10144452 Manitoba Ltd

(c/o Steel Creek Developers)

Box 393

Hepburn, SK

S0K 1Z0

Environmental Approvals Branch of Environmental and Climate Change

(c/o Director)

Box 35, 14 Fultz Boulevard

Winnipeg, MB

R3Y 0L6

To the Director:

This is an Environmental Act Proposal in support of a septic tank solution for a new Hotel Development Project at Deacon's Corner East of Winnipeg. The hotel project will consist of 30 rooms with possible future expansion to 60 rooms.

Since there is no municipal septic solution, we will be installing a septic tank which will be hauled out regularly. If an expansion takes place, additional septic tanks will be installed to accommodate the waste from the expansion in the same manner.

The following report and attached Environment Act Proposal Form and application fee will satisfy the requirements for a Class 1 Development over 10,000L/day.

Please feel free to reach out with any follow-up or questions.

Sincerely

[redacted]

Trevor Rempel – Steel Creek Developer (Authorized agent of 10144452 Manitoba Ltd.)

Inclusions:

- Certificate of Title
- Legal and Topographical Survey
- Site Plan
- RM approved site drainage plan
- Geotechnical Survey

Environment Act Proposal Form

Manitoba

Name of the development:

Blue Crescent Hotels - Deacon's Corner

Type of development per Classes of Development Regulation (Manitoba Regulation 164/88):

Class 1 Development (Holding Tank >10,000L/day - waste to get hauled away)

Legal name of the applicant:

10144452 Manitoba Ltd.

Mailing address of the applicant: Box 393

Contact Person: Trevor Rempel (Steel Creek Developers)

City: Hepburn Province: MB Postal Code: R5T0K1

Phone Number: (306) 229-3523 Fax: email: trevor.rempel@steelcreekdevelopers.ca

Location of the development: Plan 62305 Parcel B (SW of corner of Birkett Way and #207

Contact Person: Trevor Rempel (Steel Creek Developers)

Street Address: TBD

Legal Description: Plan 62305 Parcel B

City/Town: RM of Springfield Province: MB Postal Code: R5T0K1

Phone Number: (306) 229-3523 Fax: email: trevor.rempel@steelcreekdevelopers.ca

Name of proponent contact person for purposes of the environmental assessment:

Trevor Rempel

Phone: (306) 229-3523 Fax:	Mailing address: Box 393 Hepburn, SK S0K1Z0

Email address: trevor.rempel@steelcreekdevelopers.ca

Webpage address: www.bluecrescent.ca

Date: 2025-07-16	Signature of proponent, or corporate principal of corporate proponent: [redacted] Printed name: Trevor Rempel

PRINT RESET

A complete **Environment Act Proposal (EAP)** consists of the following components:

- ☐ **Cover letter**
- ☐ **Environment Act Proposal Form**
- ☐ **Reports/plans supporting the EAP** (see "Information Bulletin - Environment Act Proposal Report Guidelines" for required information)
- ☐ **Application fee** (Cheque, payable to Minister of Finance, for the appropriate fee)

Per Environment Act Fees Regulation (Manitoba Regulation 168/96):

Class 1 Developments	$1,000
Class 2 Developments	$7,500
Class 3 Developments:	
Transportation and Transmission Lines	$10,000
Water Developments	$60,000
Energy and Mining	$120,000

Submit the complete EAP to:
Director
Environmental Approvals Branch
Environment and Climate Change
Box 35, 14 Fultz Boulevard
Winnipeg MB R3Y 0L6
EABDirector@gov.mb.ca

For more information:
Toll-Free: 1-800-282-8069
Phone: 204-945-8321
Fax: 204-945-5229

https://www.gov.mb.ca/sd/permits_licenses_approvals/eal/licence/index.html

Internal Use Only
$1,000.....C1 B-02
$7,500.....C2 B-02
$10,000....TT B-02
$60,000.....WD B-02
$120,000...EM B-02

Blue Crescent Hotel – Deacon's Corner

Wastewater Holding Tank System

Steel Creek Developers

Box 393

Hepburn, SK

S0K 1Z0

July 2025

MB110H

Distribution List

# of Hard Copies	PDF	Email	Organization Name
2	Yes	Yes	Manitoba Environment
1	Yes	Yes	Steel Creek Developers

Record of Revisions

Revision	Date	Description
0	July 2024	Submission to Manitoba Environment
1	August 2024	Revise to more complete report
2	July 16, 2025	Update for Resubmission

Report Prepared by:

Trevor Rempel

Steel Creek Developers

Executive Summary

This is an Environmental Assessment Report to support an Environmental Act Proposal (EAP), to obtain an Environmental Act License for the public wastewater collection system at a Hotel.

This is for septic supporting a 30 room, 3 story modern hotel located on Plan 62305 Parcel B, (SW corner of Birkett Way and Provincial Road #207.

The wastewater from the hotel will be stored on site in two 9,000 gallon connected underground Sanitary Holding Tanks with high level alarm. The stored wastewater will be pumped out by a private licensed septic hauling service company, and hauled to the RM of Springfield Wastewater Treatment Lagoon for disposal.

At 100% capacity, and average wastewater production of between 12,037 L/day was determined by the Mechanical Engineering firm, (Tower Engineering).

Sanitary Holding tank will be equipped with high level alarm and ongoing inspection and maintenance of the system will occur in additional to professional hauling services and the development of an Emergency Response Plan in conjunction with the professional hauling service.

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Figures

Appendices

1.0 Introduction and Background

A group of local investors forming 10144452 Manitoba Ltd. enlisted Steel Creek Developers to act as their agent on the development of a 30-room hotel on land they have purchased at the Deacon's Corner Commercial development at the corner of Highway #1 (Trans Canada Highway) and Provincial Road #207. The specific location of the proposed hotel development is Plan 62305 Parcel B, (SW corner of Birkett Way and Provincial Road #207), as outlined in the figure below.

Figure 1.0

The building will be a 3-story building of wood construction with Fibre Cement siding and standing seam metal roof. Metal roof is single sloped to the south side with eavestrough and downspouts. The parking area needed for bylaw stipulated parking will be asphalt paving with heavy duty paving along the main driveway. As site plan has been included, (Appendix A), which will show the surface finishes as well as storm water management. There will be a gravel driveway along the south property line from the SW corner of the site to the SW corner of the hotel building to provide access for the garbage truck and septic pump out truck. The unused portion of the site will be gravel overflow parking as well as landscaped grass area and stormwater retention as shown on Site Plan.

The hotel will operate as an independently owned hotel but under a licensed brand agreement through Blue Crescent Hotels. Hotel will be called, "Blue Crescent Hotels – Deacon's Corner". The business will be managed by a full time Manager and there will be 24-hour, 7 day a week employee presence in the hotel. Stabilized hotel occupancy levels are budgeted at 67%.

The hotel will employ a part time Maintenance Person who will be supported by professional trades for Electrical, Plumbing and Mechanical services. Hotel design supports current Energy Code and operations procedures and product use policies are driven by reduced consumption. For example, room cleaning and linen replacement will be done every 3 days or upon request for longer stay guests. Soap and Shampoo are provided via bulk containers reducing waste of single use bottles.

There are no activities or processes on site that would result in a negative impact to human health other than the proper handling of standard cleaning products.

The RM has approved the building and Conditional Use for Hotel. Highways is assessing application for storm water management, building and signage within Highways Controlled area.

This Assessment Report provides a description of the proposed wastewater management. The maximum day volume is based on 100% occupancy and generally accepted engineering standards for plumbing fixture use.

2.0 Proposed Wastewater Collection System

As described in Section 1.0, the wastewater will be collected in a 17,200 gallon sanitary holding tank located underground. It will meet all the requirements of code and be installed according to manufacturers recommendations by a professional contractor. The tank (see #6 in Figure 2.0 below), will be located next to the garbage bin area South West of the hotel building. The Septic Hauling service will approach the septic tank for pump out down a gravel alley from a driveway access on the West side of the property. Water will be supplied by construction of a new water well on the property south of the hotel building and as mentioned, waste will be stored in underground septic tank and pump out and removed regularly by a licensed professional septic service. The building will be serviced by a standard Natural Gas service via Manitoba Hydro.

