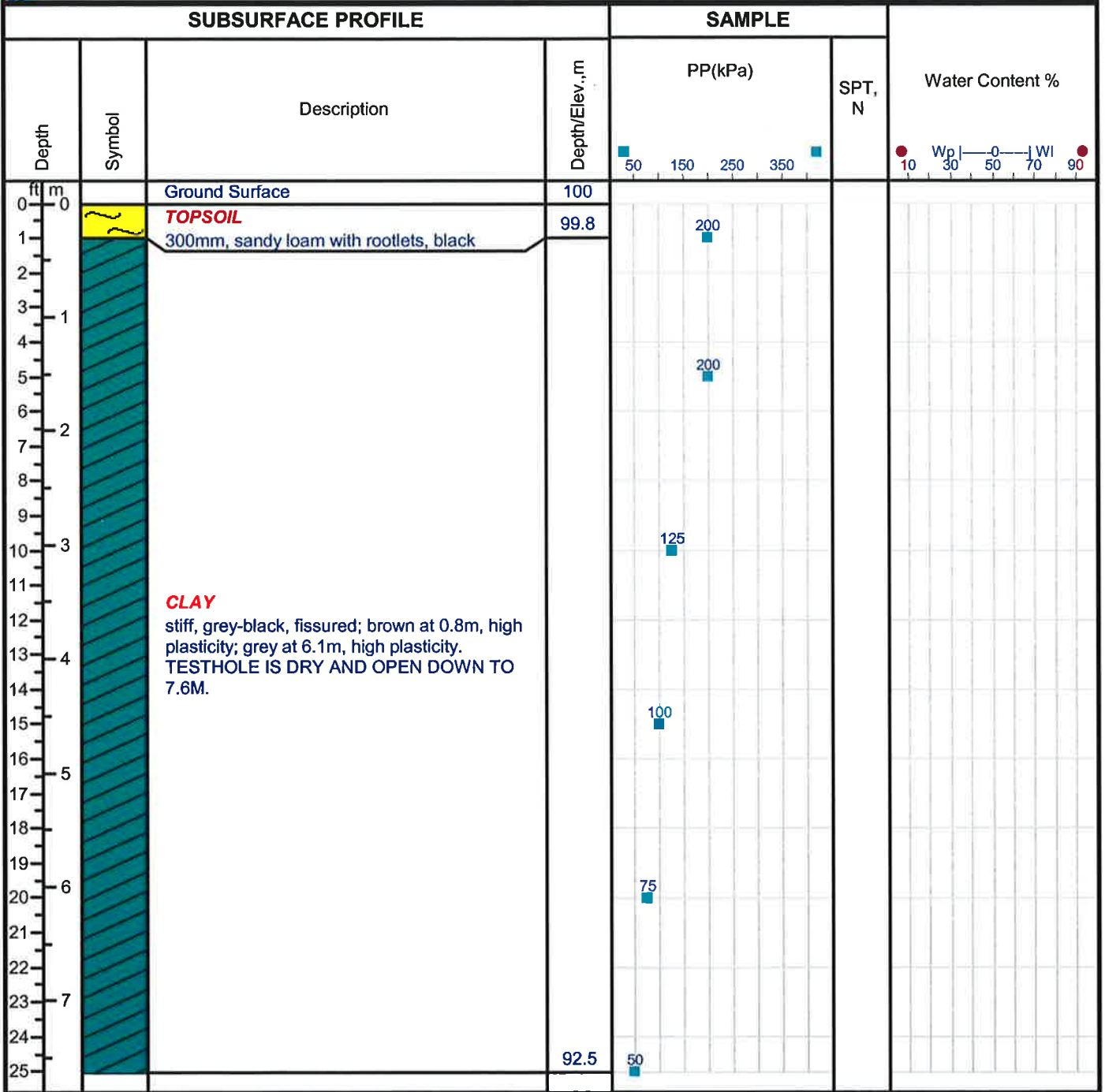
Project: Town of St.Pierre-Joly WWSP Expansion

Location: St.Pierre-Joly, MB. (River Lots 29-31)



Enclosure:

Engineer: SSU



Drill Method: S/S Auger

WSP Canada Inc.
1600 Buffalo Place
Winnipeg, MB.
R3T 6B8

Elevation:

Drill Date: 10/30/13

Checked by: SSU

Hole Size: 125 mm

Sheet: 1 of 1

Project No: 131-21854-00

Client: Town of St.Pierre-Joly

TH9

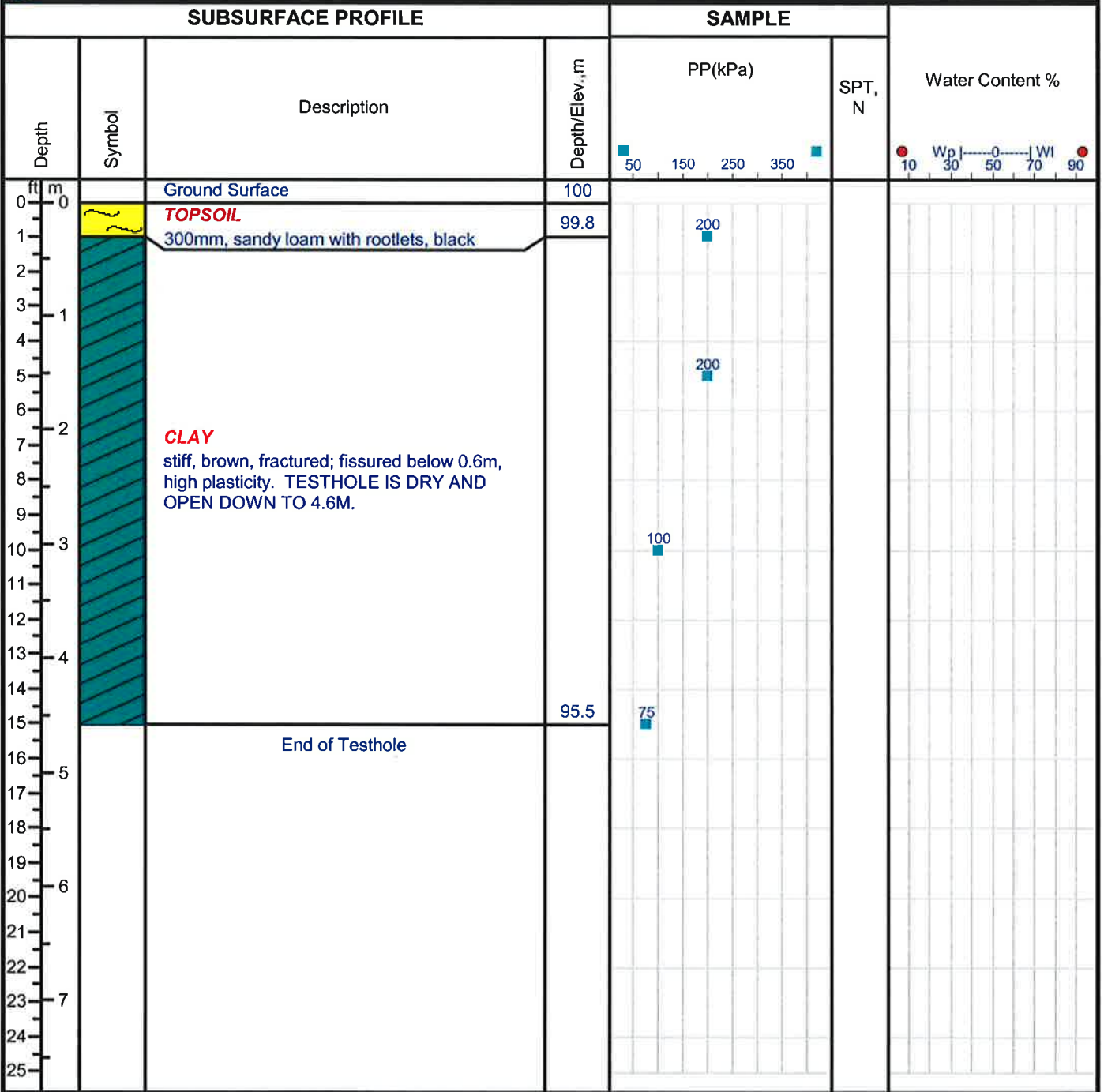
Project: Town of St.Pierre-Joly WWSP Expansion

Location: St.Pierre-Joly, MB. (River Lots 29-31)



Enclosure:

Engineer: SSU



Drill Method: S/S Auger

WSP Canada Inc.
1600 Buffalo Place
Winnipeg, MB.
R3T 6B8

Elevation:

Drill Date: 10/30/13

Checked by: SSU

Hole Size: 125 mm

Sheet: 1 of 1

Project No: 131-21854-00

Client: Town of St.Pierre-Joly

TH10

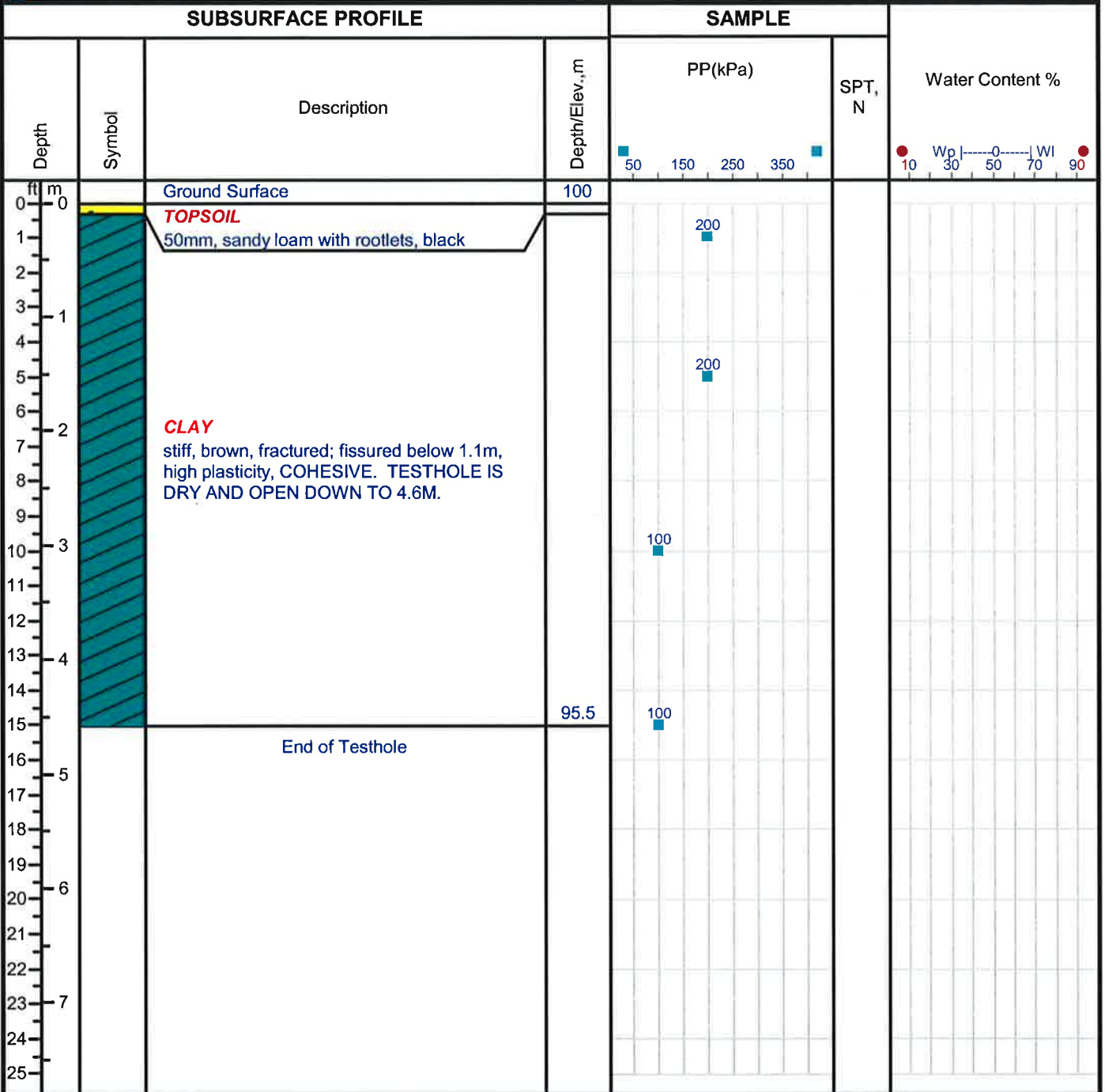
Project: Town of St.Pierre-Joly WWSP Expansion

Location: St.Pierre-Joly, MB. (River Lots 29-31)



Enclosure:

Engineer: SSU



Drill Method: S/S Auger

WSP Canada Inc.
1600 Buffalo Place
Winnipeg, MB.
R3T 6B8

Elevation:

Drill Date: 10/30/13

Checked by: SSU

Hole Size: 125 mm

Sheet: 1 of 1

Project No: 131-21854-00

Client: Town of St.Pierre-Joly

TH11

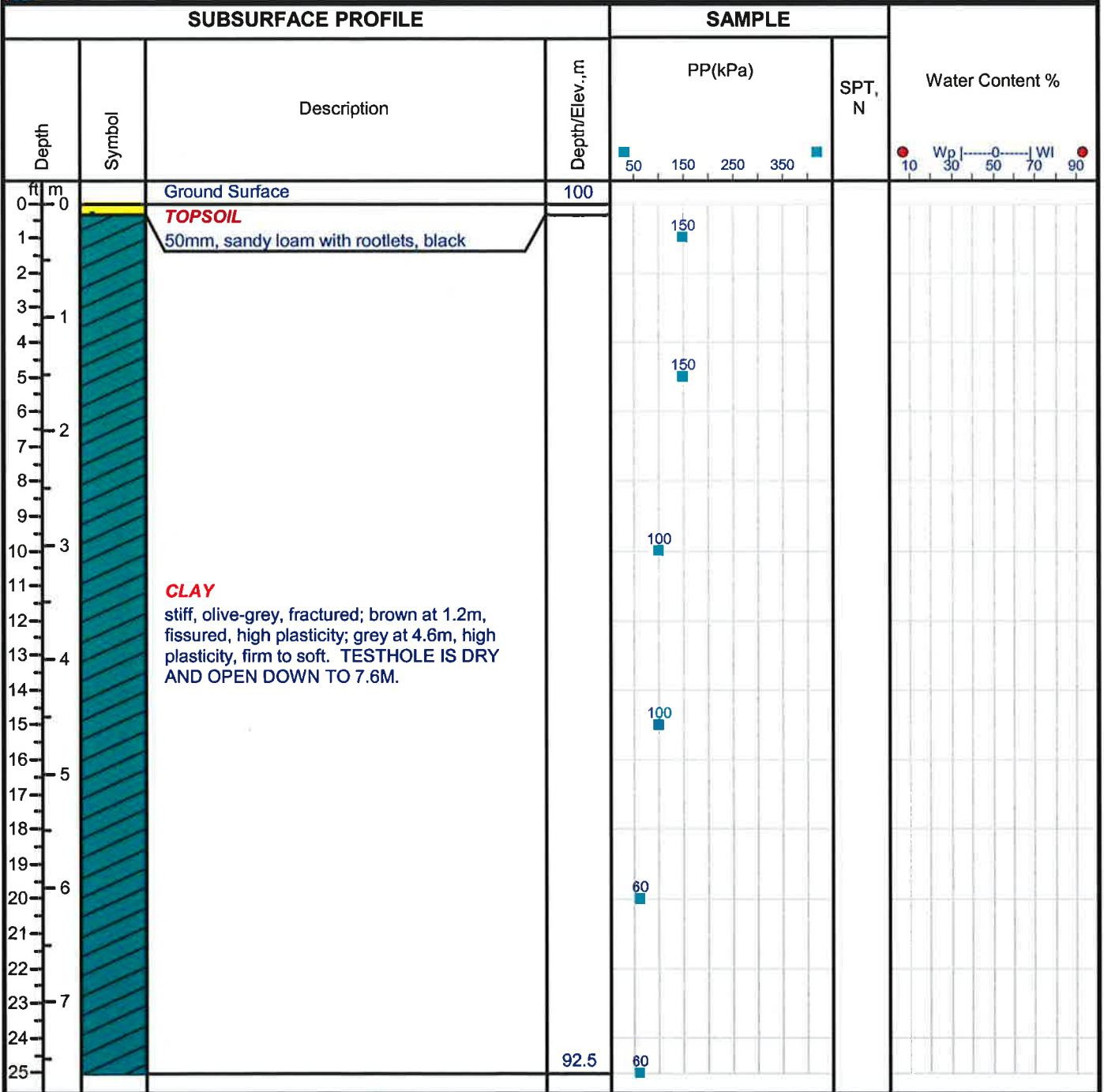
Project: Town of St.Pierre-Joly WWSP Expansion

