



Government of Newfoundland and Labrador  
Department of Fisheries and Land Resources  
Agriculture and Lands Branch

**Public Draw for Crown Land  
Recreational Cottage Lots  
Salmonier Cottage Area**

**2018**

**Septic Site Evaluation  
Lots 136 - 184**

## **Note:**

**This document provides evaluations on the capability of each site for installation of on-site septic systems.**

**The attached reports in this document are not system designs. Any person intending to install on-site septic systems must submit a design that has been prepared by an approved on-site system designer to the Department of Service NL for approval.**

**For a list of approved septic system designers please contact the Department of Service NL for approval at:**

**Mount Pearl: (709) 729-3699**

**Clareville: (709) 466-4060**

**Harbour Grace: (709) 945-3107**

**Gander: (709) 256-1420**

**Grand Falls-Windsor: (709) 292-4206**

**(709) 292-4259**

**Springdale: (709) 673-4218**

**(or any other Service NL location)**

**MAE PROJECT NO 2014.333**

**ENGINEERING REPORT FOR**  
**SALMONIER COTTAGE INITIATIVE COTTAGE DEVELOPMENT SEPTIC SYSTEM SITE**  
**EVALUATIONS**

**54 LOTS**

**Contract No. 004-14-E**

**PREPARED BY**



**DECEMBER 9, 2014**

**MAE PROJECT NO. 2014.333**

**REPORT TO**

**LAND MANAGEMENT DIVISION.  
DEPT. OF MUNICIPAL AND INTERGOVERNMENTAL AFFAIRS  
P.O. BOX 8700, HOWLEY BUILDING, HIGGINS LINE  
ST. JOHN'S, NL  
A1B 4J6**

**ON**

**ENGINEERING REPORT FOR**

**SALMONIER COTTAGE INITIATIVE COTTAGE DEVELOPMENT SEPTIC SYSTEM SITE  
EVALUATIONS**

**54 LOTS**

**CONTRACT NO. 004-14-E**

**PREPARED BY**

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**DECEMBER 9, 2014**

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## **1.0 Introduction**

The Land Management Division of the Department of Municipal and Intergovernmental Affairs issued a request for proposals to undertake a septic system site evaluation of fifty four (54) proposed cottage lots off of Salmonier Line (Route 90). The Terms of Reference of the proposal call are included in Appendix A. Mae Design Limited submitted a proposal and was awarded the contract to undertake this evaluation on October 31, 2014.

## **2.0 Location**

The proposed fifty four (54) cottage lots are located off of Salmonier Line (Route 90) approximately eleven (11) kilometers south of the Salmonier Line (Route 90)/ Trans Canada Highway Intersection. Refer to map 1 in appendix A.

## **3.0 Methodology**

To undertake the evaluation of the cottage lots and to determine the suitability of the lots for septic system installations, the following work was completed:

- Three (3) test pits were excavated on each of the fifty four (54) lots to determine the soil characteristics, water table elevation if encountered and bedrock elevation if encountered,
- Percolation testing was completed or attempted on each of the fifty four (54) lots to determine the soil absorption and permeability characteristics,
- Lot dimensions and areas were evaluated to determine the lot size suitability,
- Lot slopes were evaluated to determine lot slope suitability,
- A walkover of the property was completed to note existing site conditions and to determine the suitability of the lots for development.

The results of the evaluation tasks are outlined in the following sections.

## **4.0 Evaluation**

### **4.1 Test Pits**

Three (3) test pits were excavated on each of the proposed fifty four (54) lots adjacent to the test pit locations. A track excavator was used to excavate the test pits which were dug to a depth ranging between 1.55 and 1.96 meters. Water was observed in the test pits on four (4) of the lots and ranged between 1.73 and 1.88 meters. Possible bedrock or excavator refusal was observed on one lot at a depth of 1.55 meters. Test pit observations for each lot are included with the lot data sheets in Appendix B.

#### **4.2 In-Situ Soil Permeability**

Percolation testing was attempted or completed on all of the fifty four (54) lots. On some lots the percolation testing was not possible due to the depth of ground water encountered. Percolation pits were excavated to a depth below any organic or unsuitable material. Percolation rates ranged from 2 minutes 57 seconds to 6 minutes 23 seconds. Permeability test results for each lot are included in with the lot data sheets in Appendix B.

#### **4.3 Lot Dimensions and Areas**

GSC regulatory standards require minimum lot areas for septic system installations to be 1860 square meters and minimum lot widths to be 30.0 meters at the septic field location. Proposed lot boundaries and lot locations were provided to Mae Design Limited by the Land Management Division of the Department of Municipal and Intergovernmental Affairs in the form of a digital DXF file. Based on this information the lot dimensions and areas were taken from the digital file and compared to the GSC regulatory requirements. The determined lot dimensions and areas are illustrated in Table 4.31.

**Table 4.31 Lot Dimensions and Areas**

<b>Lot Number</b>	<b>Lot Area (square meters)</b>	<b>Lot Width Along Road (meters)</b>	<b>Meets Reglatory Standards (Yes/No)</b>
135.	4163.2	52.8	Yes
136.	4023.2	55.9	Yes
137.	4087.6	55.7	Yes
138.	4060.1	38.0	Yes
139.	4056.8	57.9	Yes
140.	3996.7	70.5	Yes
141.	3932.2	59.1	Yes
142.	4016.5	53.6	Yes
143.	4047.3	23.2*	Yes
144.	3940.3	45.3	Yes
145.	4024.3	54.3	Yes

Lot Number	Lot Area (square meters)	Lot Width Along Road (meters)	Meets Regulatory Standards (Yes/No)
146.	3992.4	56.2	Yes
147.	3982.6	38.4	Yes
148.	4008.7	38.1	Yes
149.	3904.3	41.5	Yes
150.	4061.7	36.6	Yes
151.	4133.4	37.1	Yes
152.	3982.6	45.1	Yes
153.	3954.2	42.7	Yes
154.	4098.9	43.4	Yes
155.	4287.3	43.8	Yes
156.	3952.0	42.6	Yes
157.	3988.2	43.1	Yes
158.	3967.8	38.8	Yes
159.	4029.6	46.8	Yes
160.	4916.0	46.5	Yes
161.	3953.7	69.6	Yes
162.	4146.3	74.0	Yes
163.	4022.2	44.9	Yes
164.	4071.6	64.6	Yes
165.	3950.0	45.8	Yes
166.	4073.2	68.8	Yes
167.	3993.6	61.4	Yes



Lot Number	Lot Area (square meters)	Lot Width Along Road (meters)	Meets Regulatory Standards (Yes/No)
168.	3998.5	46.8	Yes
169.	4082.3	45.1	Yes
170.	4124.0	45.3	Yes
171.	4093.8	50.2	Yes
172.	4044.9	56.9	Yes
173.	4068.0	60.6	Yes
174.	4301.8	59.2	Yes
175.	4271.1	46.5	Yes
176.	4597.5	48.4	Yes
177.	5081.6	42.9	Yes
178.	4476.2	36.1	Yes
179.	5021.3	41.0	Yes
180.	5365.0	54.6	Yes
181.	4903.3	53.1	Yes
182.	4620.4	37.6	Yes
183.	5104.1	33.5	Yes
184.	4223.4	36.7	Yes
185.	4262.9	81.5	Yes
186.	4047.2	72.6	Yes
187.	4082.4	54.8	Yes
188.	4026.4	26.1*	Yes

\* Lots 143 and 188 do not have 30 meters along the road frontage, however in the proposed location of the septic field the lot does meet the 30 meter criteria for lot width.

#### **4.4 Lot Slopes**

GSC regulatory standards require lot slopes to be less than 30% for septic system installations. During the field assessment of the property the lot profile and slopes were observed and estimated by visual observation. All lot slopes were estimated to be less than 30%. Sketches of property profiles from front to back are included with the lot data sheets in Appendix B.

#### **5.0 Comments and Recommendations**

##### **5.1 General**

- GSC regulatory standards require that individual septic system designs be completed for each individual lot. The suitability of the specific soil types encountered, the design elevation of the septic disposal pipe and the specific septic system location for each lot will be the responsibility of the septic system designer. These individual assessments will be more specific and provide greater detail as to the site requirements.
- GSC regulatory standards state that a minimum of 0.30 meters of good original ground is required above the water table or bedrock location and a minimum of 1.15 meters of good drainage soil is required between the invert of the septic field piping and the water table or bedrock elevation. Imported fill with a good percolation rate can be used to achieve this requirement. Typical lot development sketches are provided in Appendix C, drawings Sk-1, Sk-2, Sk-3 and typical sections through septic fields are included as drawing Sk-4.
- GSC regulatory standards state that a minimum separation distance of 30 meters must be maintained between a septic disposal field and a body of water.
- All 54 lots assessed satisfied the GSC regulatory requirements for area, width and slope.

##### **5.2 Lots 135-139, 146, 158-160, 162, 166, & 174-175**

- In general the soil types encountered were either a light brown sandy material with cobbles or a dark brown sandy material with cobbles followed by a light grey sandy material with cobbles or a dark grey sandy material with cobbles. The soil percolation rates was favorable on lots 135-138, 146, 158, 160, 162, and 174-175 and the

existing material on these lots is acceptable as a septic field drainage medium. Lots 139, 159 and 166 a saturated brown sandy material or a saturated grey sandy material was encountered. This material is not acceptable as a septic field drainage medium. Site work is required to reduce the water content in the soil on these lots in order to make them suitable to support a septic field drainage area.

- Ground water was observed in the test pits on lots 139 and 166. The septic field distribution pipe is required to be installed a minimum of 1.15 meters above the water table elevation.
- For lots 139, 159 and 166 a percolation rate was not determined due to the saturation of the soils. The minimum 0.3 meters of good original ground requirement set by the Department of Government Services Private Sewage Disposal and Water Supply Standards was not observed on these lots. Site work in the form of on site ditching along property lines or around the septic field area could be utilized to reduce the amount of water on the site. Reducing the water level would allow for the 0.3 meters of good original ground to be observed and make the property viable as a building lot.
- Lots 138, 139, 158, 159, 160, 174 and 175 appeared to have standing surface water on the lot. Site work in the form of on site ditching along property lines could be utilized to reduce the amount of water on the site.
- Lots 139, 152, 153, 156, 174 and 175 are located in low lying areas of the development and roadside ditching along the front of these lots does not appear to be adequate or working properly to alleviate water from entering the lots. Revisiting the roadside ditching along the frontage of these lots is recommended to help aid in controlling water on these properties.
- Recommendation Sketch SK-1 should be followed for lots 135-139, 146, 158-160, 162, 166, and 174-175.

### **5.3 Lots 152-157**

- In general the soil types encountered were either a light brown sandy material with cobbles or a dark brown sandy material with cobbles followed by a light grey sandy material with cobbles or a dark grey sandy material with cobbles. The soil percolation rates were favorable on all of these lots and the existing material on these lots is acceptable as a septic field drainage medium.

- Lots 152 and 153 appeared to have standing surface water on the lot. Site work in the form of on site ditching along property lines could be utilized to reduce the amount of water on the site.
- Lots 152 and 153 are located in low lying areas of the development and roadside ditching along the front of these lots does not appear to be adequate or working properly to alleviate water from entering the lots. Revisiting the roadside ditching along the frontage of these lots is recommended to help aid controlling water on these properties.
- Recommendation Sketch SK-2 should be followed for lots 152-157.

#### **5.4 Lots 140-145, 147-151, 161, 163-165, 167-173, 176-188**

- In general the soil types encountered were either a light brown sandy material with cobbles or a dark brown sandy material with cobbles followed by a light grey sandy material with cobbles or a dark grey sandy material with cobbles. The soil percolation rates were favorable on all of these lots and the existing material on these lots is acceptable as a septic field drainage medium. On lots 143, 147 and 163 a large amount of cobbles was encountered. If this is present in the drainage field area it should be removed and replaced with the grey sandy material found on the site or a good percolating material with a percolation rate between 5-10 minutes.
- Possible bedrock was observed in the test pits on lot 163. The septic field distribution pipe is required to be installed a minimum of 1.15 meters above the bedrock elevation.
- Ground water was observed in the test pits on lot 145. The septic field distribution pipe is required to be installed a minimum of 1.15 meters above the water table elevation.
- Lots 163, 164 and 176 appeared to have standing surface water on the lot. Site work in the form of on site ditching along property lines could be utilized to reduce the amount of water on the site.
- Lots 163, 164 and 176 are located in low lying areas of the development and roadside ditching along the front of these lots does not appear to be adequate or working properly to alleviate water from entering the lots. Revisiting the roadside ditching along the frontage of these lots would be recommended to help aid in the amount of water on the properties.

- Lot 188 has a body of water present on three (3) sides of its boundaries. A minimum of 30 meters separation distance is required from the high water mark of the body of water to the septic disposal field. Once this is applied to this lot only a small strip of land is available for the disposal field area. The land available to accommodate the septic field area is at the highest elevation on the lot. This lot might require a non-conventional septic system. The 30 meter offset from the high water mark is outlined on the site sketch portion of the lot data sheet located in Appendix B.
- Recommendation Sketch SK-3 should be followed for lots 140-145, 147-151, 161, 163-165, 167-173, 176-188.

## 6.0 Scope of Work Requirements

### 6.1 Lots 135-137, 140-142, 144, 146, 148-151, 154-155, 157, 161-162, 165, 167-173 and 177-188

- Requires placement of an on site septic system and drilling or excavation of a well on each lot. Excavation will be needed to complete the placement of the septic system. Crushed stone will be required to be placed above and below the perforated disposal field lines. As per the Department of Government Services "Private Sewage Disposal and Water Supply Standards" crushed stone should be in the range of 1.9 cm(0.75") minimum to 6 cm(2.5") maximum. A non treated building paper or other suitable material will be required to be placed over the crushed stone in the trenches of the disposal field to prevent clogging, but not to inhibit evapotranspiration. Backfilling of the excavated areas and site grading will be required.
- Ditching may or may not be needed around the septic field area depending on the possibility of encountering surface water during construction/excavation.

### 6.2 Lot 145

- Requires additional fill to be placed in the septic field area to bring the invert of the perforated septic field lines to the required 1.15 meters above the water table/bedrock elevation. Depending on the depth of the groundwater/bedrock elevation the fill required for the septic field construction could range between 130 m<sup>3</sup> and 150 m<sup>3</sup>. A suitable fill should be chosen with a percolation rate between 5-10 minutes. The fill area should encompass the septic field area and extend 4.5 meters on all sides before sloping. A standard septic field including the 4.5 meter perimeter will occupy ± 300 square meters.

- Requires placement of an on site septic system and drilling or excavation of a well on each lot. Excavation will be needed to complete the placement of the septic system. Crushed stone will be required to be placed above and below the perforated disposal field lines. As per the Department of Government Services "Private Sewage Disposal and Water Supply Standards" crushed stone should be in the range of 1.9 cm(0.75")minimum to 6 cm(2.5") maximum. A non treated building paper or other suitable material will be required to be placed over the crushed stone in the trenches of the disposal field to prevent clogging, but not to inhibit evapotranspiration. Backfilling of the excavated areas and site grading will be required.
- Ditching may or may not be needed around the septic field area depending on the possibility of encountering surface water during construction/excavation.