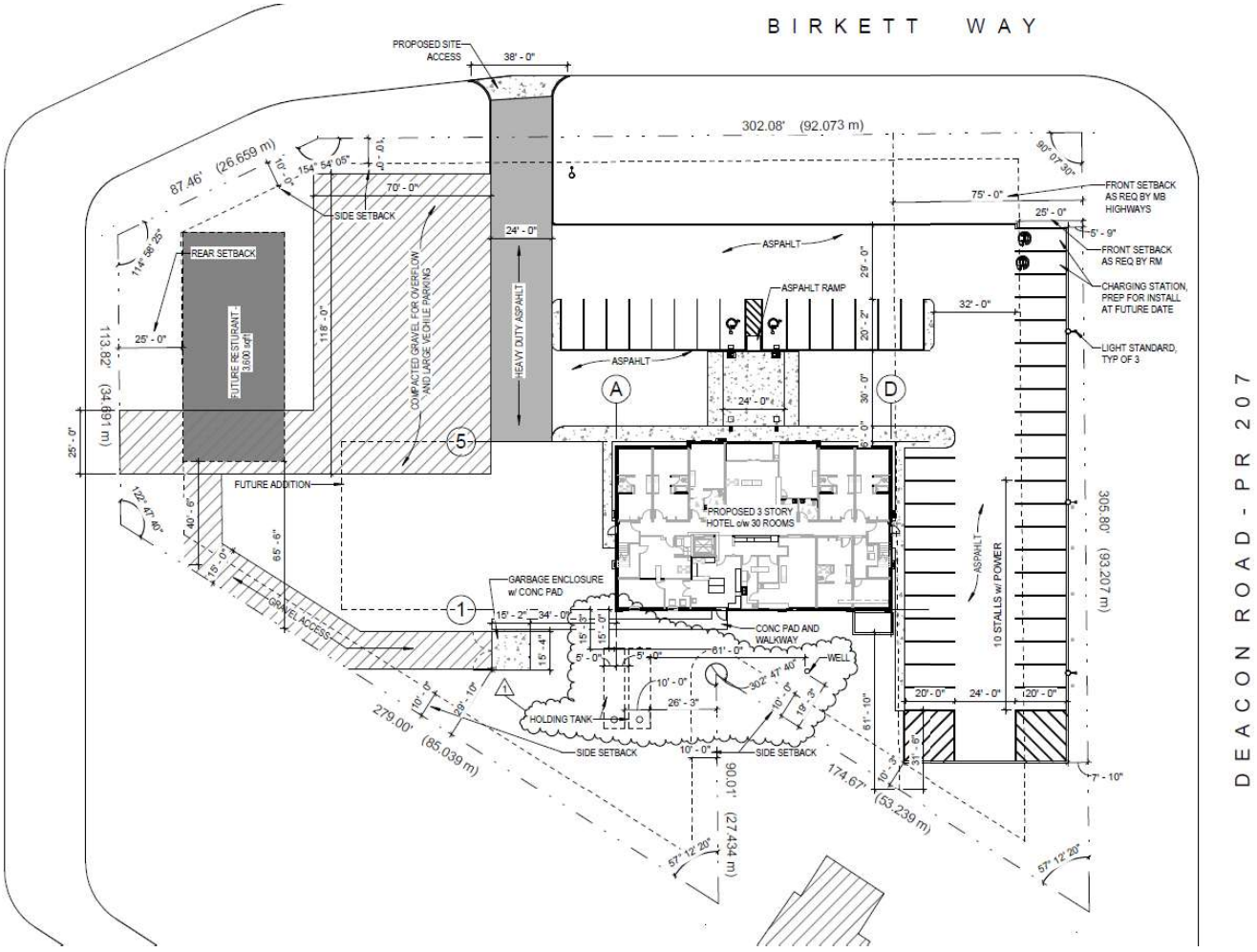


Figure 2.0

3.0 Wastewater Production

The hotel sewer waste will be collected from

1. 28 hotel rooms which each include
    a. 1 Low Flow Toilet
    b. 1 Tub/Shower or Shower (Single rooms and Suites have showers, Double rooms have tubs)
    c. 1 bathroom sink
2. There will be 2 Large Kitchenette Suites which will each include
    a. 1 Low Flow Toilet
    b. 1 Shower
    c. 2 Bathroom sinks
    d. 1 Single Bowl Kitchen Sink
3. Hotel Breakfast Room Kitchen
    a. 1 single basin handwash sink
    b. 1 double basin kitchen sink
    c. 1 Commercial high temperature dishwasher
4. Hotel Breakfast Room
    a. 1 Single basin kitchen sink
    b. Ice Machine drain
5. Meeting Room
    a. 1 Single basin bar sink
6. Hotel Laundry
    a. 1 single deep basin kitchen sink
    b. 1 Mop sink
    c. 2 LG Titan washer extractors
    d. 1 LG Giant washer extractor (Guest Laundry)
    e. Sump Pump drain for elevator sump with Oiltector Model OTC-115 Control and Alarm System

Volume Calculations

Guests: 190L (41.8impg) X 75 guests = 14,250L (3,135impg)

Staff: 38L (8.4impg) X 5.33 staff = 202.5L (44.5impg)

Totals: 14,453 L (3,179 impg) at 100% occupancy

(at Stabilized Occupancy of 67% = 9,683L or 2,130 impg)

Manitoba Minimum Expected Volume of Sewage Per Day or by Actual Documented Usage

Typical Wastewater Flow Rate From Commercial Sources

Facility	Unit	Expected Sewage Volume in litres (Imperial gallons) per day
Boarding House	person	150 (33)
Automobile Service Station	vehicle served	45 (10)
	employee	49 (10.8)
Bar	customer	11 (2.4)
	employee	49 (10.8)
Hotel	guest	190 (41.8)
	employee	38 (8.4)
Industrial Building (sanitary waste only)	employee	49 (10.8)
Laundry (self-service)	machine	2100 (462)
	wash	190 (41.8)
Office	employee	49 (10.8)
Public lavatory	user	19 (41.2)
Restaurant (w/toilet)	meal	11 (2.4)
	conventional - customer	34 (7.5)
	short order - customer	23 (5)
	bar/cocktail lounge - customer	11 (2.4)
Theatre	seat	11 (2.4)

