

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

2018

**Septic Site Evaluation
Lots 74 -131**

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

Clarenville: (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)

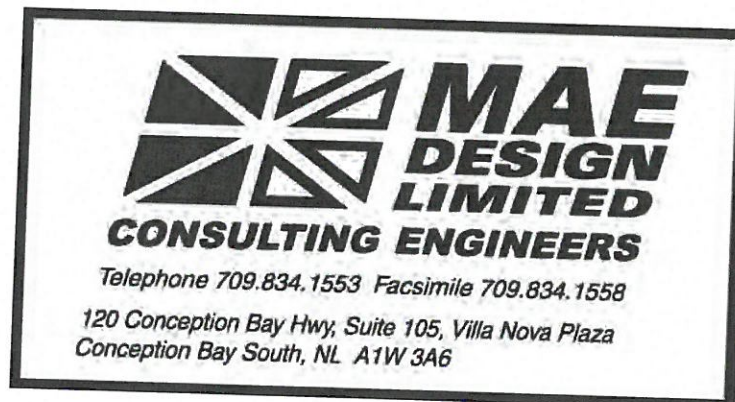
MAE PROJECT NO 2013.093

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

65 LOTS

Contract No. 003-13-E

PREPARED BY



August 14, 2013

MAE PROJECT NO. 2013.093

REPORT TO

**LAND MANAGEMENT DIVISION.
DEPT. OF ENVIRONMENT & CONSERVATION
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**

65 LOTS

CONTRACT NO. 003-13-E

PREPARED BY

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AUGUST 14, 2013

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1.0 Introduction

The Land Management Division of the Department of Environment and Conservation issued a request for proposals to undertake a septic system site evaluation of sixty five (65) 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 July 19, 2013.

2.0 Location

The proposed sixty five (65) 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.

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:

- A test pit was excavated on each of the sixty five (65) lots to determine the soil characteristics, water table elevation if encountered and bedrock elevation if encountered,
- A percolation test was completed or attempted on each of the sixty five (65) 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 complete 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

One (1) test pit was excavated on each of the proposed sixty five (65) lots. A track excavator was used to excavate the test pits which were dug to a depth ranging between 0.91 and 2.44 meters. A summary of the test pit observations for each lot is included in the following Table 4.11. Test pit logs are included with the lot data sheets in Appendix B.

Table 4.11 Test Pit Observations

Lot Number	Test Pit Description	Depth to Ground Water	Depth to Rock	Depth of Test Pit
70.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	2.44 Meters
71.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
72.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.68 Meters
73.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	1.83 Meters	1.83 Meters
74.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	1.83 Meters	1.83 Meters
75.	Grubbing followed by reddish brown sand followed by a dark grey silty gravel with cobbles	1.70 Meters	Not Encountered	1.83 Meters
76.	Grubbing followed by a reddish brown silty material followed by a dark grey silty gravel with cobbles	Not Encountered	Not Encountered	1.98 Meters

Lot Number	Test Pit Description	Depth to Ground Water	Depth to Rock	Depth of Test Pit
77.	Grubbing followed by a reddish brown silty material followed by a dark grey silty gravel with cobbles	1.52 Meters	Not Encountered	1.52 Meters
78.	Grubbing followed by a reddish brown silty material followed by a dark grey silty gravel with cobbles	1.85 Meters	Not Encountered	1.98 Meters
79.	Grubbing followed by a reddish brown silty material followed by a dark grey silty gravel with cobbles	Not Encountered	Not encountered	1.83 Meters
80.	Grubbing followed by a reddish brown silty material followed by a dark grey silty gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
81.	Grubbing followed by a reddish brown silty material followed by a layer of shale followed by a dark grey silty gravel with cobbles	1.83 Meters	Not Encountered	1.83 Meters
82.	Grubbing followed by a brown silty clay followed by a dark grey silty gravel with cobbles	Not Encountered	Not Encountered	1.98 Meters
83.	Grubbing followed by a brown silty clay followed by a dark grey silty gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters

Lot Number	Test Pit Description	Depth to Ground Water	Depth to Rock	Depth of Test Pit
84.	Grubbing followed by a brown silty clay followed by a dark grey silty gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
85.	Grubbing followed by a reddish brown sandy material	0.91 Meters	0.91 Meters	0.91 Meters
86.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.59 Meters
87.	Grubbing followed by a brown silty clay followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.98 Meters
88.	Grubbing followed by a brown silty clay followed by a saturated dark grey silty gravel with cobbles	Not Encountered	Not Encountered	1.70 Meters
89.	Grubbing followed by a brown silty clay followed by a dark grey silty gravel with cobbles	1.91 Meters	Not Encountered	1.98 meters
90.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
91.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters

Lot Number	Test Pit Description	Depth to Ground Water	Depth to Rock	Depth of Test Pit
92.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.70 Meters
93.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
94.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
95.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
96.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
97.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.98 Meters
98.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.98 Meters
99.	Saturated light grey silty material	1.00 Meters	Not Encountered	1.00 Meters

Lot Number	Test pit Description	Depth to Ground Water	Depth to Rock	Depth of Test Pit
100.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.68 Meters
101.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not encountered	Not Encountered	1.83 Meters
102.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
103.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
104.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
105.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
106.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.98 Meters
107.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters

Lot Number	Test Pit Description	Depth to Ground Water	Depth to Rock	Depth of Test Pit
108.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
109.	Grubbing followed by a brown silty clay followed by a dark grey silty gravel with cobbles	1.52 Meters	Not Encountered	1.52 Meters
110.	Grubbing followed by a brown silty clay followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
111.	Grubbing followed by a saturated light grey silty material	2.00 Meters	Not Encountered	2.00 Meters
112.	Grubbing followed by a brown silty clay followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.68 Meters
113.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
114.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.68 Meters
115.	Grubbing followed by dark brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.98 Meters

Lot Number	Test Pit Description	Depth to Ground Water	Depth to Rock	Depth of Test Pit
116.	Grubbing followed by reddish brown sand with shale followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.80 Meters
117.	Grubbing followed by a brown silty clay followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.98 Meters
118.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.98 Meters
119.	Grubbing followed by reddish brown sand followed by a layer of shale followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.68 Meters
120.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.73 Meters
121.	Grubbing followed by reddish brown sand followed by a dark grey silty gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
122.	Grubbing followed by a brown silty clay followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters

Lot Number	Test Pit Description	Depth to Ground Water	Depth to Rock	Depth of Test Pit
123.	Grubbing followed by a brown silty clay followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
124.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
125.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
126.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
127.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
128.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
129.	Grubbing followed by reddish brown sand with shale followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
130.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters

Lot Number	Test Pit Description	Depth to Ground Water	Depth to Rock	Depth of Test Pit
131.	Grubbing followed by a brown silty clay followed by a dark grey gravel with cobbles	1.52 Meters	Not Encountered	1.83 Meters
132.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
133.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
134.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters

4.2 In-Situ Soil Permeability

Percolation testing was attempted or completed on all of the sixty five (65) 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. A summary of the permeability test results for each lot is included in the following Table 4.21. Permeability test logs are included with the lot data sheets in Appendix B.

Table 4.21 Percolation Test Results

Lot Number	Average Percolation Rate	Lot Number	Average Percolation Rate
70.	5 Min. 15 Sec.	74.	1 Min. 49 Sec.
71.	1 Min. 34 Sec.	75.	5 Min. 42 Sec.
72.	1 Min. 57 Sec.	76.	4 Min. 12 Sec.
73.	2 Min. 28 Sec.	77.	1 Min. 28 Sec.

Lot Number	Average Percolation Rate	Lot Number	Average Percolation Rate
78.	1 Min. 03 Sec.	102.	6 Min. 50 Sec.
79.	2 Min. 08 Sec.	103.	1 Min. 21 Sec.
80.	2 Min. 19 Sec.	104.	14 Min. 20 Sec.
81.	3 Min. 50 Sec.	105.	14 Min. 40 Sec.
82.	3 Min. 08 Sec.	106.	8 Min. 26 Sec.
83.	3 Min. 46 Sec.	107.	2 Min. 58 Sec.
84.	3 Min. 17 Sec.	108.	0 Min. 58 Sec.
85.	Unable to Complete	109.	Greater than 30 Minutes
86.	7 Min. 54 Sec.	110.	1 Min. 46 Sec.
87.	3 Min. 18 Sec.	111.	Unable to Complete
88.	Greater than 30 Minutes	112.	9 Min. 22 Sec.
89.	2 Min. 20 Sec.	113.	5 Min. 44 Sec.
90.	2 Min. 44 Sec.	114.	21 Min. 44 Sec.
91.	2 Min. 28 Sec.	115.	3 Min. 50 Sec.
92.	1 Min. 03 Sec.	116.	15 Min. 27 Sec.
93.	3 Min. 44 Sec.	117.	5 Min. 20 Sec.
94.	5 Min. 57 Sec.	118.	9 Min. 40 Sec.
95.	2 Min. 03 Sec.	119.	5 Min. 52 Sec.
96.	1 Min. 49 Sec.	120.	1 Min. 52 Sec.
97.	11 Min. 28 Sec.	121.	14 Min. 20 Sec.
98.	2 Min. 08 Sec.	122.	5 Min. 06 Sec.
99.	Unable to Complete	123.	3 Min. 26 Sec.
100.	4 Min. 50 Sec.	124.	4 Min. 10 Sec.
101.	9 Min. 20 Sec.	125.	Less than 30 Seconds

Lot Number	Average Percolation Rate	Lot Number	Average Percolation Rate
126	7 Min. 30 Sec.	131.	1 Min. 44 Sec.
127.	4 Min. 53 Sec.	132.	2 Min. 23 Sec.
128.	7 Min. 31 Sec.	133.	1 Min. 05 Sec.
129.	1 Min. 10 Sec.	134.	2 Min. 40 Sec.
130.	7 Min. 00 Sec.		