### **6.3 Lots 138 and 158**

- Requires ditching around the disposal field area or along property boundaries. Ditching should be deep enough to capture surface water and to discharge the water to roadside ditching or a body of water.
- Requires placement of an on site septic system and drilling or excavation of a well on each lot. Excavation will be needed to complete the placement of the septic system. Crushed stone will be required to be placed above and below the perforated disposal field lines. As per the Department of Government Services "Private Sewage Disposal and Water Supply Standards" crushed stone should be in the range of 1.9 cm(0.75")minimum to 6 cm(2.5") maximum. A non treated building paper or other suitable material will be required to be placed over the crushed stone in the trenches of the disposal field to prevent clogging, but not to inhibit evapotranspiration. Backfilling of the excavated areas and site grading will be required.

### **6.4 Lot 143 and 147**

- Due to a layer of a large amount of cobbles observed in the test pits, these lots require some of the material in the septic field area to be removed and replaced with a suitable fill material with a percolation rate between 5-10 minutes.
- Requires placement of an on site septic system and drilling or excavation of a well on each lot. Excavation will be needed to complete the placement of the septic system. Crushed stone will be required to be placed above and below the perforated disposal field lines. As per the Department of Government Services "Private Sewage Disposal

and Water Supply Standards” crushed stone should be in the range of 1.9 cm(0.75”)minimum to 6 cm(2.5”) maximum. A non treated building paper or other suitable material will be required to be placed over the crushed stone in the trenches of the disposal field to prevent clogging, but not to inhibit evapotranspiration. Backfilling of the excavated areas and site grading will be required.

- Ditching may or may not be needed around the septic field area depending on the possibility of encountering surface water during construction/excavation.

#### **6.5 Lot 164**

- Due to the location of the lot in a low lying area roadside ditching should be revisited to help alleviate the amount of water entering the property. Roadside ditching should be a minimum of 1.0 meters in depth and have a two (2) horizontal to one (1) vertical slope on the side walls on the ditch.
- Requires placement of an on site septic system and drilling or excavation of a well on each lot. Excavation will be needed to complete the placement of the septic system. Crushed stone will be required to be placed above and below the perforated disposal field lines. As per the Department of Government Services “Private Sewage Disposal and Water Supply Standards” crushed stone should be in the range of 1.9 cm(0.75”)minimum to 6 cm(2.5”) maximum. A non treated building paper or other suitable material will be required to be placed over the crushed stone in the trenches of the disposal field to prevent clogging, but not to inhibit evapotranspiration. Backfilling of the excavated areas and site grading will be required.
- Ditching may or may not be needed around the septic field area depending on the possibility of encountering surface water during construction/excavation.

#### **6.6 Lots 152-153, 160 and 174-176**

- Requires ditching around the disposal field area or along property boundaries. Ditching should be deep enough to capture surface water and to discharge the water to roadside ditching or a body of water.
- Due to the location of the lots in a low lying area roadside ditching should be revisited to help alleviate the amount of water entering the property. Roadside ditching should be a minimum of 1.0 meters in depth and have a two (2) horizontal to one (1) vertical slope on the side walls on the ditch.

- Requires placement of an on site septic system and drilling or excavation of a well on each lot. Excavation will be needed to complete the placement of the septic system. Crushed stone will be required to be placed above and below the perforated disposal field lines. As per the Department of Government Services "Private Sewage Disposal and Water Supply Standards" crushed stone should be in the range of 1.9 cm(0.75") minimum to 6 cm(2.5") maximum. A non treated building paper or other suitable material will be required to be placed over the crushed stone in the trenches of the disposal field to prevent clogging, but not to inhibit evapotranspiration. Backfilling of the excavated areas and site grading will be required.

#### **6.7 Lot 156**

- Requires additional fill to be placed in the septic field area to bring the invert of the perforated septic field lines to the required 1.15 meters above the water table/bedrock elevation. Depending on the depth of the groundwater/bedrock elevation the fill required for the septic field construction could range between 130 m<sup>3</sup> and 150 m<sup>3</sup>. A suitable fill should be chosen with a percolation rate between 5-10 minutes. The fill area should encompass the septic field area and extend 4.5 meters on all sides before sloping. A standard septic field including the 4.5 meter perimeter will occupy ± 300 square meters.
- Due to the location of the lot in a low lying area roadside ditching should be revisited to help alleviate the amount of water entering the property. Roadside ditching should be a minimum of 1.0 meters in depth and have a two (2) horizontal to one (1) vertical slope on the side walls on the ditch.
- Requires placement of an on site septic system and drilling or excavation of a well on each lot. Excavation will be needed to complete the placement of the septic system. Crushed stone will be required to be placed above and below the perforated disposal field lines. As per the Department of Government Services "Private Sewage Disposal and Water Supply Standards" crushed stone should be in the range of 1.9 cm(0.75") minimum to 6 cm(2.5") maximum. A non treated building paper or other suitable material will be required to be placed over the crushed stone in the trenches of the disposal field to prevent clogging, but not to inhibit evapotranspiration. Backfilling of the excavated areas and site grading will be required.

#### **6.8 Lot 163**

- Requires additional fill to be placed in the septic field area to bring the invert of the perforated septic field lines to the required 1.15 meters above the water table/bedrock



elevation. Depending on the depth of the groundwater/bedrock elevation the fill required for the septic field construction could range between 130 m<sup>3</sup> and 150 m<sup>3</sup>. A suitable fill should be chosen with a percolation rate between 5-10 minutes. The fill area should encompass the septic field area and extend 4.5 meters on all sides before sloping. A standard septic field including the 4.5 meter perimeter will occupy ± 300 square meters.

- Due to a layer of a large amount of cobbles observed in the test pits, this lot requires some of the material in the septic field area to be removed and replaced with a suitable fill material with a percolation rate between 5-10 minutes.
- Due to the location of the lot in a low lying area roadside ditching should be revisited to help alleviate the amount of water entering the property. Roadside ditching should be a minimum of 1.0 meters in depth and have a two (2) horizontal to one (1) vertical slope on the side walls on the ditch.
- Requires placement of an on site septic system and drilling or excavation of a well on each lot. Excavation will be needed to complete the placement of the septic system. Crushed stone will be required to be placed above and below the perforated disposal field lines. As per the Department of Government Services "Private Sewage Disposal and Water Supply Standards" crushed stone should be in the range of 1.9 cm(0.75") minimum to 6 cm(2.5") maximum. A non treated building paper or other suitable material will be required to be placed over the crushed stone in the trenches of the disposal field to prevent clogging, but not to inhibit evapotranspiration. Backfilling of the excavated areas and site grading will be required.

#### 6.9 Lot 159

- Requires ditching around the disposal field area or along property boundaries. Ditching should be deep enough to capture surface water and to discharge the water to roadside ditching or a body of water.
- Due to the saturated material observed in the test pits, this lot requires the material in the septic field area to be removed and replaced with a suitable fill material with a percolation rate between 5-10 minutes.
- Due to the location of the lot in a low lying area roadside ditching should be revisited to help alleviate the amount of water entering the property. Roadside ditching should be a minimum of 1.0 meters in depth and have a two (2) horizontal to one (1) vertical slope on the side walls on the ditch.

- Requires placement of an on site septic system and drilling or excavation of a well on each lot. Excavation will be needed to complete the placement of the septic system. Crushed stone will be required to be placed above and below the perforated disposal field lines. As per the Department of Government Services "Private Sewage Disposal and Water Supply Standards" crushed stone should be in the range of 1.9 cm(0.75") minimum to 6 cm(2.5") maximum. A non treated building paper or other suitable material will be required to be placed over the crushed stone in the trenches of the disposal field to prevent clogging, but not to inhibit evapotranspiration. Backfilling of the excavated areas and site grading will be required.

#### **6.10 Lots 139 and 166**

- Requires additional fill to be placed in the septic field area to bring the invert of the perforated septic field lines to the required 1.15 meters above the water table/bedrock elevation. Depending on the depth of the groundwater/bedrock elevation the fill required for the septic field construction could range between 130 m<sup>3</sup> and 150 m<sup>3</sup>. A suitable fill should be chosen with a percolation rate between 5-10 minutes. The fill area should encompass the septic field area and extend 4.5 meters on all sides before sloping. A standard septic field including the 4.5 meter perimeter will occupy ± 300 square meters.
- Requires ditching around the disposal field area or along property boundaries. Ditching should be deep enough to capture surface water and to discharge the water to roadside ditching or a body of water.
- Due to the saturated material observed in the test pits, these lots require the material in the septic field area to be removed and replaced with a suitable fill material with a percolation rate between 5-10 minutes.
- Due to the location of the lot in a low lying area roadside ditching should be revisited to help alleviate the amount of water entering the property. Roadside ditching should be a minimum of 1.0 meters in depth and have a two (2) horizontal to one (1) vertical slope on the side walls on the ditch.
- Requires placement of an on site septic system and drilling or excavation of a well on each lot. Excavation will be needed to complete the placement of the septic system. Crushed stone will be required to be placed above and below the perforated disposal field lines. As per the Department of Government Services "Private Sewage Disposal and Water Supply Standards" crushed stone should be in the range of 1.9 cm(0.75") minimum to 6 cm(2.5") maximum. A non treated building paper or other

suitable material will be required to be placed over the crushed stone in the trenches of the disposal field to prevent clogging, but not to inhibit evapotranspiration. Backfilling of the excavated areas and site grading will be required.

## **APPENDIX A**

### **Terms of Reference**



Government of Newfoundland and Labrador  
Department of Municipal and Intergovernmental Affairs  
Lands Branch  
Land Management Division

# **SALMONIER COTTAGE INITIATIVE**

## **COTTAGE DEVELOPMENT AREA**

### **TERMS OF REFERENCE**

#### **LIMITED CALL FOR BIDS FOR**

#### **CONTRACT NO. 004-14-E**

#### **SEPTIC SYSTEM SITE EVALUATIONS FOR**

#### **54 RECREATIONAL COTTAGE LOTS**

**OCTOBER 2014**

## 1. PROJECT DESCRIPTION

This project consists of evaluations of fifty-four (54) recreational cottage lots within the Salmonier Cottage Development Area for their capability to support on-site septic systems. The locations of the development area and cottage lots are provided on Maps 1 & 2 (attached). Lots have been identified in the field with flagging tape. The project will include all work required in accordance with the **Private Sewage Disposal and Water Supply Standards (Dept. of Government Services, January 2006)** to determine whether each lot is suitable for installation of a sub-surface septic disposal system. The successful bidder **will not** be required to complete a full engineering study as per **Appendix C** of the **Standards**. The successful bidder **will be** required to supply a report; (i) verifying the capability of each individual lot to support a sub-surface septic system; (ii) indicating mitigating measures that may be needed for lots that meet minimum **Standards** but may require upgrading and; (iii) noting any lots not capable of meeting minimum requirements of the **Standards**.

## 2. SCOPE OF WORK

The report will address the following factors that might affect each site's suitability for installation of an underground on-site septic system:

- a) size of lot;
- b) slope of the lot;
- c) type and permeability of the soil, and measurement of the soil's capacity to absorb liquid;
- d) depth to ground water table;
- e) presence and depth of bedrock, where encountered;
- f) recommended location where septic tank and disposal field may be installed, considering distances from buildings, watercourses, wells, roads, property lines, driveways, water service lines, etc.;
- g) site up-grading specifications and cost estimate if lot is determined to require upgrading.

### NOTE:

- (i) For each lot, three (3) percolation test pits are required; six (6) metres apart, equidistant from each other in the general area of the potential disposal system.
- (ii) Walkovers of all lots are required, with terrain that may be unsuitable for building or installation of septic systems noted and indicated on lot diagrams (i.e., surface water; wetland, steep slopes, bedrock).
- (iii) Lots that do not have a minimum of 30.5 cm (1 foot) of suitable local soil as per the **Private Sewage Disposal and Water Supply Standards (Dept. of Government Services, January 2006)**, or lots for which percolation testing cannot be completed, are to be noted as being incapable of being upgraded.

### 3. SCHEDULING

#### 3.1 Commencement Date

The commencement date of the work shall be within three (3) days of the signature date of the contract, or the date the bidder is notified in writing of acceptance of the bid offer, exclusive of that date. The successful bidder must contact the Land Management Division to arrange site visits with Lands staff prior to commencing field work.

#### 3.2 Completion Date

All work must be completed and submitted to the Department within **thirty (30) days**, inclusive of the commencement date.

### 4. REPORTING PROCEDURE

4.1 The preliminary report of the field assessment will be submitted to the Land Management Division in writing and by telephone within five (5) days of the completion of the field evaluation. E-mail is acceptable for the written preliminary report.

4.2 The final report must be submitted in both printed and digital versions. The digital report shall include all text, maps and diagrams combined within one document in PDF format. The report shall meet professional graphic standards in layout and appearance acceptable to the Land Management Division. It will be posted on Lands Branch's web site for public viewing when the Public Draw for the cottage lots is advertised.

4.3 The final report shall be reviewed by Land Management Division in consultation with Environmental Health staff of Service NL. If further work is deemed necessary, the report shall not be considered final and the contractor shall be required to perform the necessary work to ensure the report is satisfactory and in conformity with the scope of work (above).

### 5. QUALIFICATIONS

Bidders/bidding firms shall hold a certificate as a Professional Engineer, Certified Engineering Technologist, Certified Engineering Technician, Certified Public Health Inspector or approved Septic System Designer/Installer as required under the *Sanitation Regulations* of the *Health and Community Services Act*.

### 6. BIDS

Bidders are advised to conduct site inspections prior to submitting their bid. Bids shall clearly identify the following:

6.1 the total price for professional services, inclusive of all related costs, with and without HST;

6.2 the commencement and completion dates of the field evaluation.

7. **DEADLINE FOR BIDS**

Bids must be clearly marked “**Salmonier Cottage Initiative Septic System Site Evaluation Contract # 004-14-E**” and received at the Land Management Division no later than **11:00 am, Friday, October 31, 2014**. No bid will be accepted after the specified deadline. Public bid opening time will be **11:15 am, Friday, October 31, 2014**.

Bids may be sent by fax or e-mail to the Land Management Division. The fax or e-mail must include the items specified in Section 6 (above). The time and date printed on the bid pages by the fax machine or the received time recorded on the e-mail shall be considered the time of receipt.

Bids that are submitted by fax or e-mail are not considered confidential. The Land Management Division cannot guarantee the confidentiality of such bids. These bids are submitted at the discretion of the bidder. It is the responsibility of the bidder to ensure that any bid submitted by fax or e-mail has been received by the Land Management Division.

It is strongly advised that bidders call to confirm receipt of bids.