Figure 3.0

Typical Hotel Room

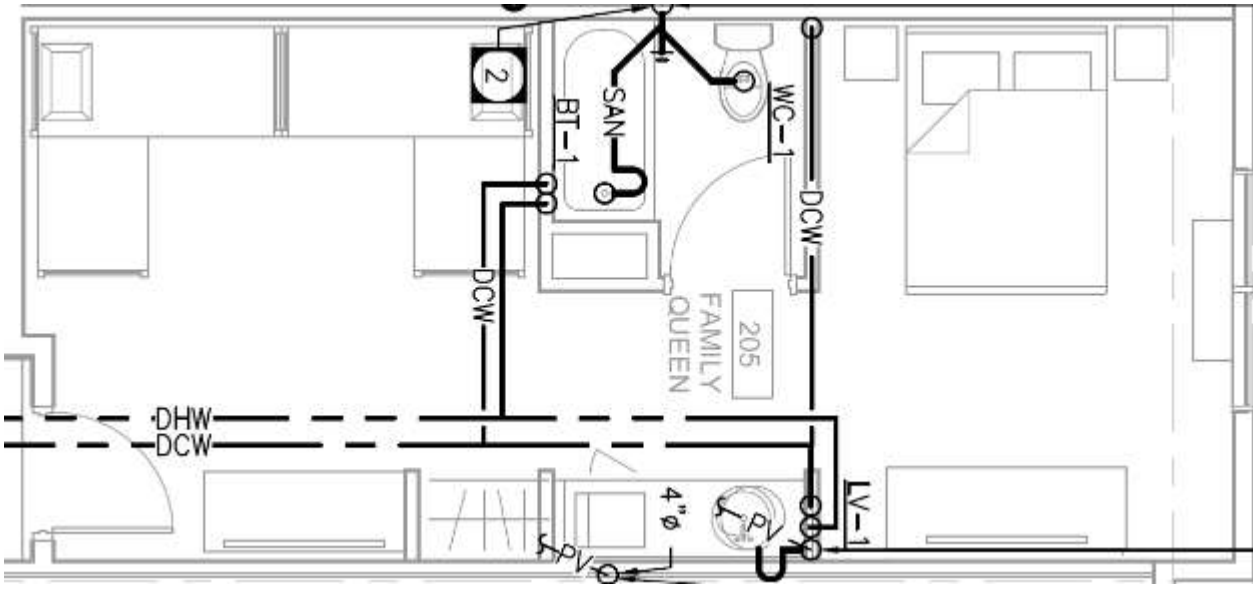


Figure 3.1

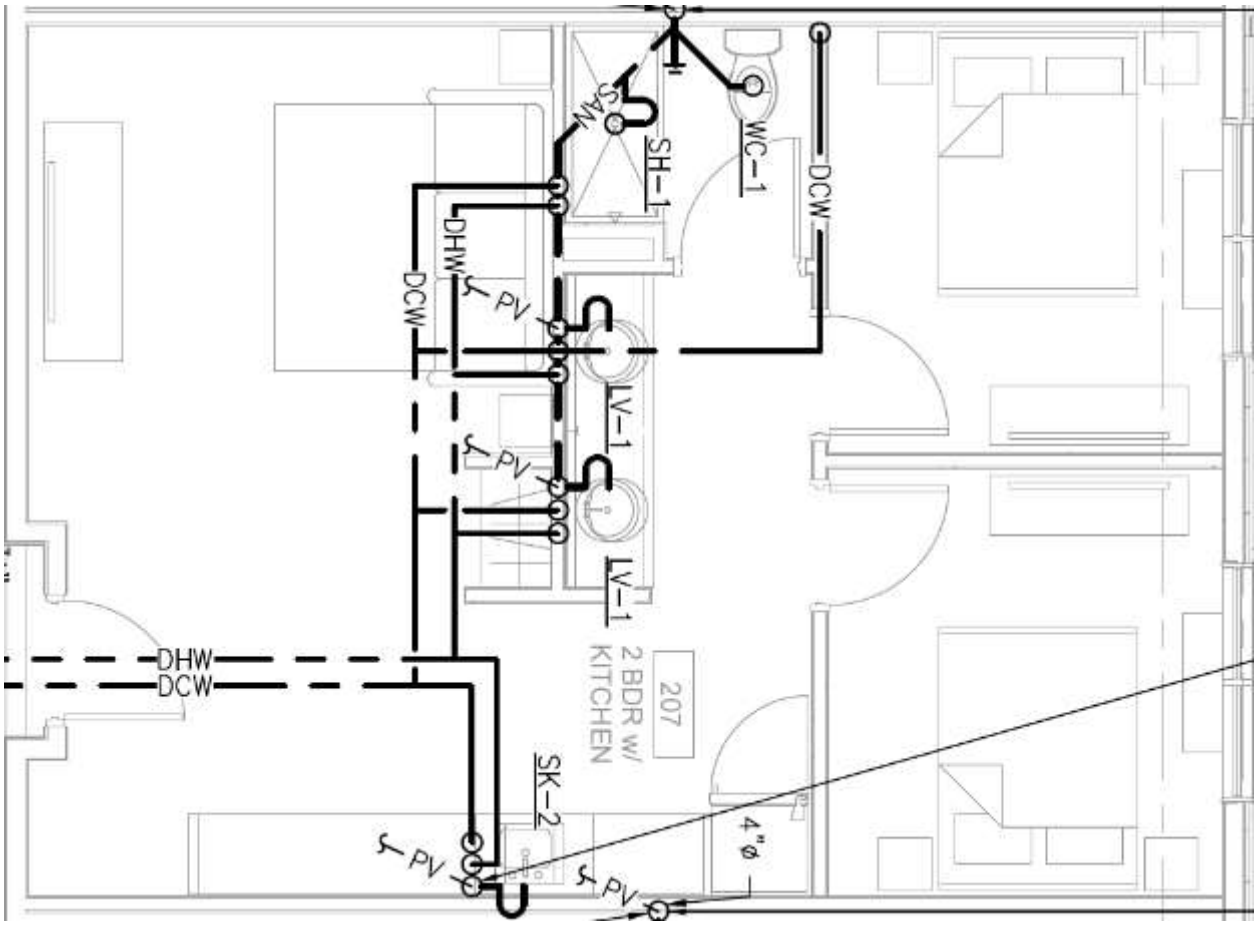


Figure 3.2

Breakfast Room Kitchen

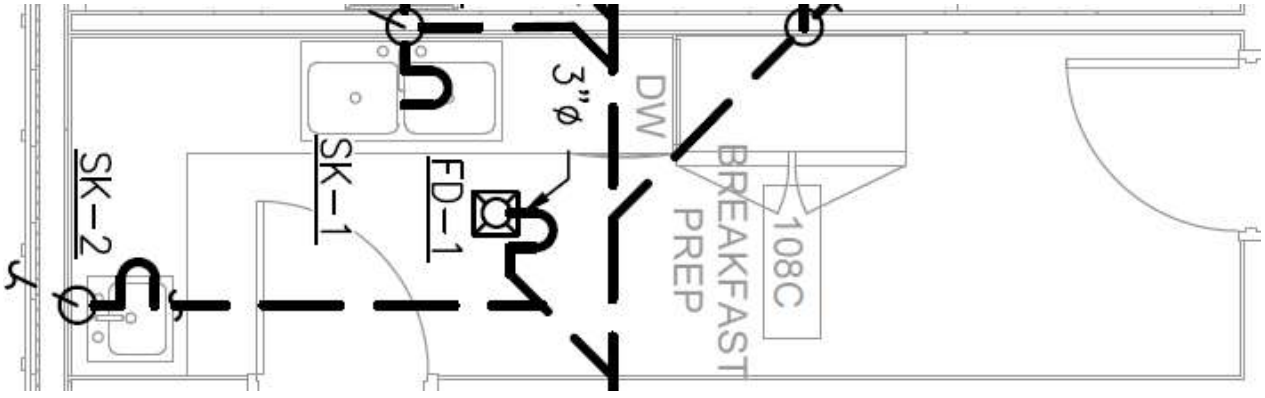


Figure 3.3

Laundry Room

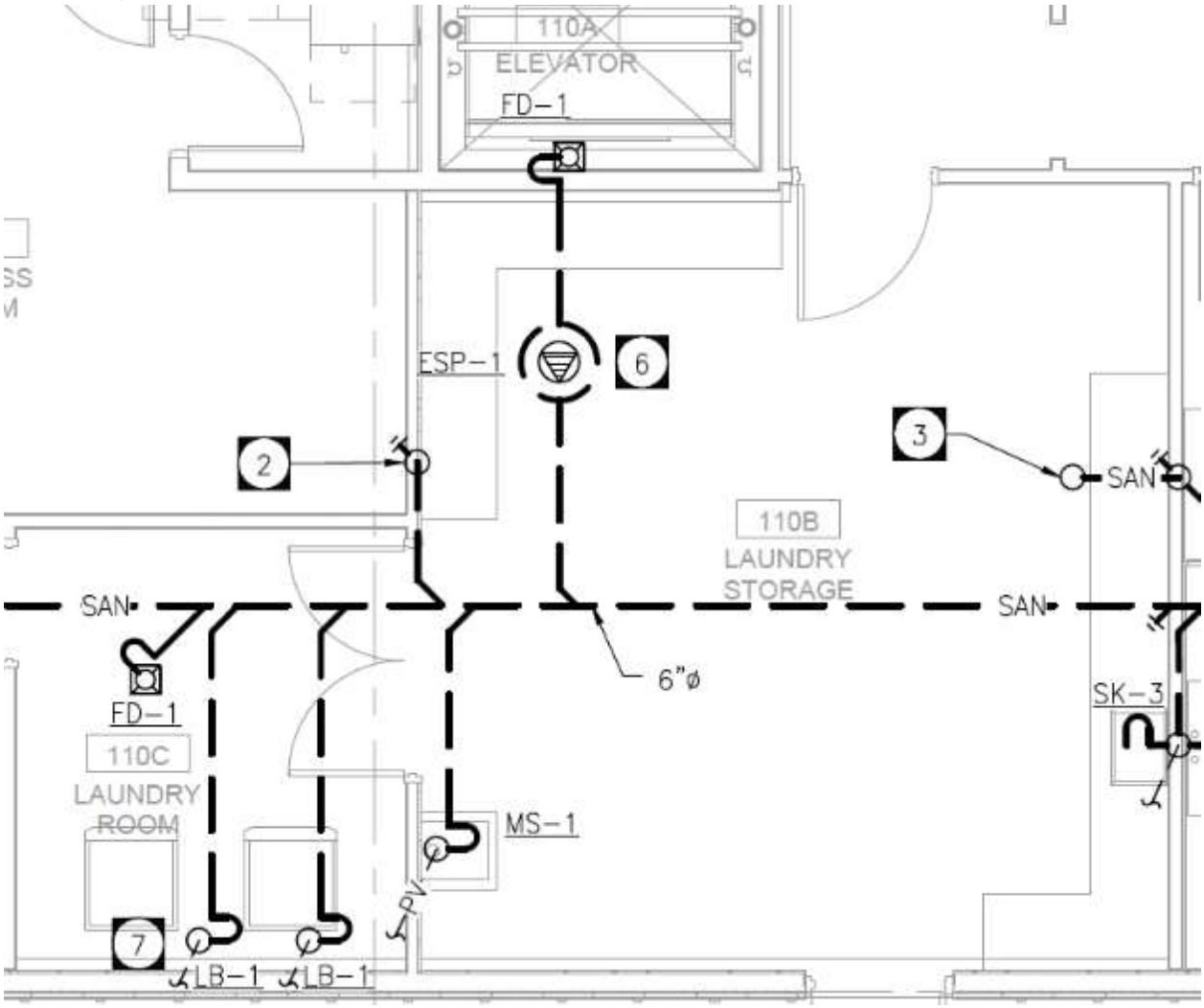


Figure 3.4

4.0 Existing Environment in the Project Area

The Deacon's Corner development was previously virgin farmland. All current businesses in the area are original works since development started. The hotel is currently empty virgin land that had previously had the topsoil layer removed and stockpiled at the West end of the lot.

The hotel site is bordered as follows:

To the North – drainage ditch, then gravel road (Birkett Way), then across the road is cultivated farmland. This farmland has been subdivided as Parcel, G, F, E (from East to West respectively) as shown below in Figure 4.0

To the East – drainage ditch, then asphalt road PR#207 and East of that is the Petro Canada Truck Stop.

To the South – hotel site is bordered to the South by the neighbouring motel site, Motel 66 which includes a managers residence. This property border the entire southern border of the proposed hotel property.

To the West – drainage ditch, then gravel road (Birkett Way), then across the road is Birkett Freight Solutions, a trucking company and a newly constructed Dairy Queen, off the SW corner of the proposed hotel site.

Figure 4.1

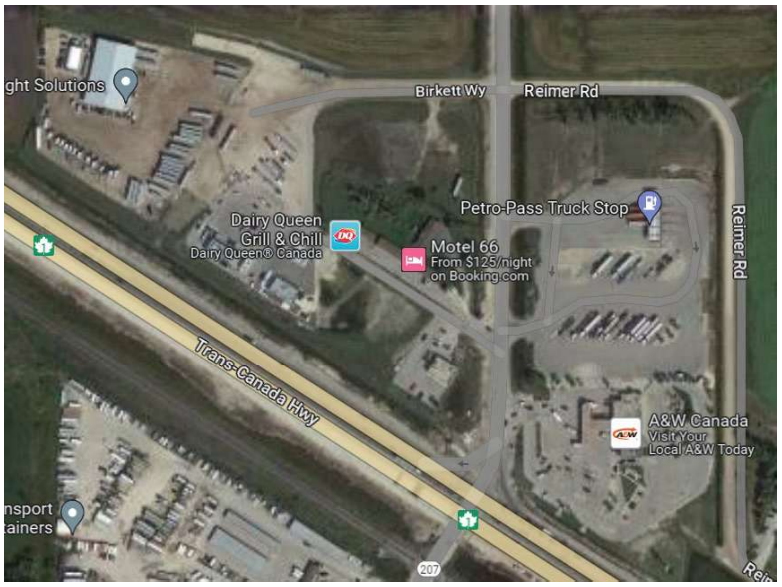


Figure 4.2

Figure 4.5

Figure 4.4

All of the current businesses NW of the intersection of #1 and #207 utilize Wastewater Holding tanks which are hauled out. These businesses include, Dairy Queen, Tim Hortons, Esso Fuel, Little

Ceasar's and Subway. The Petro Canada Truck stop to the East of #207 pumps their septic out to a private treatment lagoon to the NE of their property.

5.0 Environmental Effects and Mitigation Measures

Many of the risks associated with a sewage treatment system are not applicable for this location as the facility will exclusively utilize a wastewater holding tank and hauling and treatment of the wastewater is completed off-site by registered haulers and licensed treatment facilities.

The main potential risk of environmental impact of this system would be related to any instance of wastewater leaking into the surrounding soil from the holding tanks which would pose a risk to human health, especially in the case of larger spills that are not immediately identified.

Additionally there would be a risk of a spill during the pumping procedure while transferring the wastewater from the holding tank to the truck of the hauling service. Tank locations and access have all been carefully planned for appropriate clearances, setbacks, out of the way of site operations and drainage, while providing for appropriate ease of access by a licensed hauler.

5.1 Mitigation Measures

The proposed system was selected because it is simple, effective and mitigates many of the risks associated with the on-site management of wastewater. By just hauling the wastewater away to a licensed treatment facility, the property eliminates complexity, number of potential failure points and promotes risk reduction.

All wastewater treatment will be handled off site at the RM of Springfield Wastewater facility by licensed professional hauling service. Pump outs of the wastewater tanks will only be performed by registered haulers who are familiar with the required protocol to safely pump out a sewage tank and avoid contamination of the nearby soil.

The wastewater tank will be emptied on a very frequent basis reducing the risk of sustained undetected leakage from compromised tank integrity. Setback distances have been observed from the water well source of domestic water for the hotel.

Ongoing inspection and maintenance of the system is another important mitigation measure. Tanks should be inspected regularly to confirm their integrity and be replaced at any sign of leakage or infiltration. This would include a direct observation of a crack, foul odour around the tank when closed, or observation of hauling volumes and hotel occupancy watching for variance from normal amounts.

An emergency response plan should be in place in the event that a major spill of wastewater was to occur. This would include notification of the Manitoba Environmental Emergency Reporting Line.

5.2 Residual Environmental Effects

There would be minimal residual environmental effects from a properly maintained wastewater holding tank system proposed for the Deacons Corner Hotel development. Minor losses of

wastewater during the transfer process are unavoidable due to the nature of the application, but the mitigation measure described or inherent in the procedures and design of the system and wastewater management will reduce the risk of a more serious event.

5.3 Follow-Up Plans, Monitoring and Reporting

No formal requirement for reporting to any regulatory body is anticipated for this system due to its simplicity and low environmental risk.

As noted above, in the event of an environmental emergency, the owner will notify the Manitoba Environmental Emergency Reporting line at (204 944-4888.

6.0 Conclusion

Since hotel operations and the simplicity of the wastewater system constitutes a very limited environmental impact activity and the wastewater management is handled offsite in a proper management facility, this development has a very limited risk to surrounding environment.

25-707 - Deacons Corner Hotel

Canada

Three Way Builders Ltd.
320 PTH 12N
Steinbach, Manitoba R5G 1T6
Canada
+1 (204) 326-2198

Title
Holding Tank Shops

Submittal Manager
Israel Hernandez

Spec Section
33 34 00 - Sanitary Sewage Structures

Type
Shop Drawing

Number
33 34 00-1

Rev
0

Description
Holding Tanks

THREE WAY BUILDERS

☑ REVIEWED ☐ REVIEWED AS NOTED
☐ REVISE AND RESUBMIT ☐ REJECTED

BY Israel Hernandez *Israel H.*

Review of this submission is for compliance with general intent of the contract. This review does not relieve the Sub-Contractor, Supplier of Manufacturer of the responsibility for errors or omissions in the submission or the responsibility of meeting all requirements of the contract documents. Any deviation from the contract documents by the Sub-Contractor, Supplier or Manufacturer shall be at their own risk. Verification of quantities, details, field dimensions and data are the responsibility of the Sub-Contractors or Suppliers.

