



140 West Main Street
High Bridge, NJ 08829
T: 908.238.0544 F: 908.238.9572

Municipality: Franklin Township Block: 468.08 Lot: 2.02

Soil Log and Interpretation

1 Soil Log #: SL-3 Date of Soil Log: 5/6/2020 Method: Profile Pit

2 Log:

Depth (inches)	Munsell Color Name & Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragments; Structure; Consistence; Mottling Abundance, Size and Contrast
0 - 12"	Topsoil;
12 - 99"	10R 5/8; Silt Loam; 10% Gravel, 25% Cobble, 60% Stone; Few, Medium, Faint Mottling, 10YR 7/1 in Color, 42-99" in Depth; SAB, Moist, Friable; Seepage @ 72"; Machine Refusal @ 99"

3 Ground Water Observations:

- Seepage Observed - Depth (inches): 72"
- Pit Flooded - Depth (inches): 79" after 24 hours of observation

4 Soil Limiting Zones (Check ALL applicable categories):

- Fractured Rock Substratum - Depth to Top: 12"
- Massive Rock Substratum - Depth to Top: _____
- Excessively Coarse Horizon - Depth Top to Bottom: _____
- Excessively Coarse Substratum - Depth to Top: _____
- Hydraulically Restrictive Horizon - Depth Top to Bottom: _____
- Hydraulically Restrictive Substratum - Depth to Top: _____
- Perched Zone of Saturation - Depth Top to Bottom: _____
- Regional Zone of Saturation - Depth to Top: 42"

5 I hereby certify that the information furnished on this form is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator: [Signature] Date: 5/7/2020
 Signature and Seal of Professional Engineer: [Signature]
 License #: 24GB04258200 Date: 5/7/2020



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Municipality: Franklin Township Block: 468.08 Lot: 2.02

Soil Log and Interpretation

1 Soil Log #: SL-4 Date of Soil Log: 5/6/2020 Method: Profile Pit
2 Log:

Depth (inches)	Munsell Color Name & Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragments; Structure; Consistence; Mottling Abundance, Size and Contrast
0 - 12"	Topsoil;
12 - 132"	10R 5/8; Silt Loam; 10% Gravel, 25% Cobble, 50% Stone; Many, Medium, Prominent Mottling, 10YR 7/1 in Color, 42-132" in Depth; SAB, Moist, Friable; Seepage @ 76"; Machine Refusal @ 132"

3 Ground Water Observations:
 Seepage Observed - Depth (inches): 76"
 Pit Flooded - Depth (inches): _____ after _____ hours of observation

4 Soil Limiting Zones (Check ALL applicable categories):
 Fractured Rock Substratum - Depth to Top: 12"
 Massive Rock Substratum - Depth to Top: _____
 Excessively Coarse Horizon - Depth Top to Bottom: _____
 Excessively Coarse Substratum - Depth to Top: _____
 Hydraulically Restrictive Horizon - Depth Top to Bottom: _____
 Hydraulically Restrictive Substratum - Depth to Top: _____
 Perched Zone of Saturation - Depth Top to Bottom: _____
 Regional Zone of Saturation - Depth to Top: 42"

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Signature of Site Evaluator: [Signature] Date: 5/7/2020
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Municipality: Franklin Township Block: 468.08 Lot: 2.02

Soil Log and Interpretation

1 Soil Log #: SL-5 Date of Soil Log: 5/6/2020 Method: Profile Pit
2 Log:

Depth (inches)	Munsell Color Name & Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragments; Structure; Consistence; Mottling Abundance, Size and Contrast
0 - 14"	Topsoil;
14 - 93"	10R 5/8; Silt Loam; 10% Gravel, 25% Cobble, 60% Stone; Many, Medium, Distinct Mottling, 10YR 7/1 in Color, 24-96" in Depth; SAB, Moist, Friable; Seepage @ 90"; Machine Refusal @ 93"

3 Ground Water Observations:
 Seepage Observed - Depth (inches): 90"
 Pit Flooded - Depth (inches): 78" after 24 hours of observation

4 Soil Limiting Zones (Check ALL applicable categories):
 Fractured Rock Substratum - Depth to Top: 14"
 Massive Rock Substratum - Depth to Top: _____
 Excessively Coarse Horizon - Depth Top to Bottom: _____
 Excessively Coarse Substratum - Depth to Top: _____
 Hydraulically Restrictive Horizon - Depth Top to Bottom: _____
 Hydraulically Restrictive Substratum - Depth to Top: _____
 Perched Zone of Saturation - Depth Top to Bottom: _____
 Regional Zone of Saturation - Depth to Top: 24"

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Signature of Site Evaluator: [Signature] Date: 5/7/2020
 Signature and Seal of Professional Engineer: [Signature]
 License #: 24GB04258200 Date: 5/7/2020