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 Environment and Conservation 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

Lot Number	Lot area (Square Meters)	Lot Width Along Road (meters)	Meets Regulatory Standards (yes / no)
70.	4113.0	45.74	Yes
71.	4071.8	38.70	Yes
72.	3994.4	40.11	Yes
73.	4000.0	40.00	Yes
74.	3998.9	40.01	Yes
75.	4278.4	35.00	Yes
76.	4009.1	44.04	Yes
77.	4319.4	30.00	Yes

Lot Number	Lot area (Square Meters)	Lot Width Along Road (meters)	Meets Regulatory Standards (yes / no)
78.	4549.0	40.00	Yes
79.	4301.4	35.00	Yes
80.	4585.5	30.00	Yes
81.	4015.6	36.00	Yes
82.	4073.7	42.00	Yes
83.	4136.8	40.00	Yes
84.	5162.9	37.02	Yes
85.	4167.1	38.03	Yes
86.	4399.7	35.06	Yes
87.	4341.2	28.63*	Yes
88.	4235.4	50.73	Yes
89.	4295.4	35.00	Yes
90.	4760.4	30.00	Yes
91.	4553.8	30.00	Yes
92.	3682.8	37.29	Yes
93.	4124.8	40.36	Yes
94.	3800.1	39.50	Yes
95.	3739.0	39.53	Yes
96.	3835.7	40.37	Yes
97.	3887.6	40.68	Yes
98.	3939.4	43.44	Yes
99.	3893.7	41.61	Yes

Lot Number	Lot area (Square Meters)	Lot Width Along Road (meters)	Meets Regulatory Standards (yes / no)
100.	4389.7	43.03	Yes
101.	4193.0	40.00	Yes
102.	4302.2	40.00	Yes
103.	4340.5	58.67	Yes
104.	4076.3	40.00	Yes
105.	4073.9	40.00	Yes
106.	4321.2	40.00	Yes
107.	4502.2	40.00	Yes
108.	4131.6	81.17	Yes
109.	4098.0	78.44	Yes
110.	4048.1	71.28	Yes
111.	4326.5	42.40	Yes
112.	4192.6	41.71	Yes
113.	4336.0	37.37	Yes
114.	4628.7	40.00	Yes
115.	4816.4	50.00	Yes
116.	4603.0	93.67	Yes
117.	4113.1	88.61	Yes
118.	4069.9	63.69	Yes
119.	4906.9	92.74	Yes
120.	3987.7	66.33	Yes
121.	4113.1	74.18	Yes

Lot Number	Lot area (Square Meters)	Lot Width Along Road (meters)	Meets Regulatory Standards (yes / no)
122.	4273.8	56.87	Yes
123.	4211.0	63.23	Yes
124.	4605.6	44.80	Yes
125.	4426.6	40.00	Yes
126.	4613.7	45.00	Yes
127.	4331.9	50.00	Yes
128.	4219.7	77.22	Yes
129.	4189.6	78.69	Yes
130.	4448.5	84.15	Yes
131.	4733.5	40.68	Yes
132.	4793.6	40.47	Yes
133.	4409.1	40.50	Yes
134.	4550.0	63.71	Yes

* Lot 87 does 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 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 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 a typical sections through septic fields are included as drawing Sk-4.
- GSC regulatory standards state that a minimum of 0.30 meters of good original ground is required above any possible bedrock and a minimum of 1.15 meters of good drainage soil is required between the invert of the septic field piping and the bedrock elevation. Imported fill with a good percolation rate can be used to achieve this requirement.
- All 65 lots assessed satisfied the GSC regulatory requirements for area, width and slope.

5.2 Lots 70-71, 75, 77-87, 89-91, 108-110, 115-134

- In general the soil types encountered were either a reddish brown sand or a brown silty clay followed by a dark grey gravel with cobbles or a dark grey silty gravel with cobbles. The soil percolation rates were favorable on lots 70-71, 75, 77-84, 86-87, 89-91, 108, 110, 115, 117-120, and 122-134, and the existing material on these lots is acceptable as a septic field drainage medium. On lots 81 and 119 a layer of shale was encountered. If the shale is present in the drainage field area it should be removed and replaced with the dark grey gravel found on the site or a good percolating material with a percolation rate between 5-10 minutes.

- Lots 116 and 121 revealed percolation rates of 15 minutes 27 seconds and 14 minutes 20 seconds respectively. The material on these lots are acceptable as a septic field medium, but it should be noted in the design to lengthen the distribution lines to accommodate the longer percolation rate.
- Lot 109 revealed a percolation rate greater than 30 minutes. Material in the septic field area on this lot should be removed and replaced with a suitable fill source either from a different location on the lot or from a different site in the area. Imported material should have a good percolation rate in the range of 5-10 minutes.
- Ground water was observed in the test pits on lots 75, 77-78, 81, 85, 89, 109, and 131. The septic field distribution pipe is required to be installed a minimum of 1.15 meters above the water table elevation.
- Bedrock was observed in the test pit on lot 85. The septic field distribution pipe is required to be installed a minimum of 1.15 meters above the bedrock elevation.
- For lot 85 a percolation rate was not determined due to the high water table. 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 observed on this lot. 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.
- Recommendation Sketch SK-1 should be followed for lots 70-71,75,77-87,89-91,108-110, and 115-134.

5.3 Lots 88, 92-99, 106-107, 111-114

- In general the soil types encountered were either a reddish brown sand or a brown silty clay followed by a dark grey gravel with cobbles or a dark grey silty gravel with cobbles. The soil percolation rates were favorable on lots 92-96, 98, 106-107, 112-113, and the existing material on these lots is acceptable as a septic field drainage medium. On lots 99 and 111 a saturated light grey silty 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.
- Lot 97 revealed a percolation rate of 11 minutes 28 seconds. The material on this lot is acceptable as a septic field medium, but it should be noted in the design to

lengthen the distribution lines to accommodate the longer percolation rate.

- Lot 114 revealed a percolation rate greater than 20 minutes. Material in the septic field area on this lot should be removed and replaced with a suitable fill source either from a different location on the lot or from a different site in the area. Imported material should have a good percolation rate in the range of 5-10 minutes.
- Lot 88 revealed a percolation rate greater than 30 minutes. Material on this lot was saturated. Material in the septic field area on this lot should be removed and replaced with a suitable fill source either from a different location on the lot or from a different site in the area. Imported material should have a good percolation rate in the range of 5-10 minutes. 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.
- Ground water was observed in the test pits on lots 99 and 111. The septic field distribution pipe is required to be installed a minimum of 1.15 meters above the water table elevation.
- For lots 99 and 111 a percolation rate was not determined due to the high water table and a saturated light grey silty material found on the lots. 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, but 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.
- Recommendation Sketch SK-2 should be followed for lots 88,92-99,106-107, and 111-114.

5.4 Lots 72-74, 76, 100-105

- In general the soil types encountered were either a reddish brown sand or a brown silty clay followed by a dark grey gravel with cobbles or a dark grey silty gravel with cobbles. The soil percolation rates were favorable on lots 72-74, 76, and 100-103, and the existing material on these lots is acceptable as a septic field drainage medium.
- Lots 104 and 105 revealed percolation rates of 14 minutes 20 seconds and 14 minutes 40 seconds respectively. The material on this lot is acceptable as a septic field medium, but it should be noted in the design to lengthen the distribution lines to accommodate the longer percolation rate.

- Bedrock was observed in the test pits on lots 73 and 74. The septic field distribution pipe is required to be installed a minimum of 1.15 meters above the bedrock elevation.
- Recommendation Sketch SK-3 should be followed for lots 72-74,76, and 100-105.

6.0 Scope of Work Requirements

6.1 Lots 70-73,76,79-80, 82-84, 86-87, 89-96, 98, 100-103, 106-108, 110, 112-113, 115, 117-118, 120, 122-134

- 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 Lots 73-75, 77-78, 81, 85, 89, 131

- 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 40 m³ and 100 m³. 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 85, 99, 111

- 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.
- May require 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 elevation. Depending on the depth of the groundwater elevation the fill required for the septic field construction could range between 275 m³ and 375 m³. 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.

6.4 Lot 88, 109, 114

- Due to a poor percolation rates these lots require the material in the septic field area to be removed (± 450 m³) and replaced with a suitable fill material 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 \pm 350 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.

6.5 Lot 81, 119

- Due to a layer of shale 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.

6.6 Lot 97, 104, 105, 116, 121

- Due to longer percolation rates these lots require additional length to be added to the disposal field. A larger septic field will require additional crushed stone, PVC pipe, filter fabric, excavation and backfill.
- 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.

APPENDIX A

Terms of Reference



Government of Newfoundland and Labrador
Department of Environment & Conservation
Lands Branch
Land Management Division

**SALMONIER COTTAGE INITIATIVE
COTTAGE DEVELOPMENT AREA**

65 COTTAGE LOTS

TERMS OF REFERENCE

FOR

SEPTIC SITE EVALUATION

CONTRACT NO. 003-13-E

July 2013

1. PROJECT DESCRIPTION

This project consists of septic system site evaluations of 65 proposed cottage lots for the Salmonier Cottage Initiative – Phase III, as per Maps 1 & 2 (attached). It 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 operation of sub-surface septic disposal systems. The successful bidder **will not** be required to complete a full engineering study as per **Appendix C** of the aforementioned Standards. The successful bidder **will be** required to supply a report verifying whether each individual lot is capable of supporting a sub-surface septic system or not, including any mitigating measures required.

2. SCOPE OF WORK

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

- a) size of lot
- b) slope of the lot
- c) type and permeability of the soil as determined by percolation tests
- d) measurement of the soil's capacity to absorb liquid (percolation test)
- e) depth of ground water table
- f) presence of bedrock
- g) distances of septic tank and disposal field from buildings, watercourses, wells, roads, property lines, driveways, water service lines, etc.
- h) site up-grading specifications and cost estimate if lot is to be found substandard.

3. SCHEDULING

3.1 Commencement Date

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

3.2 Completion Date

All work must be completed and submitted to the Department within **thirty 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 5 days of the completion of the field evaluation.
- 4.2 The final report must be submitted in both printed hard copy and in digital format. The report will be provided for public viewing at the time of cottage lot selection and will also be posted on Lands web site.
- 4.3 Final text documents may be submitted in MS Word or pdf format. Preferably all text, maps and diagrams will be combined within one single pdf document. Maps and diagrams must be submitted in a digital image format such as jpg or pdf if not incorporated within the digital text document.

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 under the Sanitation Regulations under the *Public Health Act* (OC96-442).

6. BIDS

Bidders are advised to conduct site inspections prior to submitting their bid. Lots have been identified in the field with flagging tape. 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 evaluation.

7. **DEADLINE FOR BIDS**

Bids must be clearly marked "**Salmonier Cottage Initiative Septic Site Evaluation Proposal Contract # 003-13-E**" and received at the Land Management Division no later than **11:00 am, Friday, July 19, 2013**. No bid will be accepted after the specified deadline. Public bid opening time will be **11:15 am, Friday, July 19, 2013** at the Land Management Division.

Bids may be sent by fax or e-mail to the Land Management Division before the specified closing time. 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. Lands Branch 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.