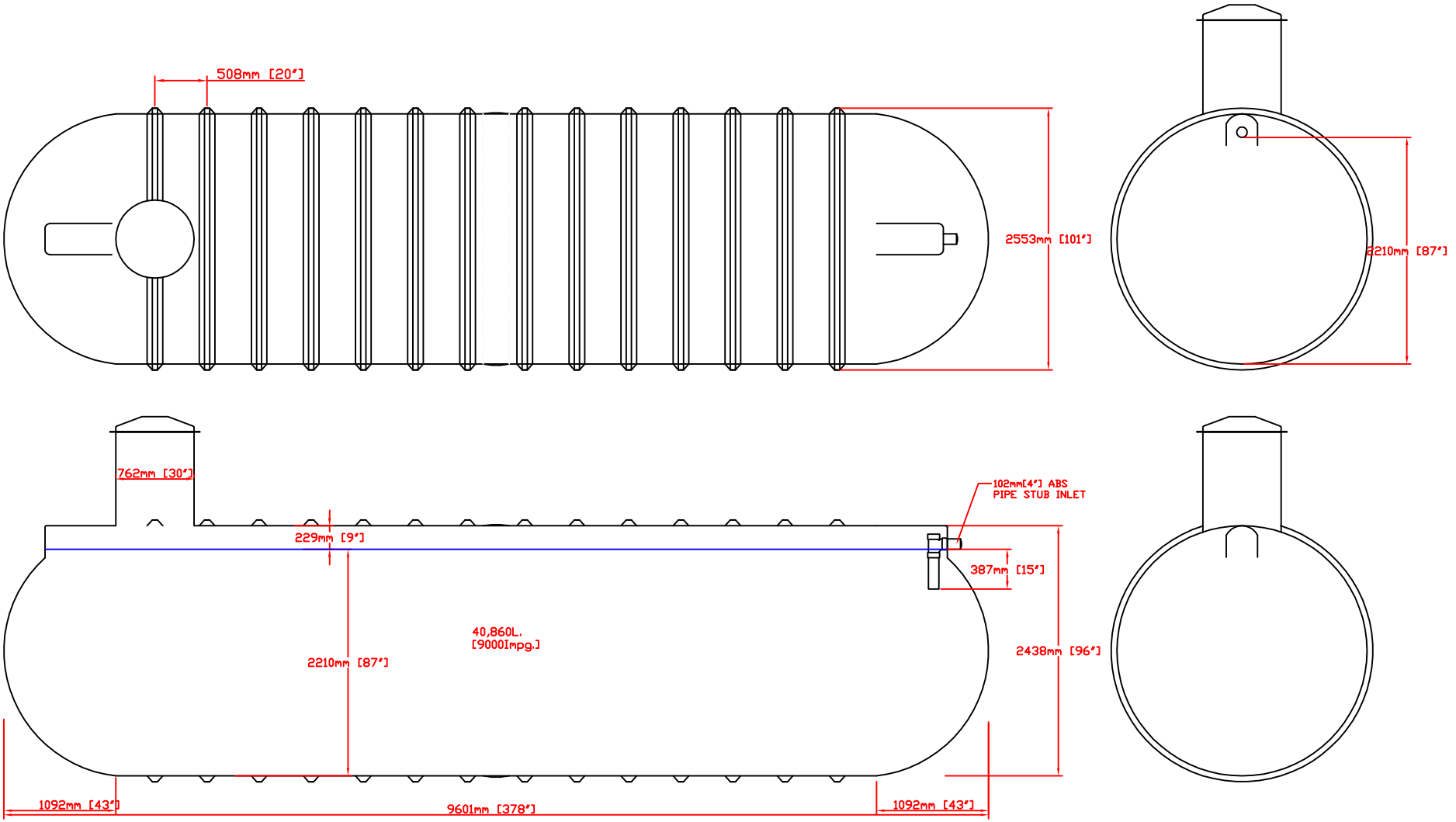
REVIEWED AS NOTED

2025-04-29 11:04:22 AM

THREE WAY BUILDERS

[redacted]

Ryan McGarraugh,
B.A. Arch



MAX BURIAL DEPTH 2.13M
184.89L PER CM OF DEPTH

REVISIONS

Concrete & Fiberglass Products Ltd.
712 KERNSTEAD RD. WINNIPEG BEACH, MB R0C 3G0
PH: (204) 389-2651 FAX: (204) 389-6628
EMAIL: INFO@CLPRODUCTS.CA WEBSITE: WWW.CLPRODUCTS.CA

9000 8H
40,860L./9000Impg

DATE:

DRAWN BY: AZ

SCALE:

PAGE: -- OF --

STATUS OF TITLE

Title Number **3223611/1**
Title Status **Accepted**
Client File

Manitoba Land Titles Registry

1. REGISTERED OWNERS, TENANCY AND LAND DESCRIPTION

10144452 MANITOBA LTD.

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

PARCEL "B" PLAN 62305 WLTO
EXC ALL MINES AND MINERALS AND OTHER MATTERS AS SET FORTH
IN THE CROWN LANDS ACT
IN NE 1/4 11-10-4 EPM

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: **198907/1**
Instrument Status: **Accepted**

Registration Date: 1965-09-03
From/By: MANITOBA TELEPHONE SYSTEM
To:

Amount:
Notes: No notes
Description: No description

Instrument Type: **Caveat**
Registration Number: **4202805/1**
Instrument Status: **Accepted**

Registration Date: 2012-04-16
From/By: MTS INC.
To:

Amount:
Notes: No notes
Description: EASEMENT

Instrument Type:	**Easement**
Registration Number:	**4920032/1**
Instrument Status:	**Accepted**
Registration Date:	2017-12-27
From/By:	5525447 MANITOBA LTD.
To:	THE MANITOBA HYDRO-ELECTRIC BOARD AND MTS INC.
Amount:	
Notes:	No notes
Description:	No description

Instrument Type:	**Easement**
Registration Number:	**4920033/1**
Instrument Status:	**Accepted**
Registration Date:	2017-12-27
From/By:	5525447 MANITOBA LTD.
To:	CENTRA GAS MANITOBA INC.
Amount:	
Notes:	No notes
Description:	No description

Instrument Type:	**Caveat**
Registration Number:	**4920034/1**
Instrument Status:	**Accepted**
Registration Date:	2017-12-27
From/By:	RURAL MUNICIPALITY OF SPRINGFIELD
To:	
Amount:	
Notes:	No notes
Description:	DEVELOPMENT AGREEMENT

Instrument Type:	**Easement Declaration**
Registration Number:	**4920035/1**
Instrument Status:	**Accepted**
Registration Date:	2017-12-27
From/By:	5525447 MANITOBA LTD.
To:	
Amount:	
Notes:	No notes
Description:	No description

3. ADDRESSES FOR SERVICE

10144452 MANITOBA LTD.
320 PTH 12 NORTH
STEINBACH MB
R5G 1T6

4. TITLE NOTES

No title notes

5. LAND TITLES DISTRICT

Winnipeg

6. DUPLICATE TITLE INFORMATION

Duplicate not produced

7. FROM TITLE NUMBERS

2936033/1 All

8. REAL PROPERTY APPLICATION / CROWN GRANT NUMBERS

No real property application or grant information

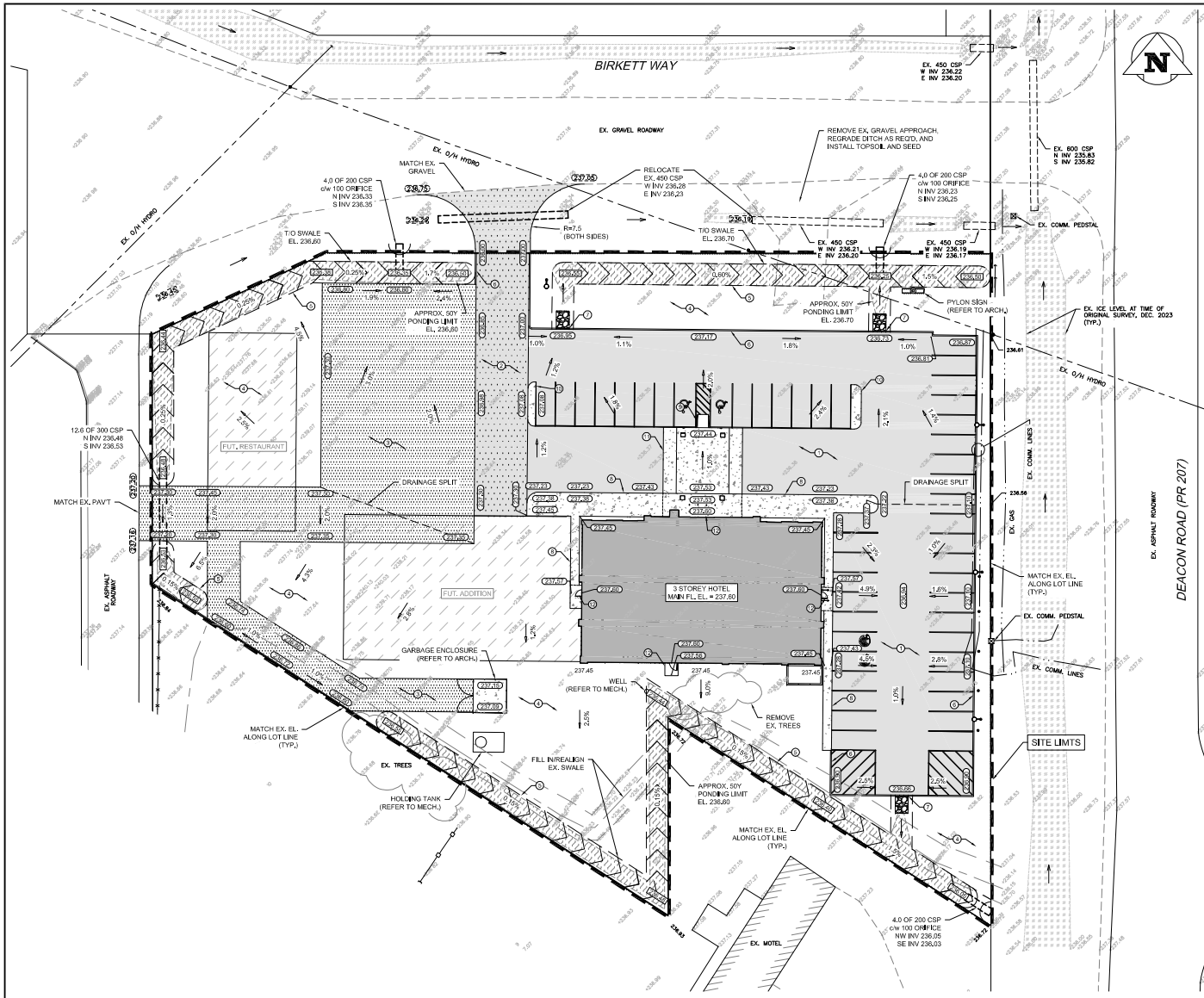
9. ORIGINATING INSTRUMENTS

Instrument Type:	**Transfer Of Land**
Registration Number:	**5499510/1**
Registration Date:	2022-12-15
From/By:	5525447 MANITOBA LTD.
To:	10144452 MANITOBA LTD.
Consideration:	$675,650.00

10. LAND INDEX

Lot B Plan 62305
EXC CLA RES

CERTIFIED TRUE EXTRACT PRODUCED FROM THE LAND TITLES DATA STORAGE SYSTEM OF TITLE NUMBER 3223611/1



TOPOGRAPHICAL AND DRAINAGE

BENCHMARK INFORMATION:

TBM #1 = 236.162m
MGSP LOCATED AT SOUTHWEST CORNER OF INTERSECTION OF DEACON ROAD (PR 207) AND PLYMPTON ROAD.