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Soil Log and Interpretation

1 Soil Log #: SL-6 Date of Soil Log: 5/6/2020 Method: Profile Pit

2 Log:

Depth (inches)	Munsell Color Name & Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragments; Structure; Consistence; Mottling Abundance, Size and Contrast
0 - 14"	Topsoil;
14 - 40"	5YR 4/6; Silty Clay Loam; 10% Gravel, 5% Cobble, 5% Stone; SAB, Moist, Friable;
40 - 94"	10R 5/8; Silt Loam; 10% Gravel, 25% Cobble, 60% Stone; Many, Medium, Distinct Mottling, 10YR 7/1 in Color, 48-94" in Depth; SAB, Moist, Friable; Seepage @ 92"; Machine Refusal @ 94"

3 Ground Water Observations:

Seepage Observed - Depth (inches): 92"
 Pit Flooded - Depth (inches): _____ after _____ hours of observation

4 Soil Limiting Zones (Check ALL applicable categories):

Fractured Rock Substratum - Depth to Top: 40"
 Massive Rock Substratum - Depth to Top: _____
 Excessively Coarse Horizon - Depth Top to Bottom: _____
 Excessively Coarse Substratum - Depth to Top: _____
 Hydraulically Restrictive Horizon - Depth Top to Bottom: _____
 Hydraulically Restrictive Substratum - Depth to Top: _____
 Perched Zone of Saturation - Depth Top to Bottom: _____
 Regional Zone of Saturation - Depth to Top: 48"

5 I hereby certify that the information furnished on this form is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

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Signature and Seal of Professional Engineer: [Signature]
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Soil Log and Interpretation

1 Soil Log #: SL-7 Date of Soil Log: 5/6/2020 Method: Profile Pit
2 Log:

Depth (inches)	Munsell Color Name & Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragments; Structure; Consistence; Mottling Abundance, Size and Contrast
0 - 17"	Topsoil;
17 - 93"	10R 5/8; Silt Loam; 10% Gravel, 25% Cobble, 60% Stone; Many, Medium, Distinct Mottling, 10YR 7/1 in Color, 30-93" in Depth; SAB, Moist, Friable; Seepage @ 72"; Machine Refusal @ 93"

3 Ground Water Observations:
 Seepage Observed - Depth (inches): 72"
 Pit Flooded - Depth (inches): 75" after 24 hours of observation

4 Soil Limiting Zones (Check ALL applicable categories):
 Fractured Rock Substratum - Depth to Top: 17"
 Massive Rock Substratum - Depth to Top: _____
 Excessively Coarse Horizon - Depth Top to Bottom: _____
 Excessively Coarse Substratum - Depth to Top: _____
 Hydraulically Restrictive Horizon - Depth Top to Bottom: _____
 Hydraulically Restrictive Substratum - Depth to Top: _____
 Perched Zone of Saturation - Depth Top to Bottom: _____
 Regional Zone of Saturation - Depth to Top: 30"

5 I hereby certify that the information furnished on this form is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

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 Signature and Seal of Professional Engineer: [Signature]
 License #: 24GB04258200 Date: 5/7/2020



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Soil Log and Interpretation

1 Soil Log #: SL-8 Date of Soil Log: 5/6/2020 Method: Profile Pit

2 Log:

Depth (inches)	Munsell Color Name & Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragments; Structure; Consistence; Mottling Abundance, Size and Contrast
0 - 12"	Topsoil;
12 - 54"	5YR 4/6; Silty Clay Loam; 10% Gravel, 5% Cobble, 5% Stone; Many, Medium, Prominent Mottling, 2.5Y 7/6 in Color, 20-54" in Depth; SAB, Moist, Friable;
54 - 108"	10R 5/8; Silt Loam; 10% Gravel, 25% Cobble, 60% Stone; Many, Medium, Distinct Mottling, 10YR 7/1 in Color, 54-108" in Depth; SAB, Moist, Friable; Seepage @ 72"; Machine Refusal @ 108"

3 Ground Water Observations:

Seepage Observed - Depth (inches): 72"
 Pit Flooded - Depth (inches): _____ after _____ hours of observation

4 Soil Limiting Zones (Check ALL applicable categories):

Fractured Rock Substratum - Depth to Top: 54"
 Massive Rock Substratum - Depth to Top: _____
 Excessively Coarse Horizon - Depth Top to Bottom: _____
 Excessively Coarse Substratum - Depth to Top: _____
 Hydraulically Restrictive Horizon - Depth Top to Bottom: _____
 Hydraulically Restrictive Substratum - Depth to Top: _____
 Perched Zone of Saturation - Depth Top to Bottom: _____
 Regional Zone of Saturation - Depth to Top: 20"

5 I hereby certify that the information furnished on this form is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

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Signature and Seal of Professional Engineer: [Signature]
License #: 24GB04258200 Date: 5/7/2020



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Soil Log and Interpretation

1 Soil Log #: SL-9 Date of Soil Log: 5/6/2020 Method: Profile Pit

2 Log:

Depth (inches)	Munsell Color Name & Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragments; Structure; Consistence; Mottling Abundance, Size and Contrast
0 - 18"	Topsoil;
18 - 98"	10R 5/8; Silt Loam; 10% Gravel, 25% Cobble, 60% Stone; Common, Medium, Distinct Mottling, 10YR 7/1 in Color, 27-98" in Depth; SAB, Moist, Friable; Seepage @ 74"; Machine Refusal @ 98"