Location: St.Pierre-Joly, MB. (River Lots 29-31)



Enclosure:

Engineer: SSU



Drill Method: S/S Auger

Drill Date: 10/30/13

Hole Size: 125 mm

WSP Canada Inc.
1600 Buffalo Place
Winnipeg, MB.
R3T 6B8

Elevation:

Checked by: SSU

Sheet: 1 of 1

Project No: 131-21854-00

Client: Town of St.Pierre-Joly

TH12

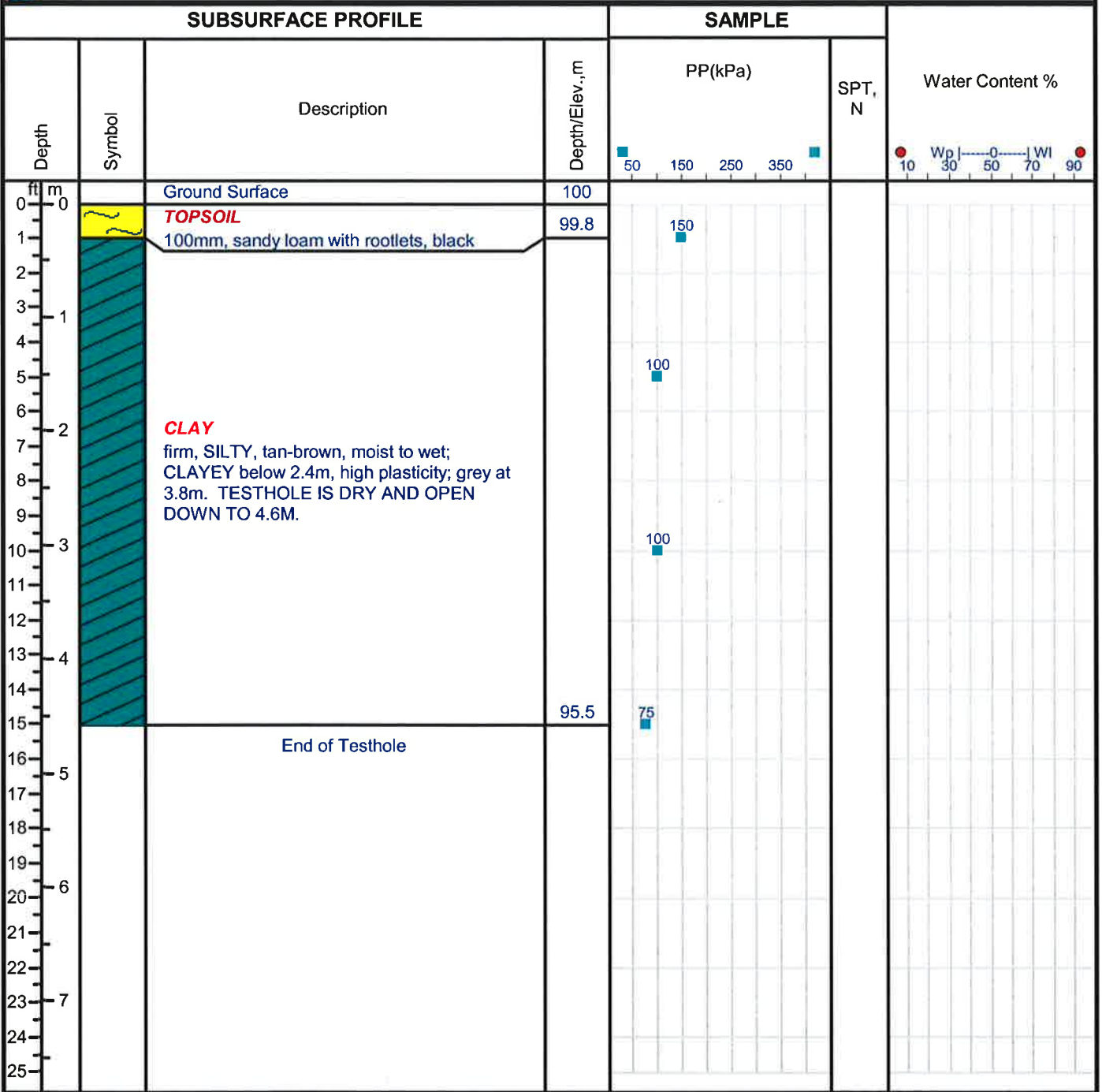
Project: Town of St.Pierre-Joly WWSP Expansion

Location: St.Pierre-Joly, MB. (River Lots 29-31)



Enclosure:

Engineer: SSU



Drill Method: S/S Auger

WSP Canada Inc.
1600 Buffalo Place
Winnipeg, MB.
R3T 6B8

Elevation:

Drill Date: 10/30/13

Checked by: SSU

Hole Size: 125 mm

Sheet: 1 of 1

Project No: 131-21854-00

Client: Town of St.Pierre-Joly

TH13

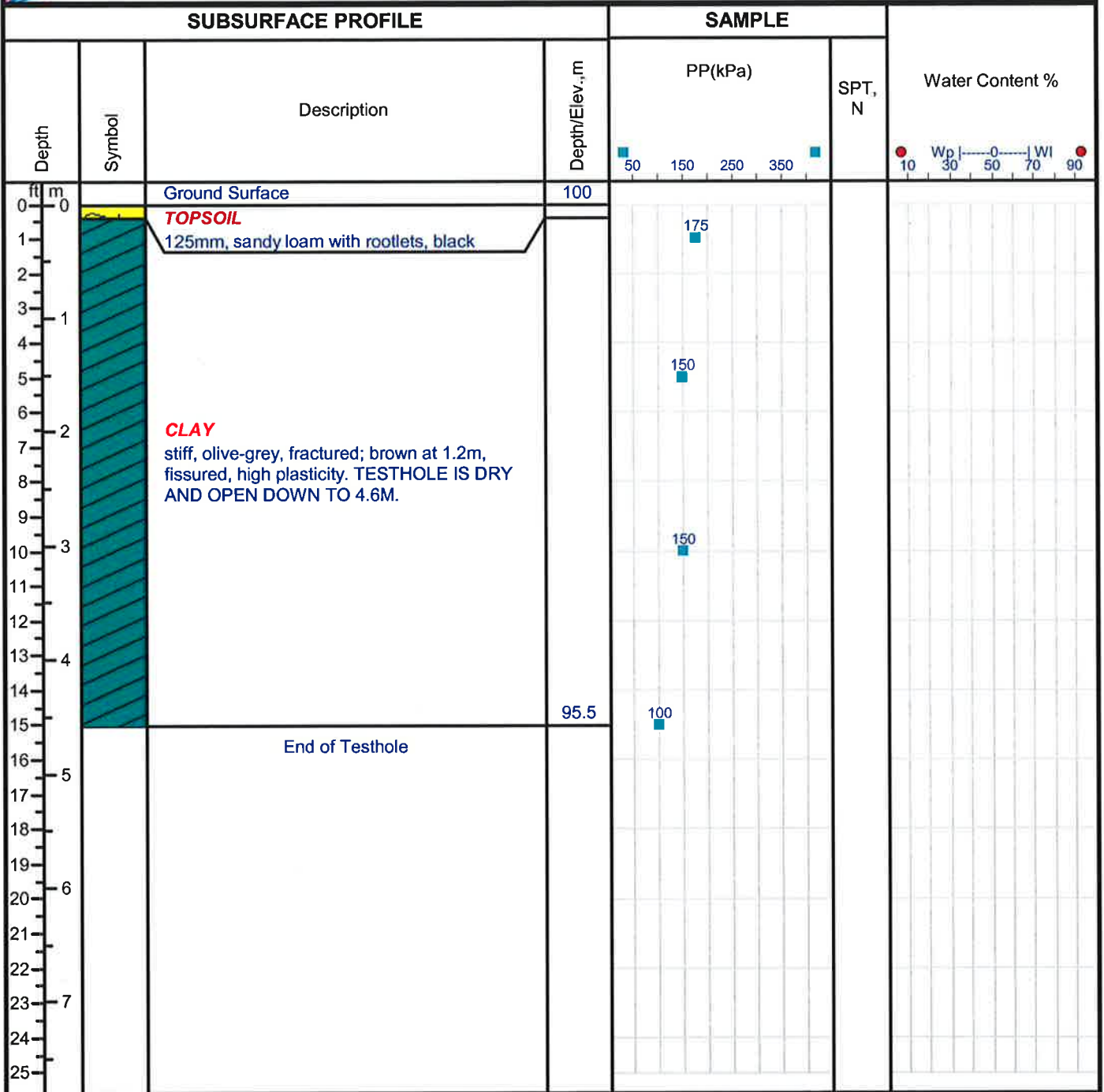
Project: Town of St.Pierre-Joly WWSP Expansion

Location: St.Pierre-Joly, MB. (River Lots 29-31)



Enclosure:

Engineer: SSU



Drill Method: S/S Auger

WSP Canada Inc.
1600 Buffalo Place
Winnipeg, MB.
R3T 6B8

Elevation:

Drill Date: 10/30/13

Checked by: SSU

Hole Size: 125 mm

Sheet: 1 of 1

Project No: 131-21854-00

Client: Town of St.Pierre-Joly

TH14

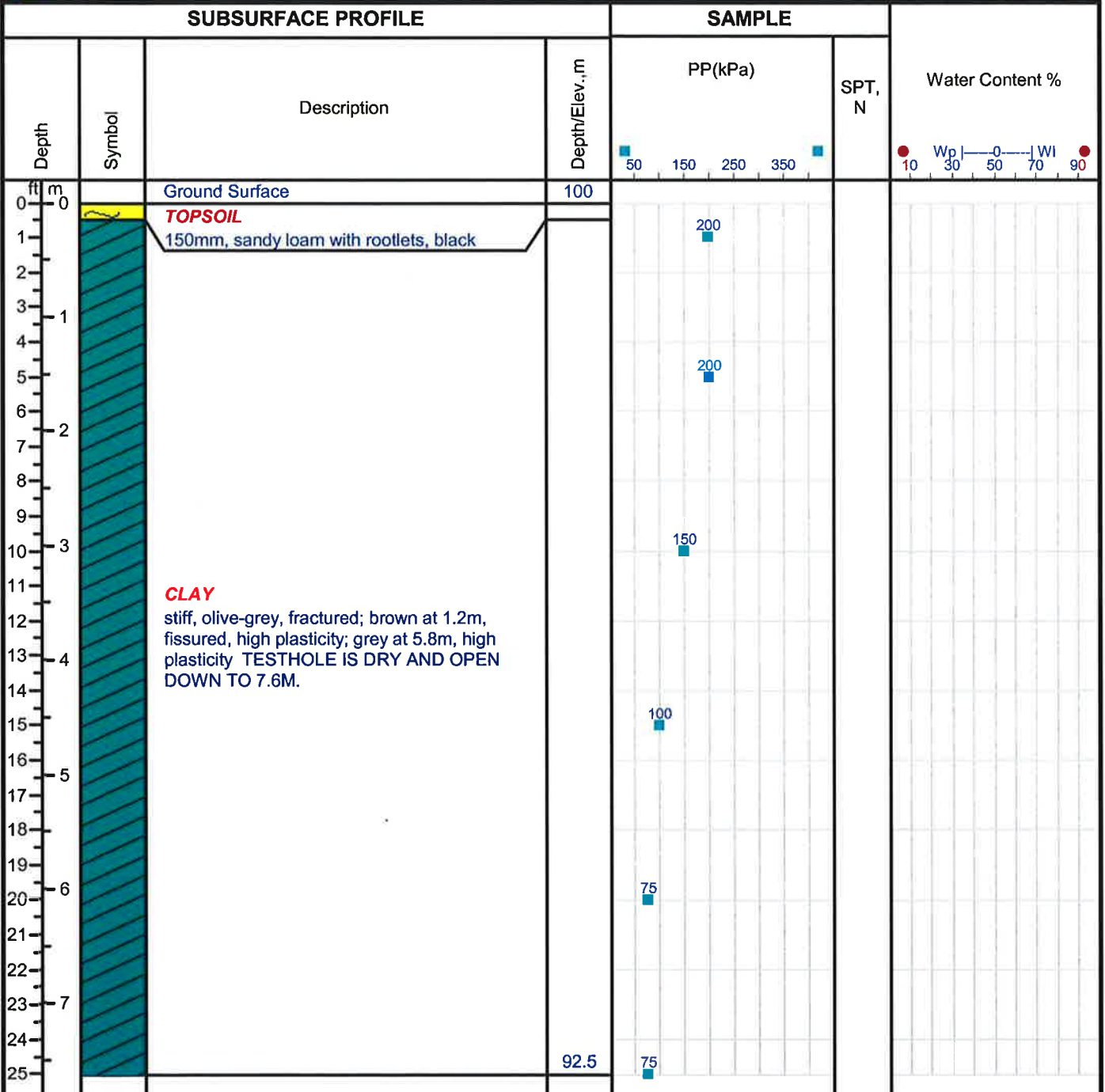
Project: Town of St.Pierre-Joly WWSP Expansion

Location: St.Pierre-Joly, MB. (River Lots 29-31)



Enclosure:

Engineer: SSU



Drill Method: S/S Auger

Drill Date: 10/30/13

Hole Size: 125 mm

WSP Canada Inc.
1600 Buffalo Place
Winnipeg, MB.
R3T 6B8

Elevation:

Checked by: SSU

Sheet: 1 of 1

Project No: 131-21854-00

Client: Town of St.Pierre-Joly

TH15

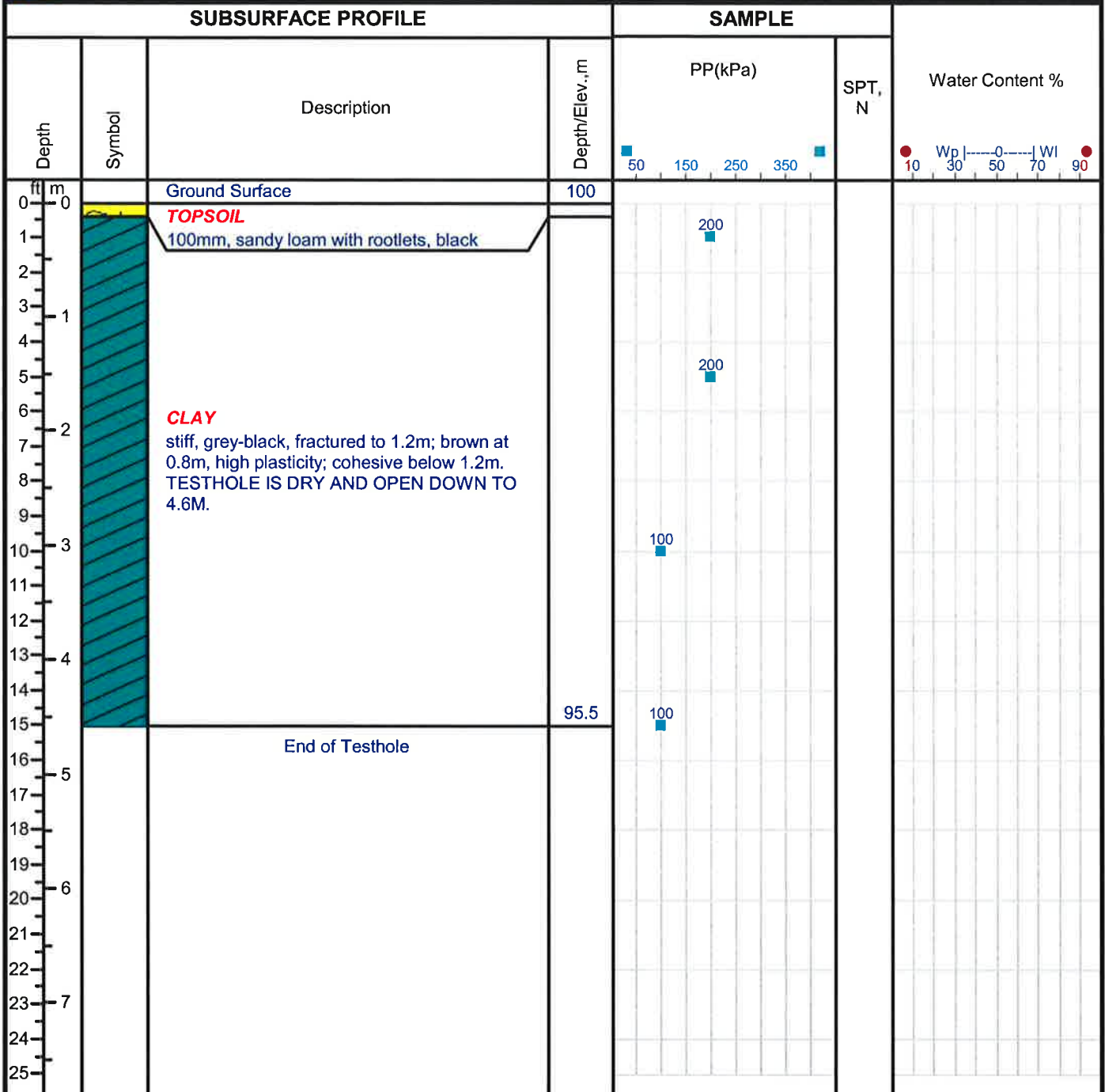
Project: Town of St.Pierre-Joly WWSP Expansion

Location: St.Pierre-Joly, MB. (River Lots 29-31)



Enclosure:

Engineer: SSU



Drill Method: S/S Auger

WSP Canada Inc.
1600 Buffalo Place
Winnipeg, MB.
R3T 6B8

Elevation:

Drill Date: 10/30/13

Checked by: SSU

Hole Size: 125 mm

Sheet: 1 of 1

Project No: 131-21854-00

Client: Town of St.Pierre-Joly

TH16

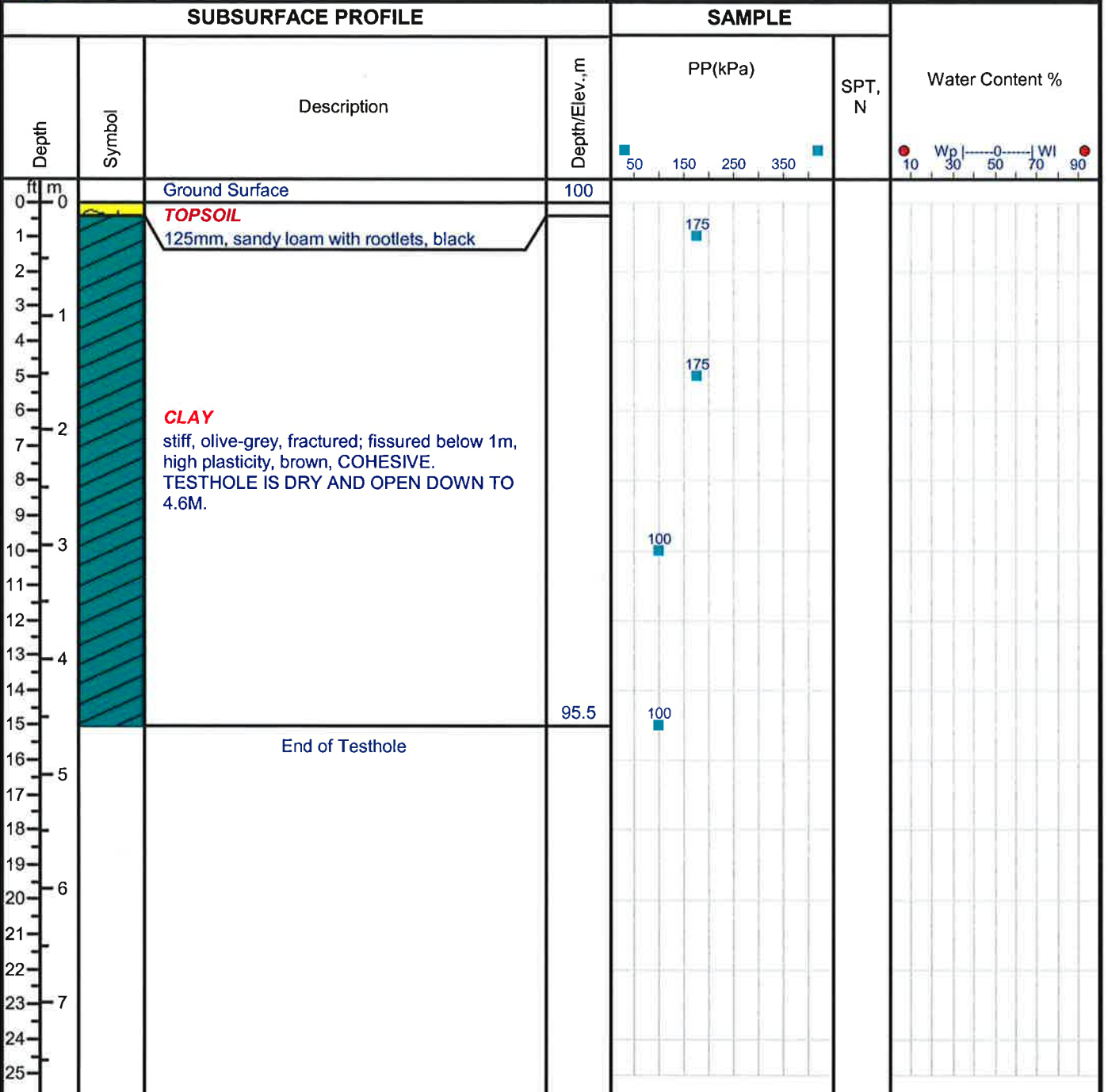
Project: Town of St.Pierre-Joly WWSP Expansion

Location: St.Pierre-Joly, MB. (River Lots 29-31)



Enclosure:

Engineer: SSU



Drill Method: S/S Auger

WSP Canada Inc.
1600 Buffalo Place
Winnipeg, MB.
R3T 6B8

Elevation:

Drill Date: 10/30/13

Checked by: SSU

Hole Size: 125 mm

Sheet: 1 of 1

Project No: 131-21854-00

Client: Town of St.Pierre-Joly

TH17

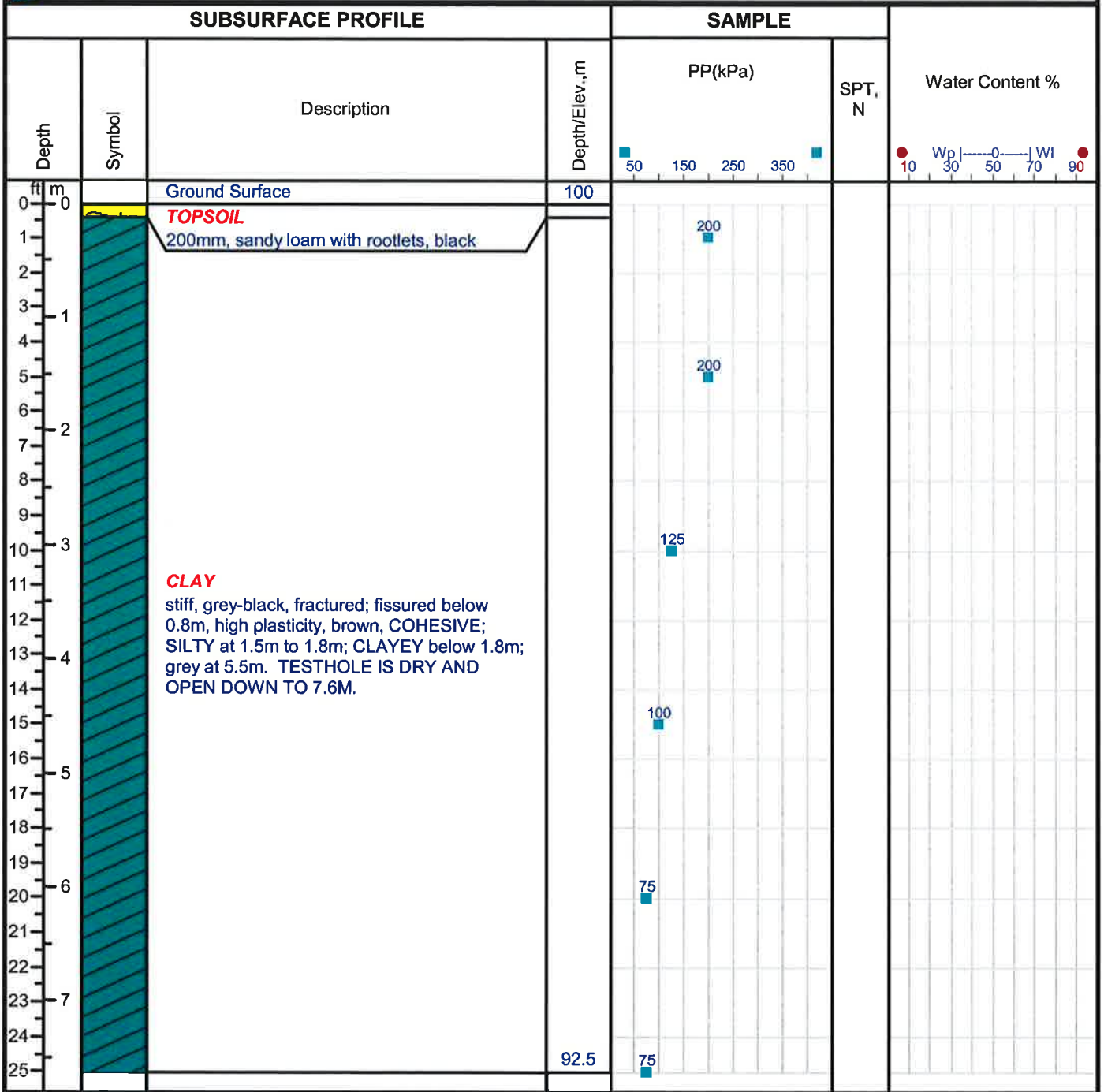
Project: Town of St.Pierre-Joly WWSP Expansion

Location: St.Pierre-Joly, MB. (River Lots 29-31)



Enclosure:

Engineer: SSU



Drill Method: S/S Auger

WSP Canada Inc.
1600 Buffalo Place
Winnipeg, MB.
R3T 6B8

Elevation:

Drill Date: 10/30/13

Checked by: SSU

Hole Size: 125 mm

Sheet: 1 of 1

Project No: 131-21854-00

Client: Town of St.Pierre-Joly

TH18

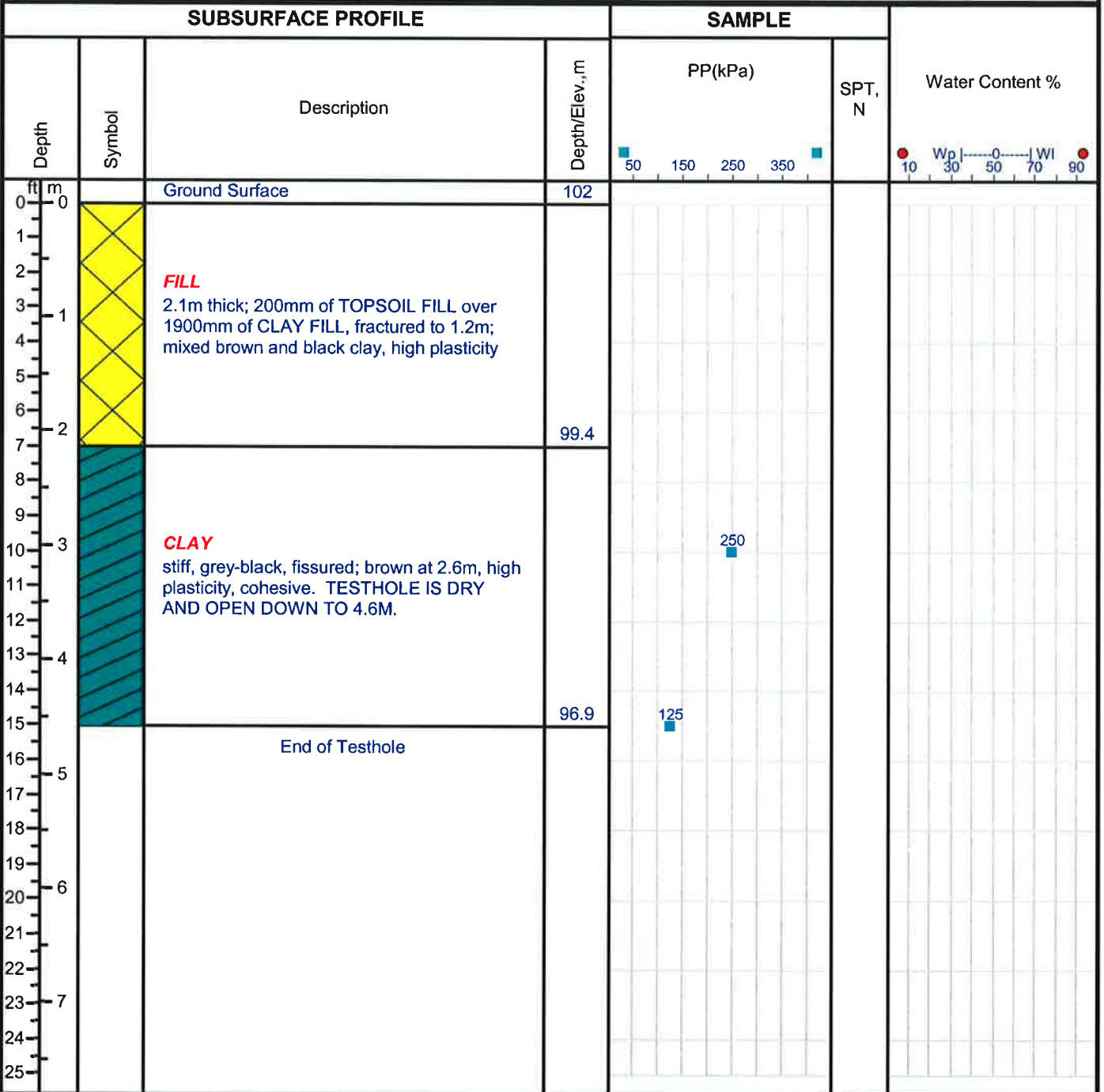
Project: Town of St.Pierre-Joly WWSP Expansion

Location: St.Pierre-Joly, MB. (River Lots 29-31)



Enclosure:

Engineer: SSU



Drill Method: S/S Auger

WSP Canada Inc.
 1600 Buffalo Place
 Winnipeg, MB.
 R3T 6B8

Elevation: Top of Dyke

Drill Date: 10/30/13

Checked by: SSU

Hole Size: 125 mm

Sheet: 1 of 1

Project No: 131-21854-00

Client: Town of St.Pierre-Joly

TH19

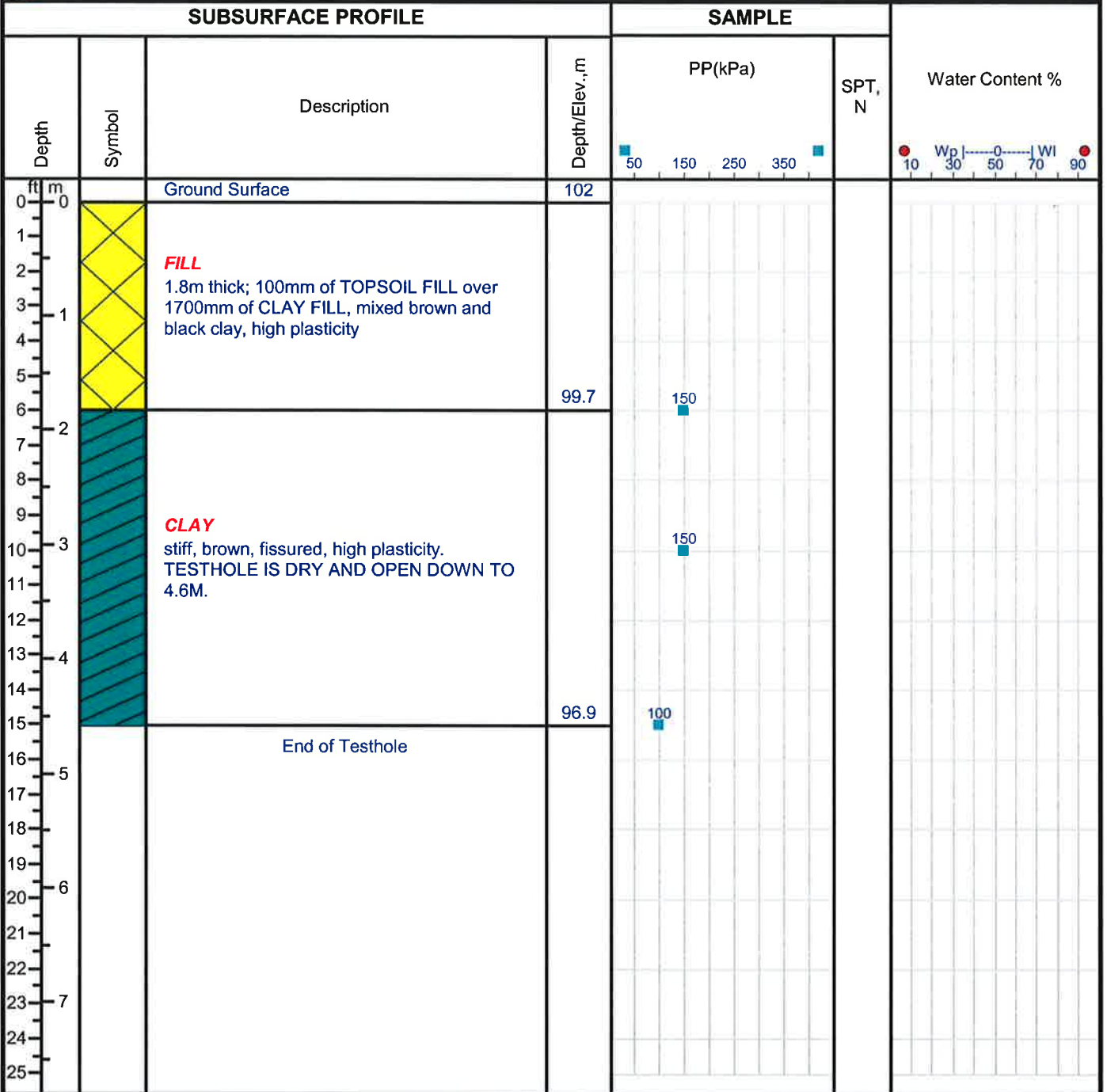
Project: Town of St.Pierre-Joly WWSP Expansion

Location: St.Pierre-Joly, MB. (River Lots 29-31)



Enclosure:

Engineer: SSU



Drill Method: S/S Auger

WSP Canada Inc.
 1600 Buffalo Place
 Winnipeg, MB.
 R3T 6B8

Elevation: Top of Dyke

Drill Date: 10/30/13

Checked by: SSU

Hole Size: 125 mm

Sheet: 1 of 1

Project No: 131-21854-00

Client: Town of St.Pierre-Joly

TH20

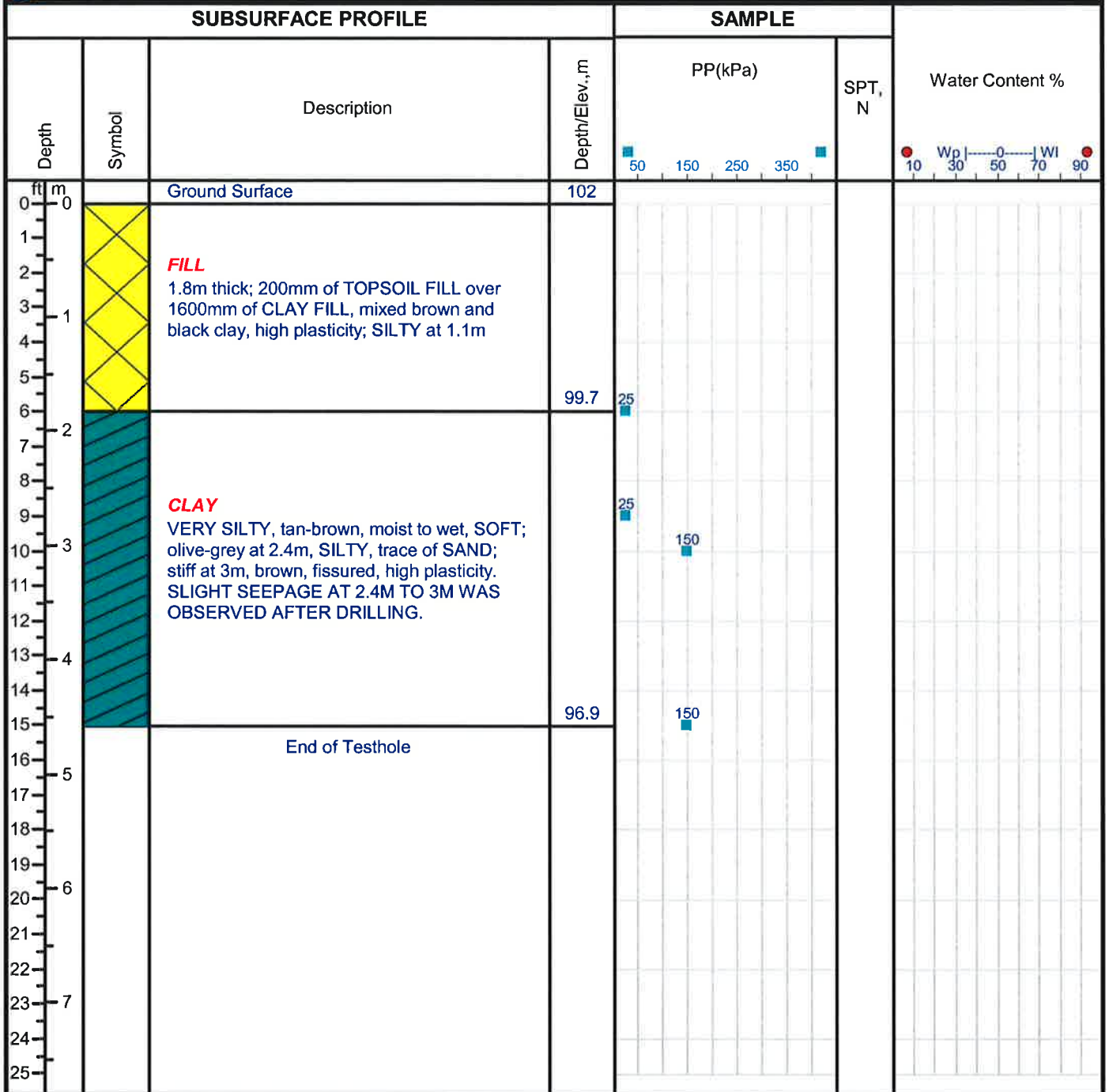
Project: Town of St.Pierre-Joly WWSP Expansion

Location: St.Pierre-Joly, MB. (River Lots 29-31)



Enclosure:

Engineer: SSU



Drill Method: S/S Auger

WSP Canada Inc.
1600 Buffalo Place
Winnipeg, MB.
R3T 6B8

Elevation: Top of Dyke

Drill Date: 10/30/13

Checked by: SSU

Hole Size: 125 mm

Sheet: 1 of 1

LOCATION: RIVER LOT 29 IN PARISH OF Rat River

Owner: WRB
Driller: Paul Slusarchuk Well Drilling LTD.
Well Name: G05OE010 ST PIERRE #1
Well Use: OBSERVATION
Water Use:
Date Completed: 1975 Jun 18

WELL LOG

From (ft.)	To (ft.)	Log
0	19.0	CLAY, BROWNISH GREY, HARD
19.0	52.0	CLAY, GREY, SOFT, TO VERY SOFT
52.0	89.9	TILL, GREY, MAINLY CARBONATE ROCK PARTICLES
89.9	145.9	CLAY, GREY, SILTY, SOFT
145.9	153.9	TILL, GREY, SANDY
153.9	174.9	CLAY OR CLAYEY SHALE 'BOULDERS', BROWN TO RUSTY BROWN
174.9	197.9	TILL, GREY, SOFT, GRITTY
197.9	201.9	SILT
201.9	205.9	SILT, SAND, GRAVEL, VERY LOOSE FORMATION
205.9	209.9	MAINLY COARSE GRAVEL, SAND LOST CIRCULATION AT 210

FEET

WELL CONSTRUCTION

From (ft.)	To (ft.)	Casing Type	Inside Dia.(in)	Outside Dia.(in)	Slot Size(in)	Type	
0	209.9	casing		5.50		INSERT	BLACK
0	0	casing grout					CEMENT

Top of Casing: ft. below ground

PUMPING TEST

Date:
Flowing Rate: 1.0 Imp. gallons/minute
Water level before pumping: ft. below ground
Pumping level at end of test: ?? ft. below ground
Test duration: 1 hours, minutes
Water temperature: ?? degrees F

REMARKS

80 FT FROM CENTRE OF PR 205, 62 FT N OF OLD ROAD, WELL WAS PUMPING 50 GPM WITH AIR BEFORE IT PLUGGED UP

LOCATION: RIVER LOT 29 IN PARISH OF Rat River

Owner: R BARTHLETTE
Driller: Friesen Drillers Ltd.
Well Name:
Well Use: PRODUCTION
Water Use: Domestic

Date Completed: 1971 Aug 04

WELL LOG

From (ft.)	To (ft.)	Log
0	14.0	SAND
14.0	52.0	BLUE CLAY
52.0	70.0	HARDPAN
70.0	107.9	BLUE CLAY
107.9	226.9	RED SHALE
226.9	335.8	LIMESTONE
335.8	336.8	FINE SAND
336.8	339.8	LIMESTONE

WELL CONSTRUCTION

From Material (ft.)	To (ft.)	Casing Type	Inside Dia. (in)	Outside Dia. (in)	Slot Size (in)	Type
0	129.9	casing	4.00			
129.9	339.8	open hole				

Top of Casing: ft. below ground

PUMPING TEST

Date: 1971 Aug 04
Pumping Rate: 22.0 Imp. gallons/minute
Water level before pumping: 7.5 ft. above ground
Pumping level at end of test: 2.0 ft. below ground
Test duration: 6 hours, minutes
Water temperature: ?? degrees F

REMARKS

ST PIERRE, JOLYS EAST

LOCATION: RIVER LOT 29 IN PARISH OF Rat River

Owner: R PELOGVIN
Driller: Friesen Drillers Ltd.
Well Name:
Well Use: PRODUCTION
Water Use: Domestic
Date Completed: 1983 Jul 21

WELL LOG

From (ft.)	To (ft.)	Log
0	14.0	YELLOW CLAY
14.0	50.0	BLUE CLAY
50.0	109.9	GREY SANDY CLAY
109.9	227.8	RED SHALE
227.8	324.8	LIMESTONE

WELL CONSTRUCTION

From Material (ft.)	To (ft.)	Casing Type	Inside Dia. (in)	Outside Dia. (in)	Slot Size (in)	Type
0	228.8	casing	4.30			INSERT BLACK
IRON						
228.8	324.8	open hole	4.00			
0	30.0	casing grout				

Top of Casing: ft. below ground

PUMPING TEST

Date: 1983 Jul 21
Pumping Rate: 15.0 Imp. gallons/minute
Water level before pumping: 1.0 ft. above ground
Pumping level at end of test: 25.0 ft. below ground
Test duration: hours, 15 minutes
Water temperature: ?? degrees F

REMARKS

435 ST JOSEPH AVE WEST

LOCATION: RIVER LOT 29 IN PARISH OF Rat River

Owner: J MITHEAUD
Driller: Guy's Drilling Services
Well Name:
Well Use: PRODUCTION
Water Use: Domestic
Date Completed: 1987 Nov 05

WELL LOG

From (ft.)	To (ft.)	Log
0	66.0	CLAY
66.0	70.0	TILL
70.0	192.9	DARK SAND
192.9	199.9	COARSE SAND

WELL CONSTRUCTION

From Material (ft.)	To (ft.)	Casing Type	Inside Dia. (in)	Outside Dia. (in)	Slot Size (in)	Type
0	194.9	casing	4.00			INSERT PVC
194.9	199.9	perforations	2.00		0.018	WIRE WOUND S. S.
167.9	194.9	casing	2.00			T & C
GALVANIZED						
169.9	199.9	gravel pack				

Top of Casing: 1.5 ft. below ground

PUMPING TEST

Date: 1987 Nov 05

LOCATION: RIVER LOT 29 IN PARISH OF Rat River

Owner: A GARAND
Driller: MONDOR, L. E.
Well Name:
Well Use: PRODUCTION
Water Use: Domestic
Date Completed: 1979 Aug 04

WELL LOG

From (ft.)	To (ft.)	Log
0	12.0	CLAY
12.0	18.0	SAND
18.0	65.0	CLAY AND SAND
65.0	108.9	BLACK SHALE
108.9	111.9	HARDPAN AND BOULDER
111.9	226.9	RED SHALE
226.9	330.8	LIMESTONE

WELL CONSTRUCTION

From Material (ft.)	To (ft.)	Casing Type	Inside Dia. (in)	Outside Dia. (in)	Slot Size (in)	Type
0	226.9	casing	4.00			
226.9	230.8	open hole				

Top of Casing: ft. below ground

PUMPING TEST

Date: 1979 Aug 04
Flowing Rate: 15.0 Imp. gallons/minute
Water level before pumping: ft. below ground
Pumping level at end of test: ?? ft. below ground
Test duration: hours, minutes
Water temperature: ?? degrees F

LOCATION: RIVER LOT 29 IN PARISH OF Rat River

Owner: JOLYS WATER WELL ASC
Driller: Echo Drilling Ltd.
Well Name:
Well Use: PRODUCTION
Water Use: Domestic
Date Completed: 1995 Nov 01

WELL LOG

From (ft.)	To (ft.)	Log
0	43.0	GREY CLAY
43.0	50.0	GREY TILL

50.0	55.0	GRAVEL
55.0	84.9	GREY TILL
84.9	97.9	GRAVEL
97.9	106.9	GREY TILL
106.9	222.9	RED SHALE AND LAYERS OF GYPSUM
222.9	357.8	LIMESTONE