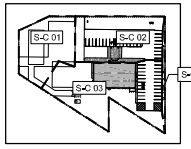
NOTES:
1. TEMPORARY BENCHMARK(S) WERE ESTABLISHED BY SBC INC. DECEMBER 2023. ELEVATIONS ARE REFERENCED TO THE GEODETIC DATUM (CGVD28 HT v2.0) AND ARE ORTHOMETRIC.
2. BENCHMARK(S) MUST BE VERIFIED BY THE USER FOR ACCURACY PRIOR TO USE. ANY RELIANCE ON, OR DECISIONS MADE BASED ON THIS INFORMATION IS THE USER'S RESPONSIBILITY.

METRIC
WHOLE NUMBERS INDICATE MILLIMETERS, DECIMAL NUMBERS INDICATE METERS.

GENERAL NOTES:

1. ALL CONSTRUCTION AND MATERIALS INCORPORATED IN THE WORK SHALL CONFORM TO THE LATEST EDITION OF THE CITY OF WINNIPEG "STANDARD DESIGN AND CONSTRUCTION SPECIFICATIONS", UNLESS NOTED OTHERWISE.
2. LOCATIONS OF UNDERGROUND STRUCTURES AS SHOWN ARE 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, EXACT LOCATION AND DEPTH OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.
3. LOCATIONS OF PROPERTY LIMITS AND EXISTING AND/OR PROPOSED FEATURES RELATIVE TO THESE LIMITS AS SHOWN DO NOT REPRESENT A LEGAL SURVEY. SBC INC. MAKES NO REPRESENTATION OR GUARANTEE THAT THE PROPERTY LIMIT INFORMATION SHOWN IS ACCURATE, AND ACCEPTS NO RESPONSIBILITY FOR ANY DAMAGES SUFFERED BY ANY THIRD PARTY AS A RESULT OF DECISIONS OR ACTIONS BASED ON THIS DRAWING.
4. ALL SURFACES AND ANY EXISTING UTILITIES DAMAGED OR DISTURBED BY CONSTRUCTION SHALL BE RESTORED TO IT'S ORIGINAL CONDITION OR BETTER, OR REPLACED, AT THE CONTRACTOR'S EXPENSE.

LEGAL DESCRIPTION:
PARCEL B, PLAN No. 62305 WLTO IN NE 1/4 SECTION 11, TOWNSHIP 10, RANGE 4 EPM BEING LOT 1, PLAN No. 52223 IN RM OF SPRINGFIELD.



SUB-CATCHMENT AREA PLAN
N.T.S.

STORMWATER MANAGEMENT CRITERIA

SITE AREA = 0.83 ha
$C_{ALLOWABLE}$ = 0.15 (BASED ON PRE-DEVELOPMENT)
$C_{PROPOSED}$ = 0.51 (WEIGHTED RUNOFF COEFFICIENT)
i_{5Y} = 113.8 mm/hr, i_{50Y} = 179.5 mm/hr, T_C = 10 min.
$Q_{5Y\ ALLOWABLE}$ = 0.039 m³/s (BASED ON RATIONAL METHOD)

SUB-CATCHMENT 01
AREA = 0.19 ha
$Q_{5Y\ RESTRICTED}$ = 0.009 m³/s (100 mm DIA. RESTRICTOR)
AVAILABLE STORAGE = 24 m³

SUB-CATCHMENT 02
AREA = 0.25 ha
$Q_{5Y\ RESTRICTED}$ = 0.013 m³/s (100 mm DIA. RESTRICTOR)
AVAILABLE STORAGE = 38 m³

SUB-CATCHMENT 03
AREA = 0.37 ha
$Q_{5Y\ RESTRICTED}$ = 0.015 m³/s (100 mm DIA. RESTRICTOR)
AVAILABLE STORAGE = 81 m³

SUB-CATCHMENT 04
AREA = 0.02 ha
$Q_{UNRESTRICTED}$ = 0.001 m³/s

TOTAL RUNOFF FOR ENTIRE SITE
$Q_{50Y\ TOTAL}$ = 0.038 m³/s ≤ $Q_{5Y\ ALLOWABLE}$ = 0.039 m³/s

REQUIRED 50Y ON-SITE STORAGE = 148 m³ (BASED ON RATIONAL METHOD)
AVAILABLE ON-SITE STORAGE = 155 m³

KEYNOTES

1. STANDRD DUTY ASPHALT (SEE DWG C02)
2. HEAVY DUTY ASPHALT (SEE DWG C02)
3. GRAVEL AREA (SEE DWG C02)
4. LANDSCAPED AREA (REFER TO ARCH.)
5. GRASS DRAINAGE SWALE (SEE DWG C02)
6. PINNED BARRIER CURB (SEE DWG C02)
7. CURB OPENING w/ RANDOM RIPRAP (SEE DWG C02)
8. CONCRETE SIDEWALK (SEE DWG C02)
9. SIDEWALK CURB RAMP (SEE DWG C02)
10. CONCRETE ISLAND (SEE DWG C02)
11. STRUCTURAL CONCRETE SLAB (REFER TO STRUCT.)
12. STRUCTURAL CONCRETE LANDING (REFER TO STRUCT.)

Sison Blackburn Consulting Inc.
60 South Landing Drive, Unit 1
Oak Bluff MB, R4G 0C4
T: (204) 505-0855 | F: (204) 505-0850
www.sbcinc.ca

150 WM	WATERMAIN	150 WM
250 WWS	WASTEWATER	150 WWS
300 LDS	LAND DRAINAGE SEWER	300 LDS
	HYDRANT ASSEMBLY	
	GATE VALVE	
	CURB STOP	
	MANHOLE	
	CATCH BASIN	
	SURVEY BAR	
	SIGN	
	UTILITY POLE	
	UTILITY PEDESTAL	
	HYDRO	
	GAS	
	COMMUNICATIONS	
	CULVERT	
	SWALE	
	DIRECTION OF FLOW	
+235.38	SURVEY ELEVATION	
235.38	GROUND ELEVATION	235.38
(235.400)	PAVEMENT ELEVATION	(235.400)
[235.38]	DITCH / SWALE ELEVATION	[235.38]
EXISTING	LEGEND	PROPOSED

ISS	REV	DATE	DESCRIPTION
1	0	24/06/18	ISSUED FOR CONSTRUCTION

CLIENT / PROJECT:

THREE WAY BUILDERS

BLUE CRESCENT HOTEL RM OF SPRINGFIELD

TITLE:

SITE GRADING PLAN

DISCIPLINE: **CIVIL**

SCALE:	DRAWN:	DESIGNED:	CHECKED:
1:300	JLT	JLT	RES

ISSUE: **ISSUED FOR CONSTRUCTION**
PROJECT START DATE: DECEMBER, 2023

PROJECT #:	DRAWING #:	REVISION:
23179-00	C01	0

SHT: 1 OF 2

APPROVED
2015-05-12

LETTER REPORT

DATE: August 24, 2011

FILE: SU 11 021 00 SU

TO: **Cliff Kehler**
Three Way Builder Ltd.
76 PTH 12 N
Steinbach, MB
R5G 1T4

FAX: 204-326-2198

FROM: **SILVESTRE S. URBANO JR., P.ENG.**
Senior Geotechnical Engineer
22 Saphire Place
Winnipeg, Manitoba R2V 4N4
Tel: (204) 697-2165

FAX:

RE: GEOTECHNICAL REVIEW FOR THE PROPOSED DEACON'S CORNER DEV'T FOUNDATION RECOMMENDATION FOR THE PROPOSED BUILDINGS

A total of fourteen testholes were drilled on August 18, 2011 at the NW corner lot of PR#207 and Highway #1. Based on these, it was requested that foundation and pavement recommendations for a proposed single storey buildings with parking lot be provided. The fourteen testholes drilled between 3m and refusal (19.2m) revealed a general soil profile consisting of a layer of fill underlain by a clay layer over a glacial till layer which extended to the depth explored. *Seepage and caving conditions were observed in only one testhole(from the till layer at 19.2m depth)after completion of drilling.* Detailed descriptions of the subsurface conditions are attached as well as the testhole location plan.

GEOTECHNICAL RECOMMENDATIONS

Due to swelling and shrinkage properties of clay, strip/spread footings bearing on clay are not recommended. The preferred foundation, which may be utilized for the proposed buildings, is a system of cast-in-place friction pile. Alternatively, the two buildings could be supported by a system of precast concrete driven piles end-bearing on the native undisturbed dense till or suspected bedrock. The estimated pile refusal depths at this location are approximately 18 to 19.2m below grade on dense till or suspected bedrock. However, this system will not be discussed due to expensive construction cost. If needed, please feel free to contact me.

CAST-IN-PLACE FRICTION PILE (CIP)

Using pile lengths of 9.1m(30 ft) and 12.2m(40 ft)below grade, an allowable shaft adhesion value of 15.3 kPa (320 psf) and 13.4 kPa (280 psf), respectively applied to the pile circumference within the native clay may be used for the pile design. Due to low shear strength of the clay layer, pile lengths longer than 12.2m below grade is not suggested.

Considering potential long-term soil shrinkage away from the pile face, the upper 1.5m(5 ft) of the piles should be neglected in determining the capacity of all interior piles. For the exterior piles, the upper 3.0m(10 ft) of the piles should be ignored. If heavier loads are used, the utilization of a single, larger diameter friction pile is preferred.

Pile spacing should be at least three pile diameters, centre to centre. Seepage and sloughing was noted only in the deep testhole where till layer at 17.7m depth was encountered, however, temporary steel sleeves should still be on hand and used if needed during pile installation; *depth of temporary sleeves should be contractor's responsibility*. To minimize pile construction difficulties, the total number of pile

holes left open at any given time should not be more than four and the pile holes should be poured with concrete as soon as they are drilled to the design diameters and depths.

Piles located in unheated areas should be provided with full-length reinforcements, a minimum pile length of 7.62m(25 ft) and the top 2.1m(7 ft) of the pile should be wrapped with greased sona tube to reduce the potential for frost jacking.

Pile installation may be adversely affected by loose backfill and the possible presence of existing concrete slabs. Thus, contract documents should properly cover these potential obstacles during pile installation.

Pile inspection by qualified geotechnical personnel should therefore be employed to ensure a satisfactory foundation installation. No more than four pile holes should be left open at any one time and each pile hole should be poured with concrete as soon as it is cleaned, inspected and approved.

If any piles are subjected to highly repetitive or vibratory loads, the above capacities should be reduced by 50%. The allowable uplift capacities of piles may be assumed to be approximately 40% of the allowable pile capacity.

PROPOSED FLOOR SLAB

The anticipated floor slab structure is slab-on-grade. Due to the presence of significant fill/backfill material(average depth of fill is about 0.6 to 1.06m through out minus the asphalt) and the swelling/shrinkage characteristics of the plastic clay at this location, a slab-on-grade floor without preparation will likely experience long term movements of about 100 to 150mm. For this reason, a structural floor supported on piles and separated from the underlying subsoils with a minimum 150mm void space is recommended. A similar void should be provided under grade beams and pile caps.