**Note: The lowest, or any, bid need not necessarily be accepted by the Land Management Division. The contract may not be awarded if bids exceed budgetary estimates.**

The address is:

Lands Branch  
Land Management Division  
Department of Municipal and Intergovernmental Affairs  
Howley Building, Higgins Line  
P.O. Box 8700  
St. John's, NL A1B 4J6

Tel: (709) 729-3227 Fax: (709) 729-3923

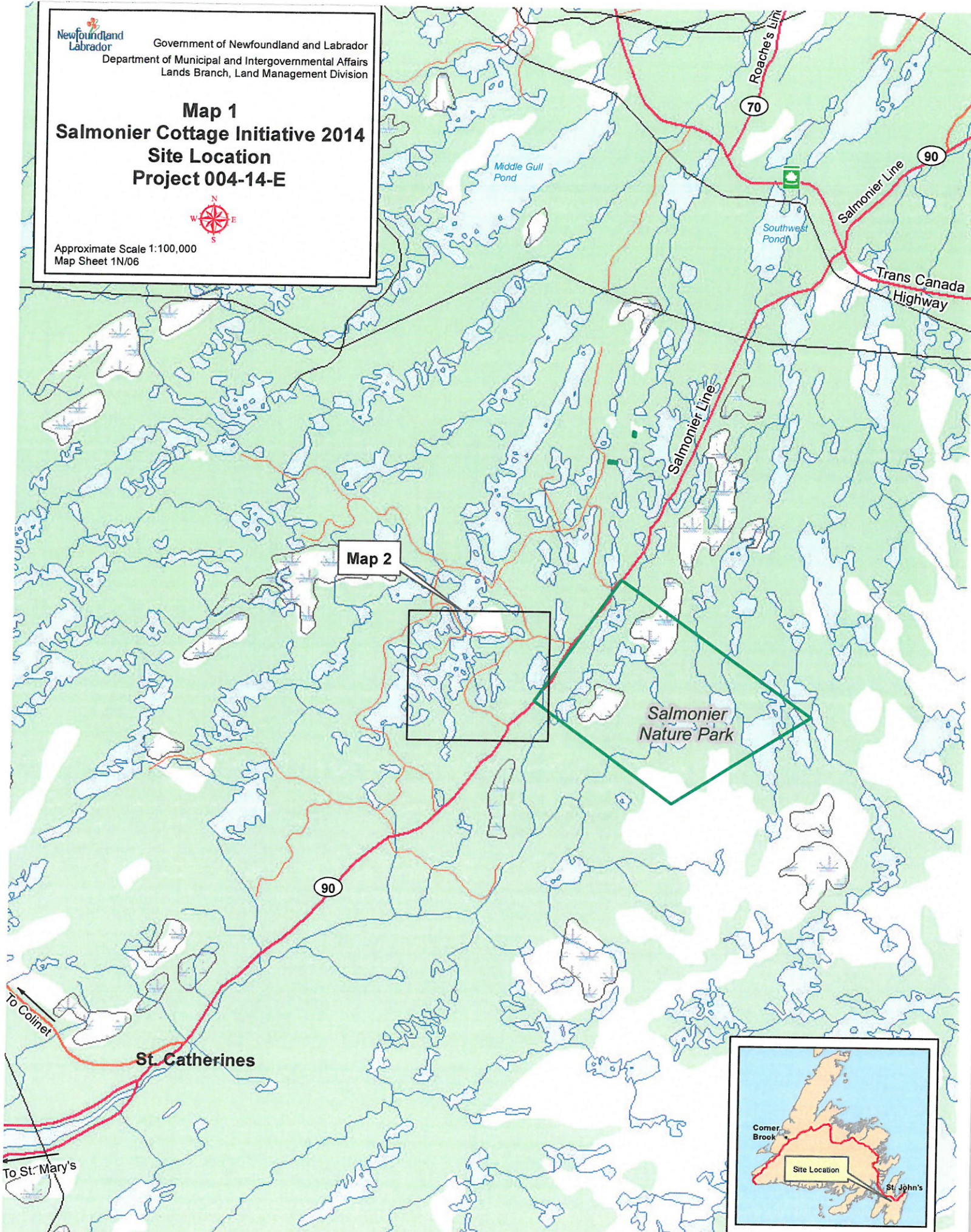
[jhowley@gov.nl.ca](mailto:jhowley@gov.nl.ca)



**Map 1**  
**Salmonier Cottage Initiative 2014**  
**Site Location**  
**Project 004-14-E**



Approximate Scale 1:100,000  
Map Sheet 1N/06



**Map 2**  
**Salmonier Cottage Initiative 2014**  
**Septic System Site Evaluations**  
**Project 004-14-E**



Approximate Scale 1:9,000  
Map Sheet 1N/06

Little Gull Pond

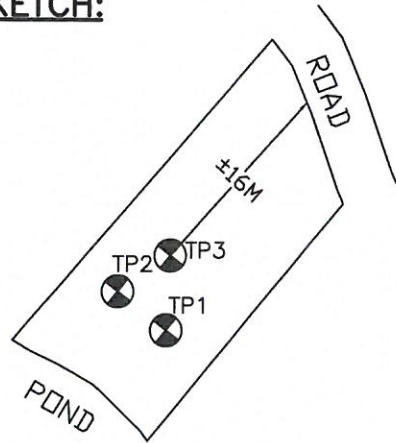


Lot #	Frontage	Area
135	81 m	0.416 ha
136	49 m	0.402 ha
137	56 m	0.408 ha
138	38 m	0.406 ha
139	58 m	0.405 ha
140	71 m	0.399 ha
141	58 m	0.393 ha
142	53 m	0.401 ha
143	23 m	0.404 ha
144	45 m	0.394 ha
145	52 m	0.402 ha
146	52 m	0.399 ha
147	47 m	0.398 ha
148	39 m	0.400 ha
149	41 m	0.390 ha
150	38 m	0.406 ha
151	38 m	0.413 ha
152	45 m	0.398 ha
153	42 m	0.395 ha
154	43 m	0.409 ha
155	48 m	0.428 ha
156	42 m	0.395 ha
157	44 m	0.398 ha
158	39 m	0.396 ha
159	48 m	0.402 ha
160	43 m	0.419 ha
161	70 m	0.402 ha
162	72 m	0.414 ha
163	45 m	0.402 ha
164	64 m	0.407 ha
165	45 m	0.394 ha
166	70 m	0.407 ha
167	62 m	0.399 ha
168	45 m	0.399 ha
169	45 m	0.408 ha
170	47 m	0.412 ha
171	45 m	0.415 ha
172	58 m	0.393 ha
173	50 m	0.400 ha
174	60 m	0.430 ha
175	45 m	0.427 ha
176	49 m	0.459 ha
177	45 m	0.508 ha
178	35 m	0.447 ha
179	41 m	0.502 ha
180	54 m	0.536 ha
181	51 m	0.494 ha
182	38 m	0.462 ha
183	33 m	0.510 ha
184	37 m	0.422 ha
185	83 m	0.426 ha
186	72 m	0.404 ha
187	54 m	0.404 ha
188	44 m	0.402 ha

## **APPENDIX B**

### **Lot Data Sheets**

**SITE SKETCH:**



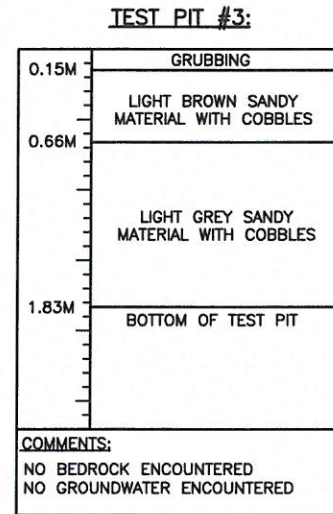
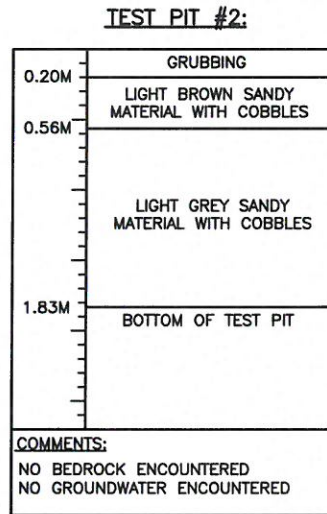
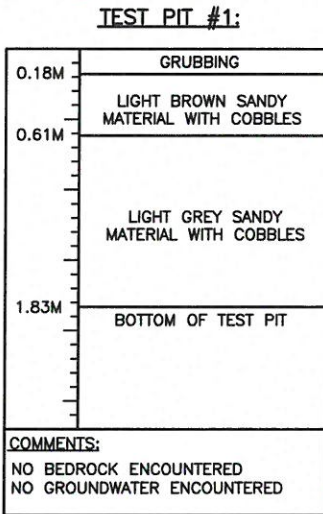
**LEGEND**

- TP ⊗ - TEST PIT
- PP ⊗ - PERCOLATION PIT

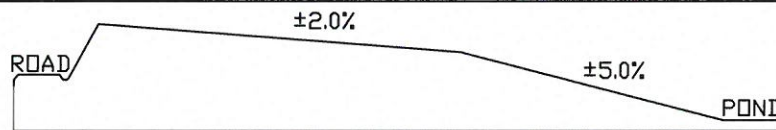
**LOT PHOTOGRAPH TAKEN FROM ROAD:**



**TEST PIT RESULTS:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 12, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 15 SEC.	

TEST PIT/PERCOLATION DATA  
SALMONIER COTTAGE INITIATIVE  
COTTAGE DEVELOPMENT



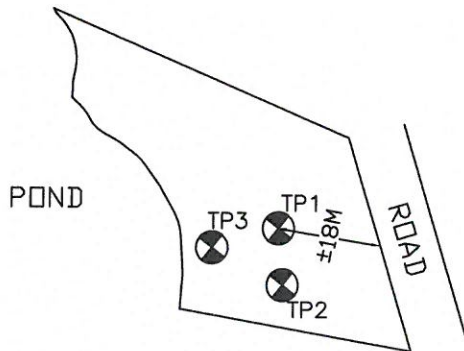
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

LOT #136

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

**SITE SKETCH:**



**LEGEND**

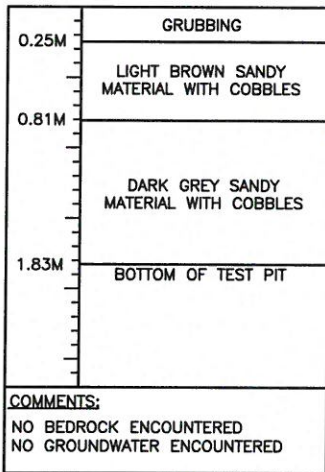
- TP ⊗ - TEST PIT
- PP ⊗ - PERCOLATION PIT

**LOT PHOTOGRAPH TAKEN FROM ROAD:**

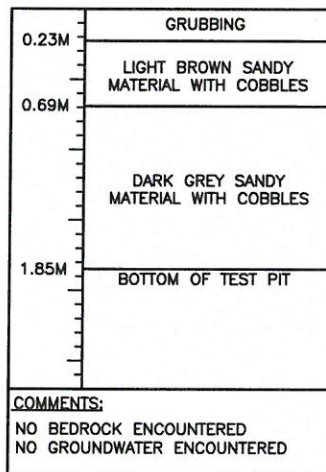


**TEST PIT RESULTS:**

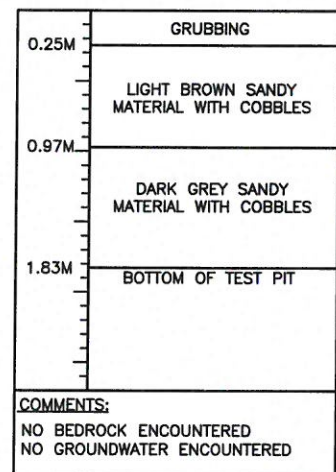
**TEST PIT #1:**



**TEST PIT #2:**



**TEST PIT #3:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 12, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 14 SEC.	

TEST PIT/PERCOLATION DATA  
SALMONIER COTTAGE INITIATIVE  
COTTAGE DEVELOPMENT



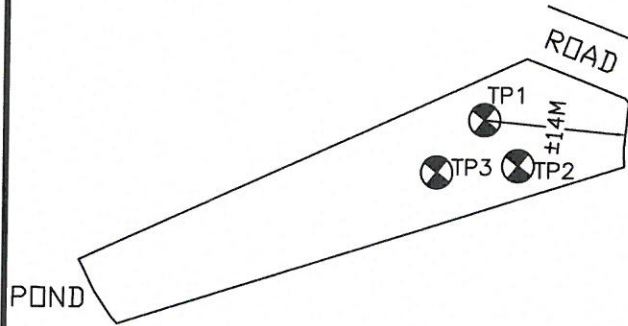
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

LOT#141

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

**SITE SKETCH:**



**LEGEND**

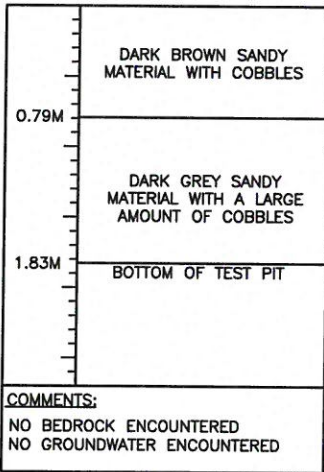
- TP ⊗ - TEST PIT
- PP ⊗ - PERCOLATION PIT

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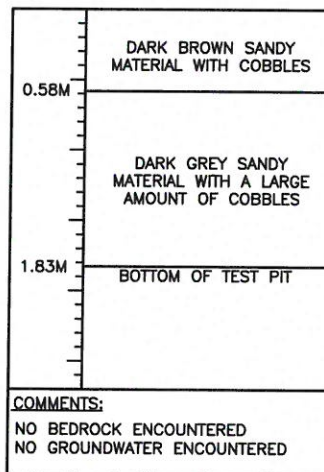


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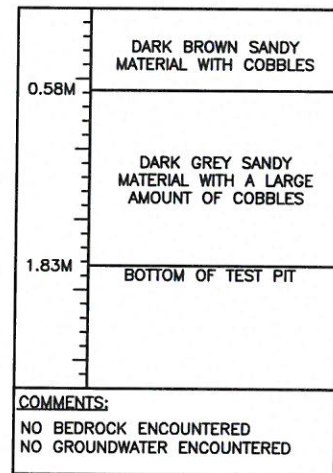
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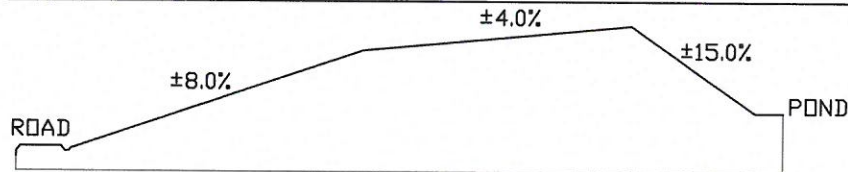
**TEST PIT #2:**



**TEST PIT #3:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 12, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 12 SEC.	

TEST PIT/PERCOLATION DATA  
SALMONIER COTTAGE INITIATIVE  
COTTAGE DEVELOPMENT



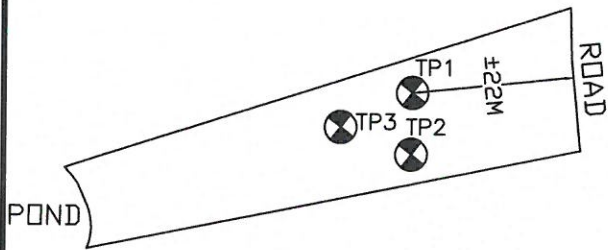
DRAWING NO.