WELL CONSTRUCTION

From Material (ft.)	To (ft.)	Casing Type	Inside Dia.(in)	Outside Dia.(in)	Slot Size(in)	Type	
0	237.8	casing	5.00			INSERT	PVC
237.8	357.8	open hole	4.00				
0	237.8	casing grout					CEMENT

Top of Casing: 1.5 ft. below ground

PUMPING TEST

Date:
 Flowing Rate: 40.0 Imp. gallons/minute
 Water level before pumping: ft. below ground
 Pumping level at end of test: ?? ft. below ground
 Test duration: hours, minutes
 Water temperature: ?? degrees F

REMARKS

JOLYS WATER WELL ASSOCIATION, CARRIERE ST PARK

LOCATION: RIVER LOT 3 IN PARISH OF Rat River

Owner: VIC'S FRUIT MARKET
 Driller: Echo Drilling Ltd.
 Well Name:
 Well Use: PRODUCTION
 Water Use: Domestic
 Date Completed: 1999 Oct 07

WELL LOG

From (ft.)	To (ft.)	Log
0	1.0	TOPSOIL
1.0	60.0	CLAY
60.0	73.0	BROWN TILL
73.0	98.0	HARD STICKY CLAY
98.0	106.0	DARK BROWN TILL
106.0	137.0	LIMESTONE

WELL CONSTRUCTION

From Material (ft.)	To (ft.)	Casing Type	Inside Dia.(in)	Outside Dia.(in)	Slot Size(in)	Type	
0	108.0	CASING	5.00			INSERT	PVC
108.0	137.0	OPEN HOLE	4.00				

0 108.0 CASING GROUT

CEMENT

Top of Casing: 2.0 ft. above ground

PUMPING TEST

Date: 1999 Oct 07
 Flowing Rate: 5.0 Imp. gallons/minute
 Water level before pumping: 3.0 ft. above ground
 Pumping level at end of test: ft. below ground
 Test duration: ??? hours, ?? minutes
 Water temperature: ?? degrees F

REMARKS

OTTERBURNE

LOCATION: RIVER LOT 3 IN PARISH OF Rat River

Owner: TREVOR SCHEIMER
 Driller: Echo Drilling Ltd.
 Well Name:
 Well Use: PRODUCTION
 Water Use: Irrigation
 Date Completed: 1999 Aug 18

WELL LOG

From (ft.)	To (ft.)	Log
0	60.0	CLAY
60.0	102.0	TILL
102.0	138.0	LIMESTONE

WELL CONSTRUCTION

From (ft.)	To (ft.)	Casing Type	Inside Dia. (in)	Outside Dia. (in)	Slot Size (in)	Type
0	104.0	CASING	5.00			INSERT PVC
104.0	138.0	OPEN HOLE	4.00			
0	104.0	CASING GROUT				CEMENT

Top of Casing: 2.0 ft. above ground

PUMPING TEST

Date: 1999 Aug 18
 Pumping Rate: 20.0 Imp. gallons/minute
 Water level before pumping: 2.0 ft. above ground
 Pumping level at end of test: 100.0 ft. below ground
 Test duration: ??? hours, ?? minutes
 Water temperature: ?? degrees F

REMARKS

OTTERBURNE

LOCATION: RIVER LOT 30 IN PARISH OF Rat River

Owner: P SHEWCHUK
Driller: MONDOR, L. E.
Well Name:
Well Use: PRODUCTION
Water Use: Domestic
Date Completed: 1971 Apr 27

WELL LOG

From (ft.)	To (ft.)	Log
0	55.0	CLAY
55.0	73.0	HARDPAN
73.0	85.9	BLACK SHALE
85.9	117.9	FINE SAND
117.9	129.9	GRAVEL
129.9	231.8	RED SHALE
231.8	337.8	LIMESTONE

WELL CONSTRUCTION

From Material (ft.)	To (ft.)	Casing Type	Inside Dia. (in)	Outside Dia. (in)	Slot Size (in)	Type
0	231.8	casing	4.00			
231.8	337.8	open hole				

Top of Casing: ft. below ground

PUMPING TEST

Date: 1971 Apr 27
Flowing Rate: Imp. gallons/minute
Water level before pumping: 8.0 ft. above ground
Pumping level at end of test: ?? ft. below ground
Test duration: hours, minutes
Water temperature: ?? degrees F

REMARKS

150 FT W OF HWY #59, S OF RAT RIVER

LOCATION: RIVER LOT 30 IN PARISH OF Rat River

Owner: L HEBERT
Driller: Friesen Drillers Ltd.
Well Name:
Well Use: PRODUCTION
Water Use: Domestic
Date Completed: 1975 May 24

WELL LOG

From (ft.)	To (ft.)	Log
0	44.0	CLAY
44.0	75.0	TILL
75.0	128.9	SAND& GRAVEL
128.9	219.9	RED SHALE
219.9	341.8	LIMESTONE

WELL CONSTRUCTION

From Material (ft.)	To (ft.)	Casing Type	Inside Dia. (in)	Outside Dia. (in)	Slot Size (in)	Type
0	224.9	casing	4.25			INSERT BLACK
IRON 224.9	341.8	open hole	4.00			

Top of Casing: ft. below ground

PUMPING TEST

Date:
 Flowing Rate: 20.0 Imp. gallons/minute
 Water level before pumping: 4.0 ft. above ground
 Pumping level at end of test: 1.0 ft. above ground
 Test duration: 12 hours, minutes
 Water temperature: ?? degrees F

LOCATION: RIVER LOT 30 IN PARISH OF Rat River

Owner: RCMP
 Driller: Friesen Drillers Ltd.
 Well Name:
 Well Use: PRODUCTION
 Water Use: Domestic
 Date Completed: 1978 Jun 03

WELL LOG

From (ft.)	To (ft.)	Log
0	58.0	CLAY
58.0	119.9	TILL
119.9	288.8	SHALE, GYPSUM LAYERS
288.8	339.8	LIMESTONE

WELL CONSTRUCTION

From Material (ft.)	To (ft.)	Casing Type	Inside Dia. (in)	Outside Dia. (in)	Slot Size (in)	Type
0	287.8	casing	6.00			WELDED BLACK
IRON 287.8	339.8	open hole	5.60			
40.0	60.0	casing grout				

Top of Casing: ft. below ground

PUMPING TEST

Date:
Flowing Rate: 139.9 Imp. gallons/minute
Water level before pumping: 7.0 ft. above ground
Pumping level at end of test: 2.0 ft. above ground
Test duration: 2 hours, minutes
Water temperature: ?? degrees F

REMARKS

.5 MI N OF ST PIERRE

LOCATION: RIVER LOT 30 IN PARISH OF Rat River

Owner: A DUPUIS
Driller: Friesen Drillers Ltd.
Well Name:
Well Use: PRODUCTION
Water Use: Domestic
Date Completed: 1978 Apr 03

WELL LOG

From (ft.)	To (ft.)	Log
0	4.0	CLAY
4.0	18.0	SAND
18.0	30.0	CLAY
30.0	70.0	TILL
70.0	129.9	SAND
129.9	221.9	SHALE, RED
221.9	339.8	LIMESTONE

WELL CONSTRUCTION

From Material (ft.)	To (ft.)	Casing Type	Inside Dia. (in)	Outside Dia. (in)	Slot Size (in)	Type
0	222.9	casing	4.25			INSERT BLACK
222.9	339.8	open hole	4.00			

Top of Casing: ft. below ground

PUMPING TEST

Date:
Flowing Rate: 40.0 Imp. gallons/minute
Water level before pumping: 5.0 ft. above ground
Pumping level at end of test: 1.0 ft. above ground
Test duration: 2 hours, minutes
Water temperature: ?? degrees F

LOCATION: RIVER LOT 0032 IN PARISH OF Rat River

Owner: CAISSE PROVENCHER - ST. PIERRE BRANCH
Driller: Friesen Drillers Ltd.
Well Name:
Well Use: PRODUCTION
Water Use: Domestic
Date Completed: 2001 May 02

WELL LOG

From (ft.)	To (ft.)	Log
0	52.0	CLAY
52.0	79.0	TILL
79.0	140.0	SAND
140.0	151.0	TILL
151.0	215.0	SHALE
215.0	338.0	LIMESTONE

WELL CONSTRUCTION

From Material (ft.)	To (ft.)	Casing Type	Inside Dia. (in)	Outside Dia. (in)	Slot Size (in)	Type
0	221.0	CASING	5.00	5.50		INSERT PVC
221.0	338.0	OPEN HOLE	4.50			
50.0	150.0	CASING GROUT				CEMENT

Top of Casing: 2.0 ft. above ground

PUMPING TEST

Date: 2001 May 02
Pumping Rate: 60.0 Imp. gallons/minute
Water level before pumping: 5.0 ft. below ground
Pumping level at end of test: 80.0 ft. below ground
Test duration: ??? hours, ?? minutes
Water temperature: ?? degrees F

REMARKS

505 OSBORNE ST., WINNIPEG, MB. FLOWING @ 10 IGPM.

APPENDIX C

LABORATORY TEST RESULTS

**MOISTURE CONTENT OF SOIL
ASTM D2216**

CLIENT: Genivar	TEST NO:	PROJECT NO: 13-105
PROJECT: St. Pierre-Joly	DATE SAMPLED:	SAMPLED BY: SU
PROJECT CONTACT: SU	DATE TESTED: 04-Nov-13	TESTED BY: GM

Test Hole No.	TH5	TH5	TH5	TH5	TH5
Depth	2.5'	5'	10'	15'	20'
Wt Wet Sample + Tare	132.8	122.5	123.8	121.1	126
Wt Dry Sample + Tare	99.7	91.2	84.9	84.4	83.9
Wt Water	33.1	31.3	38.9	36.7	42.1
Wt Tare	7.2	7.3	7.1	7.2	7.2
Wt Dry Sample	92.5	83.9	77.8	77.2	76.7
Moisture Content (%)	35.78	37.31	50.00	47.54	54.89
Test Hole No.	TH5	TH14	TH14	TH14	TH14
Depth	25'	2.5'	5'	10'	20'
Wt Wet Sample + Tare	124.6	120.4	121.7	120.4	125.9
Wt Dry Sample + Tare	83.3	92.2	89.2	83.6	88
Wt Water	41.3	28.2	32.5	36.8	37.9
Wt Tare	7.2	7.2	7.2	7.2	7.1
Wt Dry Sample	76.1	85.0	82.0	76.4	80.9
Moisture Content (%)	54.27	33.18	39.63	48.17	46.85
Test Hole No.	TH14	TH19	TH19	TH20	TH20
Depth	25'	2.5'	5'	3.5'	7.5'
Wt Wet Sample + Tare	121.1	120.9	120.5	123.8	126.5
Wt Dry Sample + Tare	83.7	97.6	92.1	93.8	92.6
Wt Water	37.4	23.3	28.4	30	33.9
Wt Tare	7.3	7.1	7.1	7.2	7.6
Wt Dry Sample	76.4	90.5	85.0	86.6	85.0
Moisture Content (%)	48.95	25.75	33.41	34.64	39.88
Test Hole No.	TH20	NO LABEL			
Depth	10'				
Wt Wet Sample + Tare	465.5	451.3			
Wt Dry Sample + Tare	428.1	406.7			
Wt Water	37.4	44.6			
Wt Tare	312.3	318.5			
Wt Dry Sample	115.8	88.2			
Moisture Content (%)	32.30	50.57			

MOISTURE CONTENT OF SOIL
ASTM D2216

CLIENT: Genivar	TEST NO:		PROJECT NO: 13-105		
PROJECT: St. Pierre-Joly	DATE SAMPLED:		SAMPLED BY: SU		
PROJECT CONTACT: SU	DATE TESTED: 04-Nov-13		TESTED BY: GM		
Test Hole No.	TH5	TH5	TH5	TH5	TH5
Depth	2.5'	5'	10'	15'	20'
Wt Wet Sample + Tare	132.8	122.5	123.8	121.1	126
Wt Dry Sample + Tare	99.7	91.2	84.9	84.4	83.9
Wt Water	33.1	31.3	38.9	36.7	42.1
Wt Tare	7.2	7.3	7.1	7.2	7.2
Wt Dry Sample	92.5	83.9	77.8	77.2	76.7
Moisture Content (%)	35.78	37.31	50.00	47.54	54.89
Test Hole No.	TH5	TH14	TH14	TH14	TH14
Depth	25'	2.5'	5'	10'	20'
Wt Wet Sample + Tare	124.6	120.4	121.7	120.4	125.9
Wt Dry Sample + Tare	83.3	92.2	89.2	83.6	88
Wt Water	41.3	28.2	32.5	36.8	37.9
Wt Tare	7.2	7.2	7.2	7.2	7.1
Wt Dry Sample	76.1	85.0	82.0	76.4	80.9
Moisture Content (%)	54.27	33.18	39.63	48.17	46.85
Test Hole No.	TH14	TH19	TH19	TH20	TH20
Depth	25'	2.5'	5'	3.5'	7.5'
Wt Wet Sample + Tare	121.1	120.9	120.5	123.8	126.5
Wt Dry Sample + Tare	83.7	97.6	92.1	93.8	92.6
Wt Water	37.4	23.3	28.4	30	33.9
Wt Tare	7.3	7.1	7.1	7.2	7.6
Wt Dry Sample	76.4	90.5	85.0	86.6	85.0
Moisture Content (%)	48.95	25.75	33.41	34.64	39.88
Test Hole No.	TH20	NO LABEL			
Depth	10'				
Wt Wet Sample + Tare	465.5	451.3			
Wt Dry Sample + Tare	428.1	406.7			
Wt Water	37.4	44.6			
Wt Tare	312.3	318.5			
Wt Dry Sample	115.8	88.2			
Moisture Content (%)	32.30	50.57			



6 - 854 Marion Street, Winnipeg, Manitoba, R2J 0K4
Phone: (204) 233-1694 Fax: (204) 235-1579
E-mail: eng_tech@mts.net
www.eng-tech.ca

January 14, 2013

File No. 13-035-02

WSP Canada Inc.
1600 Buffalo Place,
Winnipeg, MB
R3T 6B8

ATTENTION: Mr. Silvestre S. Urbano, P. Eng.

RE: Hydraulic Conductivity, Clay Liner, Town of St. Pierre-Jolys, Manitoba

ENG-TECH Consulting Limited (ENG-TECH) completed the hydraulic conductivity testing service for the above facility in the Town of St. Pierre-Jolys, MB. ENG-TECH received a Shelby tube sample identified as TH5 @ 5ft from the above location. The hydraulic conductivity test data is outlined in Table 1, while the graphical representation of the hydraulic conductivity versus elapsed time is shown in Figure 1.

ENG-TECH prepared the sample for hydraulic conductivity in accordance with ASTM D5084-03, *Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials using a Flexible Wall Permeameter*. The final hydraulic conductivity value (k_{20}) of 3.1×10^{-9} cm/sec was obtained for the sample.

ENG-TECH trusts the above is all the information you require. If you have any questions, please contact the undersigned.

Sincerely,
ENG-TECH Consulting Limited

A handwritten signature in black ink, appearing to read "Clark Hryhoruk".