Where potential long-term slab movements of about 25mm are deemed acceptable to the owner, the main floor of the proposed building where clay fill was measured over 600mm may be supported on clay fill subgrade. To minimize the rate and magnitude of total and differential floor movements, subgrade preparation for floor construction should include a complete removal of at least 600mm of clay fill and replaced with at least 450mm of well-grade subbase material and topped with 150mm of base course material. All of the granular materials are uniformly compacted in maximum 150mm lifts to 98% and 100% standard Proctor density, respectively. The clay fills ranges from 600mm to 1.06m. The exposed fill subgrade should be proof rolled with a heavy sheepsfoot roller (min. 20 passes) which translates to at least 95% Std Proctor thereby exposing any soft areas. Any softened encountered areas should be excavated an additional 300mm, covered with non-woven geotextile and replaced with 100mm down, crushed, clean limestone.

Saturated soil conditions if encountered should be dried off by quickly excavating sump pit or installing

permanent subdrains connected to a catch basin prior to placing the slab-on-grade structure. The base course and subbase materials should conform to City of Winnipeg grading limit specifications. For permanent drainage, filter-protected perimeter and under-floor weeping tiles should be provided at least 300 mm below the underside of the slab and connected to a positive outlet.

Where heavier loading is anticipated at any given floor area, proper construction joint between the heavier loaded floor area and lightly loaded floor area should be constructed to accommodate possible relative movements between the two.

PROPOSED ACCESS ROAD AND PARKING LOT

The anticipated subgrade for the access road is clay fill subgrade. Based on this assumption, (i.e. mainly a clay fill subgrade), the recommended asphaltic concrete pavement construction at this site, based on the assumption of using an Equivalent Single Axle Load (ESAL) of about 22,000 for light duty and 261,000 for heavy duty traffic with asphalt, should be as follows:

Pavement Structure

	Light Duty	Heavy Duty	% Compaction
Asphalt	75mm	75 mm	98% Marshall
Base Course	150 mm	150 mm	98% STD
Subbase	200 mm	450 mm	98% STD

The above pavement sections should be constructed on a prepared clay fill subgrade. The anticipated site stripping at the proposed access road and parking lot depending on the traffic is the depth of the recommended pavement structure. The prepared subgrade should be proof rolled with a heavy sheepsfoot roller (min. 20 passes) which translates to at least 95% STD Proctor.

The granular base course and subbase materials should include organic-free, non-frozen, aggregate conforming to the City of Winnipeg specification gradation limits.

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

Where soft but dry spots are encountered at the subgrade level, construction traffic should be restricted. Soft spots should be excavated 300mm and covered with woven geotextile. The excavated material should

be replaced with 300mm thick of 150mm down limestone. Any saturated subgrade conditions should be dried off quickly by excavation of sump pit or installation of permanent subdrains (600mm below the subgrade level) connected to positive outlet (catch basin) prior to placing the granular fill structure. At these locations, the placing of granular fill should follow the geotextile specifications for soft grounds spot.

The combined aggregate gradation limits and physical requirements of the asphaltic concrete should be in accordance with the City of Winnipeg specification.

For any concrete apron, sidewalk, curbs, the pavement structure should consist of 150mm reinforced concrete followed by 150mm of compacted (98% Standard Proctor Density) base course over the compacted subgrade. If a silt layer was encountered as subgrade, the application of woven geotextile over the silt layer is recommended. Exterior, grade supported concrete slabs will be subjected to some seasonal vertical movements related to frost. Exterior concrete slabs should not be tied into rigid structures such as grade beams, pile caps or interior slabs. To minimize the movements, consideration should be given to the use of rigid synthetic insulation, outward laterally (minimum 1.8m length and about 100mm thick) and beneath the structure. In addition, localized subsurface drainage should be provided around the structure.

For the hot mix asphaltic concrete, gradation analysis of the aggregates (i.e. stone, fines and additive), compaction testing and sampling of at least one representative hot mix asphalt mixture (during construction) for laboratory Marshall testing should be undertaken. This will provide data to confirm that the asphaltic concrete pavement complies with the project specification. Hot mix asphaltic concrete should not be placed at ambient temperatures lower than $+4^{0}$C. During placement, the temperature of the paving mix should be in the range of $+120^{0}$C to $+150^{0}$C and compaction should not take place at paving mix temperatures lower than $+85^{0}$C.

CLOSURE

The findings and recommendations provided in this report were prepared by SILVESTRE S. URBANO(the Consultant) in accordance with generally accepted professional engineering principles and practices. The recommendations are based on the results of field and laboratory investigations and are reflective only of the actual testhole(s) and/or excavation(s) examined. If conditions encountered during construction appear to be different than those shown by the testhole(s) and/or excavation(s) at this site, the Consultant should be notified immediately in order that the recommendations can be reviewed and modified as necessary to address actual site conditions.

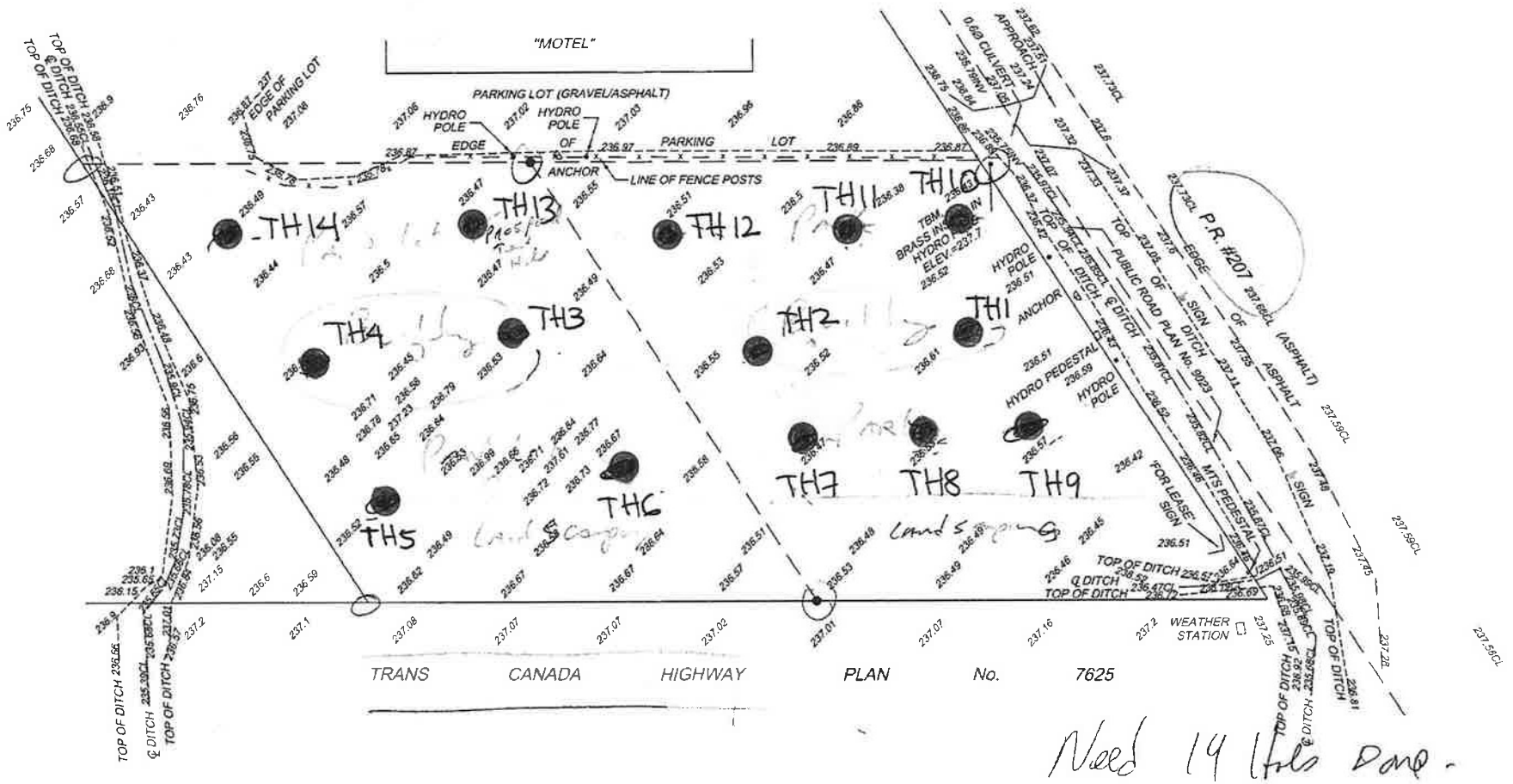
This report is limited in scope to only those items that are specifically referenced in this report. There may be existing conditions that were not recorded in this report. Such conditions were not apparent to the Consultant due to the limitations imposed by the scope of work. The Consultant, therefore, accepts no liability for any costs incurred by the Client for subsequent discovery, manifestation or rectification of such conditions.

This report is intended solely for the Client named as a general indication of the visible or reported physical condition of the items addressed in the report at the time of the geotechnical investigation. The material in this report reflects the Consultant's best judgment in light of the information available to it at the time of preparation.

This report and the information and data contained herein are to be treated as confidential and may be used only by the Client and its officers and employees in relation to the specific project that it was prepared for. Any use a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. The Consultant accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The report has been written to be read in its entirety, do not use any part of this report as a separate entity.

All files, notes, source data, test results and master files are retained by the Consultant and remain the property of the Consultant.



Albert G. Degner
M.L.S., C.L.S.

Leslie N. McLaughlin
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Donald N. Bourgeois
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James E. Baillie
M.L.S.

L. O. (Laurie) LeClair
M.L.S.

Andre Van De Walle
M.L.S.

OUR FILE NO.: 1106246
DATE: July 13, 2011
SURVEYED FOR:
Interbusiness Finance Corp
SKETCH NO: 241Y/11
F.B. 1606 pg. 104,105 and128

NOT TO SCALE

IRON POSTS SHOWN THUS....
ELEVATIONS SHOWN THUS.... 237.1
CENTRELINE OR ROAD CROWN ELEVATIONS SHOWN THUS.... 237.10℄
INVERT ELEVATIONS SHOWN THUS.... 235.79INV

SURVEYOR'S SKETCH

SHOWING CERTAIN FEATURES AND ELEVATIONS ON PART NE 1/4 11-10-4 EPM

DRAWING NAME: \\DWGSERVER\PLANS\DGS SECTIONS\11-10-4EPM.DWG

K. M. YEREX, M.L.S., C.L.S.

Need 14 this Done.

Project No: SU-11-021-00-SU

TH1

Project: DEACON'S CORNER DEVELOPMENT

Client: Three Way Builders Ltd.