LOT #147

TEL (709) 834-1554 FAX (709) 834-1558

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

**SITE SKETCH:**



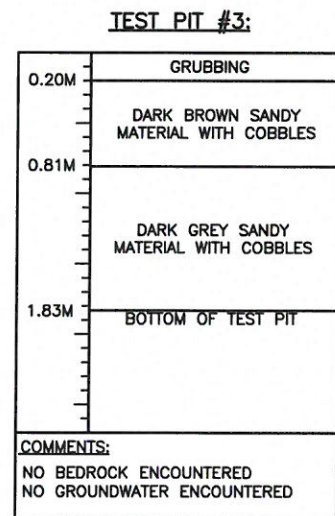
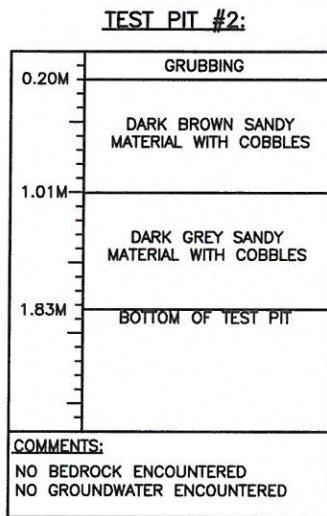
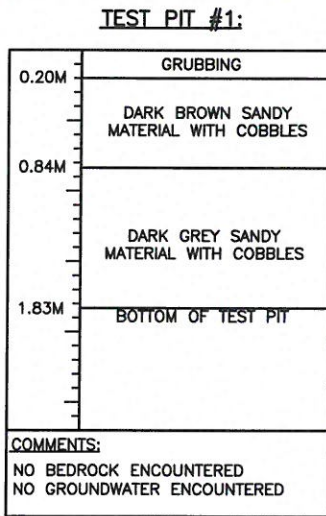
**LOT PHOTOGRAPH TAKEN FROM ROAD:**



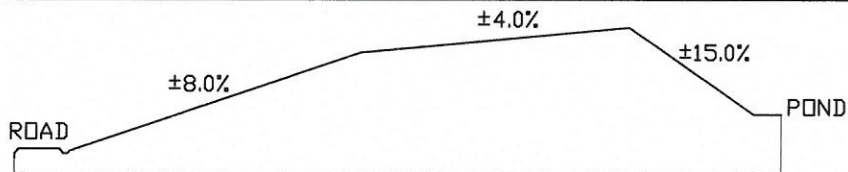
**LEGEND**

- TP ⊗ - TEST PIT
- PP ⊗ - PERCOLATION PIT

**TEST PIT RESULTS:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 12, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 33 SEC.	

TEST PIT/PERCOLATION DATA  
SALMONIER COTTAGE INITIATIVE  
COTTAGE DEVELOPMENT



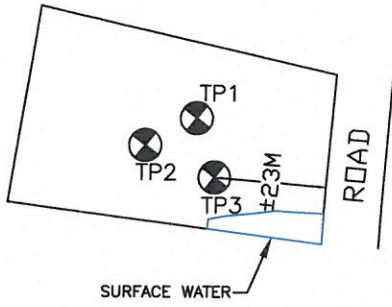
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

LOT #148

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

**SITE SKETCH:**



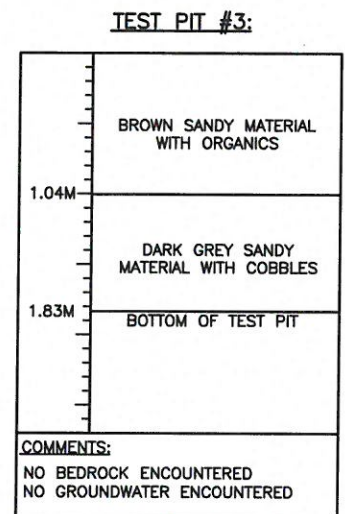
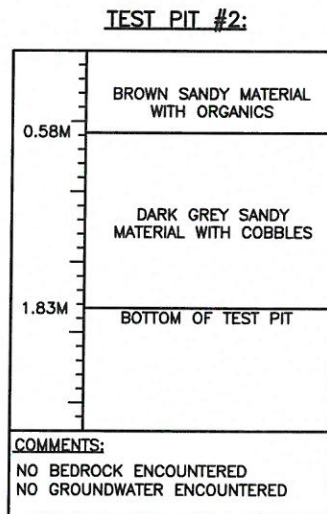
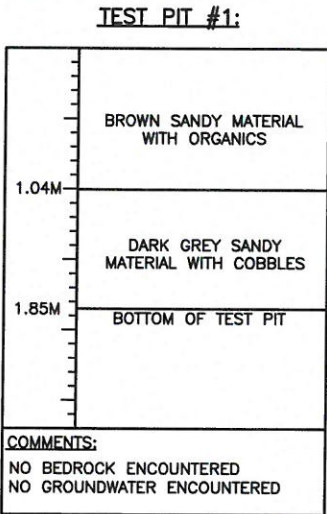
**LEGEND**

- TP ⊗ - TEST PIT
- PP ⊗ - PERCOLATION PIT

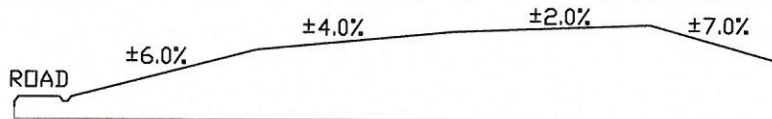
**LOT PHOTOGRAPH TAKEN FROM ROAD:**



**TEST PIT RESULTS:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 13, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 31 SEC.	

TEST PIT/PERCOLATION DATA  
SALMONIER COTTAGE INITIATIVE  
COTTAGE DEVELOPMENT



TEL (709) 834-1554 FAX (709) 834-1558

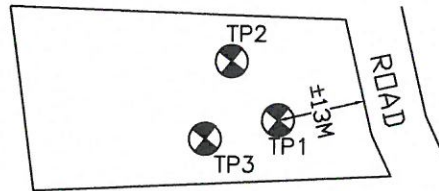
DRAWING NO.

LOT #152

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333



**SITE SKETCH:**



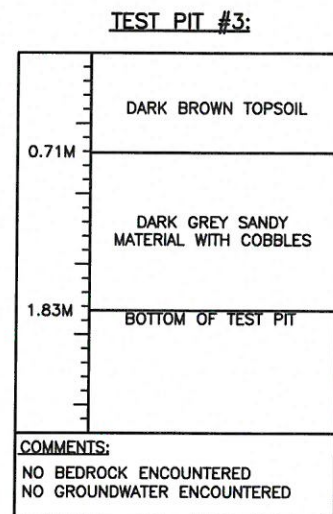
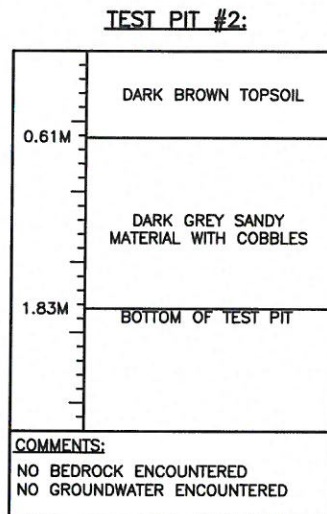
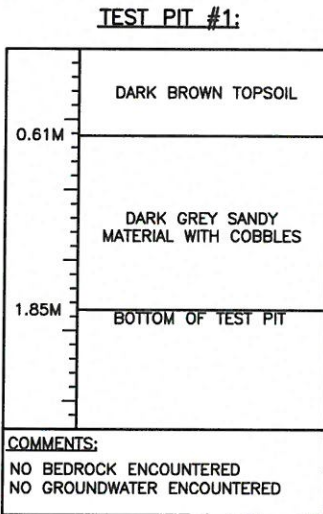
**LEGEND**

TP ⊗ - TEST PIT  
 PP ⊗ - PERCOLATION PIT

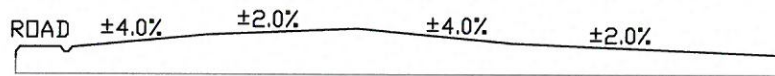
**LOT PHOTOGRAPH TAKEN FROM ROAD:**



**TEST PIT RESULTS:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 13, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 32 SEC.	

TEST PIT/PERCOLATION DATA  
 SALMONIER COTTAGE INITIATIVE  
 COTTAGE DEVELOPMENT



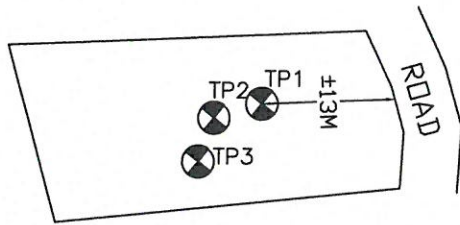
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

LOT #154

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

**SITE SKETCH:**



**LEGEND**

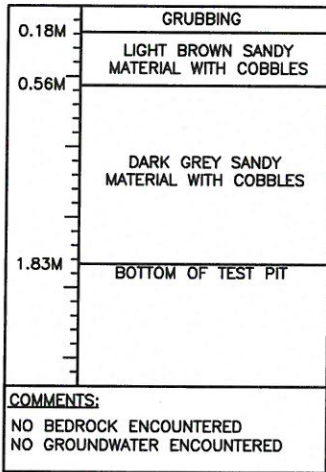
TP ⊗ - TEST PIT  
 PP ⊗ - PERCOLATION PIT

**LOT PHOTOGRAPH TAKEN FROM ROAD:**

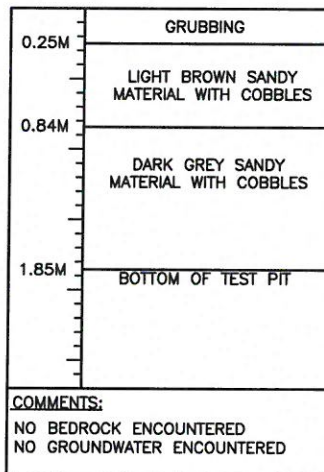


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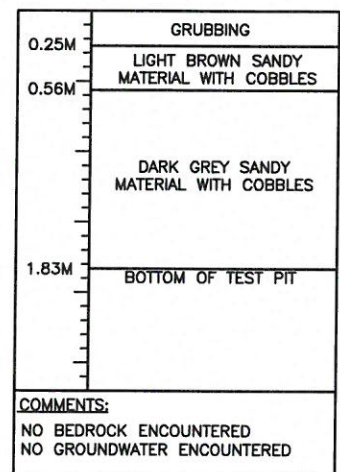
**TEST PIT #1:**



**TEST PIT #2:**



**TEST PIT #3:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 13, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 03 SEC.	

TEST PIT/PERCOLATION DATA  
 SALMONIER COTTAGE INITIATIVE  
 COTTAGE DEVELOPMENT



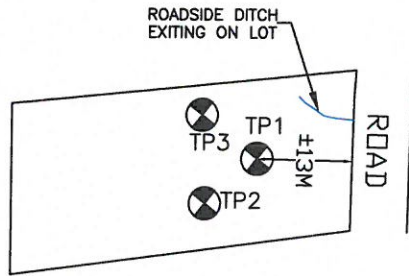
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

LOT #155

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

**SITE SKETCH:**



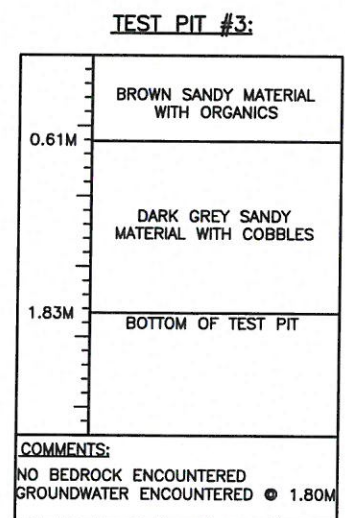
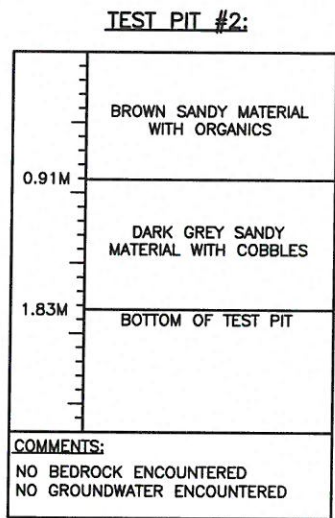
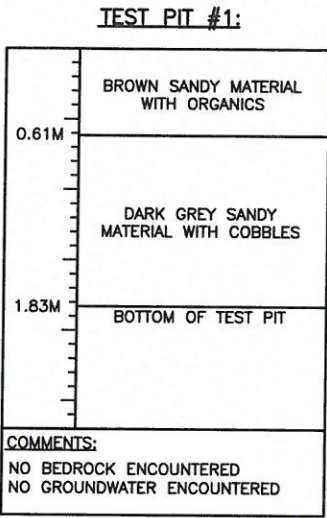
**LEGEND**

- TP ⊗ - TEST PIT
- PP ⊗ - PERCOLATION PIT

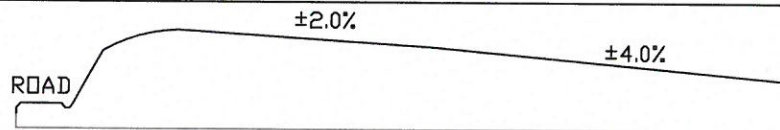
**LOT PHOTOGRAPH TAKEN FROM ROAD:**



**TEST PIT RESULTS:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 13, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	6 MIN. 05 SEC.	

TEST PIT/PERCOLATION DATA  
SALMONIER COTTAGE INITIATIVE  
COTTAGE DEVELOPMENT



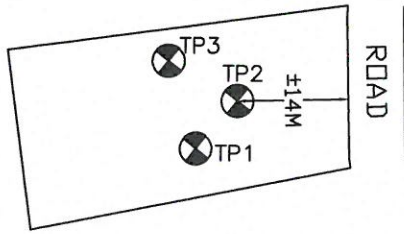
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

LOT #156

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

**SITE SKETCH:**



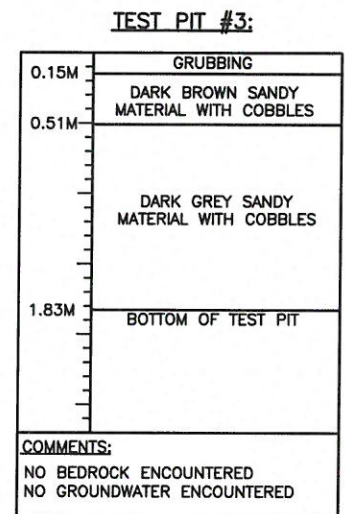
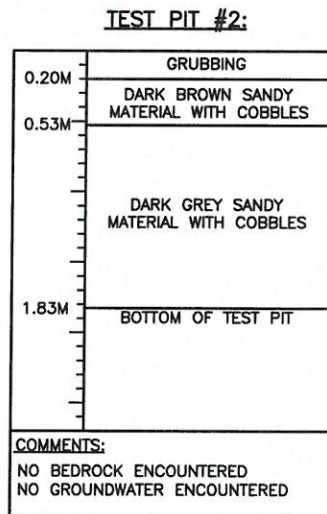
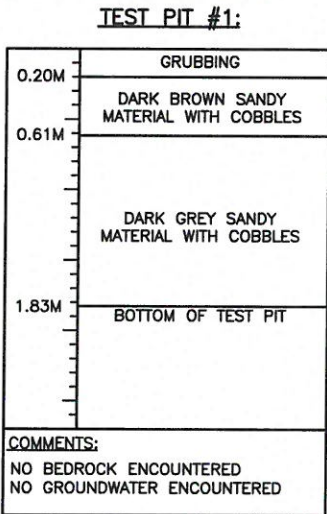
**LEGEND**

TP ⊗ - TEST PIT  
 PP ⊗ - PERCOLATION PIT

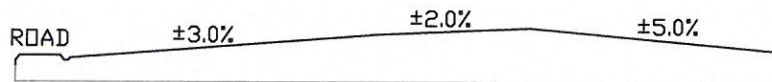
**LOT PHOTOGRAPH TAKEN FROM ROAD:**



**TEST PIT RESULTS:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 13, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 49 SEC.	