3 Ground Water Observations:

- Seepage Observed - Depth (inches): 74"
- Pit Flooded - Depth (inches): 92" after 24 hours of observation

4 Soil Limiting Zones (Check ALL applicable categories):

- Fractured Rock Substratum - Depth to Top: 18"
- Massive Rock Substratum - Depth to Top: _____
- Excessively Coarse Horizon - Depth Top to Bottom: _____
- Excessively Coarse Substratum - Depth to Top: _____
- Hydraulically Restrictive Horizon - Depth Top to Bottom: _____
- Hydraulically Restrictive Substratum - Depth to Top: _____
- Perched Zone of Saturation - Depth Top to Bottom: _____
- Regional Zone of Saturation - Depth to Top: 27"

5 I hereby certify that the information furnished on this form is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator: [Signature] Date: 5/7/2020
 Signature and Seal of Professional Engineer: [Signature]
 License #: 24GB04258200 Date: 5/7/2020



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Soil Log and Interpretation

1 Soil Log #: SL-11 Date of Soil Log: 5/6/2020 Method: Profile Pit
2 Log:

Depth (inches)	Munsell Color Name & Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragments; Structure; Consistence; Mottling Abundance, Size and Contrast
0 - 20"	Topsoil;
20 - 108"	10R 5/8; Silt Loam; 10% Gravel, 25% Cobble, 60% Stone; Many, Medium, Distinct Mottling, 10YR 7/1 in Color, 40-108" in Depth; SAB, Moist, Friable; Machine Refusal @ 108"

3 Ground Water Observations:
Seepage Observed - Depth (inches): _____
Pit Flooded - Depth (inches): _____ after _____ hours of observation

4 Soil Limiting Zones (Check ALL applicable categories):
 Fractured Rock Substratum - Depth to Top: 20"
 Massive Rock Substratum - Depth to Top: _____
 Excessively Coarse Horizon - Depth Top to Bottom: _____
 Excessively Coarse Substratum - Depth to Top: _____
 Hydraulically Restrictive Horizon - Depth Top to Bottom: _____
 Hydraulically Restrictive Substratum - Depth to Top: _____
 Perched Zone of Saturation - Depth Top to Bottom: _____
 Regional Zone of Saturation - Depth to Top: 40"

5 I hereby certify that the information furnished on this form is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator: [Signature] Date: 5/7/2020
Signature and Seal of Professional Engineer: [Signature]
License #: 24GB04258200 Date: 5/7/2020



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Municipality: Franklin Township Block: 468.08 Lot: 2.02

Soil Log and Interpretation

1 Soil Log #: SL-12 Date of Soil Log: 5/6/2020 Method: Profile Pit
2 Log:

Depth (inches)	Munsell Color Name & Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragments; Structure; Consistence; Mottling Abundance, Size and Contrast
0 - 14"	Topsoil;
14 - 113"	10R 5/8; Silt Loam; 10% Gravel, 25% Cobble, 55% Stone; Common, Medium, Distinct Mottling, 10YR 7/1 in Color, 22-113" in Depth; SAB, Moist, Friable; Seepage @ 78"; Machine Refusal @ 113"

3 Ground Water Observations:
 Seepage Observed - Depth (inches): 78"
 Pit Flooded - Depth (inches): 74" after 24 hours of observation

4 Soil Limiting Zones (Check ALL applicable categories):
 Fractured Rock Substratum - Depth to Top: 14"
 Massive Rock Substratum - Depth to Top: _____
 Excessively Coarse Horizon - Depth Top to Bottom: _____
 Excessively Coarse Substratum - Depth to Top: _____
 Hydraulically Restrictive Horizon - Depth Top to Bottom: _____
 Hydraulically Restrictive Substratum - Depth to Top: _____
 Perched Zone of Saturation - Depth Top to Bottom: _____
 Regional Zone of Saturation - Depth to Top: 22"

5 I hereby certify that the information furnished on this form is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator: [Signature] Date: 5/7/2020
 Signature and Seal of Professional Engineer: [Signature]
 License #: 24GB04258200 Date: 5/7/2020



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Municipality: Franklin Township Block: 468.08 Lot: 2.02

Soil Log and Interpretation

1 Soil Log #: SL-13 Date of Soil Log: 5/6/2020 Method: Profile Pit
2 Log:

Depth (inches)	Munsell Color Name & Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragments; Structure; Consistence; Mottling Abundance, Size and Contrast
0 - 18"	Topsoil;
18 - 116"	10R 5/8; Silt Loam; 10% Gravel, 25% Cobble, 55% Stone; Common, Medium, Distinct Mottling, 10YR 7/1 in Color, 26-116" in Depth; SAB, Moist, Friable; Seepage @ 78"; Machine Refusal @ 116"

3 Ground Water Observations:
 Seepage Observed - Depth (inches): 78"
 Pit Flooded - Depth (inches): _____ after _____ hours of observation