Enclosure:

Location: NW Corner Lot of PR #207 and #1 HIGHWAY

Engineer: SSU

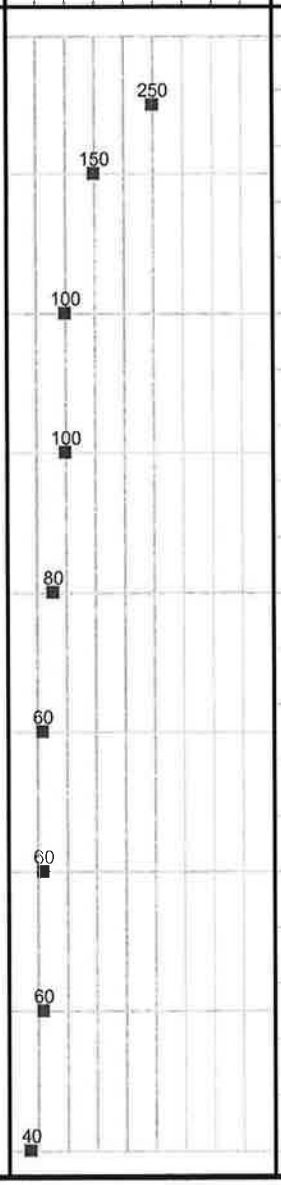
SUBSURFACE PROFILE

Depth (ft / m)	Symbol	Description	Elevation, m
0 / 0		Ground Surface	100
0 / 0		*FILL* 150mm of grass with rootlets, sandy, black over 600mm of clay fill, mixed brown and black	99.3
0 / 0 to 40 / 12		*CLAY* stiff, brown, fissured; SILTY AT 1.4M TO 2M; grey-brown at 2.3m, trace of sulphate inclusions down to 4.6m; grey at 6.1m; soft below 10.7m. TESTHOLE IS DRY AFTER COMPLETION OF DRILLING.	87.9

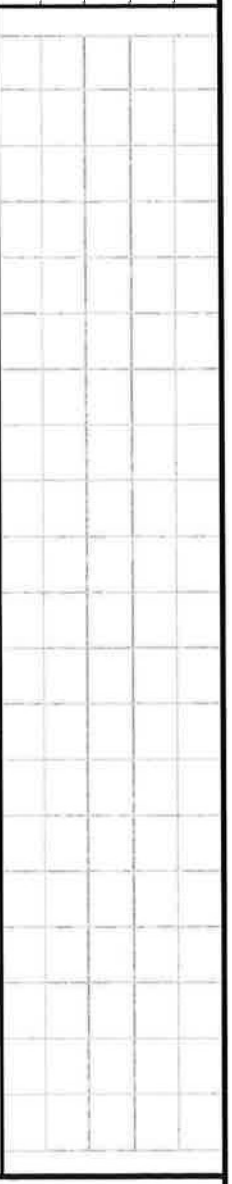
Field Vane(m-kg)

Blows/0.3m

Pocket Penetrometer Test kPa



Water Content %



Drill Method: Continuous Auger

Drill Date: 08/18/11

Hole Size: 125mm

Datum: Assumed 100.0M

Checked by: SSU

Sheet: 1 of 1

Project No: SU-11-021-00-SU

TH2

Project: DEACON'S CORNER DEVELOPMENT

Client: Three Way Builders Ltd.

Enclosure:

Location: NW Corner Lot of PR #207 and #1 HIGHWAY

Engineer: SSU

SUBSURFACE PROFILE

Depth (ft / m)	Symbol	Description	Elevation, m	Field Vane(m-kg)	Blows/0.3m	Pocket Penetrometer Test kPa	Water Content %
0 / 0		Ground Surface	100				
0 / 0		*FILL* 150mm of grass with rootlets, sandy, black over 350mm of clay fill, mixed brown and black	99.5				
1 / 0 – 17 / 5		*CLAY* stiff, brown, fissured; SILTY at 1.2 to 1.5m; grey-brown at 1.5m; grey at 6.1m; soft below 12.2m.	82.4			250, 125, 100, 100, 70, 70, 70, 70, 50, 40, 40	
18 / 5 – 19 / 6		*TILL* medium dense to dense, beige, trace of fine gravel, moist to wet; dense at 18.9m. A.R. AT 19.2M ON EITHER SUSPECTED BOULDER OR BEDROCK. WATER WAS MEASURED AT 7.9M AFTER COMPLETION OF DRILLING.	80.9				
20 / 6 – 21 / 6							

Pocket Penetrometer Test kPa: 50 150 250 350

Water Content %: Wp |-------0-------| Wl; 20 40 60 80

Drill Method: Continuous Auger

Drill Date: 08/18/11

Hole Size: 125mm

Datum: Assumed 100.0M

Checked by: SSU

Sheet: 1 of 1

Project No: SU-11-021-00-SU

TH3

Project: DEACON'S CORNER DEVELOPMENT

Client: Three Way Builders Ltd.

Enclosure:

Location: NW Corner Lot of PR #207 and #1 HIGHWAY

Engineer: SSU

SUBSURFACE PROFILE

Depth (ft / m)	Symbol	Description	Elevation, m	Field Vane(m-kg)	Blows/0.3m	Pocket Penetrometer Test kPa	Water Content %
0 / 0		Ground Surface	100				
1 / 0		*FILL* 200mm of grass with rootlets, sandy, black over 400mm of clay fill, mixed brown and black	99.5				
2 / 1						175	
3 / 1						200	
4 / 2							
5 / 2						80	
6 / 3							
7 / 3						80	
8 / 4							
9 / 4						80	
10 / 5							
11 / 5						75	
12 / 6							
13 / 6						60	
14 / 7							
15 / 7						60	
16 / 8							
17 / 8						50	
18 / 9							
19 / 9							
20 / 10							
21 / 10							
22 / 11							
23 / 11							
24 / 12							
25 / 12							
26 / 13							
27 / 13							
28 / 14							
29 / 14							
30 / 15							
31 / 15							
32 / 16							
33 / 16							
34 / 17							
35 / 17							
36 / 18							
37 / 18							
38 / 19							
39 / 19							
40 / 20		*CLAY* stiff, brown, fissured; grey-brown at 2.3m; trace of sulphate inclusions at 3 to 4.6m; grey at 7.3m; soft below 12.2m. TESTHOLE IS DRY AFTER COMPLETION OF DRILLING.	87.9				

Pocket Penetrometer Test kPa: 50 150 250 350

Water Content %: Wp |------0------| Wl; 20 40 60 80

Drill Method: Continuous Auger

Drill Date: 08/18/11

Hole Size: 125mm

Datum: Assumed 100.0M

Checked by: SSU

Sheet: 1 of 1

Project No: SU-11-021-00-SU

TH4

Project: DEACON'S CORNER DEVELOPMENT

Client: Three Way Builders Ltd.

Enclosure:

Location: NW Corner Lot of PR #207 and #1 HIGHWAY

Engineer: SSU

SUBSURFACE PROFILE

Depth (ft / m)	Symbol	Description	Elevation, m
0 / 0		Ground Surface	100
		FILL 150mm of grass with rootlets, sandy, black over 500mm of clay fill, mixed brown and black	99.3
		CLAY stiff, brown, fissured; SILTY at 1.2 to 1.8m; grey-brown at 2.4m; trace of sulphate inclusions at 4.6m to 6.1m; grey at 7.3m; soft below 9.1m. TESTHOLE IS DRY AFTER COMPLETION OF DRILLING.	
40 / 12			87.9

Field Vane(m-kg)

Blows/0.3m

Pocket Penetrometer Test kPa

50 150 250 350

200 125 100 100 90 70 70 40 40

Water Content %

Wp |-------0-------| Wl

20 40 60 80

Drill Method: Continuous Auger

Drill Date: 08/18/11

Hole Size: 125mm

Datum: Assumed 100.0M

Checked by: SSU

Sheet: 1 of 1

Project No: SU-11-021-00-SU

TH5

Project: DEACON'S CORNER DEVELOPMENT

Client: Three Way Builders Ltd.

Enclosure:

Location: NW Corner Lot of PR #207 and #1 HIGHWAY

Engineer: SSU

SUBSURFACE PROFILE

Depth (ft / m)	Symbol	Description	Elevation, m	Field Vane(m-kg)	Blows/0.3m	Pocket Penetrometer Test kPa	Water Content %
0 / 0		Ground Surface	100			50 150 250 350	Wp |-------0------| Wl 20 40 60 80
		FILL 200mm of grass with rootlets, sandy, black over 100mm of clay fill, mixed brown and black	99.8				
3 / 1						200	
5 /		*CLAY* stiff, grey-black, fissured; brown at 1m; SILTY at 1.4m to 1.8m, tan-brown; brown below 1.8m				150	
7 /						150	
10 / 3			97.1			100	
		End of Testhole					
13 / 4							
15 /							

Drill Method: Continuous Auger

Drill Date: 08/18/11

Hole Size: 125mm

Datum: Assumed 100.0M

Checked by: SSU

Sheet: 1 of 1

Project No: SU-11-021-00-SU

TH6

Project: DEACON'S CORNER DEVELOPMENT

Client: Three Way Builders Ltd.

Enclosure:

Location: NW Corner Lot of PR #207 and #1 HIGHWAY

Engineer: SSU

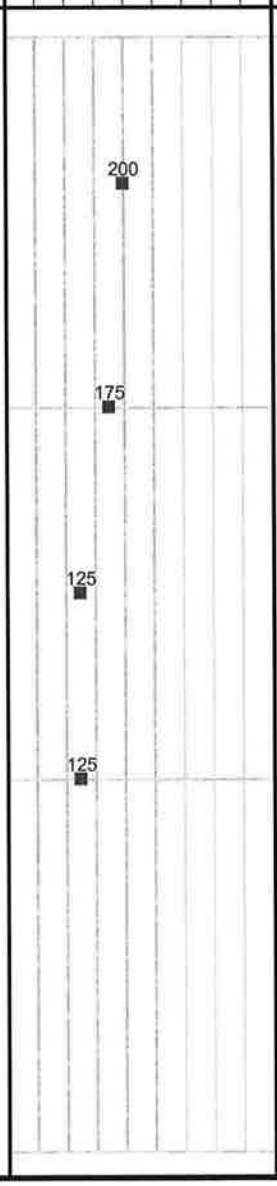
SUBSURFACE PROFILE

Depth (ft / m)	Symbol	Description	Elevation, m
0 / 0		Ground Surface	100
		FILL 200mm of grass with rootlets, sandy, black over 400mm of clay fill, mixed brown and black	99.5
3 / 1		*CLAY* stiff, grey-black, fissured; brown at 1m; SILTY at 1.5m to 2m, tan-brown; brown below 2m, stiff	97.1
10 / 3		End of Testhole	

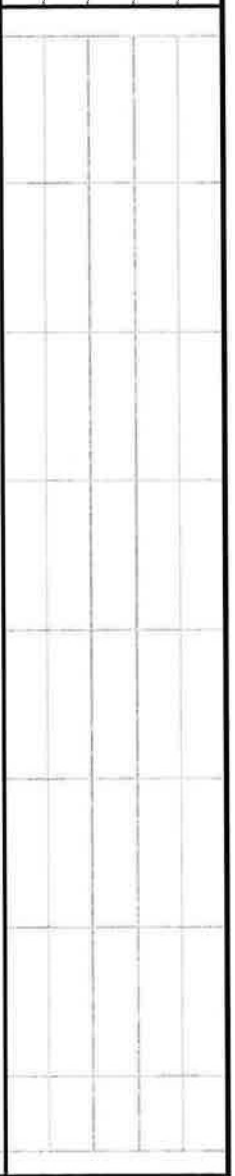
Field Vane(m-kg)

Blows/0.3m

Pocket Penetrometer Test kPa



Water Content %



Drill Method: Continuous Auger

Drill Date: 08/18/11

Hole Size: 125mm

Datum: Assumed 100.0M

Checked by: SSU

Sheet: 1 of 1

Project No: SU-11-021-00-SU

TH7

Project: DEACON'S CORNER DEVELOPMENT

Client: Three Way Builders Ltd.