The address is:

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

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

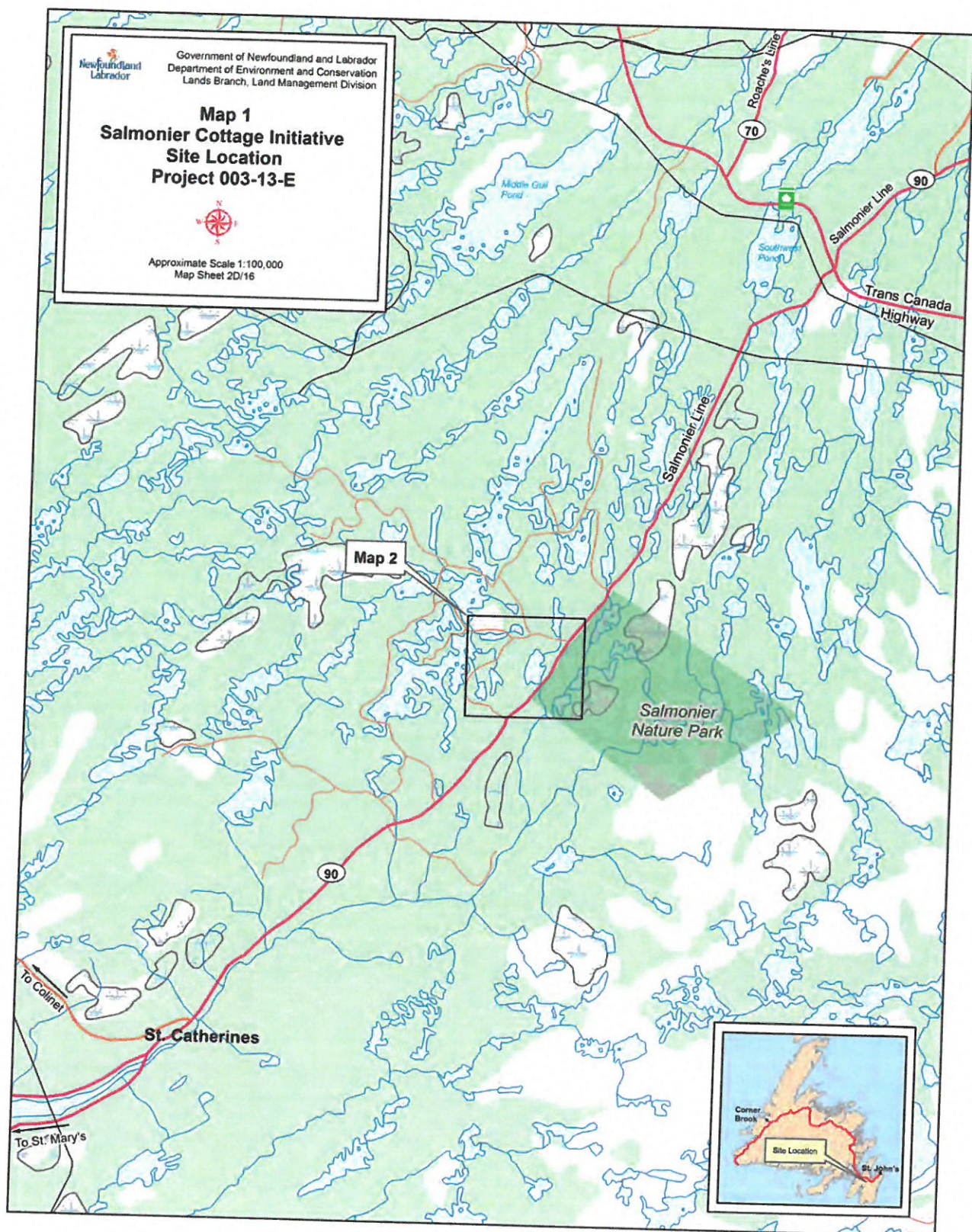
jkennedy@gov.nl.ca

Newfoundland
Labrador
Government of Newfoundland and Labrador
Department of Environment and Conservation
Lands Branch, Land Management Division

Map 1 Salmonier Cottage Initiative Site Location Project 003-13-E



Approximate Scale 1:100,000
Map Sheet 2D/16

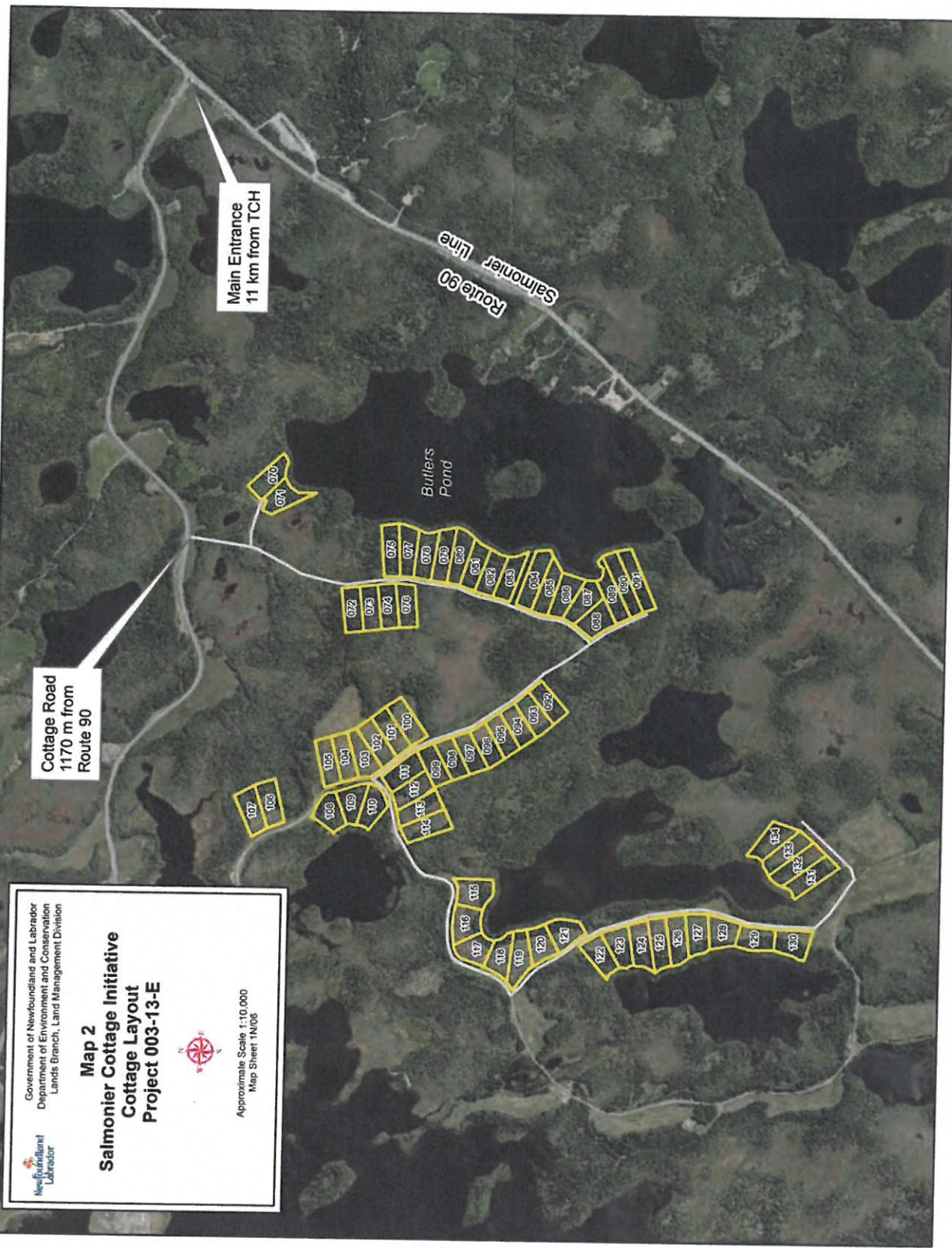



 Government of Newfoundland and Labrador
 Department of Environment and Conservation
 Lands Branch, Land Management Division

Map 2
Salmonier Cottage Initiative
Cottage Layout
Project 003-13-E



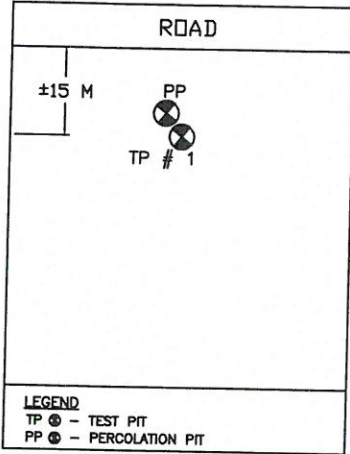
 Approximate Scale 1:10,000
 Map Sheet 1N06



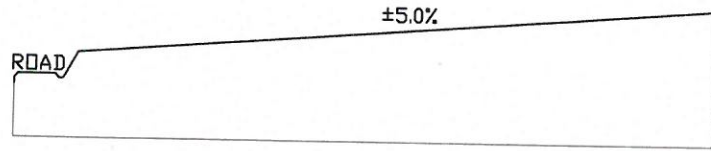
APPENDIX B

Lot Data Sheets

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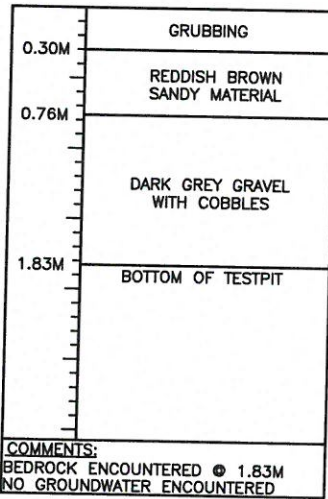


SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

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TEST PIT/PERCOLATION DATA
 SALMONIER COTTAGE INITIATIVE
 COTTAGE DEVELOPMENT



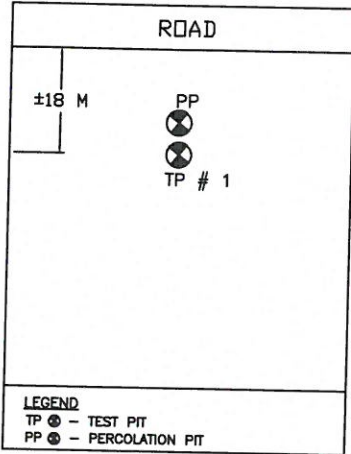
DRAWING NO.