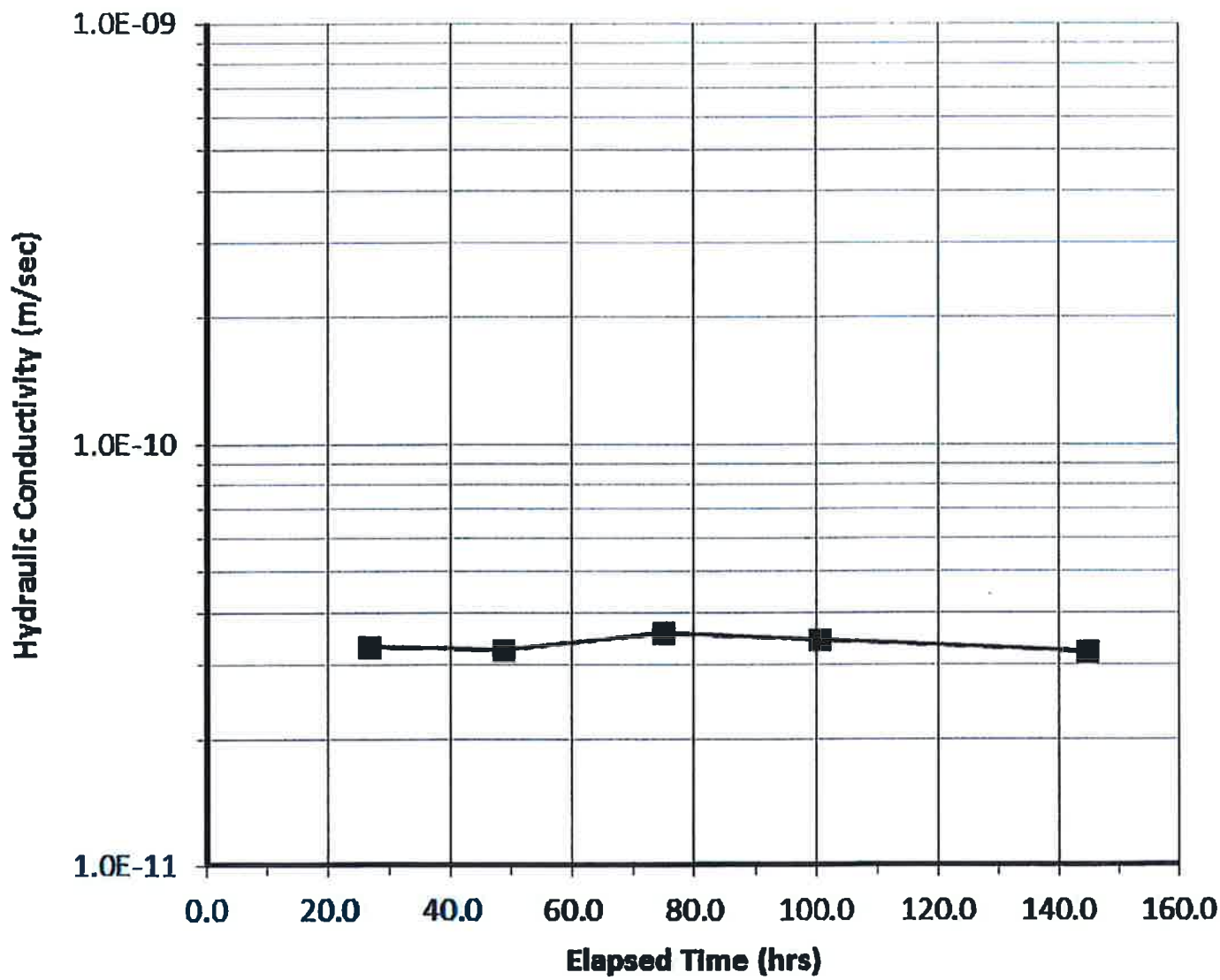
Clark Hryhoruk, M.Sc., P.Eng.
President, Geotechnical Engineer

CDH/em

Attachments: Table 1 – Soil Sample Analysis
Figure 1 – Hydraulic Conductivity Versus Elapsed Time (TH5 @ 5ft)

**TABLE 1
HYDRAULIC CONDUCTIVITY TEST DATA
ST. PIERRE-JOLYS**

SAMPLE IDENTIFICATION	TH5 @ 5ft
INITIAL VALUES	
ENG-TECH Reference No.	13-35-2-13
Length of Sample in Tube (cm)	29.2
Length (cm)	6.35
Diameter (cm)	7.11
Area (cm ²)	39.6
Volume (cm ³)	251.9
Water Content (%)	40.1
Bulk Dry Density (kg/m ³)	1284
Specific Gravity (G _s) (assumed)	2.70
Void Ratio	1.102
Degree of Saturation (%)	98.2
FINAL VALUES	
Length (cm)	6.51
Diameter (cm)	7.18
Area (cm ²)	40.5
Volume (cm ³)	263.6
Water Content (%)	43.9
Bulk Dry Density (kg/m ³)	1239
Specific Gravity (G _s) (assumed)	2.70
Void Ratio	1.179
Degree of Saturation (%)	~100
CONSOLIDATION PHASE	
Confining Pressure (kPa)	103.4
Pore Water Pressure (kPa)	82.7
Effective Stress (kPa)	20.7
PERMEATION PHASE	
Confining Pressure (kPa)	103.4
Pore Water Pressure (kPa)	82.7
Effective Stress (kPa)	20.7
Hydraulic Gradient	17.3
Permeant Fluid	Distilled Water
HYDRAULIC CONDUCTIVITY at TEST TEMPERATURE OF 21 °C (cm/sec)	3.2 x 10⁻⁹
HYDRAULIC CONDUCTIVITY at TEMPERATURE OF 20 °C (K₂₀) (cm/sec)	3.1 x 10⁻⁹



6 - 884 Marion Street
 Winnipeg, MB R2J 0K4
 Phone: (204) 233-1684
 Fax: (204) 235-1578

ENG. STAMP:



Certificate of Authorization
 ENG-TECH Consulting Limited
 No. 2475 Expiry: April 30, 2014

CLIENT:

WPS CANADA INC.

DATE:

JANUARY 2014

DRAWN BY:

ERM

FIGURE No.:

1

REV.:

PROJECT:

HYDRAULIC CONDUCTIVITY, CLAY LINER,
 ST. PIERRE-JOLYS, MANITOBA

FILE No.:

13-036-02

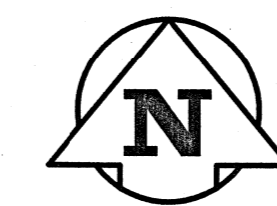
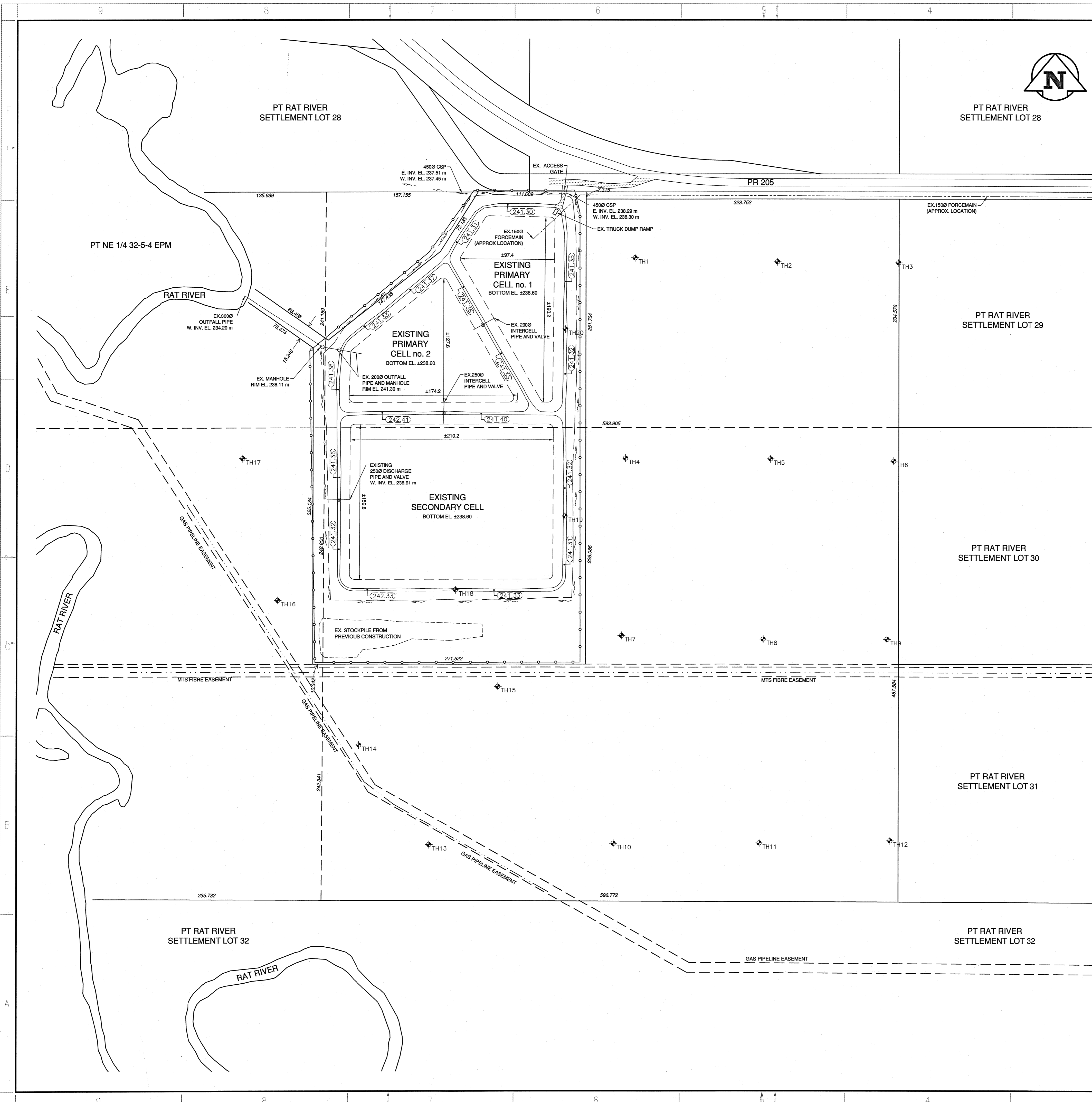
SCALE:

N/A

HYDRAULIC CONDUCTIVITY
 VERSUS ELAPSED TIME
 (TH5 @ 5ft)

Appendix D

PLANS AND DETAILS



WSP
 1600 BUFFALO PLACE
 WINNIPEG, MANITOBA
 CANADA R3T 6B8
 PHONE: 204-477-6850 FAX: 204-474-2864
 WWW.WSPGROUP.COM

PRELIMINARY
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APEGM
 Certificate of Authorization
 WSP Canada Inc.
 No. 5750 Date: JUNE 7, 2016



CLIENT:
 VILLAGE OF ST-PIERRE-JOLYS

CLIENT REF. #:
 PROJECT:
 ST-PIERRE-JOLYS
 WASTEWATER TREATMENT
 LAGOON EXPANSION

KEY PLAN:

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NO.	DATE	DESCRIPTION
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PROJECT NO: 131-21854-00	DATE: 2016/06/07
ORIGINAL SCALE: 1:2000	IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
DESIGNED BY: DTGB	
DRAWN BY: DTGB	
CHECKED BY: RWW	
DISCIPLINE: CIVIL	

TITLE: EXISTING SITE PLAN
SHEET NUMBER: C01
ISSUE: EAP SUBMISSION
DATE OF: 2016/06/07

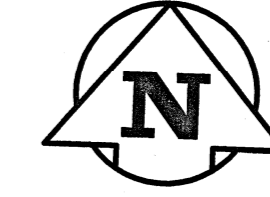
EXISTING	LEGEND	PROPOSED
---	WATERMAIN	---
---	WASTEWATER	---
---	LOW PRESSURE SEWER	---
---	FORCEMAIN	---
○	GATE VALVE	●
○	MANHOLE	●
○	HYDRANT	●
●	UTILITY POLE	●
—	GUY WIRE	—
⊠	MONITORING WELL	⊠
⊠	TESTHOLE LOCATION	⊠
⊠	HYDRO TOWER	⊠
⊠	SIGN	⊠
⊠	MTS PEDESTAL	⊠
⊠	SURVEY BAR	⊠
⊠	CLEAN OUT	⊠
⊠	CULVERT	⊠
⊠	DITCH / SWALE	⊠
⊠	TREE OR SHRUB LINE	⊠
⊠	FENCE LINE	⊠
⊠	HYDRO	⊠
⊠	GAS MAIN	⊠
⊠	MTS	⊠
⊠	DIRECTION OF FLOW	⊠
⊠	WICK DRAIN	⊠
⊠	RIP RAP	⊠
⊠	GROUND ELEVATION 99.000	⊠
⊠	DITCH ELEVATION (99.000)	⊠
⊠	ROAD/DYKE ELEVATION (99.000)	⊠
⊠	DYKE	⊠

GENERAL DRAWING NOTES:

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PT RAT RIVER
SETTLEMENT LOT 28

PT RAT RIVER
SETTLEMENT LOT 28



1600 BUFFALO PLACE
WINNEPEG, MANITOBA
CANADA R3T 6B8
PHONE: 204-477-6650 FAX: 204-474-2864
WWW.WSPGROUP.COM

CONSULTANT:

PRELIMINARY
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SEAL:

APEGM
Certificate of Authorization
WSP Canada Inc.
No. 5750 Date: JUNE 7, 2016



CLIENT:

VILLAGE OF ST-PIERRE-JOLYS

CLIENT REF. #:

PROJECT:

ST-PIERRE-JOLYS
WASTEWATER TREATMENT
LAGOON EXPANSION

KEY PLAN:

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NO.	DATE	DESCRIPTION
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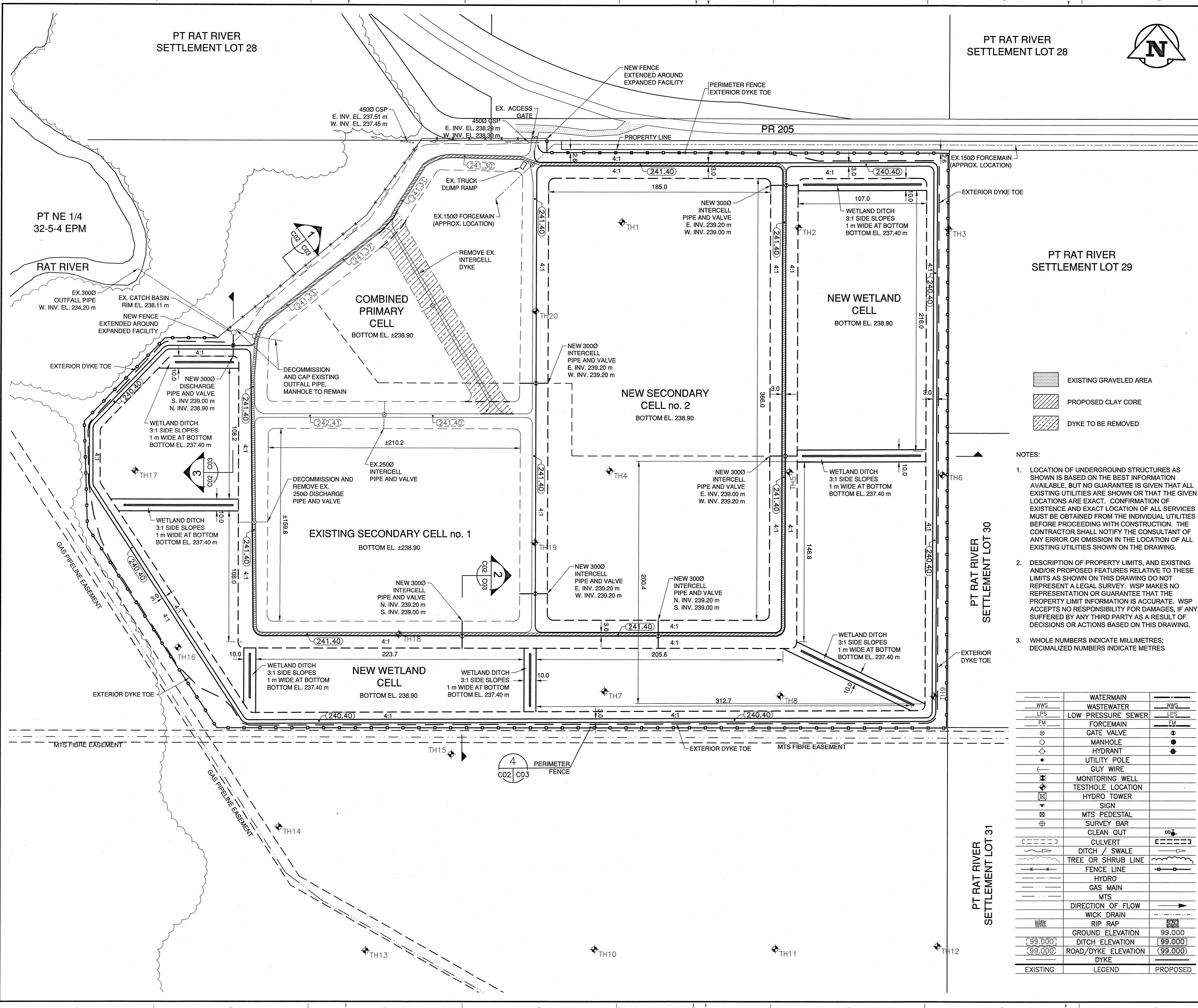
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DESIGNED BY: DTGB	
DRAWN BY: DTGB	
CHECKED BY: RWW	