4 Soil Limiting Zones (Check ALL applicable categories):
 Fractured Rock Substratum - Depth to Top: 18"
 Massive Rock Substratum - Depth to Top: _____
 Excessively Coarse Horizon - Depth Top to Bottom: _____
 Excessively Coarse Substratum - Depth to Top: _____
 Hydraulically Restrictive Horizon - Depth Top to Bottom: _____
 Hydraulically Restrictive Substratum - Depth to Top: _____
 Perched Zone of Saturation - Depth Top to Bottom: _____
 Regional Zone of Saturation - Depth to Top: 26"

5 I hereby certify that the information furnished on this form is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator: [Signature] Date: 5/7/2020
Signature and Seal of Professional Engineer: [Signature]
License #: 24GB04258200 Date: 5/7/2020



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Municipality: Franklin Township Block: 468.08 Lot: 2.02

Soil Log and Interpretation

1 Soil Log #: SL-14 Date of Soil Log: 5/6/2020 Method: Profile Pit
2 Log:

Depth (inches)	Munsell Color Name & Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragments; Structure; Consistence; Mottling Abundance, Size and Contrast
0 - 20"	Topsoil;
20 - 108"	10R 5/8; Silt Loam; 10% Gravel, 25% Cobble, 55% Stone; Common, Medium, Distinct Mottling, 10YR 7/1 in Color, 32-108" in Depth; SAB, Moist, Friable; Seepage @ 80"; Machine Refusal @ 108"

3 Ground Water Observations:
 Seepage Observed - Depth (inches): 80"
 Pit Flooded - Depth (inches): _____ after _____ hours of observation

4 Soil Limiting Zones (Check ALL applicable categories):
 Fractured Rock Substratum - Depth to Top: 20"
 Massive Rock Substratum - Depth to Top: _____
 Excessively Coarse Horizon - Depth Top to Bottom: _____
 Excessively Coarse Substratum - Depth to Top: _____
 Hydraulically Restrictive Horizon - Depth Top to Bottom: _____
 Hydraulically Restrictive Substratum - Depth to Top: _____
 Perched Zone of Saturation - Depth Top to Bottom: _____
 Regional Zone of Saturation - Depth to Top: 32"

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Signature of Site Evaluator: [Signature] Date: 5/7/2020
Signature and Seal of Professional Engineer: [Signature]
License #: 24GB04258200 Date: 5/7/2020

STIRES ASSOCIATES, P.A.



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22 N. 3rd Street | Philadelphia, PA 19106

Municipality: Franklin Twp. Block: 468.08 Lot: 2.02
Form 3f - Pit-Baling Test Data (2 Pages)

1 Test #: PB-1 Reference Soil Log: SL-2 Date Tested: 5/6/2020

2 Using the reference level established, measure and record the following:

Depth to bottom of pit (ft.), D_{pit} : 7.33
 Depth to water level after 2 hr. stabilization period (ft.), D_{water} : 6.42
 Depth to impermeable stratum (ft), $D_{stratum}$: 7.33
 (If depth is unknown assume it to be 1.5 times the depth of the pit.)
 Height of water level above impermeable stratum (ft), $H=D_{stratum}-D_{water}$ = 0.92
 Length of time interval (minutes), T: Varies

3 At the interval chosen, record the following data in the table below:

Time of measurement (minutes), t_n
 Depth of water level below reference level (inches), d_n
 Water surface dimensions (feet), l,w

4 Calculate the following values and enter in the table below:

Water surface area (ft^2), A_n
 Water level rise, h_{rise} (Subtract current value of d_n from previous value)
 Average water surface area (ft^2), A_{av} (Take average of A_n and previous A_n)
 Average height of water level above impermeable stratum (feet), h (Take average of d_n and previous value of d_n , convert to feet, and subtract from $D_{stratum}$)
 Calculate permeability (in/hr), $K_a=[h_{rise}/T] \times [A_{av}/2.27(H^2-h^2)] \times 60$ min/hr

	t_n	d_n (in)	l (ft)	w (ft)	A_n (ft^2)	h_{rise} (in)	A_{av} (ft^2)	h (ft)	K_a	
	t_0	0	88.00	0.00	0.00	-	-	-	-	
	t_1	10	85.00	2.33	2.67	6.22	3.00	3.11	0.13	29.95
	t_2	10	84.00	2.50	2.67	6.68	1.00	6.45	0.29	22.55
	t_3	25	82.00	2.67	2.67	7.13	2.00	6.91	0.42	22.01
	t_4	25	81.00	3.33	2.67	8.89	1.00	8.01	0.54	15.43
	t_5	25	80.00	4.50	2.67	12.02	1.00	10.46	0.62	24.26
	t_6									
	t_7									
	t_8									
	t_9									
	t_{10}									
	t_{11}									
	t_{12}									
	t_{13}									
	t_{14}									



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22 N. 3rd Street | Philadelphia, PA 19106

Municipality: Franklin Twp. Block: 468.08 Lot: 2.02
Form 3f - Pit-Baling Test Data (2 Pages) - Continued Reference Soil Log SL-2