TEST PIT/PERCOLATION DATA  
 SALMONIER COTTAGE INITIATIVE  
 COTTAGE DEVELOPMENT



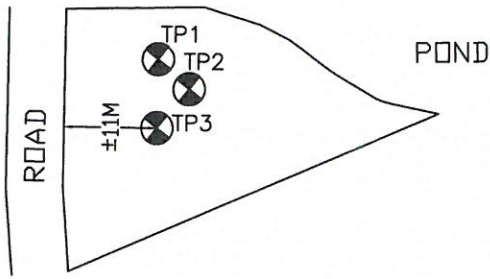
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

LOT #157

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

**SITE SKETCH:**



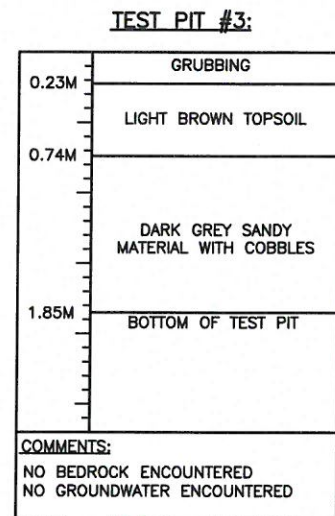
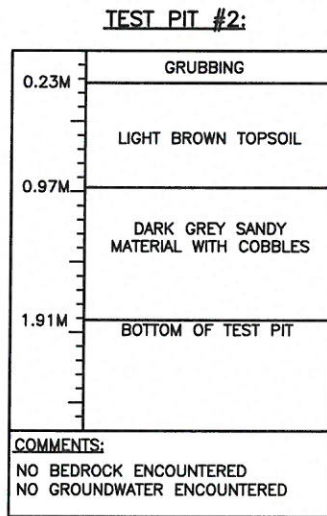
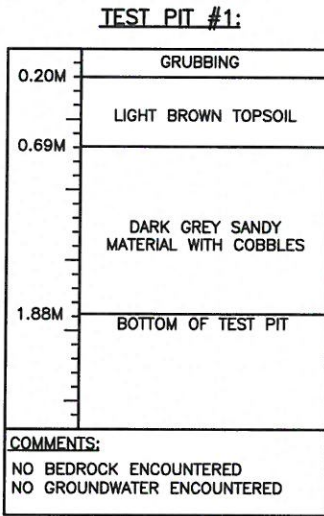
**LEGEND**

- TP ⊗ - TEST PIT
- PP ⊗ - PERCOLATION PIT

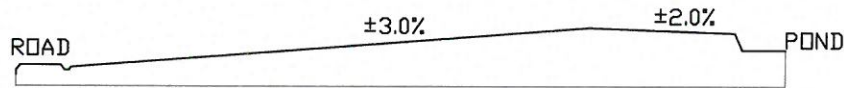
**LOT PHOTOGRAPH TAKEN FROM ROAD:**



**TEST PIT RESULTS:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 13, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 25 SEC.	

TEST PIT/PERCOLATION DATA  
SALMONIER COTTAGE INITIATIVE  
COTTAGE DEVELOPMENT



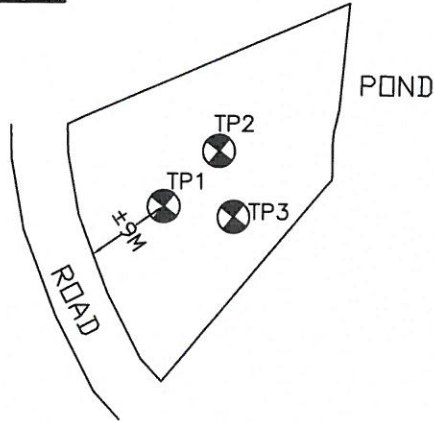
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

LOT#161

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

**SITE SKETCH:**



**LEGEND**

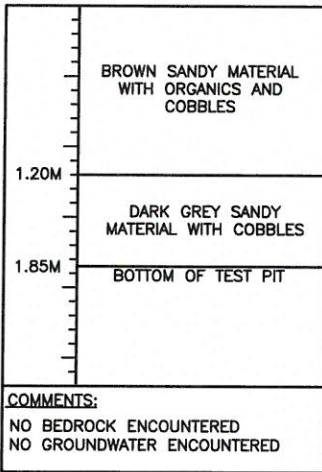
- TP ⊗ - TEST PIT
- PP ⊗ - PERCOLATION PIT

**LOT PHOTOGRAPH TAKEN FROM ROAD:**

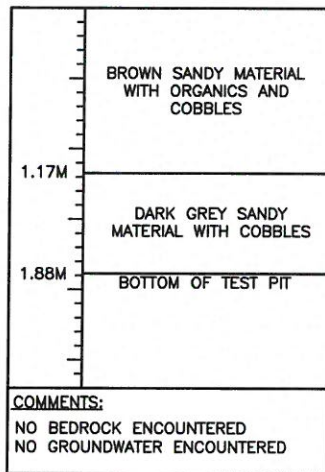


**TEST PIT RESULTS:**

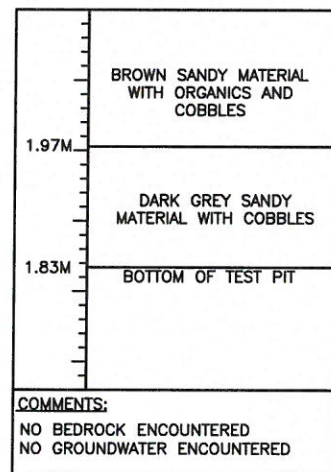
**TEST PIT #1:**



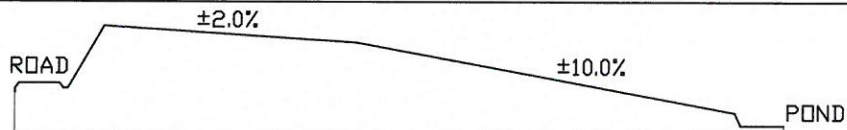
**TEST PIT #2:**



**TEST PIT #3:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 13, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 16 SEC.	

TEST PIT/PERCOLATION DATA  
SALMONIER COTTAGE INITIATIVE  
COTTAGE DEVELOPMENT



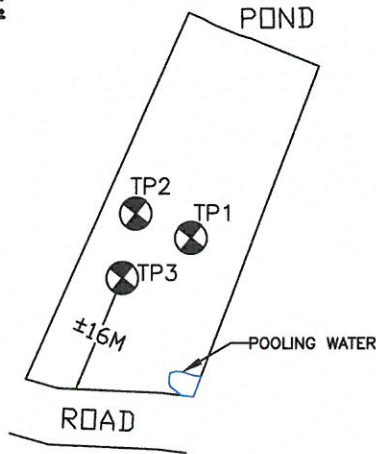
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

LOT #162

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

**SITE SKETCH:**



**LEGEND**

- TP ⊗ - TEST PIT
- PP ⊗ - PERCOLATION PIT

**LOT PHOTOGRAPH TAKEN FROM ROAD:**



**TEST PIT RESULTS:**

**TEST PIT #1:**

0.31M	GRUBBING
0.69M	DARK BROWN TOPSOIL
1.55M	DARK GREY SANDY MATERIAL WITH A LARGE AMOUNT OF COBBLES
1.55M	BOTTOM OF TEST PIT
<p><b>COMMENTS:</b>                  BEDROCK ENCOUNTERED @ 1.55M                  NO GROUNDWATER ENCOUNTERED</p>	

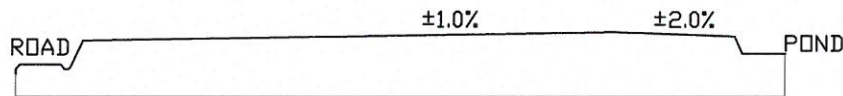
**TEST PIT #2:**

0.28M	GRUBBING
0.61M	DARK BROWN TOPSOIL
1.75M	DARK GREY SANDY MATERIAL WITH A LARGE AMOUNT OF COBBLES
1.75M	BOTTOM OF TEST PIT
<p><b>COMMENTS:</b>                  BEDROCK ENCOUNTERED @ 1.75M                  NO GROUNDWATER ENCOUNTERED</p>	

**TEST PIT #3:**

0.31M	GRUBBING
0.84M	DARK BROWN TOPSOIL
1.83M	DARK GREY SANDY MATERIAL WITH A LARGE AMOUNT OF COBBLES
1.83M	BOTTOM OF TEST PIT
<p><b>COMMENTS:</b>                  NO BEDROCK ENCOUNTERED                  NO GROUNDWATER ENCOUNTERED</p>	

**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 14, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 39 SEC.	

TEST PIT/PERCOLATION DATA  
 SALMONIER COTTAGE INITIATIVE  
 COTTAGE DEVELOPMENT



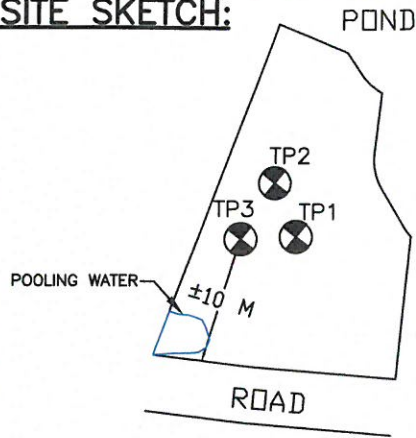
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

LOT #163

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

**SITE SKETCH:**



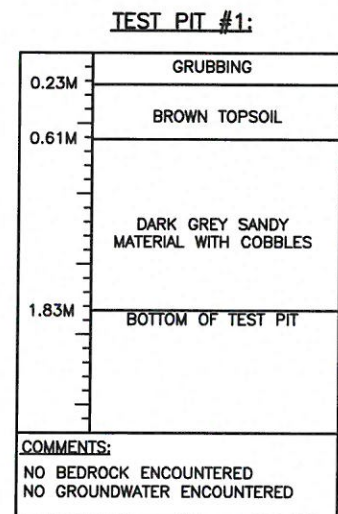
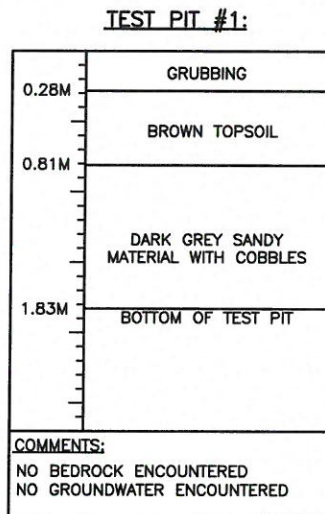
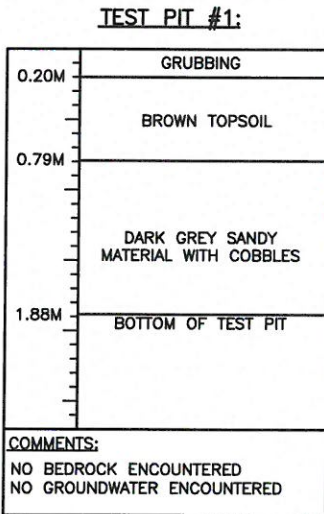
**LEGEND**

- TP ⊗ - TEST PIT
- PP ⊗ - PERCOLATION PIT

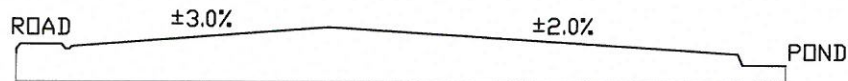
**LOT PHOTOGRAPH TAKEN FROM ROAD:**



**TEST PIT RESULTS:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 14, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 21 SEC.	

TEST PIT/PERCOLATION DATA  
SALMONIER COTTAGE INITIATIVE  
COTTAGE DEVELOPMENT



TEL (709) 834-1554 FAX (709) 834-1558

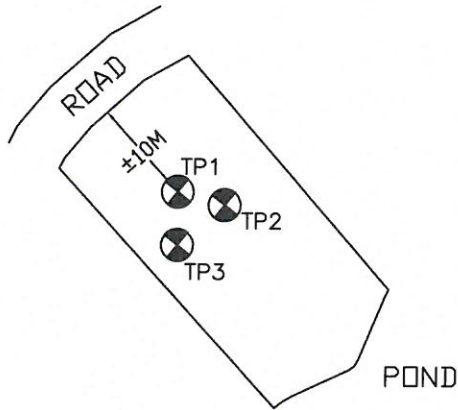
DRAWING NO.

LOT #164

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333



**SITE SKETCH:**



**LEGEND**

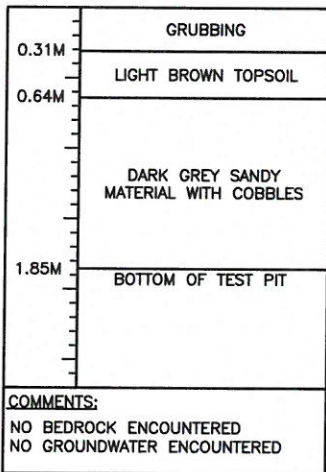
- TP ⊗ - TEST PIT
- PP ⊗ - PERCOLATION PIT

**LOT PHOTOGRAPH TAKEN FROM ROAD:**

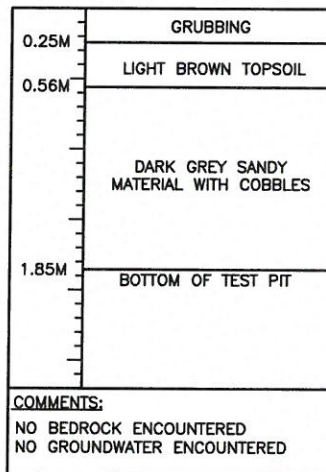


**TEST PIT RESULTS:**

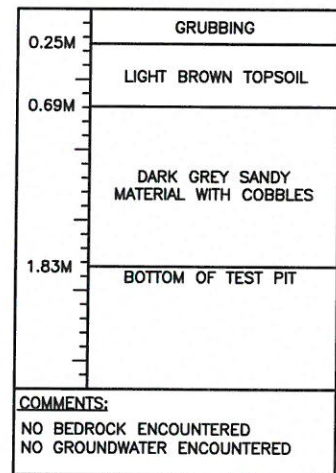
**TEST PIT #1:**



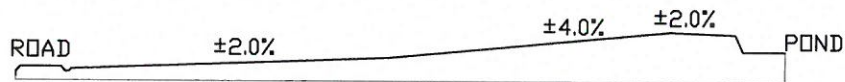
**TEST PIT #2:**



**TEST PIT #3:**



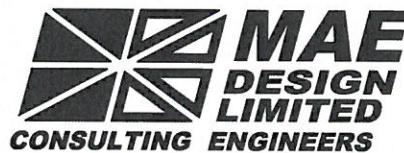
**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 13, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 35 SEC.	