LOT#74

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

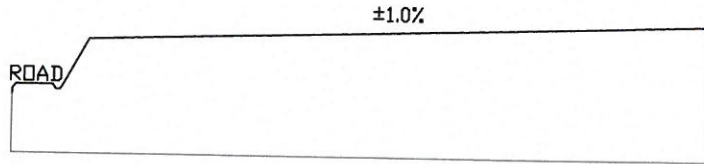
DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

SITE SKETCH:



LEGEND
 TP ● - TEST PIT
 PP ⊗ - PERCOLATION PIT

SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:

0.30M	GRUBBING
1.07M	REDDISH BROWN SILTY MATERIAL
1.98M	DARK GREY SILTY GRAVEL WITH COBBLES
1.98M	BOTTOM OF TESTPIT
<p>COMMENTS: NO ROCK ENCOUNTERED NO GROUNDWATER ENCOUNTERED</p>	

LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: JULY 25, 2013 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
1	4 MIN. 12 SEC.	

TEST PIT/PERCOLATION DATA
 SALMONIER COTTAGE INITIATIVE
 COTTAGE DEVELOPMENT



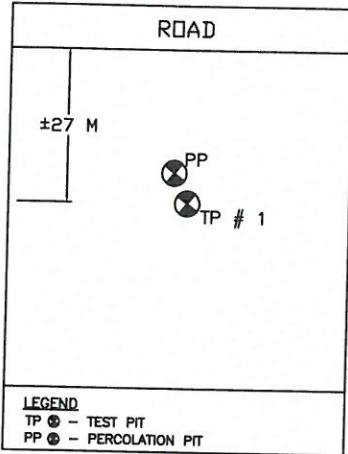
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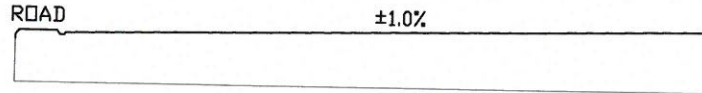
TEL (709) 834-1554 FAX (709) 834-1558

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

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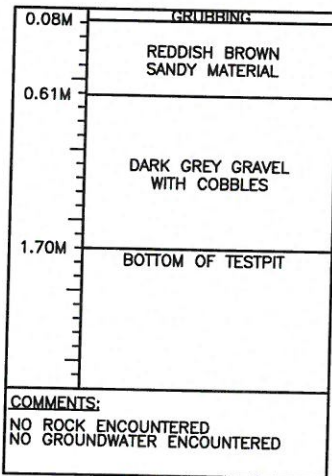


SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

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TEST PIT/PERCOLATION DATA
 SALMONIER COTTAGE INITIATIVE
 COTTAGE DEVELOPMENT



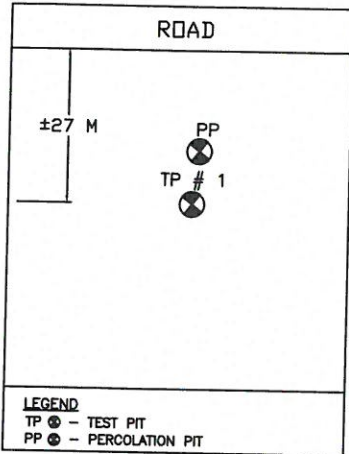
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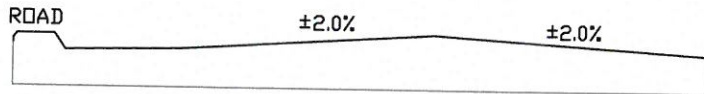
TEL (709) 834-1554 FAX (709) 834-1558

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

SITE SKETCH:

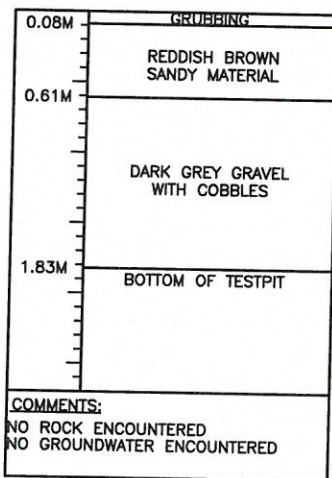


SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

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TEST PIT/PERCOLATION DATA
 SALMONIER COTTAGE INITIATIVE
 COTTAGE DEVELOPMENT



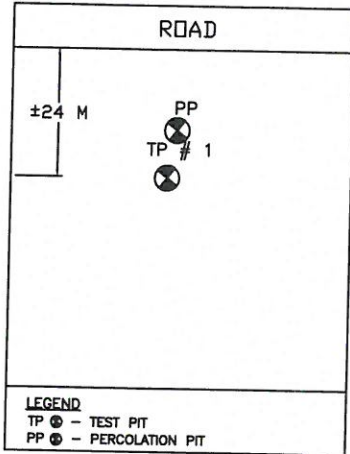
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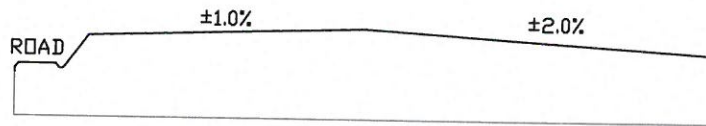
TEL (709) 834-1554 FAX (709) 834-1558

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

SITE SKETCH:

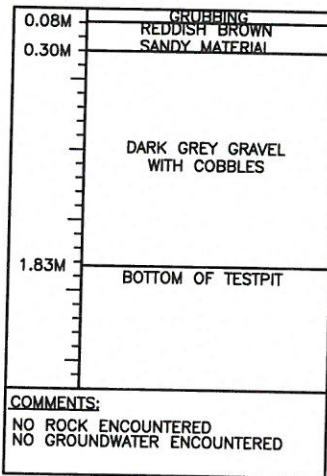


SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

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TEST PIT/PERCOLATION DATA
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 COTTAGE DEVELOPMENT



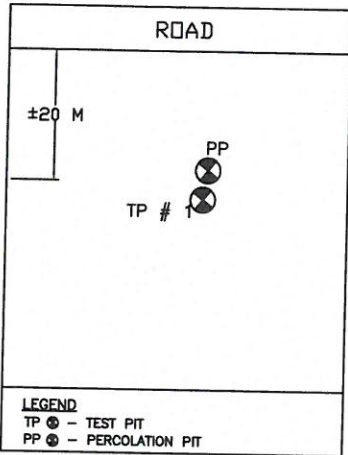
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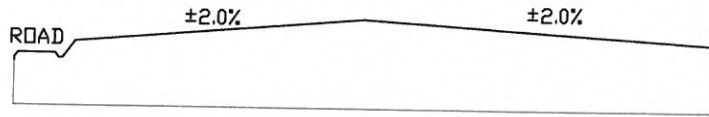
TEL (709) 834-1554 FAX (709) 834-1558

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

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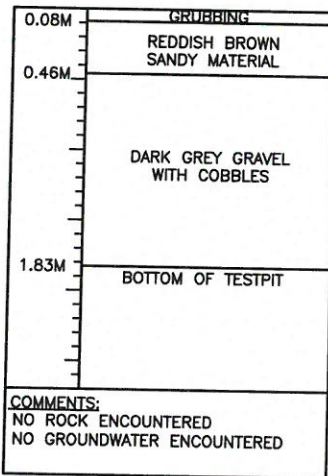


SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

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TEST PIT/PERCOLATION DATA
SALMONIER COTTAGE INITIATIVE
COTTAGE DEVELOPMENT



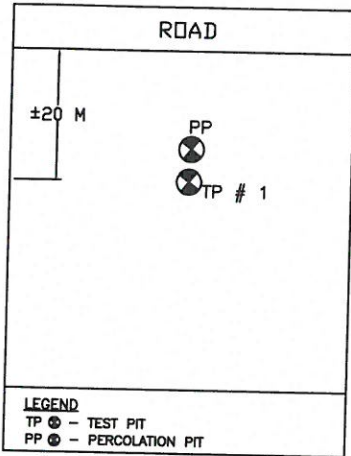
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TEL (709) 834-1554 FAX (709) 834-1558

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AUG. 14/13		S.POWER			NTS	2013.093

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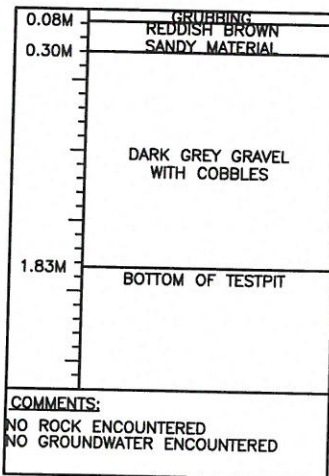


SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

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TEST PIT/PERCOLATION DATA
 SALMONIER COTTAGE INITIATIVE
 COTTAGE DEVELOPMENT



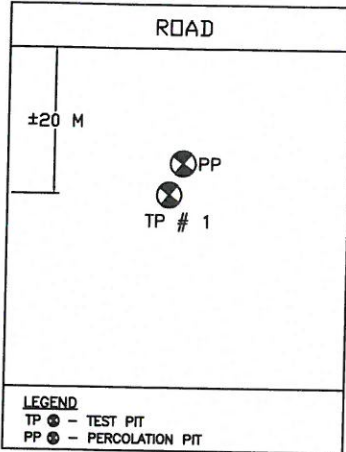
TEL (709) 834-1554 FAX (709) 834-1558

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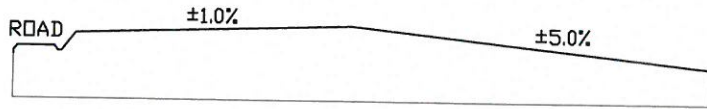
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AUG. 14/13		S.POWER			NTS	2013.093

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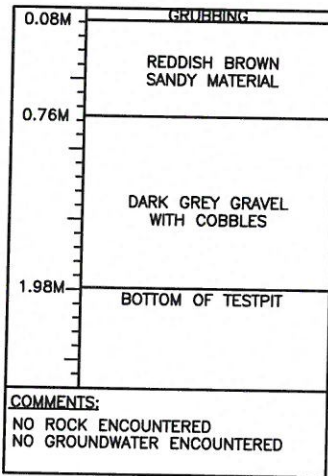
LEGEND
 TP ● - TEST PIT
 PP ⊗ - PERCOLATION PIT

SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



COMMENTS:
 NO ROCK ENCOUNTERED
 NO GROUNDWATER ENCOUNTERED

LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: JULY 26, 2013 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
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TEST PIT/PERCOLATION DATA
 SALMONIER COTTAGE INITIATIVE
 COTTAGE DEVELOPMENT



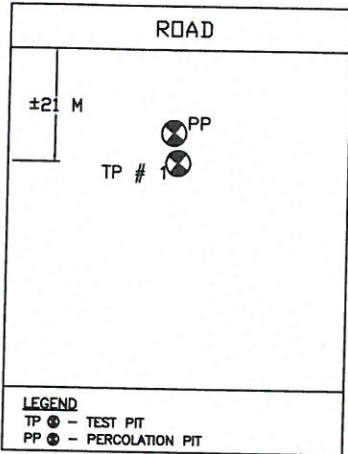
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