5 Record the following data:

Final Depth of pit (ft), D_{pit} : 7.33

Depth to impermeable stratum (ft) $D_{stratum}$: 7.33

(If no impermeable stratum is encountered assume $D_{stratum} = D_{pit}$)

Height of standpipe above reference level (ft), h_{pipe} : 0.00

Depth to water level after 24 hour stabilization period (ft), D_{water} : 5.42

(Take measurement from top of standpipe. Subtract h_{pipe})

Height of static water level above impermeable stratum (ft), H: 1.92

($H = D_{stratum} - D_{water}$)

Average height of water level above impermeable stratum (ft), h: 0.63

(Take average of dn from beginning and end of last time interval recorded in section 4, convert this to feet, subtract from $d_{stratum}$)

6 Re-calculation of K using data from section 5 above and from final time interval of section 4:

$$K = [h_{rise}/T] \times [A_{av}/2.27(H^2 - h^2)] \times 60 \text{ min/hr}$$

$$= [1.00 / 25] \times [10.46 / 2.27(3.67^2 - 0.40^2)] \times 60 \text{ min/hr} = \underline{3.38 \text{ in/hr}}$$

7 I hereby certify that the information furnished on Form 3f of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator: _____ Date: 5/7/2020

Signature and Seal of Professional Engineer: _____

License #: 24GB04258200 Date: 5/7/2020

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Municipality: Franklin Twp. Block: 468.08 Lot: 2.02
Form 3f - Pit-Baling Test Data (2 Pages)

1 Test #: PB-2 Reference Soil Log: SL-3 Date Tested: 5/6/2020

2 Using the reference level established, measure and record the following:

Depth to bottom of pit (ft.), D_{pit} : 8.25
 Depth to water level after 2 hr. stabilization period (ft.), D_{water} : 7.42
 Depth to impermeable stratum (ft), $D_{stratum}$: 8.25
 (If depth is unknown assume it to be 1.5 times the depth of the pit.)
 Height of water level above impermeable stratum (ft), $H=D_{stratum}-D_{water}$ = 0.83
 Length of time interval (minutes), T: Varies

3 At the interval chosen, record the following data in the table below:

Time of measurement (minutes), t_n
 Depth of water level below reference level (inches), d_n
 Water surface dimensions (feet), l,w

4 Calculate the following values and enter in the table below:

Water surface area (ft^2), A_n
 Water level rise, h_{rise} (Subtract current value of d_n from previous value)
 Average water surface area (ft^2), A_{av} (Take average of A_n and previous A_n)
 Average height of water level above impermeable stratum (feet), h (Take average of d_n and previous value of d_n , convert to feet, and subtract from $D_{stratum}$)
 Calculate permeability (in/hr), $K_a=[h_{rise}/T] \times [A_{av}/2.27(H^2-h^2)] \times 60$ min/hr

	t_n	d_n (in)	l (ft)	w (ft)	A_n (ft^2)	h_{rise} (in)	A_{av} (ft^2)	h (ft)	K_a
	t_0	0	99.00	0.00	0.00	-	-	-	-
	t_1	10	96.00	1.00	2.67	3.00	1.34	0.13	15.68
	t_2	10	94.00	1.33	2.67	2.00	3.11	0.33	28.08
	t_3	10	93.00	1.67	2.67	1.00	4.01	0.46	21.95
	t_4	15	92.00	2.00	2.67	1.00	4.90	0.54	21.43
	t_5	15	91.00	2.08	2.67	1.00	5.45	0.63	32.28
	t_6								
	t_7								
	t_8								
	t_9								
	t_{10}								
	t_{11}								
	t_{12}								
	t_{13}								
	t_{14}								



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Municipality: Franklin Twp. Block: 468.08 Lot: 2.02
Form 3f - Pit-Baling Test Data (2 Pages) - Continued Reference Soil Log SL-3

5 Record the following data:

Final Depth of pit (ft), D_{pit} : 8.25

Depth to impermeable stratum (ft) $D_{stratum}$: 8.25

(If no impermeable stratum is encountered assume $D_{stratum} = D_{pit}$)

Height of standpipe above reference level (ft), h_{pipe} : 0.00

Depth to water level after 24 hour stabilization period (ft), D_{water} : 6.58

(Take measurement from top of standpipe. Subtract h_{pipe})

Height of static water level above impermeable stratum (ft), H: 1.67

($H = D_{stratum} - D_{water}$)

Average height of water level above impermeable stratum (ft), h: 0.63

(Take average of dn from beginning and end of last time interval recorded in section 4, convert this to feet, subtract from $d_{stratum}$)

6 Re-calculation of K using data from section 5 above and from final time interval of section 4:

$$K = [h_{rise}/T] \times [A_{av}/2.27(H^2 - h^2)] \times 60 \text{ min/hr}$$

$$= [1.00 / 15] \times [5.45 / 2.27(2.78^2 - 0.40^2)] \times 60 \text{ min/hr} = \underline{4.03 \text{ in/hr}}$$

7 I hereby certify that the information furnished on Form 3f of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator: _____ Date: 5/7/2020