TEST PIT/PERCOLATION DATA  
SALMONIER COTTAGE INITIATIVE  
COTTAGE DEVELOPMENT



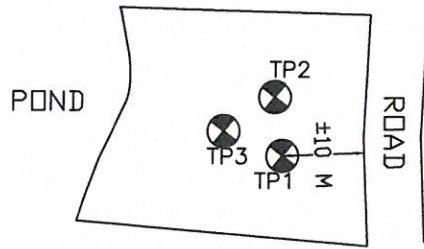
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

LOT #165

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

**SITE SKETCH:**



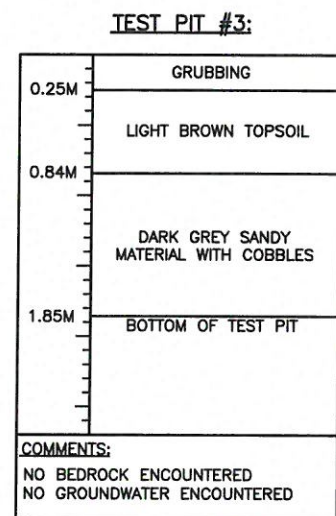
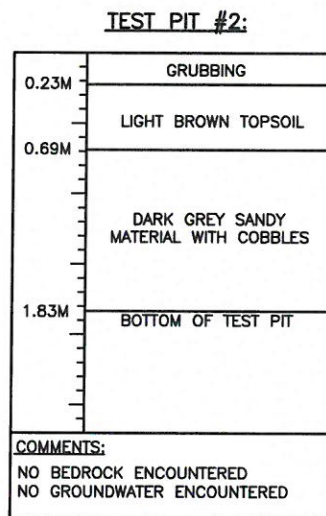
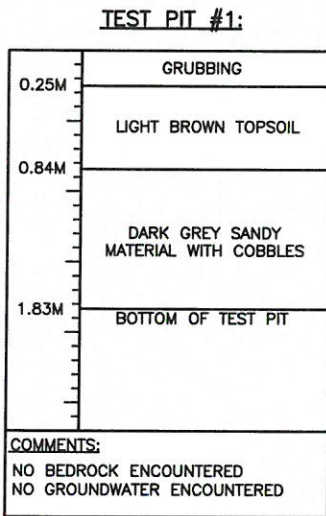
**LEGEND**

TP ⊗ - TEST PIT  
PP ⊗ - PERCOLATION PIT

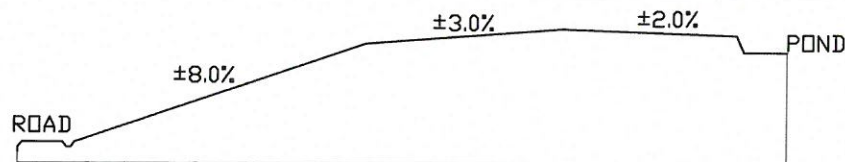
**LOT PHOTOGRAPH TAKEN FROM ROAD:**



**TEST PIT RESULTS:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 14, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 03 SEC.	

TEST PIT/PERCOLATION DATA  
SALMONIER COTTAGE INITIATIVE  
COTTAGE DEVELOPMENT



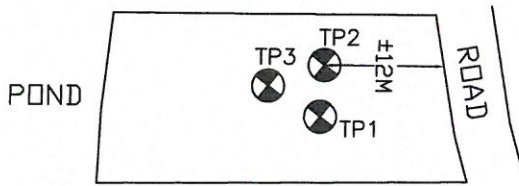
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

LOT #167

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

**SITE SKETCH:**



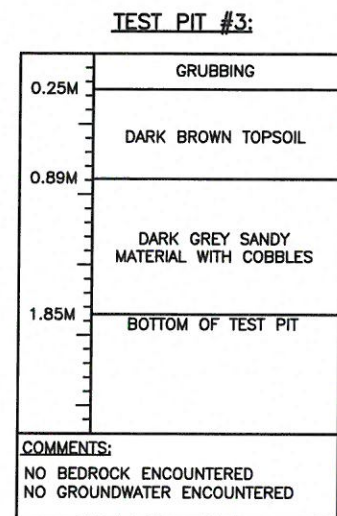
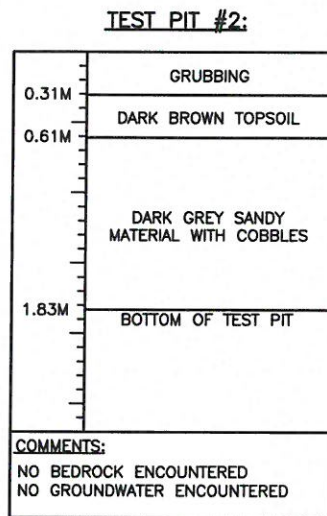
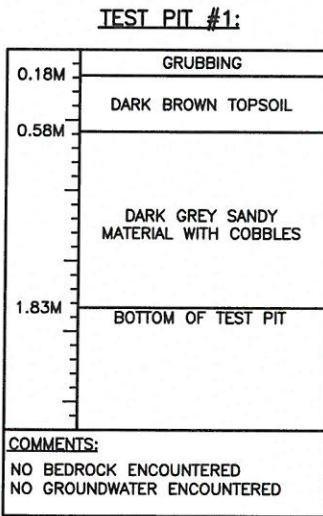
**LEGEND**

- TP ⊗ - TEST PIT
- PP ⊗ - PERCOLATION PIT

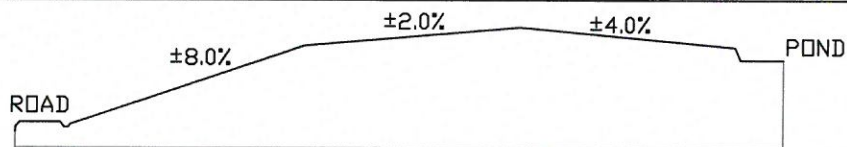
**LOT PHOTOGRAPH TAKEN FROM ROAD:**



**TEST PIT RESULTS:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 14, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 12 SEC.	

TEST PIT/PERCOLATION DATA  
SALMONIER COTTAGE INITIATIVE  
COTTAGE DEVELOPMENT



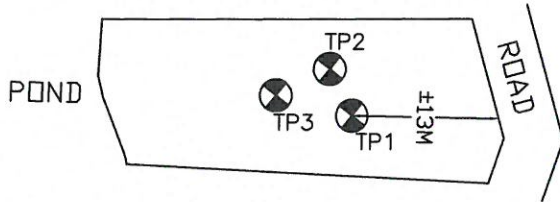
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

LOT #169

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

**SITE SKETCH:**



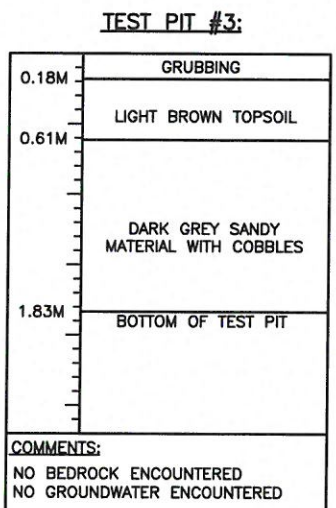
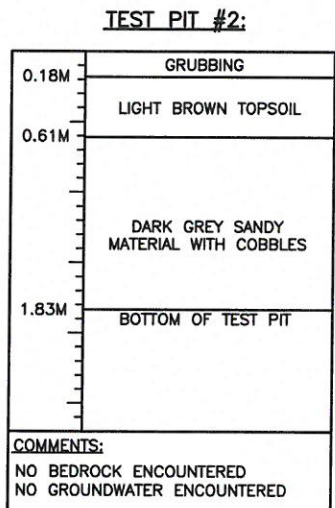
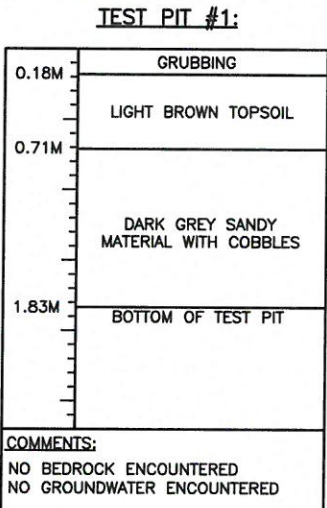
**LEGEND**

- TP ⊗ - TEST PIT
- PP ⊗ - PERCOLATION PIT

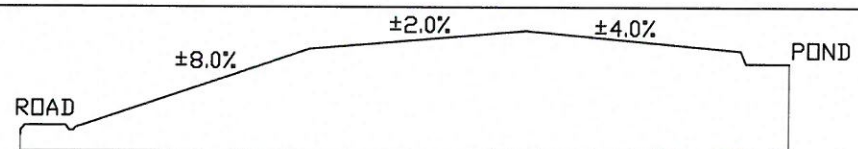
**LOT PHOTOGRAPH TAKEN FROM ROAD:**



**TEST PIT RESULTS:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 14, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 58 SEC.	

TEST PIT/PERCOLATION DATA  
SALMONIER COTTAGE INITIATIVE  
COTTAGE DEVELOPMENT



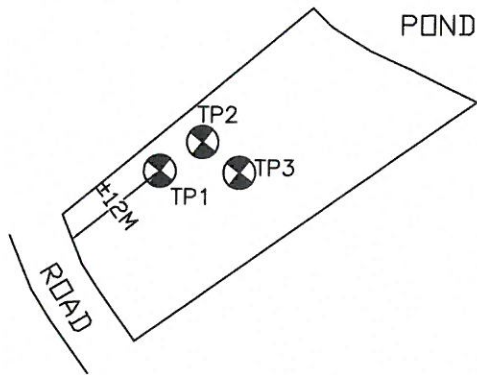
DRAWING NO.

LOT #170

TEL (709) 834-1554 FAX (709) 834-1558

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

**SITE SKETCH:**



**LEGEND**

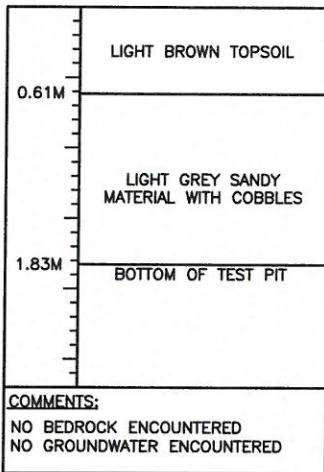
- TP ⊗ - TEST PIT
- PP ⊗ - PERCOLATION PIT

**LOT PHOTOGRAPH TAKEN FROM ROAD:**

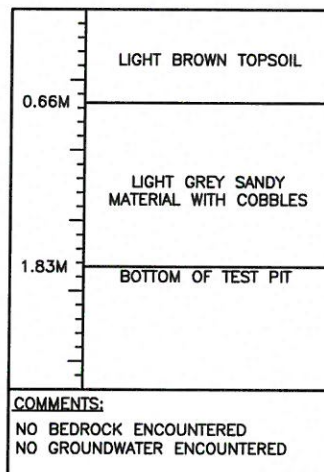


**TEST PIT RESULTS:**

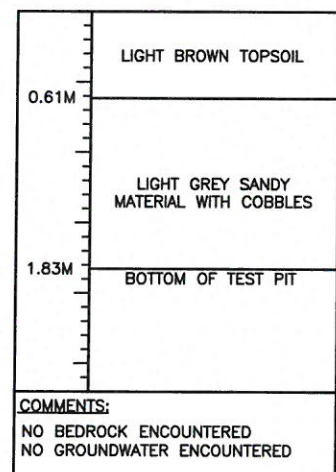
**TEST PIT #1:**



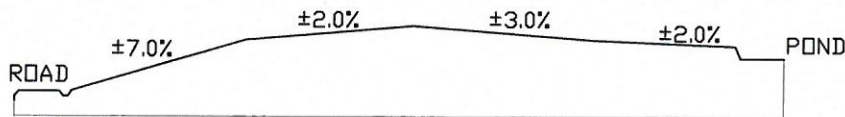
**TEST PIT #2:**



**TEST PIT #3:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 14, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 51 SEC.	

TEST PIT/PERCOLATION DATA  
SALMONIER COTTAGE INITIATIVE  
COTTAGE DEVELOPMENT



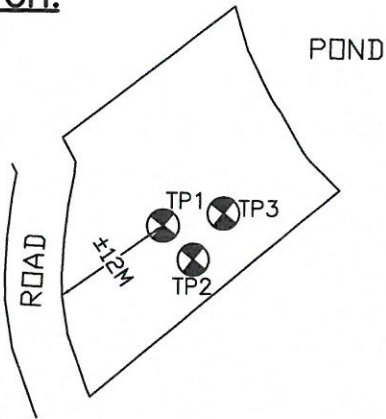
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

LOT #171

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

**SITE SKETCH:**



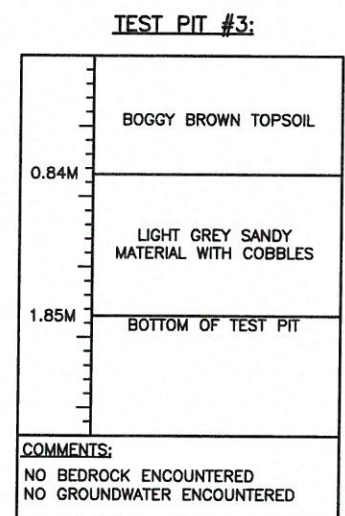
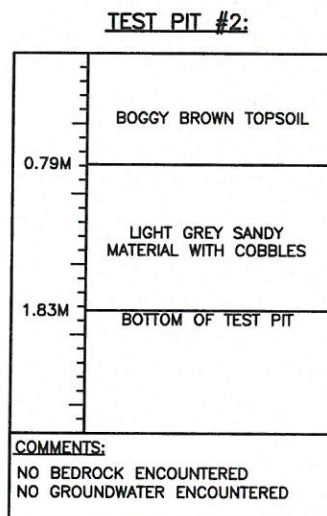
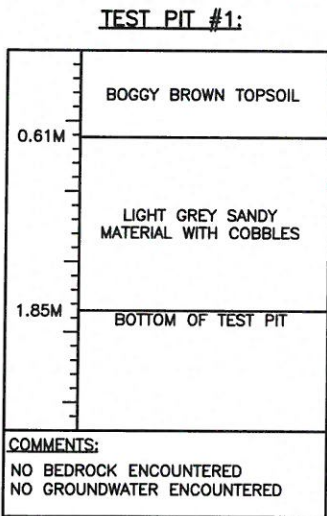
**LEGEND**

- TP ⊗ - TEST PIT
- PP ⊗ - PERCOLATION PIT

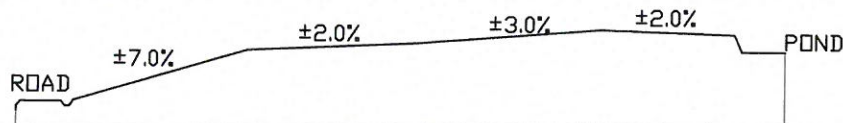
**LOT PHOTOGRAPH TAKEN FROM ROAD:**



**TEST PIT RESULTS:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 14, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 49 SEC.	