DISCIPLINE:
ENVIRONMENTAL INFRASTRUCTURE

TITLE:
PROPOSED SITE PLAN

SHEET NUMBER:
C02

SHEET #:
2 OF 3
ISSUE:
EAP SUBMISSION
DATE OF: 2016/06/07



PT RAT RIVER
SETTLEMENT LOT 29

- EXISTING GRAVELED AREA
- PROPOSED CLAY CORE
- DYKE TO BE REMOVED

NOTES:

1. LOCATION OF UNDERGROUND STRUCTURES AS SHOWN IS BASED ON THE BEST INFORMATION AVAILABLE, BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE CONSULTANT OF ANY ERROR OR OMISSION IN THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THE DRAWING.
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3. WHOLE NUMBERS INDICATE MILLIMETRES; DECIMALIZED NUMBERS INDICATE METRES

EXISTING	LEGEND	PROPOSED
---	WATERMAIN	---
---	WASTEWATER	---
---	LOW PRESSURE SEWER	---
---	FORCEMAIN	---
○	GATE VALVE	○
○	MANHOLE	○
○	HYDRANT	○
•	UTILITY POLE	•
•	GUY WIRE	•
⊗	MONITORING WELL	⊗
⊕	TESTHOLE LOCATION	⊕
⊗	HYDRO TOWER	⊗
•	SIGN	•
⊕	MTS PEDESTAL	⊕
⊕	SURVEY BAR	⊕
---	CULVERT	---
---	DITCH / SWALE	---
---	TREE OR SHRUB LINE	---
---	FENCE LINE	---
---	HYDRO	---
---	GAS MAIN	---
---	MTS	---
---	DIRECTION OF FLOW	---
---	WICK DRAIN	---
---	RIP RAP	---
---	GROUND ELEVATION	99.000
---	DITCH ELEVATION	99.000
---	ROAD/DYKE ELEVATION	99.000
---	DYKE	---

CONSULTANT:

PRELIMINARY
 NOT FOR CONSTRUCTION

SEAL:

APEGM
 Certificate of Authorization
 WSP Canada Inc.
 No. 5750 Date: JUNE 6, 2016



CLIENT:

VILLAGE OF ST-PIERRE-JOLYS

CLIENT REF. #:

PROJECT:

ST-PIERRE-JOLYS
 WASTEWATER TREATMENT
 LAGOON EXPANSION

KEY PLAN:

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1	2016/06/06	EAP SUBMISSION

PROJECT NO: 131-21854-00	DATE: 2016/06/06
ORIGINAL SCALE: N.T.S.	IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
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DRAWN BY: DTGB	
CHECKED BY: RWW	

DISCIPLINE:
ENVIRONMENTAL INFRASTRUCTURE

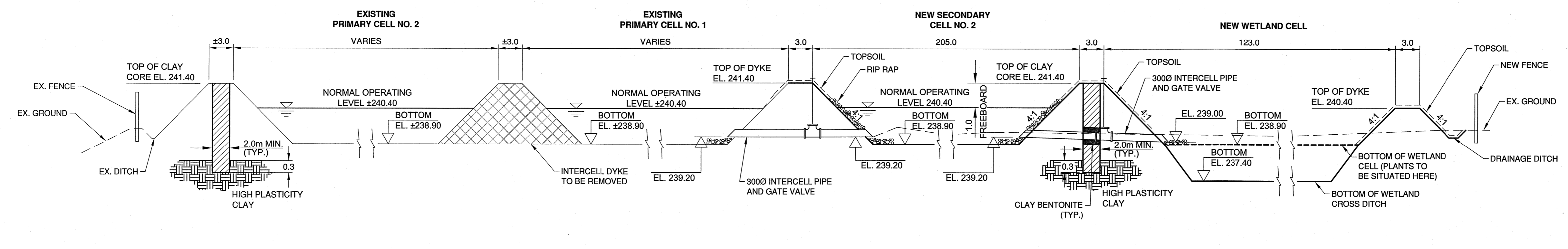
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SECTIONS AND DETAILS

SHEET NUMBER:
C03

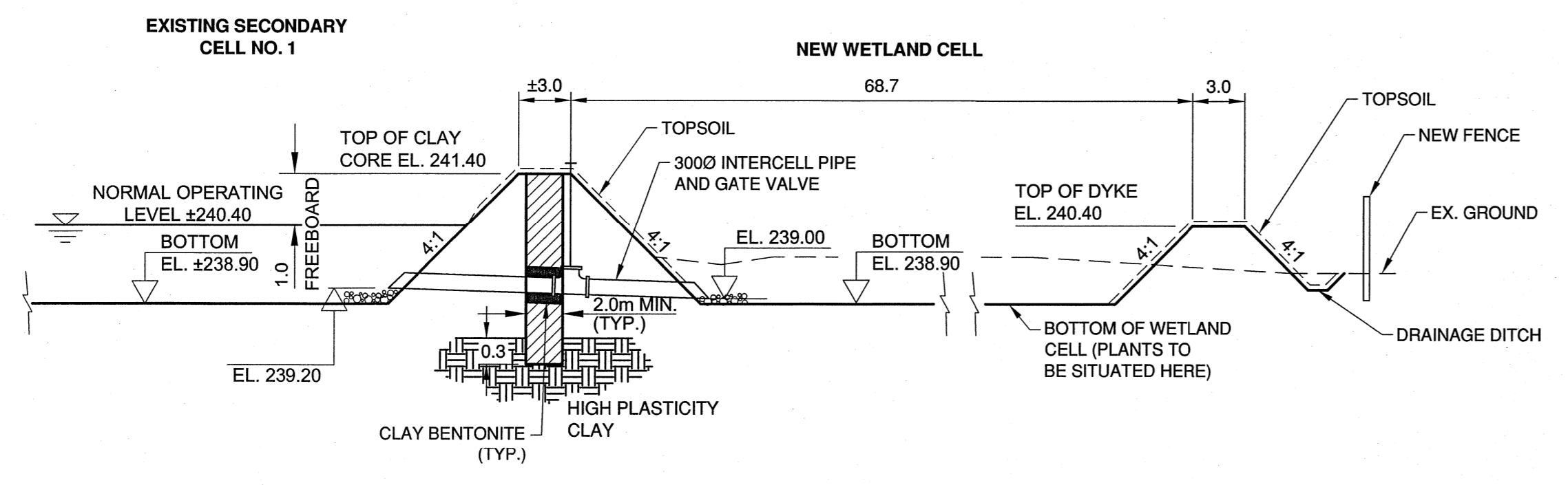
SHEET #:
3 OF 3

ISSUE:
EAP SUBMISSION

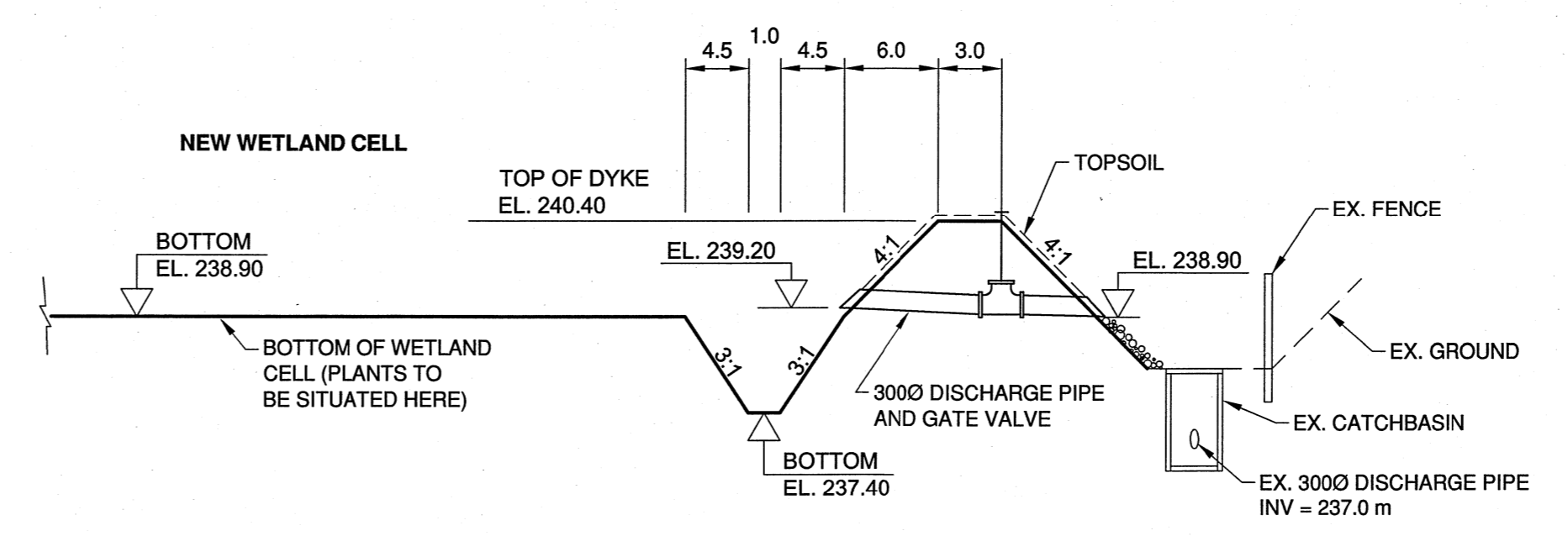
DATE OF: 2016/06/06



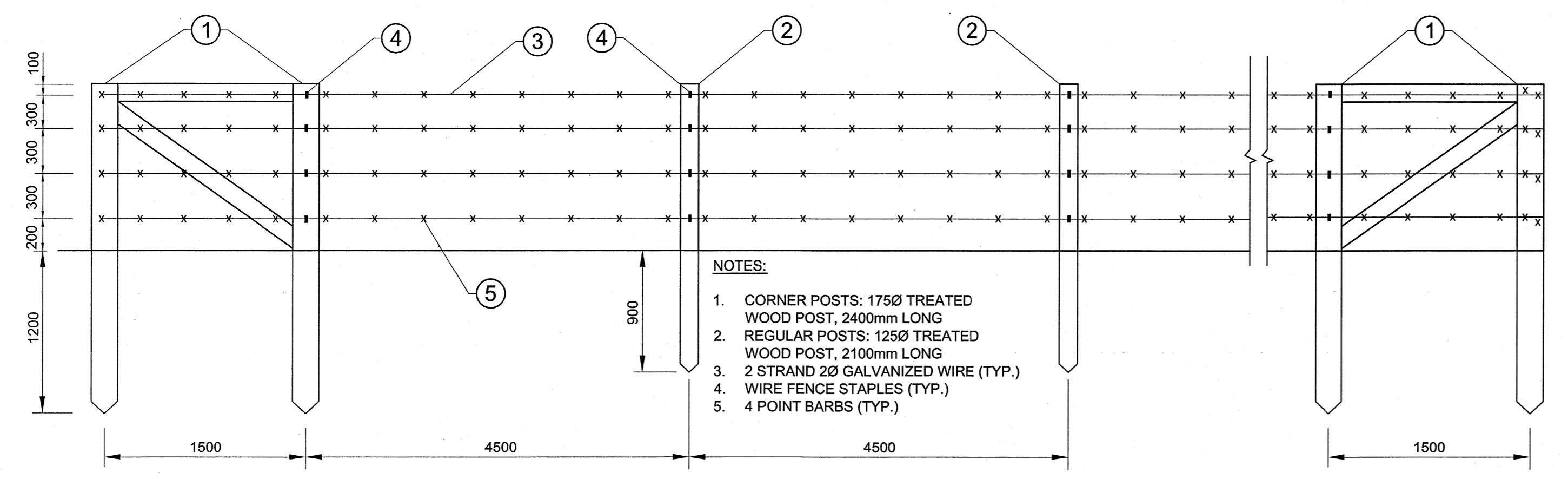
1 W/E EXISTING PRIMARY, PROPOSED SECONDARY CELL AND PROPOSED WETLAND CELL SECTION
 C02 C03 N.T.S.



2 N/S EXISTING SECONDARY CELL NO. 1 AND PROPOSED WETLAND CELL SECTION
 C02 C03 N.T.S.



3 N/S PROPOSED WETLAND CELL AND DISCHARGE PIPE SECTION
 C02 C03 N.T.S.



4 PERIMETER FENCE DETAIL
 C02 C03 N.T.S.



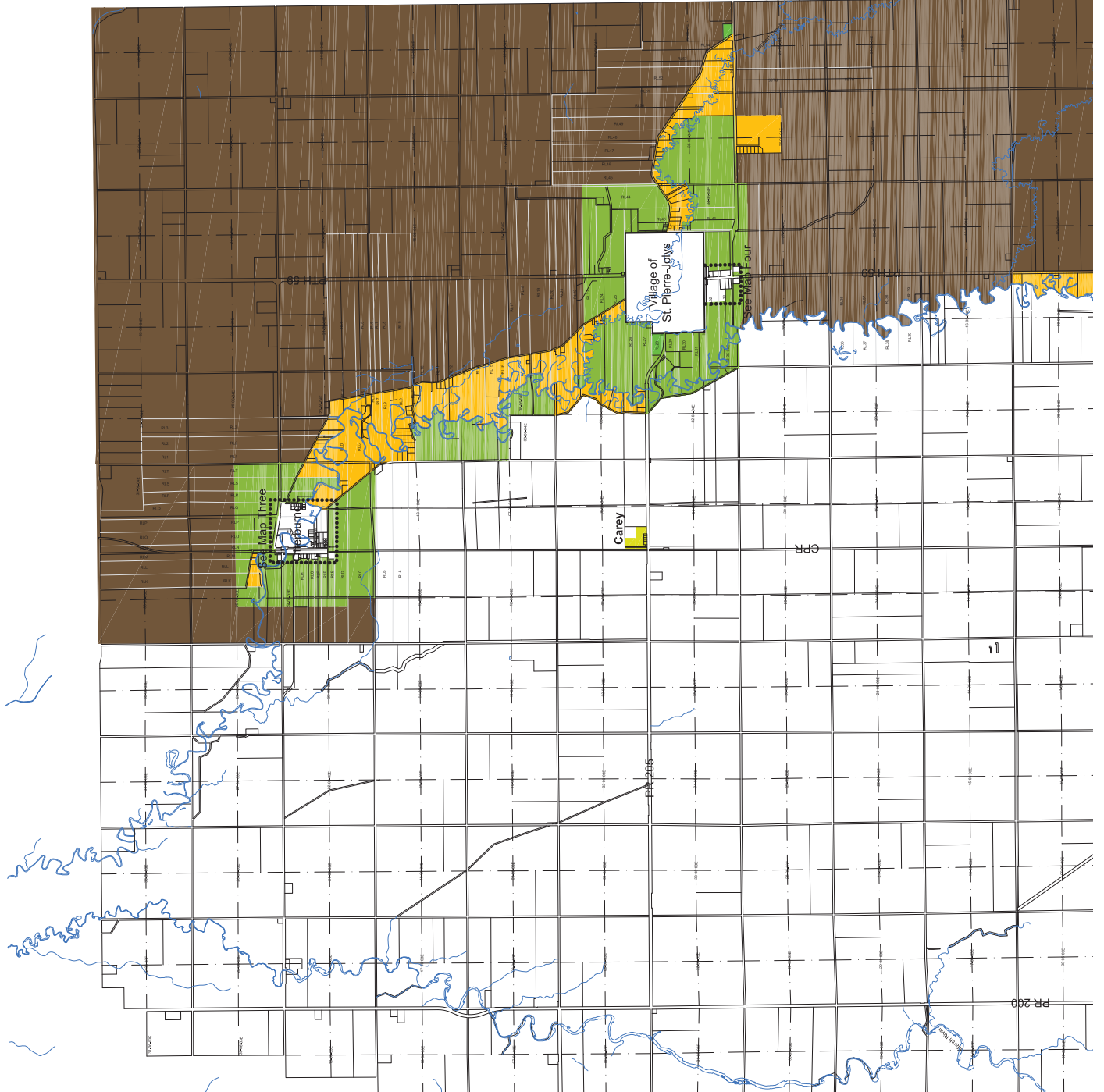
PERIMETER FENCE SIGNAGE NOTES:
 1) PERIMETER SIGNAGE TO BE SECURED TO PERIMETER FENCE POSTS EVERY 100 m AROUND ENTIRE FACILITY
 2) SIGNS TO BE CONSTRUCTED OF ALUMINUM, AIR MASTER QUALITY OR APPROVED EQUAL