Signature and Seal of Professional Engineer: _____

License #: 24GB04258200 Date: 5/7/2020

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Municipality: Franklin Twp. Block: 468.08 Lot: 2.02
Form 3f - Pit-Baling Test Data (2 Pages)

1 Test #: PB-3 Reference Soil Log: SL-5 Date Tested: 5/6/2020

2 Using the reference level established, measure and record the following:

Depth to bottom of pit (ft.), D_{pit} : 7.75
 Depth to water level after 2 hr. stabilization period (ft.), D_{water} : 7.17
 Depth to impermeable stratum (ft), $D_{stratum}$: 7.75
 (If depth is unknown assume it to be 1.5 times the depth of the pit.)
 Height of water level above impermeable stratum (ft), $H=D_{stratum}-D_{water}$ = 0.58
 Length of time interval (minutes), T: 20

3 At the interval chosen, record the following data in the table below:

Time of measurement (minutes), t_n
 Depth of water level below reference level (inches), d_n
 Water surface dimensions (feet), l,w

4 Calculate the following values and enter in the table below:

Water surface area (ft^2), A_n
 Water level rise, h_{rise} (Subtract current value of d_n from previous value)
 Average water surface area (ft^2), A_{av} (Take average of A_n and previous A_n)
 Average height of water level above impermeable stratum (feet), h (Take average of d_n and previous value of d_n , convert to feet, and subtract from $D_{stratum}$)
 Calculate permeability (in/hr), $K_a=[h_{rise}/T] \times [A_{av}/2.27(H^2-h^2)] \times 60$ min/hr

	t_n	d_n (in)	l (ft)	w (ft)	A_n (ft^2)	h_{rise} (in)	A_{av} (ft^2)	h (ft)	K_a
	t_0	0	93.00	0.00	0.00	-	-	-	-
	t_1	20	90.00	1.00	2.67	3.00	1.34	0.13	16.43
	t_2	20	88.00	1.67	2.67	4.46	2.00	3.57	40.78
	t_3	20	87.00	2.00	2.67	5.34	1.00	4.90	50.33
	t_4	20	86.00	2.50	2.67	6.68	1.00	6.01	163.17
	t_5								
	t_6								
	t_7								
	t_8								
	t_9								
	t_{10}								
	t_{11}								
	t_{12}								
	t_{13}								
	t_{14}								



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Municipality: Franklin Twp. Block: 468.08 Lot: 2.02
Form 3f - Pit-Baling Test Data (2 Pages) - Continued Reference Soil Log SL-5

5 Record the following data:

Final Depth of pit (ft), D_{pit} : 7.75

Depth to impermeable stratum (ft) $D_{stratum}$: 7.75

(If no impermeable stratum is encountered assume $D_{stratum} = D_{pit}$)

Height of standpipe above reference level (ft), h_{pipe} : 0.00

Depth to water level after 24 hour stabilization period (ft), D_{water} : 6.50

(Take measurement from top of standpipe. Subtract h_{pipe})

Height of static water level above impermeable stratum (ft), H: 1.25

($H = D_{stratum} - D_{water}$)

Average height of water level above impermeable stratum (ft), h: 0.54

(Take average of dn from beginning and end of last time interval recorded in section 4, convert this to feet, subtract from $d_{stratum}$)

6 Re-calculation of K using data from section 5 above and from final time interval of section 4:

$$K = [h_{rise}/T] \times [A_{av}/2.27(H^2 - h^2)] \times 60 \text{ min/hr}$$

$$= [1.00 / 20] \times [6.01 / 2.27(1.56 - 0.29)] \times 60 \text{ min/hr} = \underline{6.25 \text{ in/hr}}$$

7 I hereby certify that the information furnished on Form 3f of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator: _____ Date: 5/7/2020

Signature and Seal of Professional Engineer: _____

License #: 24GB04258200 Date: 5/7/2020

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Municipality: Franklin Twp. Block: 468.08 Lot: 2.02
Form 3f - Pit-Baling Test Data (2 Pages)

1 Test #: PB-4 Reference Soil Log: SL-7 Date Tested: 5/6/2020

2 Using the reference level established, measure and record the following:

Depth to bottom of pit (ft.), D_{pit} : 7.75
 Depth to water level after 2 hr. stabilization period (ft.), D_{water} : 7.17
 Depth to impermeable stratum (ft), $D_{stratum}$: 7.75
 (If depth is unknown assume it to be 1.5 times the depth of the pit.)
 Height of water level above impermeable stratum (ft), $H = D_{stratum} - D_{water} =$ 0.58
 Length of time interval (minutes), T: Varies

3 At the interval chosen, record the following data in the table below:

Time of measurement (minutes), t_n
 Depth of water level below reference level (inches), d_n
 Water surface dimensions (feet), l,w