TEST PIT/PERCOLATION DATA  
SALMONIER COTTAGE INITIATIVE  
COTTAGE DEVELOPMENT



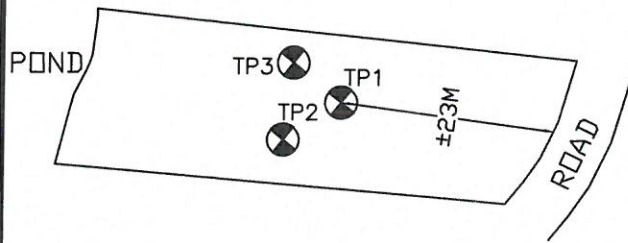
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

LOT #172

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

**SITE SKETCH:**



**LEGEND**

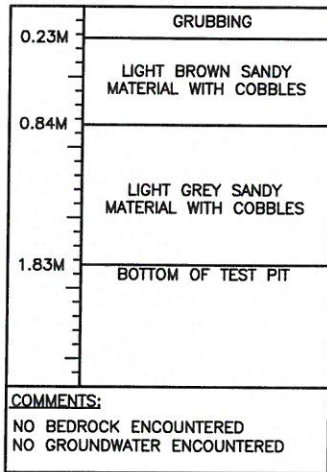
- TP ⊙ - TEST PIT
- PP ⊙ - PERCOLATION PIT

**LOT PHOTOGRAPH TAKEN FROM ROAD:**

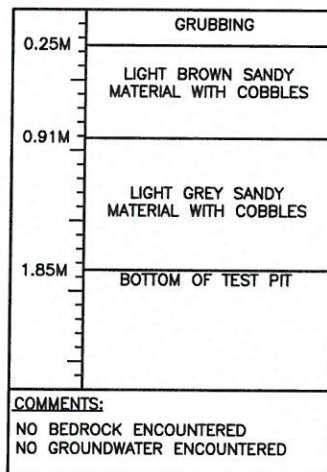


**TEST PIT RESULTS:**

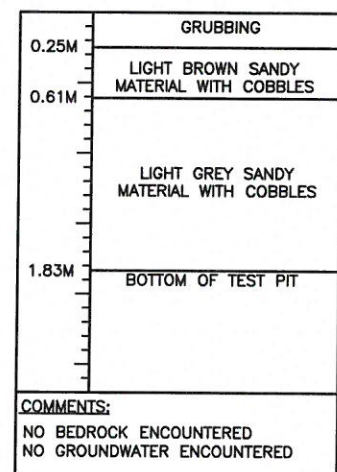
**TEST PIT #1:**



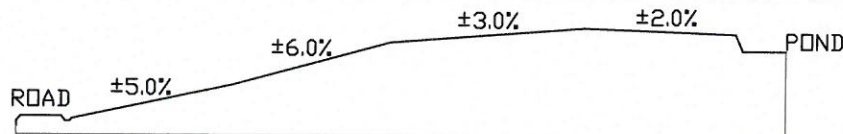
**TEST PIT #2:**



**TEST PIT #3:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 17, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	6 MIN. 02 SEC.	

TEST PIT/PERCOLATION DATA  
SALMONIER COTTAGE INITIATIVE  
COTTAGE DEVELOPMENT



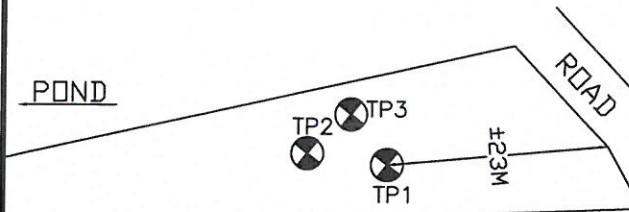
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

LOT #177

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

**SITE SKETCH:**



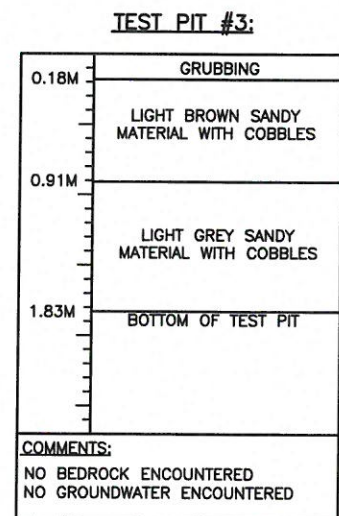
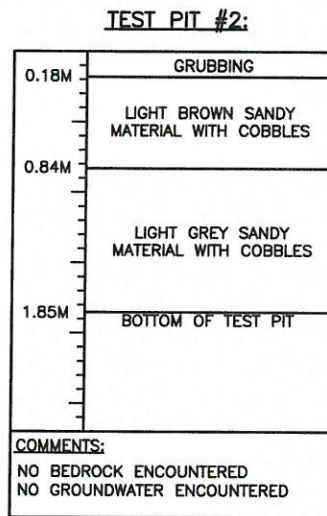
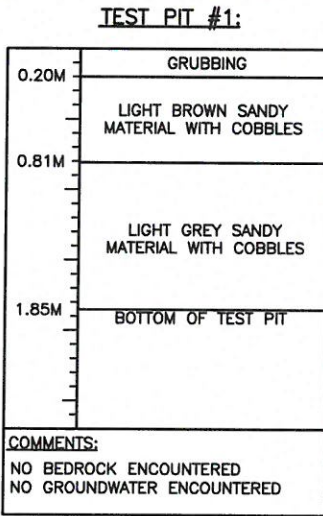
**LEGEND**

TP ⊗ - TEST PIT  
PP ⊗ - PERCOLATION PIT

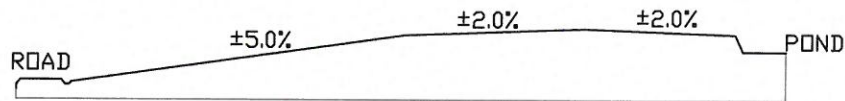
**LOT PHOTOGRAPH TAKEN FROM ROAD:**



**TEST PIT RESULTS:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 17, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 25 SEC.	

TEST PIT/PERCOLATION DATA  
SALMONIER COTTAGE INITIATIVE  
COTTAGE DEVELOPMENT



TEL (709) 834-1554 FAX (709) 834-1558

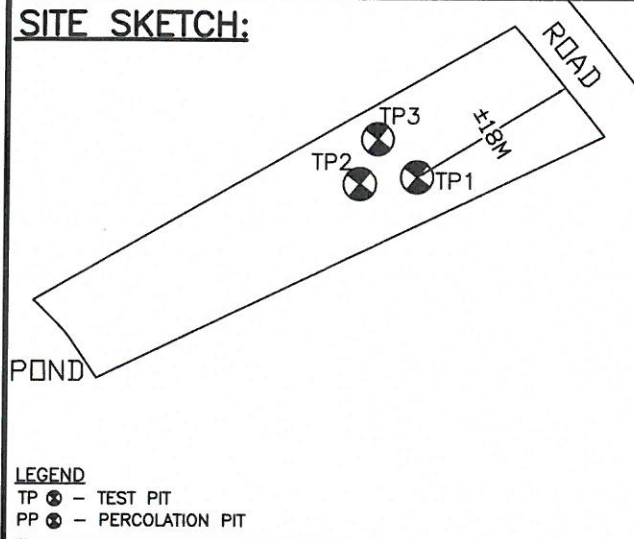
DRAWING NO.

**LOT #180**

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333



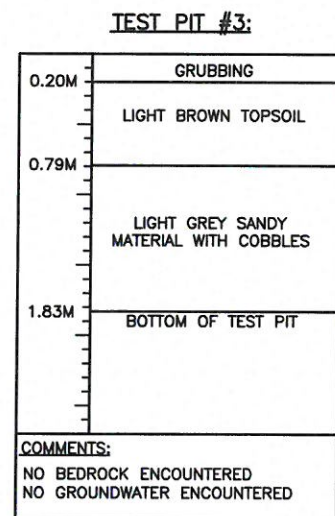
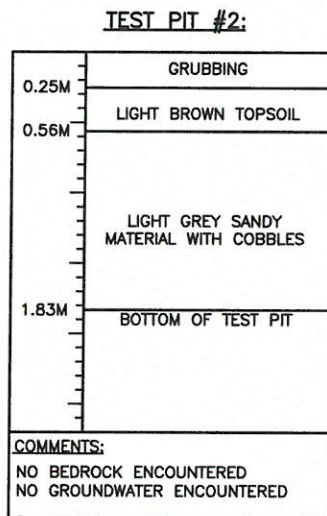
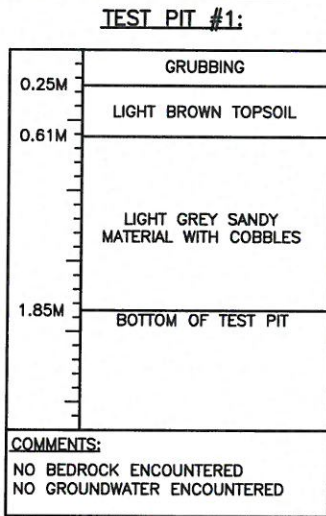
**SITE SKETCH:**



**LOT PHOTOGRAPH TAKEN FROM ROAD:**



**TEST PIT RESULTS:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 17, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 01 SEC.	

TEST PIT/PERCOLATION DATA  
SALMONIER COTTAGE INITIATIVE  
COTTAGE DEVELOPMENT



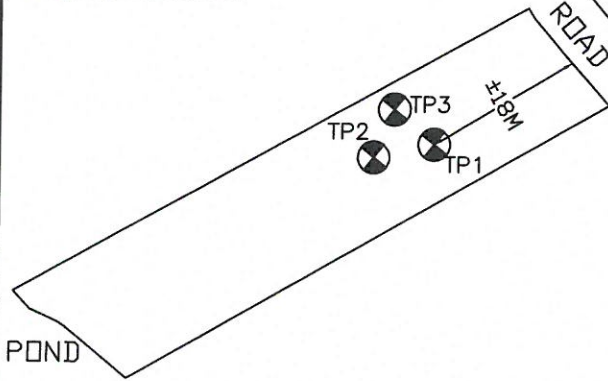
DRAWING NO.

LOT #182

TEL (709) 834-1554 FAX (709) 834-1558

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

**SITE SKETCH:**



**LEGEND**

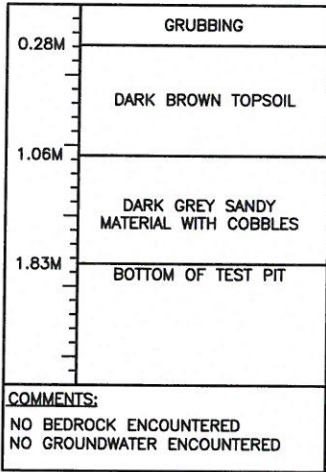
- TP ⊗ - TEST PIT
- PP ⊗ - PERCOLATION PIT

**LOT PHOTOGRAPH TAKEN FROM ROAD:**

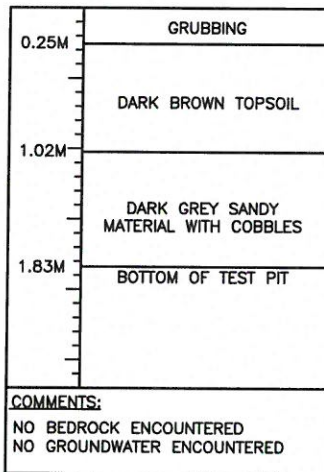


**TEST PIT RESULTS:**

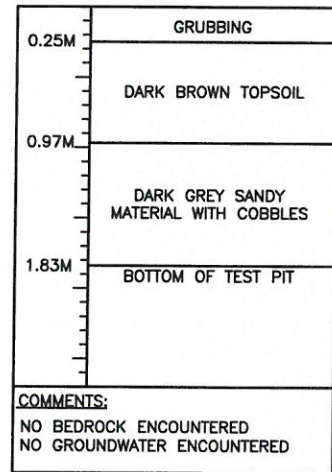
**TEST PIT #1:**



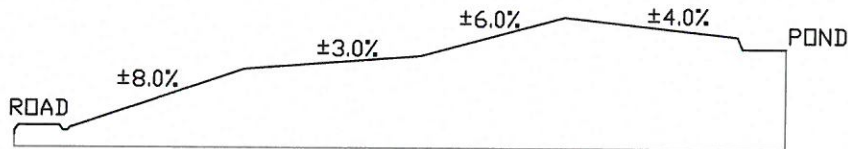
**TEST PIT #2:**



**TEST PIT #3:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 17, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 11 SEC.	

TEST PIT/PERCOLATION DATA  
SALMONIER COTTAGE INITIATIVE  
COTTAGE DEVELOPMENT



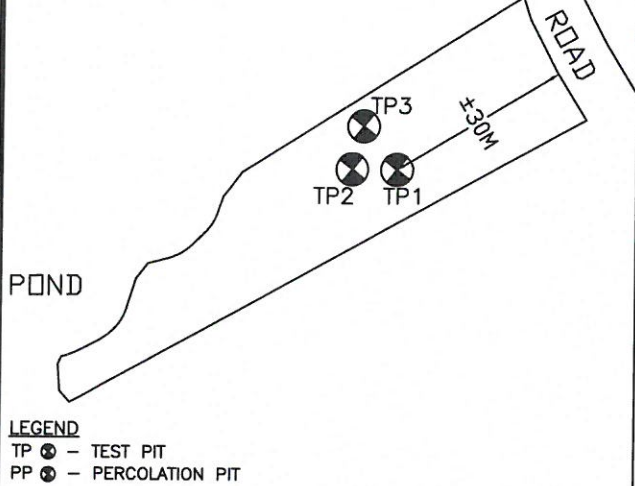
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

LOT #183

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

**SITE SKETCH:**

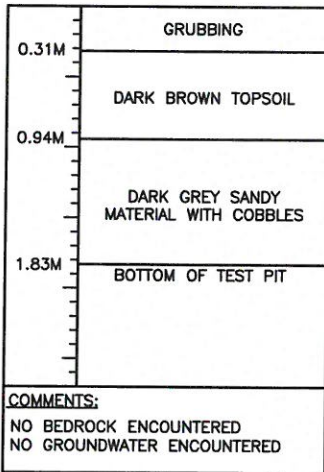


**LOT PHOTOGRAPH TAKEN FROM ROAD:**

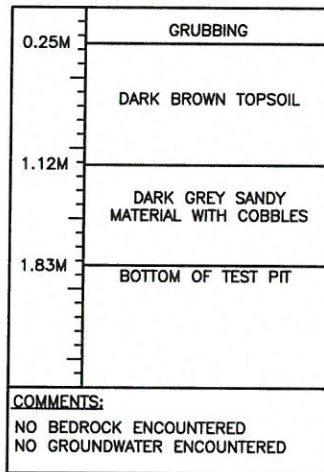


**TEST PIT RESULTS:**

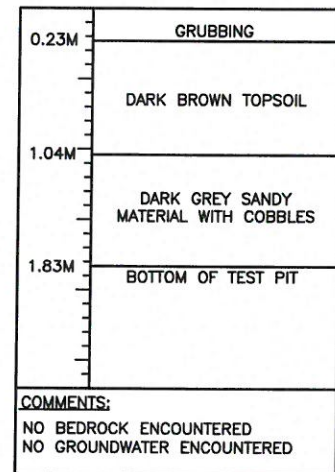
**TEST PIT #1:**



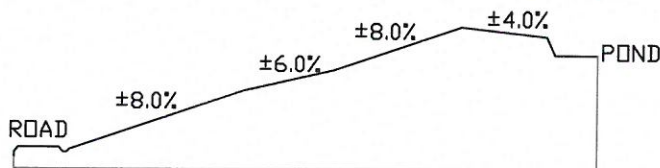
**TEST PIT #2:**



**TEST PIT #3:**



**SITE PROFILE SKETCH:**



**PERCOLATION TEST RESULTS:**

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: DARRYL DENINE/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: NOVEMBER 17, 2014 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
AVERAGE	5 MIN. 03 SEC.	