5 PERIMETER FENCE SIGNAGE
 N.T.S.

- NOTES:
- LOCATION OF UNDERGROUND STRUCTURES AS SHOWN IS BASED ON THE BEST INFORMATION AVAILABLE, BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE CONSULTANT OF ANY ERROR OR OMISSION IN THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THE DRAWING.
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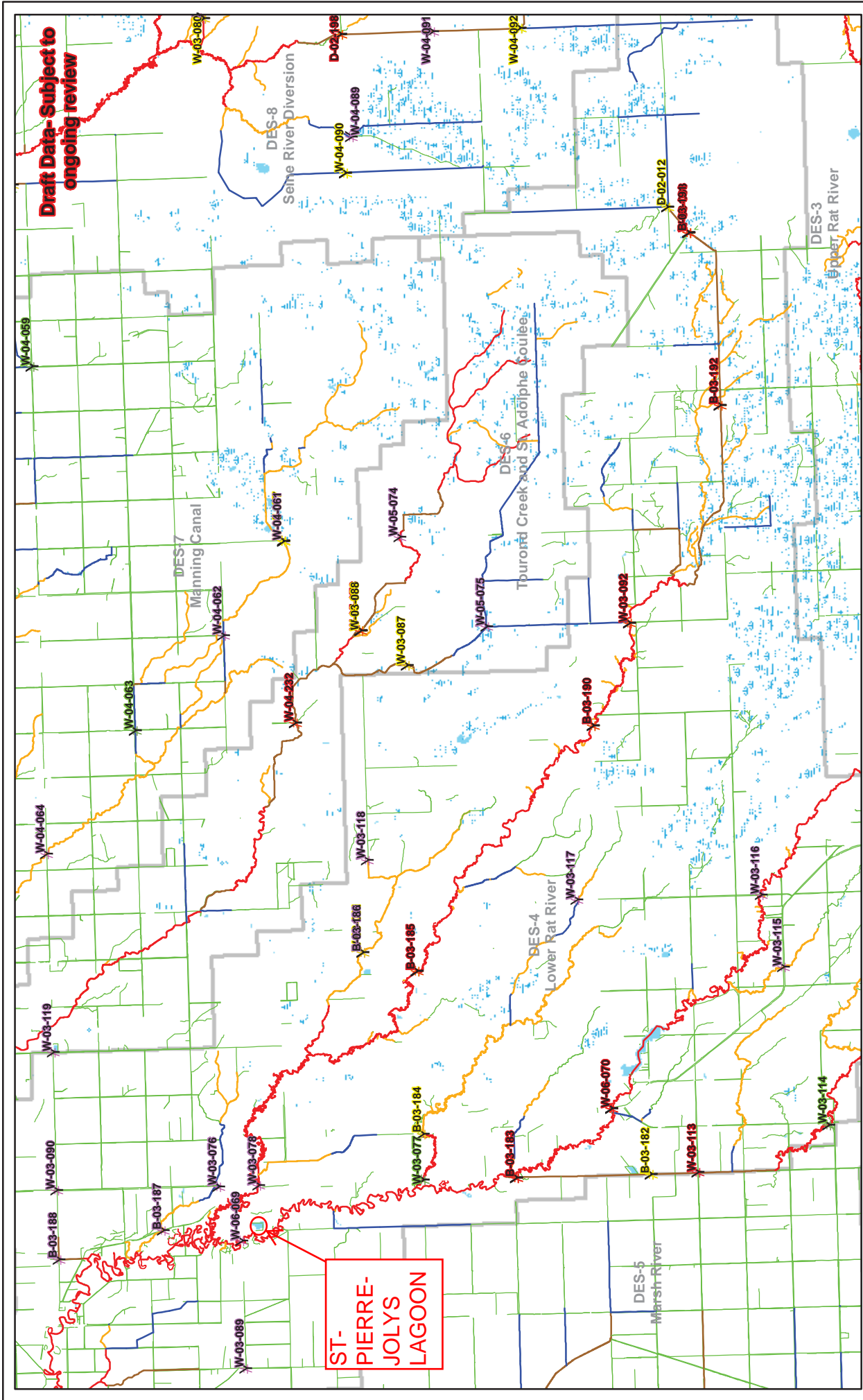
Appendix E

GENERAL CORRESPONDENCE FOR REFERENCE



Legend

- Agriculture 1 Zone
- Agriculture 2 Zone
- Limited Agriculture Zone
- Rural Residential Zone
- Rural Settlement Centre Zone
- Seasonal High Density Zone
- Industrial Zone
- Open Space and Recreation Zone
- Community Boundary



Appendix 9
Sampling sites, fish captures and habitat classification
of streams and constructed drains throughout
agricultural areas of Manitoba (2002 – 2006)

062H07

Produced April 2012

Fishing Results

- Indicator Species ✕
- Non-Indicator Species ✕
- No Catch ✕
- No Fishing Effort ✕

Habitat Classification

- A
- B
- C
- D
- E

062H11	062H10	062H09
062H06	062H07	062H08
062H03	062H02	062H01

Bredin, Dana

From: Nesbitt, Christina (TCHSCP) <Christina.Nesbitt@gov.mb.ca>
Sent: November-24-15 4:33 PM
To: Bredin, Dana
Subject: Pierre-Jolys Lagoon expansion

Further to your memo requesting a heritage screening for the expansion of the Pierre-Jolys lagoon expansion (Planned Area), the Historic Resources Branch (HRB) has examined the applicable areas proposed for development in conjunction with the Branch's records for areas of potential concern, and can advise you that HRB has no concerns with the project at this time.

Under Section 12(2) of The Heritage Resources Act of Manitoba, being the governing legislation for HRB, if the Minister of Culture, Heritage, and Tourism has reason to believe that heritage resources or human remains are known, or thought likely to be present, on lands that are to be developed, then the owner/developer may be required to conduct at his/her own expense, a heritage resource impact assessment (HRIA) and mitigation, if necessary, prior to the project's start.

The Historic Resource Branch recommends that the developer contract a qualified archaeological consultant to conduct a Heritage Resources Impact Assessment ("HRIA") of the Planned Area, in order to identify and assess any heritage resources that may be negatively impacted by development. If desirable, HRB will work with the developer/land owners and its consultant(s) to draw up terms of reference for the HRIA. HRB may provide a list of qualified archaeological consultants upon request.

If you have further questions, you may contact me at my below particulars.

Christina Nesbitt

Impact Assessment Archaeologist

Historic Resources Branch

Main Floor - 213 Notre Dame Avenue, Winnipeg, MB R3B 1N3

Phone (204) 945-8145; Fax (204) 948-2384

E-mail: Christina.Nesbitt@gov.mb.ca



Tourism, Culture, Heritage, Sport and Consumer Protection

Bredin, Dana

From: Little, Karen (CLPA) <Karen.Little@gov.mb.ca>
Sent: May-18-16 9:01 AM
To: Bredin, Dana
Subject: RE: Mineral Rights Information Request [WSP # 131-21854-00]

Good morning Dana ~ according to The Crown Land Registry System, this date:

The Dominion of Canada granted Lots 29, 30, 31 & 32 Rat River Settlement along with the mines & minerals and sand & gravel. The Crown kept no under-rights.

- Certificate of Title 2830348/1 is silent as to the exceptions and therefore reverts to how the land was originally granted. Ownership of the mines & minerals and sand & gravel remains with this surface title.

Sincerely,

Karen Little

Supervisor of Crown Lands Registry

Crown Lands and Property Agency
308 - 25 Tupper Street North
Portage la Prairie MB R1N 3K1
P 204-239-3805 F 204-239-3560
Toll Free 1-866-210-9589
karen.little@gov.mb.ca



An Agency of the Manitoba Government

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From: Bredin, Dana [mailto:Dana.Bredin@wspgroup.com]
Sent: May-17-16 3:34 PM
To: Little, Karen (CLPA)
Subject: RE: Mineral Rights Information Request [WSP # 131-21854-00]

Hi Karen,

Please find attached the Status of Title for the St-Pierre-Jolys Lagoon.

Regards,
Dana

From: Little, Karen (CLPA) [<mailto:Karen.Little@gov.mb.ca>]
Sent: May-17-16 3:06 PM
To: Bredin, Dana <Dana.Bredin@wspgroup.com>
Subject: RE: Mineral Rights Information Request [WSP # 131-21854-00]

Good afternoon Dana – could you please provide me with a scanned copy of the Certificate of Title. Thanks <Karen>

Karen Little

Supervisor of Crown Lands Registry

Crown Lands and Property Agency
308 - 25 Tupper Street North
Portage la Prairie MB R1N 3K1
P 204-239-3805 F 204-239-3560
Toll Free 1-866-210-9589
karen.little@gov.mb.ca



An Agency of the Manitoba Government

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From: Bredin, Dana [<mailto:Dana.Bredin@wspgroup.com>]
Sent: May-17-16 3:03 PM
To: Little, Karen (CLPA)
Cc: CA - WinnipegFiling
Subject: Mineral Rights Information Request [WSP # 131-21854-00]

Hi Karen

I'm preparing an Environment Act Proposal for the Village of St-Pierre-Jolys and require the mineral rights (Mines and Minerals, and Sand and Gravel) for Public Works Plan no. 59011 (Winnipeg Land Titles Office) within River Lots 29, 30 and 31 of the Rat River Settlement. I have received the Status of Title (no. 2830328/1) from the Village of St-Pierre-Jolys but there is no mention of mineral rights, so I'm not sure where the mineral rights lie. I would greatly appreciate any information you can provide before May 27.

Regards,



Dana Bredin, P.Eng
Geotechnical / Civil Engineer

WSP Canada Inc.
1600 Buffalo Place
Winnipeg, Manitoba R3T 6B8
T 204-477-6650 ext.373 | F 204-474-2864 | C 204-479-0014
www.wspgroup.com

Bredin, Dana

From: Friesen, Chris (CWS) <Chris.Friesen@gov.mb.ca>
Sent: August-10-15 9:20 AM
To: Bredin, Dana
Cc: CA - WinnipegFiling
Subject: RE: Rare Species Request - Rat River Settlement Lots 29-31 [WSP# 131-21854-00]

Dana

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.

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 Branch, Manitoba Conservation and Water Stewardship.

This letter is for information purposes only - it does not constitute consent or approval of the proposed project or activity, nor does it negate the need for any permits or approvals required by the Province of Manitoba.

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
Coordinator
Manitoba Conservation Data Centre
204-945-7747
chris.friesen@gov.mb.ca
<http://www.gov.mb.ca/conservation/cdc/>

From: Bredin, Dana [mailto:Dana.Bredin@wspgroup.com]
Sent: July-29-15 2:02 PM
To: Friesen, Chris (CWS)
Cc: CA - WinnipegFiling
Subject: Rare Species Request - Rat River Settlement Lots 29-31 [WSP# 131-21854-00]

Hi Chris,

I'm preparing an Environmental Act Proposal for the Village of St. Pierre-Jolys regarding a Lagoon Expansion. The lagoon and expansion are located within the Rat River Settlement Lots 29-31 (including Plan 8069 and 15752 WLTO), east of the Village of St. Pierre-Jolys, south of P.R. 205, west of the Rat River. I've provided a map of the area for your convenience.

Please provide a listing of rare species for the identified area. It would be greatly appreciated if I received your information before August 28, 2015.

Regards,



Dana Bredin, P.Eng
Geotechnical / Civil Engineer

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Bredin, Dana

From: Matthews, Rob (CWS) <Rob.Matthews@gov.mb.ca>
Sent: March-02-16 2:01 PM
To: Bredin, Dana
Subject: FW: Licensed Water Users Information Request [WSP# 131-21854-00]

See below.....

From: McCombe, Christopher (CWS)
Sent: March-02-16 1:09 PM
To: Matthews, Rob (CWS); Butterfield, Tamara (CWS)
Subject: RE: Licensed Water Users Information Request [WSP# 131-21854-00]

Rob,

The one active SW project that falls into this radius is:

5027624 Manitoba Ltd. -1
(Maplewood Golf Course)
SE 8-6-4E
Irrigation – Golf Course Watering
Water Source: Rat River
Allocation: 88.81dam3
Lic #: 2010-029

Thanks,

Christopher McCombe

From: Matthews, Rob (CWS)
Sent: March-02-16 11:02 AM
To: McCombe, Christopher (CWS); Butterfield, Tamara (CWS)
Subject: FW: Licensed Water Users Information Request [WSP# 131-21854-00]

See below.

Dana says that he first sent this email last October.

It is possible that I forwarded it to one of you and got a response from one of you but failed to pass it onto him.

Please check for me as I am working from home using webmail and it is difficult to check such things compared to when one is actually signed onto a work computer.

Thanks,

Rob

From: Bredin, Dana [Dana.Bredin@wspgroup.com]
Sent: March 2, 2016 10:44 AM

To: Matthews, Rob (CWS)
Cc: CA - WinnipegFiling
Subject: RE: Licensed Water Users Information Request [WSP# 131-21854-00]

Hi Rob,

I sent this email last October regarding the St-Pierre-Jolys Lagoon expansion EAP. We are looking to obtain the licensed water users on the Rat River 1 km upstream (south) and 10 km downstream (north) from the discharge point. I've attached a map for your information.

We are hoping to submit the EAP by the end of March 2016. If possible, can you please send this information before March 18, 2016.

Thank you,
Dana

From: Bredin, Dana
Sent: October-26-15 9:07 AM
To: rob.matthews@gov.mb.ca
Cc: winnipeg.filing@wspgroup.com
Subject: Licensed Water Users Information Request [WSP# 131-21854-00]

Hi Rob,

I'm preparing an Environmental Act Proposal for the Village of St. Pierre-Jolys regarding the expansion of their existing lagoon located within the Rat River Settlement Lots 29-31, east of the Village of St. Pierre-Jolys, south of P.R. 205 and west of the Rat River. A map is attached for your convenience.

The lagoon currently discharges by piped flow into the Rat River directly west of the lagoon. Please provide the licensed water users within ~1 km upstream (south) and ~10 km downstream (north) of the discharge point into the Rat River. I would greatly appreciate your information before November 16.

Regards,



Dana Bredin, P.Eng
Geotechnical / Civil Engineer

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