4 Calculate the following values and enter in the table below:

Water surface area (ft^2), A_n
 Water level rise, h_{rise} (Subtract current value of d_n from previous value)
 Average water surface area (ft^2), A_{av} (Take average of A_n and previous A_n)
 Average height of water level above impermeable stratum (feet), h (Take average of d_n and previous value of d_n , convert to feet, and subtract from $D_{stratum}$)
 Calculate permeability (in/hr), $K_a = [h_{rise}/T] \times [A_{av}/2.27(H^2 - h^2)] \times 60$ min/hr

	t_n	d_n (in)	l (ft)	w (ft)	A_n (ft^2)	h_{rise} (in)	A_{av} (ft^2)	h (ft)	K_a
	t_0	0	93.00	0.00	0.00	-	-	-	-
	t_1	15	90.00	1.00	2.67	3.00	1.34	0.13	21.91
	t_2	15	89.00	1.83	2.67	1.00	3.78	0.29	26.00
	t_3	25	88.00	2.17	2.67	1.00	5.34	0.38	28.82
	t_4	25	87.00	2.50	2.67	1.00	6.24	0.46	51.27
	t_5								
	t_6								
	t_7								
	t_8								
	t_9								
	t_{10}								
	t_{11}								
	t_{12}								
	t_{13}								
	t_{14}								



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Municipality: Franklin Twp. Block: 468.08 Lot: 2.02
Form 3f - Pit-Baling Test Data (2 Pages) - Continued Reference Soil Log SL-7

5 Record the following data:

Final Depth of pit (ft), D_{pit} : 7.75

Depth to impermeable stratum (ft) $D_{stratum}$: 7.75

(If no impermeable stratum is encountered assume $D_{stratum} = D_{pit}$)

Height of standpipe above reference level (ft), h_{pipe} : 0.00

Depth to water level after 24 hour stabilization period (ft), D_{water} : 6.25

(Take measurement from top of standpipe. Subtract h_{pipe})

Height of static water level above impermeable stratum (ft), H: 1.50

($H = D_{stratum} - D_{water}$)

Average height of water level above impermeable stratum (ft), h: 0.46

(Take average of dn from beginning and end of last time interval recorded in section 4, convert this to feet, subtract from $d_{stratum}$)

6 Re-calculation of K using data from section 5 above and from final time interval of section 4:

$$K = [h_{rise}/T] \times [A_{av}/2.27(H^2 - h^2)] \times 60 \text{ min/hr}$$

$$= [1.00 / 25] \times [6.24 / 2.27(2.25 - 0.21)] \times 60 \text{ min/hr} = \underline{3.24 \text{ in/hr}}$$

7 I hereby certify that the information furnished on Form 3f of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator: _____ Date: 5/7/2020

Signature and Seal of Professional Engineer: _____

License #: 24GB04258200 Date: 5/7/2020

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Municipality: Franklin Twp. Block: 468.08 Lot: 2.02
Form 3f - Pit-Baling Test Data (2 Pages)

1 Test #: PB-5 Reference Soil Log: SL-9 Date Tested: 5/6/2020

2 Using the reference level established, measure and record the following:

Depth to bottom of pit (ft.), D_{pit} : 8.17
 Depth to water level after 2 hr. stabilization period (ft.), D_{water} : 7.83
 Depth to impermeable stratum (ft), $D_{stratum}$: 8.17
 (If depth is unknown assume it to be 1.5 times the depth of the pit.)
 Height of water level above impermeable stratum (ft), $H = D_{stratum} - D_{water} =$ 0.33
 Length of time interval (minutes), T: Varies

3 At the interval chosen, record the following data in the table below:

Time of measurement (minutes), t_n
 Depth of water level below reference level (inches), d_n
 Water surface dimensions (feet), l,w

4 Calculate the following values and enter in the table below:

Water surface area (ft^2), A_n
 Water level rise, h_{rise} (Subtract current value of d_n from previous value)
 Average water surface area (ft^2), A_{av} (Take average of A_n and previous A_n)
 Average height of water level above impermeable stratum (feet), h (Take average of d_n and previous value of d_n , convert to feet, and subtract from $D_{stratum}$)
 Calculate permeability (in/hr), $K_a = [h_{rise}/T] \times [A_{av}/2.27(H^2 - h^2)] \times 60$ min/hr

	t_n	d_n (in)	l (ft)	w (ft)	A_n (ft^2)	h_{rise} (in)	A_{av} (ft^2)	h (ft)	K_a
	t_0	0	98.00	0.00	0.00	-	-	-	-
	t_1	20	97.00	0.67	2.67	1.79	1.00	0.90	10.86
	t_2	25	96.00	1.08	2.67	2.88	1.00	2.34	25.58
	t_3	25	95.00	1.17	2.67	3.12	1.00	3.00	47.33
	t_4								
	t_5								
	t_6								
	t_7								
	t_8								
	t_9								
	t_{10}								
	t_{11}								
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	t_{13}								
	t_{14}								



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Municipality: Franklin Twp. Block: 468.08 Lot: 2.02
Form 3f - Pit-Baling Test Data (2 Pages) - Continued Reference Soil Log SL-9

5 Record the following data:

Final Depth of pit (ft), D_{pit} : 8.67

Depth to impermeable stratum (ft) $D_{stratum}$: 8.67

(If no impermeable stratum is encountered assume $D_{stratum} = D_{pit}$)