TEST PIT/PERCOLATION DATA  
 SALMONIER COTTAGE INITIATIVE  
 COTTAGE DEVELOPMENT



DRAWING NO.

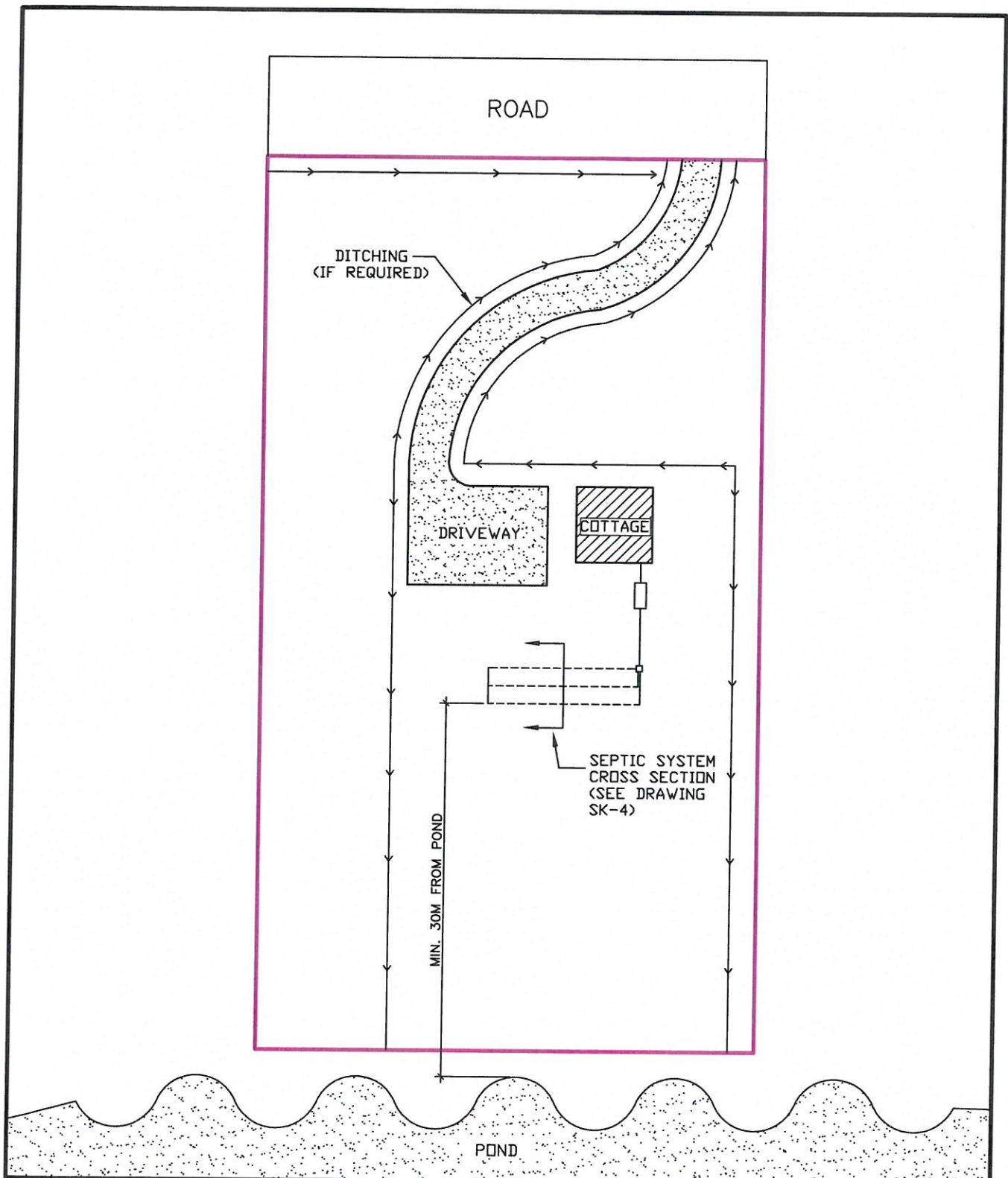
**LOT #184**

TEL (709) 834-1554 FAX (709) 834-1558

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14		S.POWER			NTS	2014.333

## **APPENDIX C**

### **Recommendation Sketches**



TYPICAL COTTAGE LOT PLAN  
 LOTS  
 135-139, 146, 158-160, 162, 166,  
 174-175



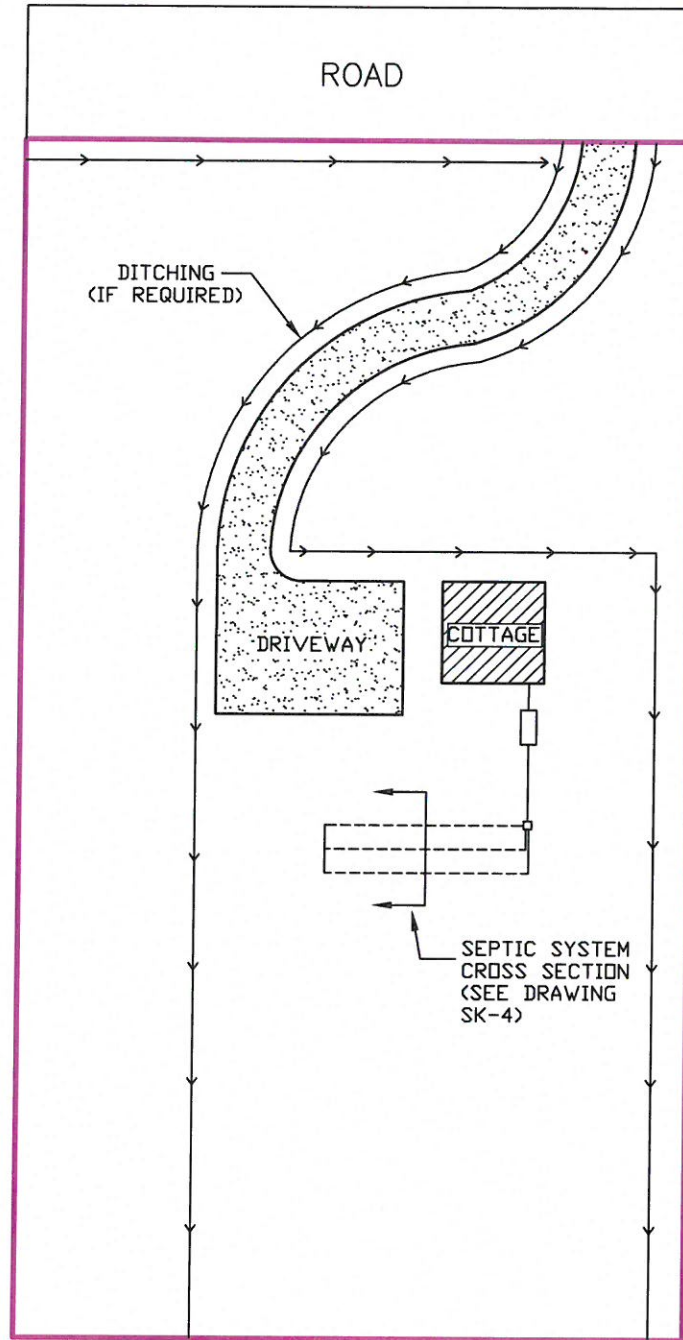
TEL (709) 834-1554

FAX (709) 834-1558

DRAWING NO.

SK-1

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14			S. POWER		NTS	2014.333



TYPICAL COTTAGE LOT PLAN  
LOTS  
152-157



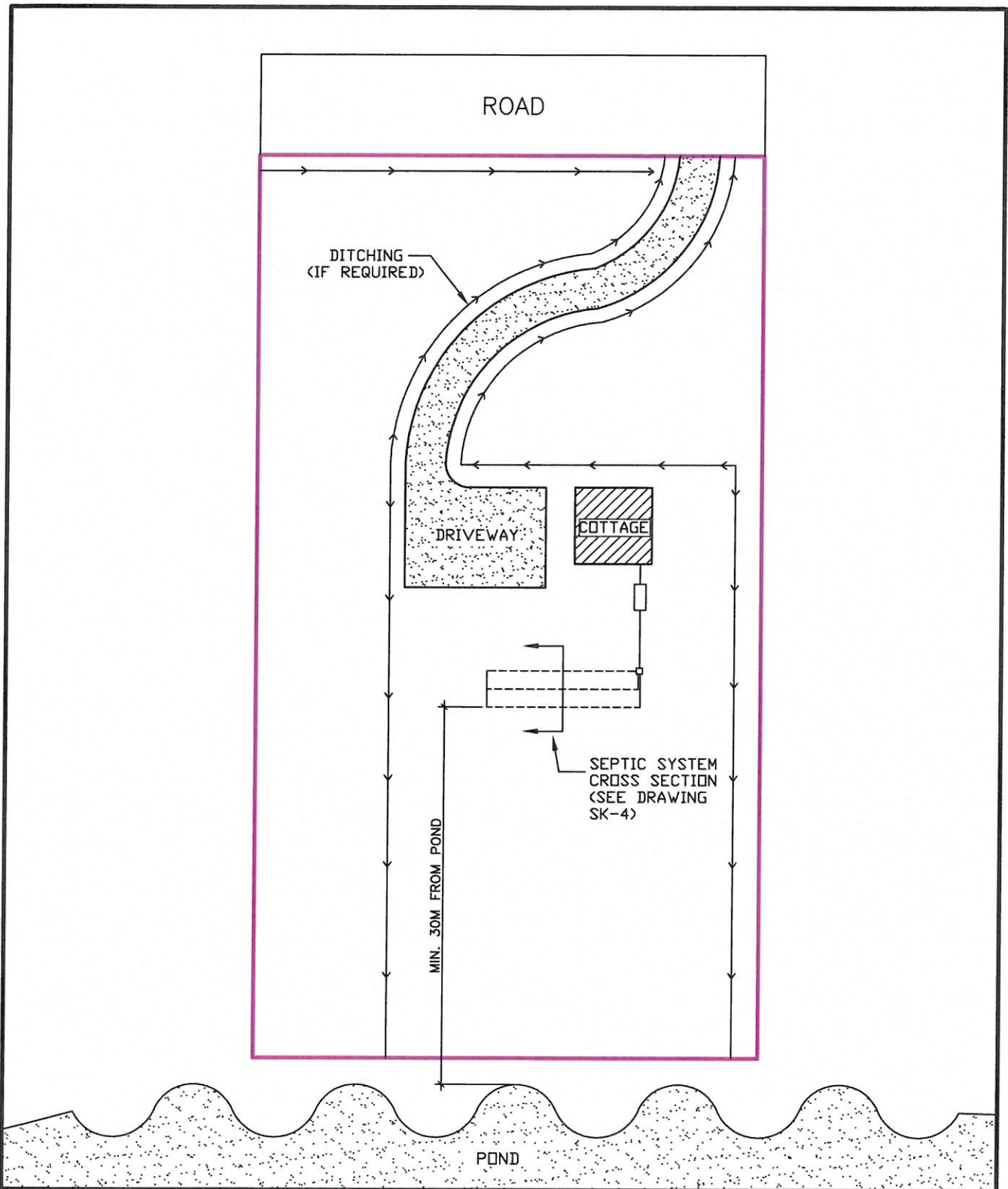
DRAWING NO.

SK-2

TEL (709) 834-1554

FAX (709) 834-1558

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14			S. POWER		NTS	2014.333



TYPICAL COTTAGE LOT PLAN  
 LOTS  
 140-145, 147-151, 161, 163-165,  
 167-173, 176-188

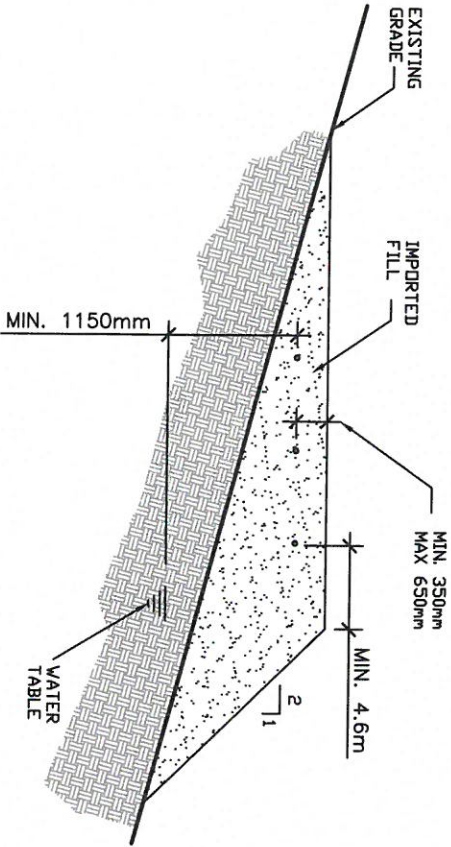


TEL (709) 834-1554 FAX (709) 834-1558

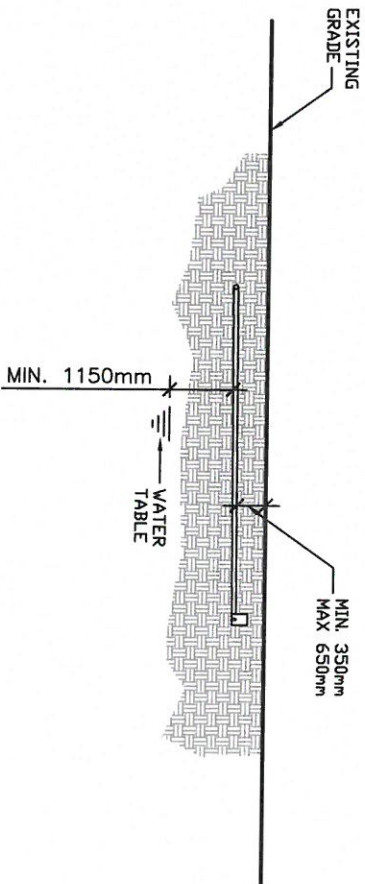
DRAWING NO.

SK-3

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
DEC. 9/14			S. POWER		NTS	2014.333



TYPICAL SECTION THROUGH SEPTIC FIELD  
WHEN INSTALLED IN IMPORTED FILL.



TYPICAL SECTION THROUGH SEPTIC FIELD  
WHEN INSTALLED IN EXISTING GRADE.

TYPICAL SECTIONS THROUGH  
SEPTIC FIELD

<p><b>MAE DESIGN LIMITED</b> CONSULTING ENGINEERS</p> <p>TEL (709) 834-1554 FAX (709) 834-1558</p> <p><b>SK-4</b></p>		DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
		DEC. 9/14		S. POWER				NTS
DRAWING NO.								