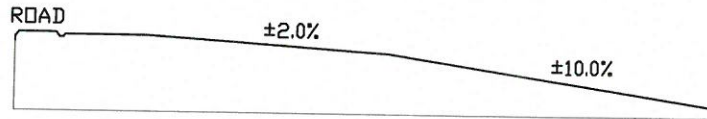
LOT#97

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

SITE SKETCH:



SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:

0.08M	GRUBBING
0.46M	REDDISH BROWN SILTY MATERIAL
1.98M	DARK GREY GRAVEL WITH COBBLES
	BOTTOM OF TESTPIT
COMMENTS: NO ROCK ENCOUNTERED NO GROUNDWATER ENCOUNTERED	

LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: JULY 26, 2013 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
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TEST PIT/PERCOLATION DATA
 SALMONIER COTTAGE INITIATIVE
 COTTAGE DEVELOPMENT



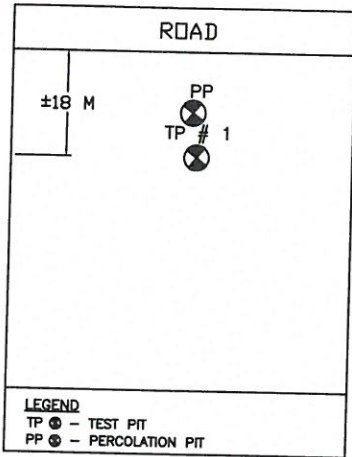
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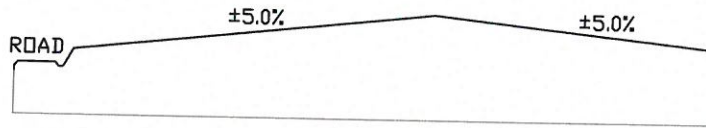
TEL (709) 834-1554 FAX (709) 834-1558

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

SITE SKETCH:

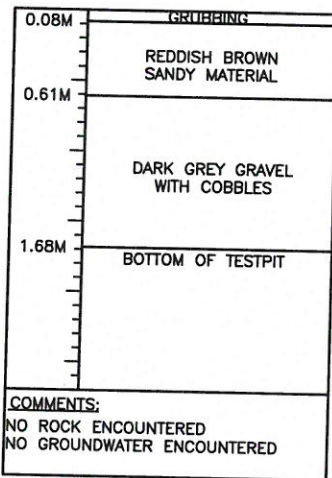


SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: JULY 26, 2013 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
1	4 MIN. 50 SEC.	

TEST PIT/PERCOLATION DATA
 SALMONIER COTTAGE INITIATIVE
 COTTAGE DEVELOPMENT



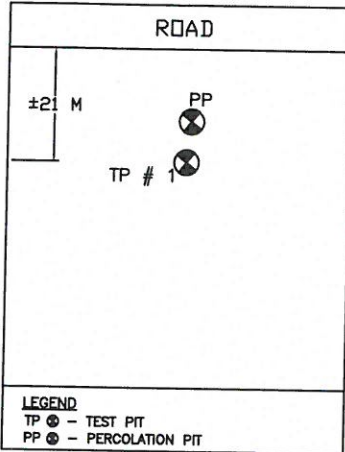
DRAWING NO.

LOT #100

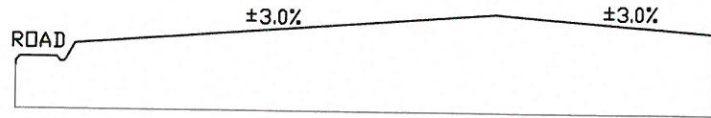
TEL (709) 834-1554 FAX (709) 834-1558

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

SITE SKETCH:

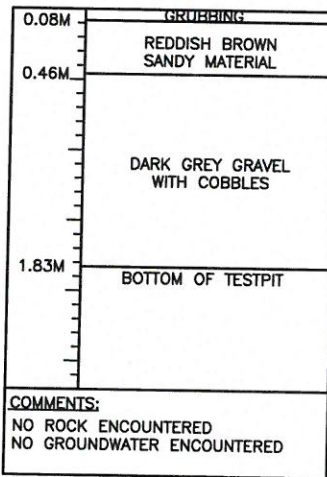


SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



COMMENTS:
NO ROCK ENCOUNTERED
NO GROUNDWATER ENCOUNTERED

LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: JULY 26, 2013 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
1	9 MIN. 20 SEC.	

TEST PIT/PERCOLATION DATA
SALMONIER COTTAGE INITIATIVE
COTTAGE DEVELOPMENT



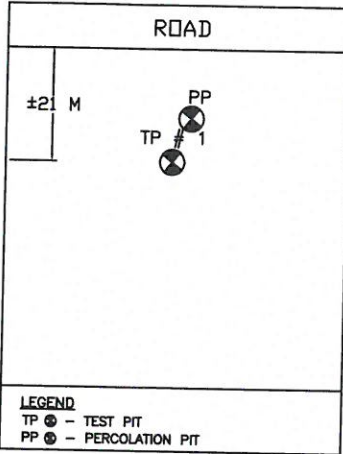
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

LOT #101

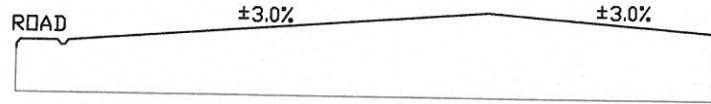
DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

SITE SKETCH:



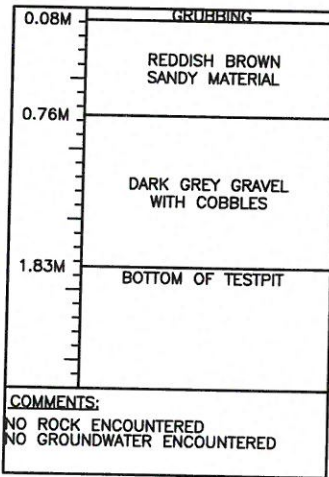
LEGEND
 TP ⊙ - TEST PIT
 PP ⊙ - PERCOLATION PIT

SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: JULY 26, 2013 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
1	6 MIN. 50 SEC.	

**TEST PIT/PERCOLATION DATA
 SALMONIER COTTAGE INITIATIVE
 COTTAGE DEVELOPMENT**



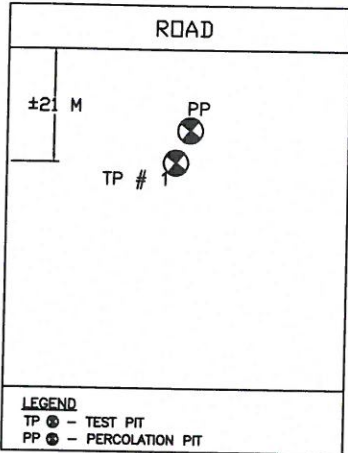
DRAWING NO.

LOT #102

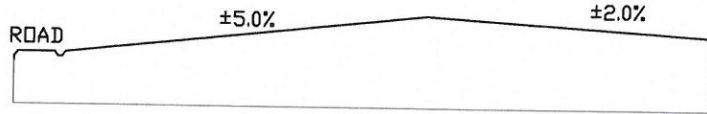
TEL (709) 834-1554 FAX (709) 834-1558

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

SITE SKETCH:

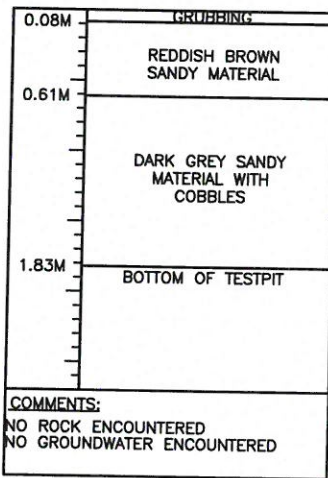


SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: JULY 29, 2013 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
1	1 MIN. 21 SEC.	

TEST PIT/PERCOLATION DATA
 SALMONIER COTTAGE INITIATIVE
 COTTAGE DEVELOPMENT



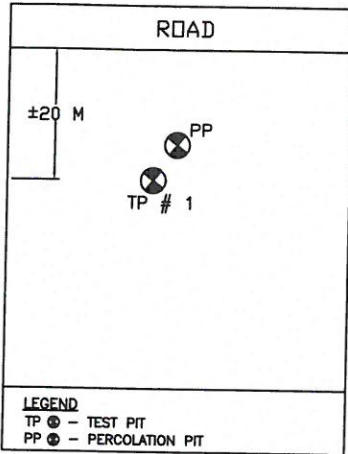
DRAWING NO.

LOT #103

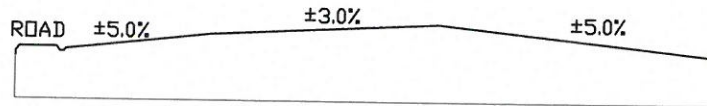
TEL (709) 834-1554 FAX (709) 834-1558

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

SITE SKETCH:



SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:

0.08M	GRUBBING
0.46M	REDDISH BROWN SANDY MATERIAL
1.83M	DARK GREY GRAVEL WITH COBBLES
	BOTTOM OF TESTPIT
COMMENTS: NO ROCK ENCOUNTERED NO GROUNDWATER ENCOUNTERED	

LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: JULY 29, 2013 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
1	14 MIN. 20 SEC.	

TEST PIT/PERCOLATION DATA
SALMONIER COTTAGE INITIATIVE
COTTAGE DEVELOPMENT



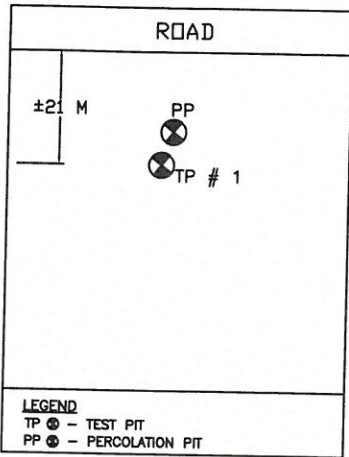
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

LOT #104

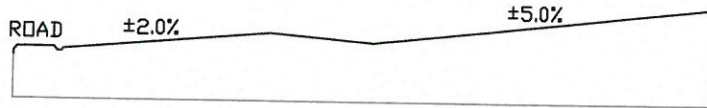
DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

SITE SKETCH:



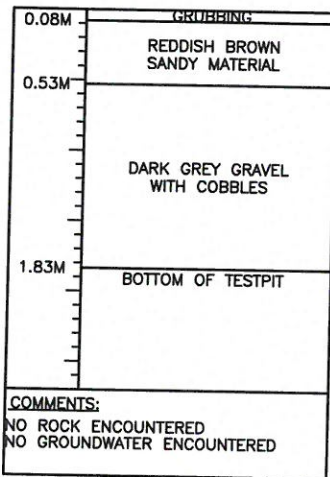
LEGEND
 TP ● - TEST PIT
 PP ⊗ - PERCOLATION PIT

SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



COMMENTS:
 NO ROCK ENCOUNTERED
 NO GROUNDWATER ENCOUNTERED

LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: JULY 29, 2013 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
1	14 MIN. 40 SEC.	