Enclosure:

Location: NW Corner Lot of PR #207 and #1 HIGHWAY

Engineer: SSU

SUBSURFACE PROFILE

Depth (ft / m)	Symbol	Description	Elevation, m	Field Vane(m-kg)	Blows/0.3m	Pocket Penetrometer Test kPa	Water Content %
0 ft / 0 m		Ground Surface	100				
		FILL 250mm of grass with rootlets, sandy, black over 350mm of clay fill, mixed brown and black	99.5				
		CLAY stiff, grey-black, fissured; brown at 0.8m; SILTY at 1.2m to 2m, tan-brown; brown below 2m, stiff	97.1				
		End of Testhole					

Pocket Penetrometer Test kPa: 50, 150, 250, 350 — 200, 125, 100, 100

Water Content %: Wp 20 | 40 | 60 | 80 Wl

Drill Method: Continuous Auger

Drill Date: 08/18/11

Hole Size: 125mm

Datum: Assumed 100.0M

Checked by: SSU

Sheet: 1 of 1

Project No: SU-11-021-00-SU

TH8

Project: DEACON'S CORNER DEVELOPMENT

Client: Three Way Builders Ltd.

Enclosure:

Location: NW Corner Lot of PR #207 and #1 HIGHWAY

Engineer: SSU

SUBSURFACE PROFILE

Depth (ft / m)	Symbol	Description	Elevation, m	Field Vane(m-kg)	Blows/0.3m	Pocket Penetrometer Test kPa	Water Content %
0 / 0		Ground Surface	100				
0–3 / 0–1		*FILL* 200mm of grass with rootlets, sandy, black over 700mm of clay fill, mixed brown and black	99.2				
3–10 / 1–3		*CLAY* stiff, brown, fissured; SILTY at 1.1m to 1.7m, tan-brown; brown below 1.7m, stiff	97.1			150 at 3 ft 125 at 5 ft 100 at 7 ft 100 at 10 ft	
10 / 3		End of Testhole					

Pocket Penetrometer Test kPa: 50 | 150 | 250 | 350

Water Content %: Wp |------0------| Wl; 20 | 40 | 60 | 80

Drill Method: Continuous Auger

Drill Date: 08/18/11

Hole Size: 125mm

Datum: Assumed 100.0M

Checked by: SSU

Sheet: 1 of 1

Project No: SU-11-021-00-SU

TH9

Project: DEACON'S CORNER DEVELOPMENT

Client: Three Way Builders Ltd.

Enclosure:

Location: NW Corner Lot of PR #207 and #1 HIGHWAY

Engineer: SSU

SUBSURFACE PROFILE

Depth (ft / m)	Symbol	Description	Elevation, m
0 / 0		Ground Surface	100
		FILL 200mm of grass with rootlets, sandy, black over 700mm of clay fill, mixed brown and black	99.2
3 / 1		*CLAY* stiff, brown, fissured; SILTY at 1.1m to 1.7m, tan-brown; brown below 1.7m, stiff	97.1
10 / 3		End of Testhole	

Field Vane(m-kg)

Blows/0.3m

Pocket Penetrometer Test kPa

50 150 250 350

150

125

100

100

Water Content %

Wp |-------0-------| Wl

20 40 60 80

Drill Method: Continuous Auger

Drill Date: 08/18/11

Hole Size: 125mm

Datum: Assumed 100.0M

Checked by: SSU

Sheet: 1 of 1

Project No: SU-11-021-00-SU

TH10

Project: DEACON'S CORNER DEVELOPMENT

Client: Three Way Builders Ltd.

Enclosure:

Location: NW Corner Lot of PR #207 and #1 HIGHWAY

Engineer: SSU

SUBSURFACE PROFILE

Depth (ft / m)	Symbol	Description	Elevation, m
0 / 0		Ground Surface	100
		FILL 200mm of grass with rootlets, sandy, black over 700mm of clay fill, mixed brown and black	99.2
3 / 1		***CLAY*** stiff, brown, fissured; SILTY at 1.2m to 1.7m, tan-brown; brown below 1.7m, stiff	97.1
10 / 3		End of Testhole	

Field Vane(m-kg)

Blows/0.3m

Pocket Penetrometer Test kPa

50 150 250 350

100

50

150

100

Water Content %

Wp |-------0-------| Wl

20 40 60 80

Drill Method: Continuous Auger

Drill Date: 08/18/11

Hole Size: 125mm

Datum: Assumed 100.0M

Checked by: SSU

Sheet: 1 of 1

Project No: SU-11-021-00-SU

TH11

Project: DEACON'S CORNER DEVELOPMENT

Client: Three Way Builders Ltd.

Enclosure:

Location: NW Corner Lot of PR #207 and #1 HIGHWAY

Engineer: SSU

SUBSURFACE PROFILE

Depth (ft / m)	Symbol	Description	Elevation, m	Field Vane(m-kg)	Blows/0.3m	Pocket Penetrometer Test kPa	Water Content %
0 / 0		Ground Surface	100				
0 – 3 / 0 – 1		*FILL* 200mm of grass with rootlets, sandy, black over 700mm of clay fill, mixed brown and black	99.2				
3 – 10 / 1 – 3		*CLAY* stiff, brown, fissured; SILTY at 1.2m to 1.7m, tan-brown; brown below 1.7m, stiff	97.1				
10 / 3		End of Testhole					

Pocket Penetrometer Test kPa: 50, 150, 250, 350

Water Content %: Wp |------0------| Wl; 20, 40, 60, 80

Pocket Penetrometer readings: 100 (3 ft / 1 m), 50 (5 ft / 1.7 m), 150 (7 ft / 2.3 m), 100 (10 ft / 3 m)

Drill Method: Continuous Auger

Drill Date: 08/18/11

Hole Size: 125mm

Datum: Assumed 100.0M

Checked by: SSU

Sheet: 1 of 1

Project No: SU-11-021-00-SU

TH12

Project: DEACON'S CORNER DEVELOPMENT

Client: Three Way Builders Ltd.

Enclosure:

Location: NW Corner Lot of PR #207 and #1 HIGHWAY

Engineer: SSU

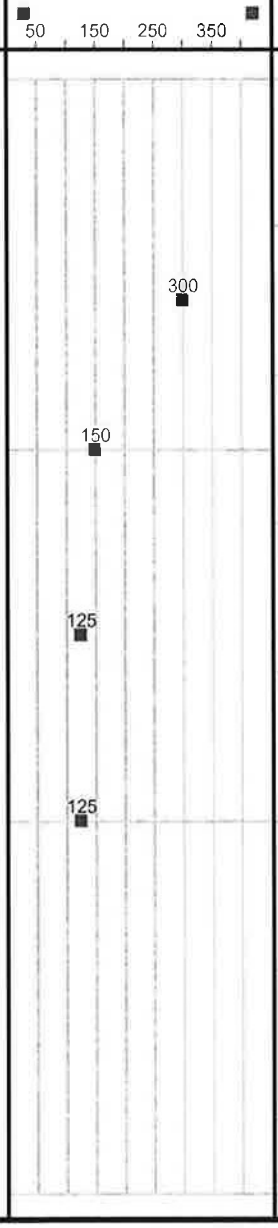
SUBSURFACE PROFILE

Depth (ft / m)	Symbol	Description	Elevation, m
0 / 0		Ground Surface	100
		FILL 150mm of grass with rootlets, sandy, black over 750mm of clay fill, mixed brown and black	
			99.2
3 / 1		*CLAY* stiff, brown, fissured; SILTY at 1.4m to 1.8m, tan-brown; brown below 1.7m, stiff	
			97.1
10 / 3		End of Testhole	
15 / 4			

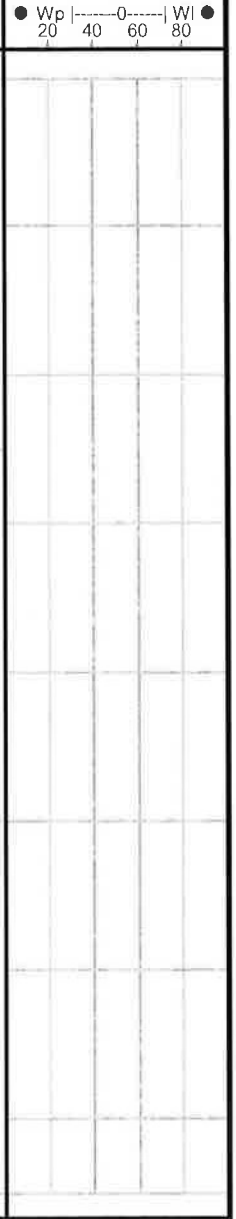
Field Vane(m-kg)

Blows/0.3m

Pocket Penetrometer Test kPa



Water Content %



Drill Method: Continuous Auger

Drill Date: 08/18/11

Hole Size: 125mm

Datum: Assumed 100.0M

Checked by: SSU

Sheet: 1 of 1

Project No: SU-11-021-00-SU

TH13

Project: DEACON'S CORNER DEVELOPMENT

Client: Three Way Builders Ltd.

Enclosure:

Location: NW Corner Lot of PR #207 and #1 HIGHWAY

Engineer: SSU

SUBSURFACE PROFILE

Depth (ft / m)	Symbol	Description	Elevation, m	Field Vane(m-kg)	Blows/0.3m	Pocket Penetrometer Test kPa	Water Content %
0 / 0		Ground Surface	100				
0 – 3 / 0 – 1		*FILL* 250mm of grass with rootlets, sandy, black over 800mm of clay fill, mixed brown and black	99				
3 – 10 / 1 – 3		*CLAY* stiff, brown, fissured; trace of SILT at 1.4m to 2.1m, tan-brown; brown below 2.1m, stiff	97.1			150 150 150 125	
10 / 3		End of Testhole					

Pocket Penetrometer Test kPa: 50 150 250 350

Water Content %: Wp |-------0------| Wl; 20 40 60 80

Drill Method: Continuous Auger

Drill Date: 08/18/11

Hole Size: 125mm

Datum: Assumed 100.0M

Checked by: SSU

Sheet: 1 of 1

Project No: SU-11-021-00-SU

TH14

Project: DEACON'S CORNER DEVELOPMENT

Client: Three Way Builders Ltd.

Enclosure:

Location: NW Corner Lot of PR #207 and #1 HIGHWAY

Engineer: SSU

SUBSURFACE PROFILE

Depth (ft / m)	Symbol	Description	Elevation, m	Field Vane(m-kg)	Blows/0.3m	Pocket Penetrometer Test kPa	Water Content %
0 / 0		Ground Surface	100				
0–3 / 0–1		*FILL* 150mm of grass with rootlets, sandy, black over 450mm of clay fill, mixed brown and black	99.2				
3–10 / 1–3		*CLAY* stiff, grey-black, fissured; brown at 1.2; trace of SILT at 1.4m to 1.8m, tan-brown; brown below 1.8m, stiff	97.1				
10 / 3		End of Testhole					

Pocket Penetrometer Test kPa: 50 150 250 350

Water Content %: Wp |------0------| Wl (20 40 60 80)

Drill Method: Continuous Auger

Drill Date: 08/18/11

Hole Size: 125mm

Datum: Assumed 100.0M

Checked by: SSU

Sheet: 1 of 1