Height of standpipe above reference level (ft), h_{pipe} : 0.00

Depth to water level after 24 hour stabilization period (ft), D_{water} : 7.67

(Take measurement from top of standpipe. Subtract h_{pipe})

Height of static water level above impermeable stratum (ft), H: 1.00

($H = D_{stratum} - D_{water}$)

Average height of water level above impermeable stratum (ft), h: 0.71

(Take average of dn from beginning and end of last time interval recorded in section 4, convert this to feet, subtract from $d_{stratum}$)

6 Re-calculation of K using data from section 5 above and from final time interval of section 4:

$$K = [h_{rise}/T] \times [A_{av}/2.27(H^2 - h^2)] \times 60 \text{ min/hr}$$

$$= [1.00 / 25] \times [3.00 / 2.27(1.01^2 - 0.50^2)] \times 60 \text{ min/hr} = \underline{6.31 \text{ in/hr}}$$

7 I hereby certify that the information furnished on Form 3f of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator: _____ Date: 5/7/2020

Signature and Seal of Professional Engineer: _____

License #: 24GB04258200 Date: 5/7/2020

Note: Final depth to bottom modified to create 12" rise from true final depth in order to not inflate permeability rate.

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Municipality: Franklin Twp. Block: 468.08 Lot: 2.02
Form 3f - Pit-Baling Test Data (2 Pages)

1 Test #: PB-6 Reference Soil Log: SL-12 Date Tested: 5/6/2020

2 Using the reference level established, measure and record the following:

Depth to bottom of pit (ft.), D_{pit} : 9.42
 Depth to water level after 2 hr. stabilization period (ft.), D_{water} : 8.08
 Depth to impermeable stratum (ft), $D_{stratum}$: 9.42
 (If depth is unknown assume it to be 1.5 times the depth of the pit.)
 Height of water level above impermeable stratum (ft), $H=D_{stratum}-D_{water}$ = 1.33
 Length of time interval (minutes), T: 10

3 At the interval chosen, record the following data in the table below:

Time of measurement (minutes), t_n
 Depth of water level below reference level (inches), d_n
 Water surface dimensions (feet), l,w

4 Calculate the following values and enter in the table below:

Water surface area (ft^2), A_n
 Water level rise, h_{rise} (Subtract current value of d_n from previous value)
 Average water surface area (ft^2), A_{av} (Take average of A_n and previous A_n)
 Average height of water level above impermeable stratum (feet), h (Take average of d_n and previous value of d_n , convert to feet, and subtract from $D_{stratum}$)
 Calculate permeability (in/hr), $K_a=[h_{rise}/T] \times [A_{av}/2.27(H^2-h^2)] \times 60$ min/hr

	t_n	d_n (in)	l (ft)	w (ft)	A_n (ft^2)	h_{rise} (in)	A_{av} (ft^2)	h (ft)	K_a	
	t_0	0	113.00	0.00	0.00	-	-	-	-	
	t_1	10	108.00	2.50	2.67	6.68	5.00	3.34	0.21	25.46
	t_2	10	106.00	3.00	2.67	8.01	2.00	7.35	0.50	25.43
	t_3	10	104.00	4.00	2.67	10.68	2.00	9.35	0.67	37.19
	t_4	10	103.00	4.67	2.67	12.47	1.00	11.58	0.79	26.53
	t_5	10	102.00	5.08	2.67	13.56	1.00	13.02	0.87	33.71
	t_6									
	t_7									
	t_8									
	t_9									
	t_{10}									
	t_{11}									
	t_{12}									
	t_{13}									
	t_{14}									



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Municipality: Franklin Twp. Block: 468.08 Lot: 2.02
Form 3f - Pit-Baling Test Data (2 Pages) - Continued Reference Soil Log SL-9

5 Record the following data:

Final Depth of pit (ft), D_{pit} : 9.42

Depth to impermeable stratum (ft) $D_{stratum}$: 9.42

(If no impermeable stratum is encountered assume $D_{stratum} = D_{pit}$)

Height of standpipe above reference level (ft), h_{pipe} : 0.00

Depth to water level after 24 hour stabilization period (ft), D_{water} : 6.17

(Take measurement from top of standpipe. Subtract h_{pipe})

Height of static water level above impermeable stratum (ft), H: 3.25

($H = D_{stratum} - D_{water}$)

Average height of water level above impermeable stratum (ft), h: 0.88

(Take average of dn from beginning and end of last time interval recorded in section 4, convert this to feet, subtract from $d_{stratum}$)

6 Re-calculation of K using data from section 5 above and from final time interval of section 4:

$$K = [h_{rise}/T] \times [A_{av}/2.27(H^2 - h^2)] \times 60 \text{ min/hr}$$

$$= [1.00 / 10] \times [13.02 / 2.27(10.56 - 0.77)] \times 60 \text{ min/hr} = \underline{3.52 \text{ in/hr}}$$

7 I hereby certify that the information furnished on Form 3f of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator: _____ Date: 5/7/2020

Signature and Seal of Professional Engineer: _____

License #: 24GB04258200 Date: 5/7/2020