**TEST PIT/PERCOLATION DATA
 SALMONIER COTTAGE INITIATIVE
 COTTAGE DEVELOPMENT**



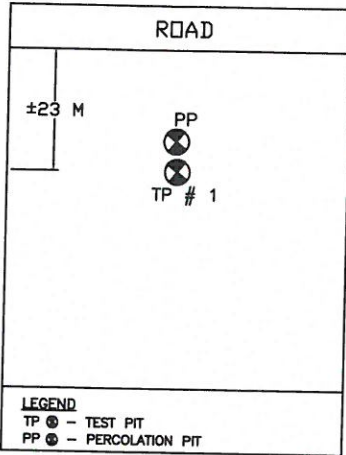
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

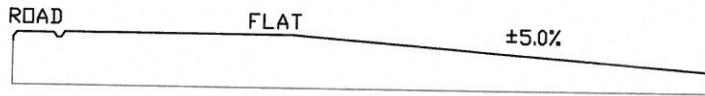
LOT #105

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

SITE SKETCH:

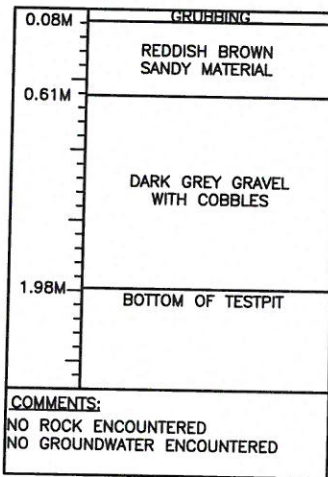


SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: JULY 29, 2013 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
1	8 MIN. 26 SEC.	

TEST PIT/PERCOLATION DATA
 SALMONIER COTTAGE INITIATIVE
 COTTAGE DEVELOPMENT



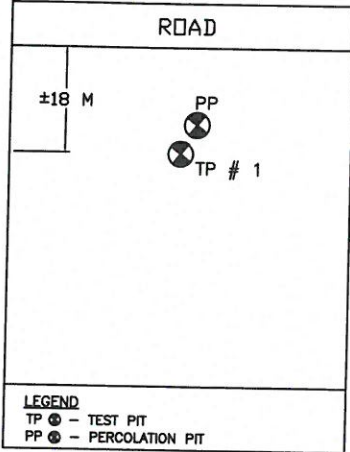
DRAWING NO.

LOT #106

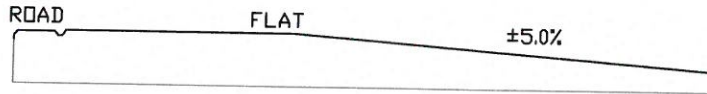
TEL (709) 834-1554 FAX (709) 834-1558

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

SITE SKETCH:

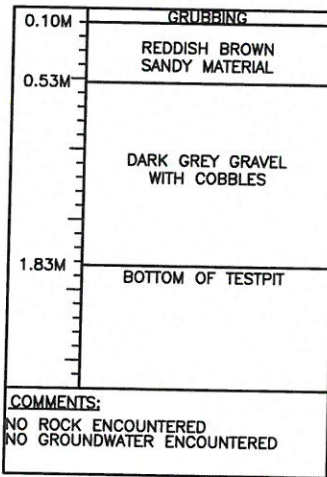


SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: JULY 29, 2013 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
1	2 MIN. 58 SEC.	

TEST PIT/PERCOLATION DATA
 SALMONIER COTTAGE INITIATIVE
 COTTAGE DEVELOPMENT



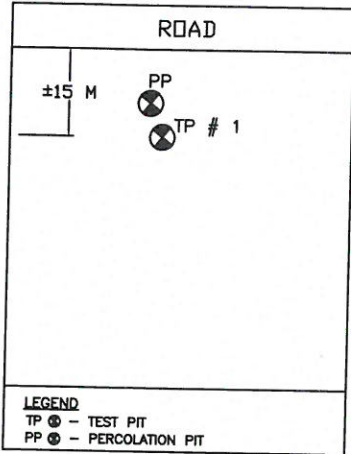
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

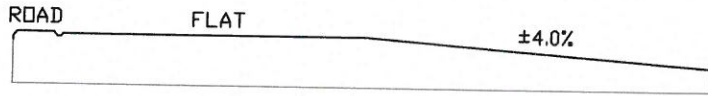
LOT #107

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

SITE SKETCH:

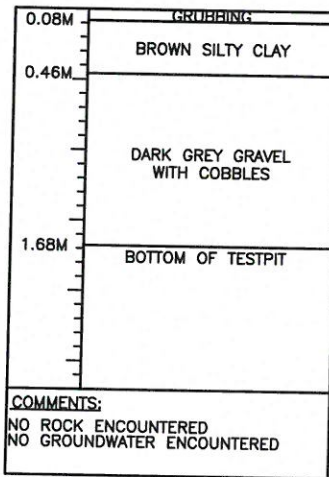


SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: JULY 29, 2013 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
1	9 MIN. 22 SEC.	

TEST PIT/PERCOLATION DATA
 SALMONIER COTTAGE INITIATIVE
 COTTAGE DEVELOPMENT



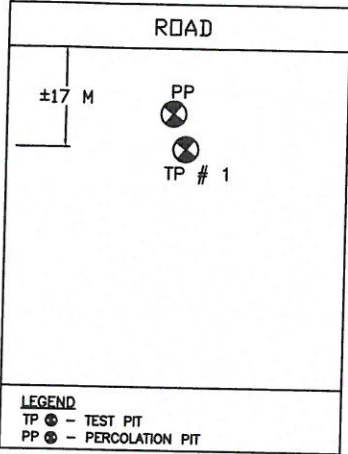
DRAWING NO.

LOT #112

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

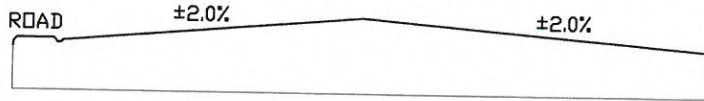
DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

SITE SKETCH:



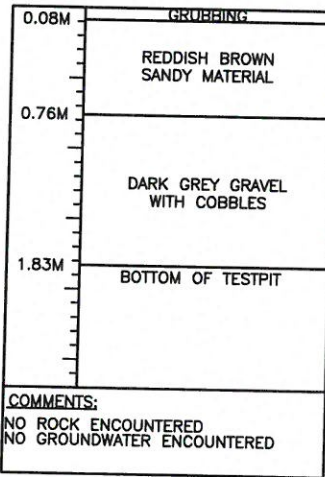
LEGEND
 TP ● - TEST PIT
 PP ⊗ - PERCOLATION PIT

SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: JULY 29, 2013 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
1	5 MIN. 44 SEC.	

TEST PIT/PERCOLATION DATA
 SALMONIER COTTAGE INITIATIVE
 COTTAGE DEVELOPMENT



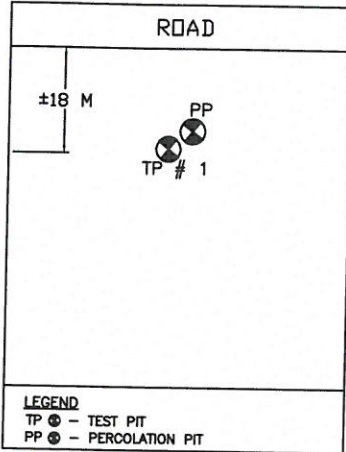
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

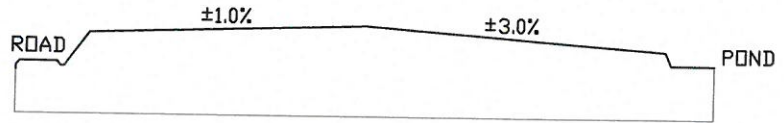
LOT #113

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

SITE SKETCH:

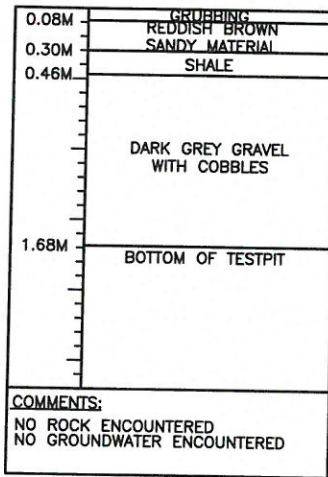


SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD.
1	5 MIN. 52 SEC.	SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD.
		DATE: JULY 30, 2013
		REGISTRATION NO: AD-2009-105692
		TELEPHONE NO. 834-1554

TEST PIT/PERCOLATION DATA
 SALMONIER COTTAGE INITIATIVE
 COTTAGE DEVELOPMENT



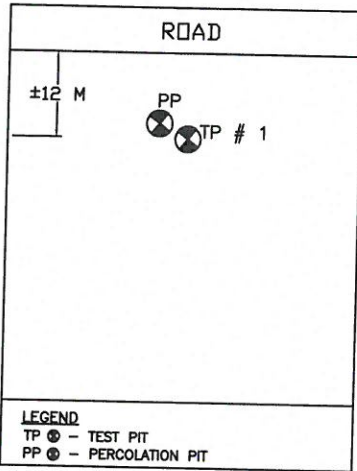
DRAWING NO.

LOT #119

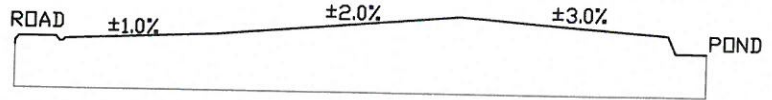
TEL (709) 834-1554 FAX (709) 834-1558

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

SITE SKETCH:

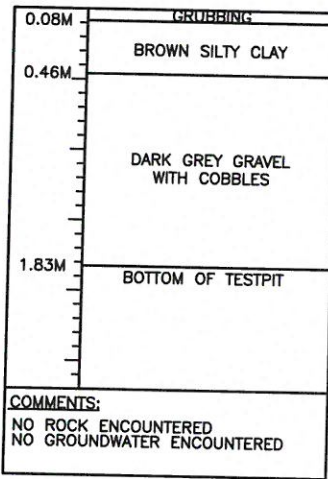


SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: JULY 30, 2013 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
1	5 MIN. 06 SEC.	

TEST PIT/PERCOLATION DATA
 SALMONIER COTTAGE INITIATIVE
 COTTAGE DEVELOPMENT



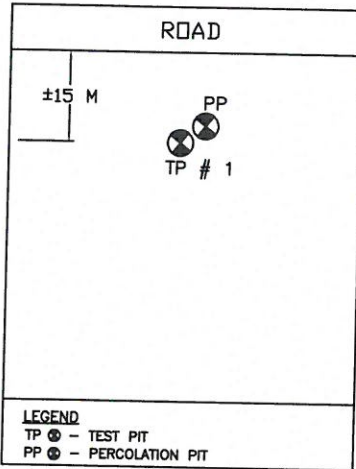
DRAWING NO.

LOT #122

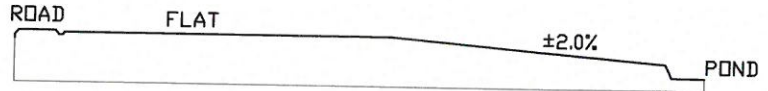
TEL (709) 834-1554 FAX (709) 834-1558

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

SITE SKETCH:

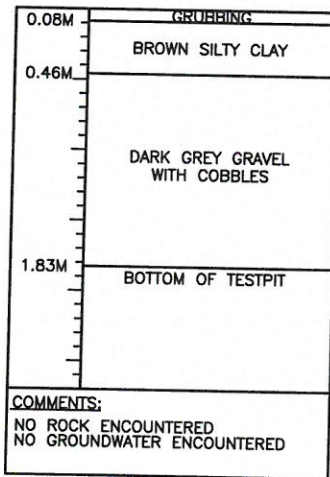


SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: JULY 30, 2013 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
1	3 MIN. 26 SEC.	

TEST PIT/PERCOLATION DATA
 SALMONIER COTTAGE INITIATIVE
 COTTAGE DEVELOPMENT



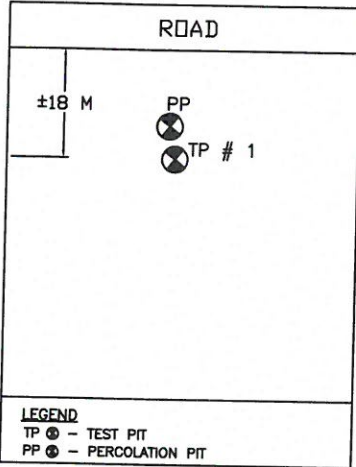
DRAWING NO.

LOT #123

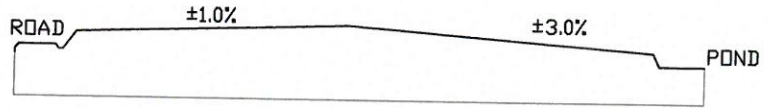
TEL (709) 834-1554 FAX (709) 834-1558

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

SITE SKETCH:

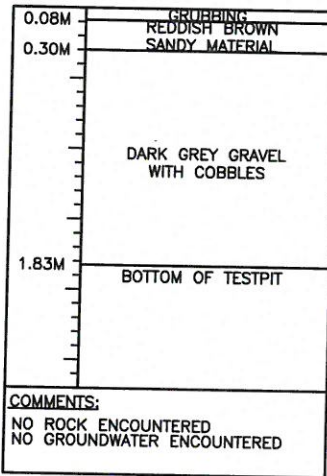


SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: JULY 30, 2013 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
1	4 MIN. 10 SEC.	

TEST PIT/PERCOLATION DATA
 SALMONIER COTTAGE INITIATIVE
 COTTAGE DEVELOPMENT



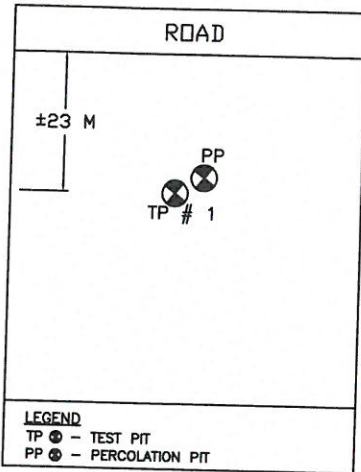
DRAWING NO.

LOT #124

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

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

SITE SKETCH:

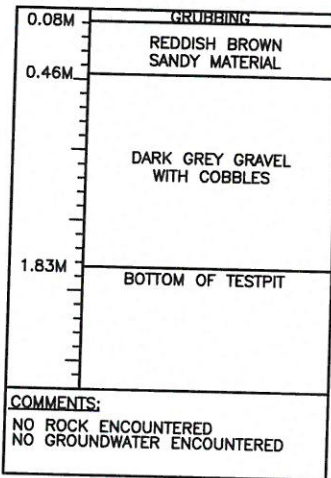


SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: JULY 30, 2013 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
1	4 MIN. 53 SEC.	

TEST PIT/PERCOLATION DATA
 SALMONIER COTTAGE INITIATIVE
 COTTAGE DEVELOPMENT



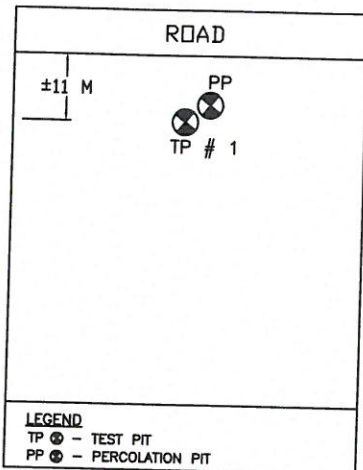
DRAWING NO.

LOT #127

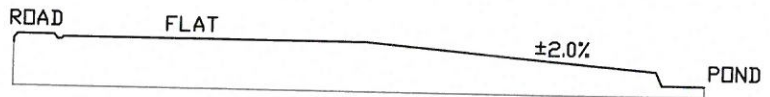
TEL (709) 834-1554 FAX (709) 834-1558

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

SITE SKETCH:



SITE PROFILE SKETCH:

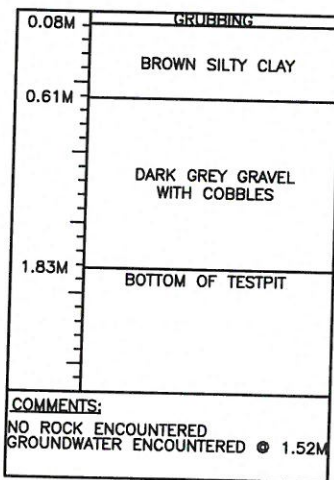


LEGEND

TP ⊗ - TEST PIT
PP ⊙ - PERCOLATION PIT

TEST PIT RESULTS:

TEST PIT #1:



COMMENTS:

NO ROCK ENCOUNTERED
GROUNDWATER ENCOUNTERED @ 1.52M

LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: JULY 30, 2013 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
1	1 MIN. 44 SEC.	

TEST PIT/PERCOLATION DATA
SALMONIER COTTAGE INITIATIVE
COTTAGE DEVELOPMENT



DRAWING NO.

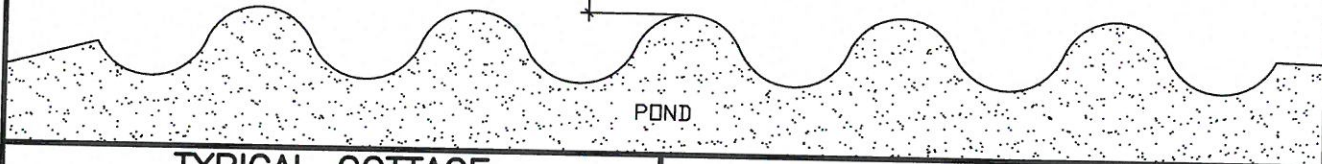
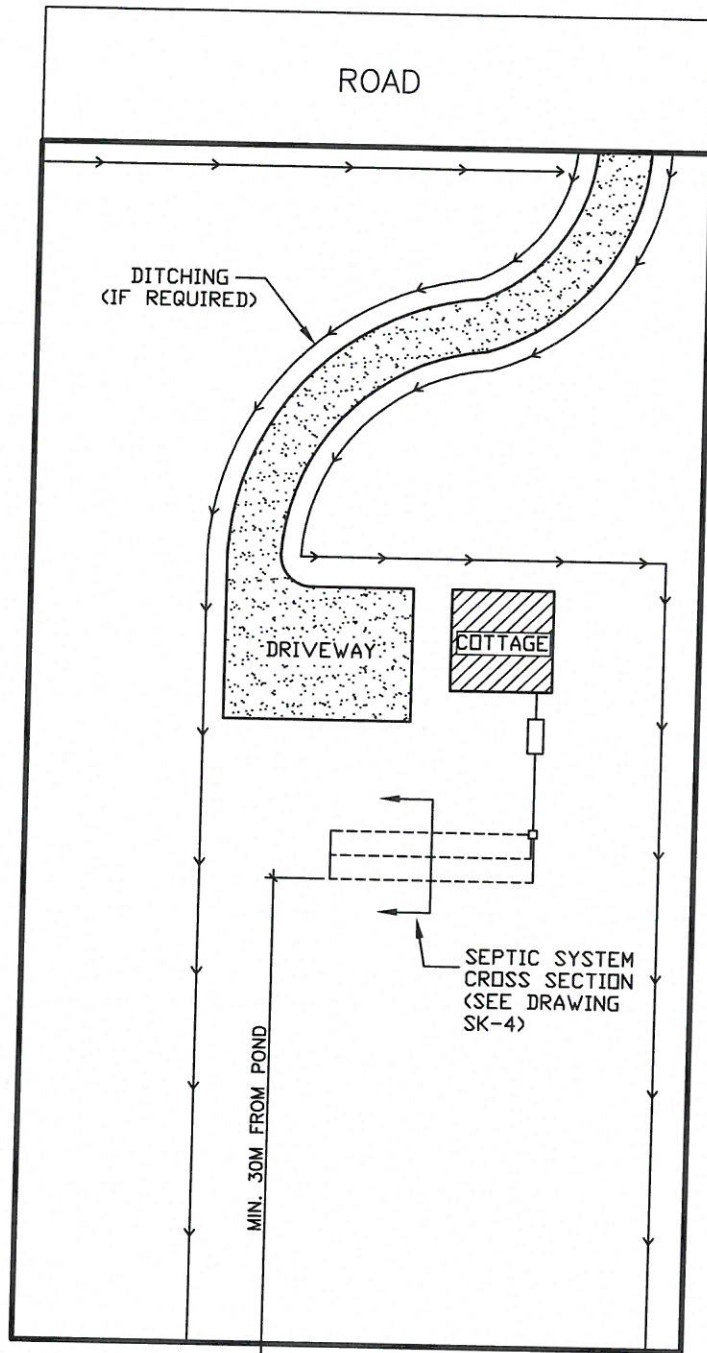
LOT #131

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DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 14/13		S.POWER			NTS	2013.093

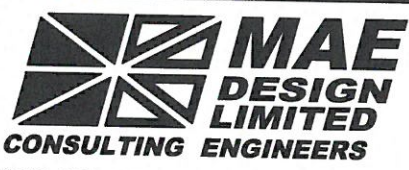
APPENDIX C

Recommendation Sketches



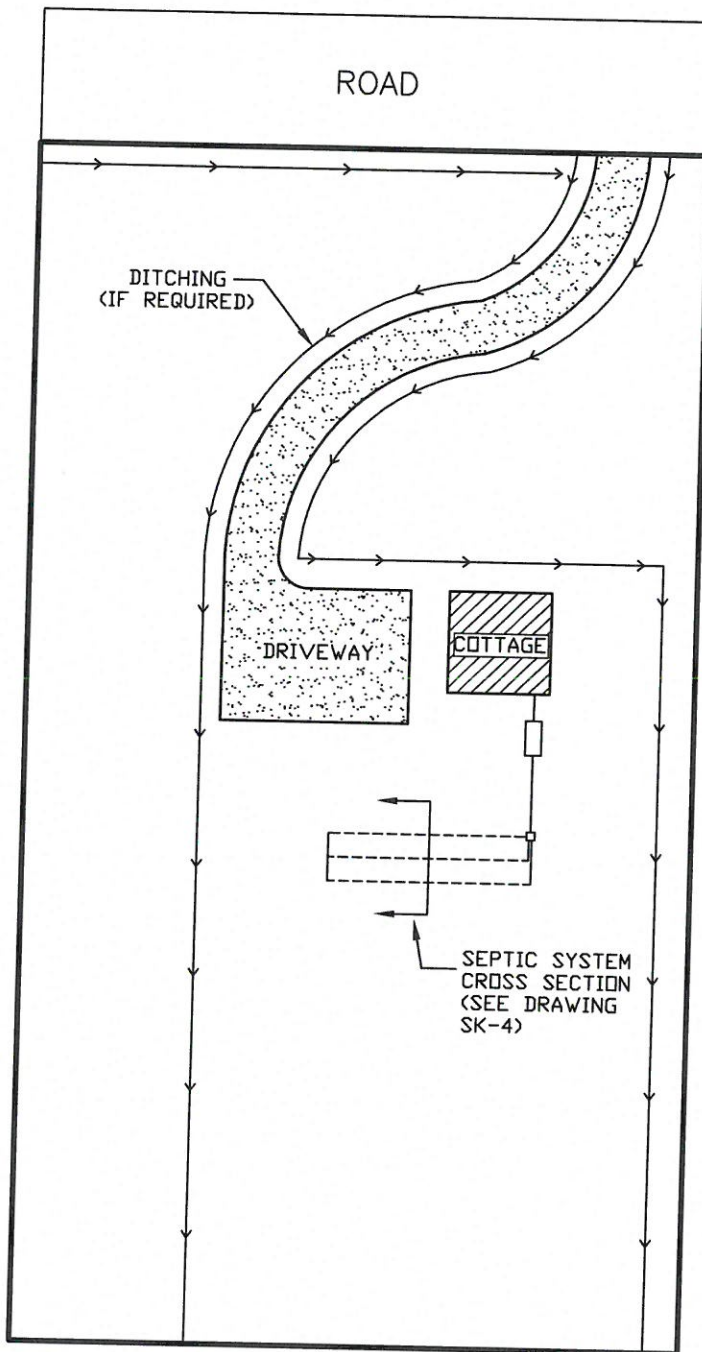
**TYPICAL COTTAGE
LOT PLAN
LOTS
70-71,75,77-87,89-91,108-110,
115-134**

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DRAWING NO.
SK-1



TYPICAL COTTAGE
 LOT PLAN
 LOTS 88,92-99,106-107,111-114

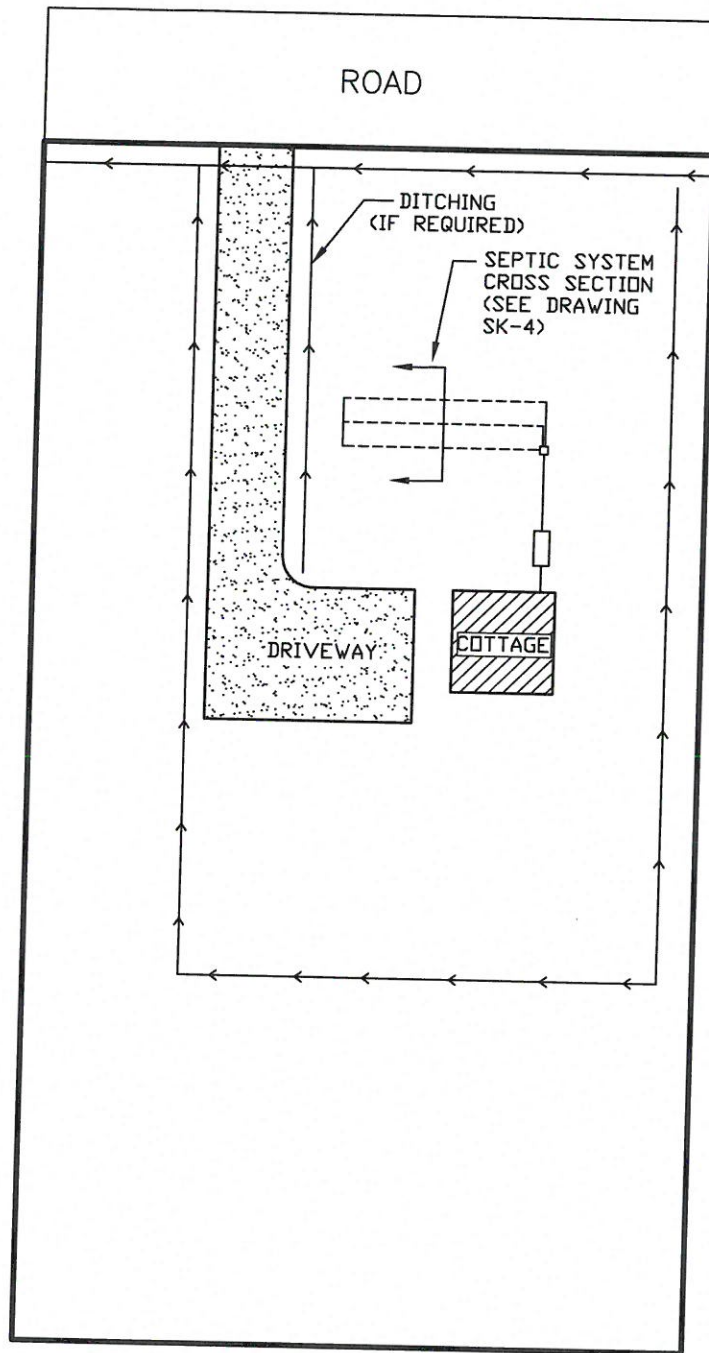


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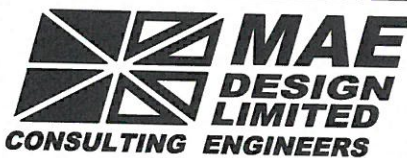
DRAWING NO.

SK-2

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG 14/13			S. POWER		NTS	2013.093



TYPICAL COTTAGE
 LOT PLAN
 LOTS 72-74,76,100-105



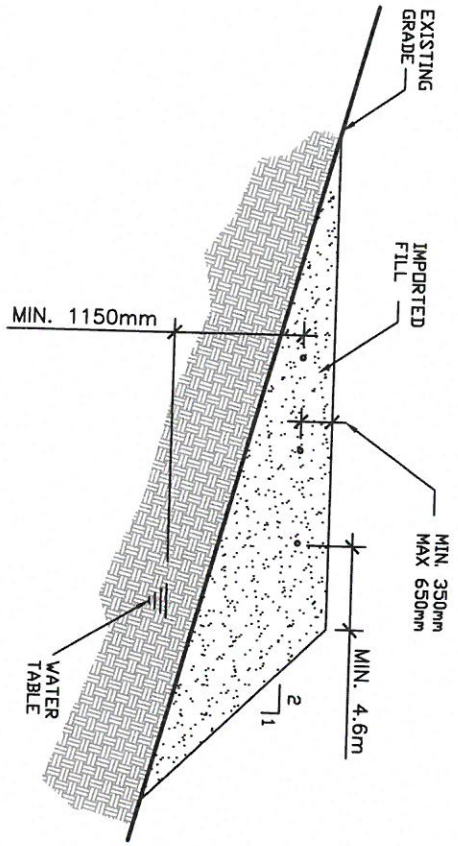
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SK-3

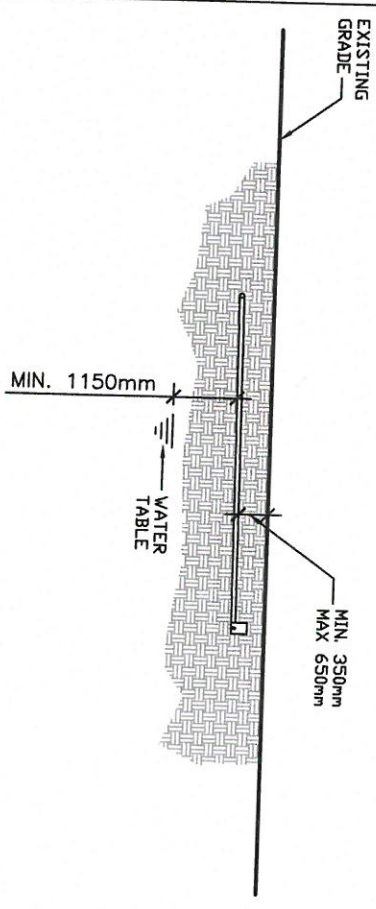
TEL (709) 834-1554

FAX (709) 834-1558

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AUG 14/13			S. POWER		NTS	2013.093



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

DATE	DESIGNED BY	DRAWN BY
AUG 14/13		S. POWER

M A E
DESIGN LIMITED
CONSULTING ENGINEERS

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

APPROVED	CHECKED	SCALE
		NTS

DRAWING NO. **SK-4**

CONTRACT NO. 2013.093