

STANDARD FORMS FOR CERTIFICATE OF COMPLIANCE

Municipality Hopewell Township Block 43.05 Lot 8

Instructions: Part A is to be completely filled in for all Certifications. Only Part B or Part C will be completed. Part B will be completed if the administrative authority relies upon the certification signed and sealed by a New Jersey licensed professional engineer that the system has been located, constructed, installed or altered in compliance with the requirements of N.J.A.C. 7-9-1 and the Application to Construct/Alter/Repair an Individual Subsurface Sewage Disposal System which was approved by the administrative authority. Part C will be completed if the administrative authority performs the certification.

Part A - General Information

1. Permitted Activities (check applicable Categories):
Permit Number _____

☒ New Construction
☐ Alteration/No Expansion or Change of Use
☐ Alteration/Expansion or Change in Use
☐ Alteration/Malfunctioning System
☐ Deviation from Standards
☐ Repairs to Existing System

RECEIVED
NOV 29 2007

HOPWELL TOWNSHIP HEALTH DEPT.

2. Location of Project:

Municipality Hopewell Township Block 43.05 Lot 8
Street Address 45 Honey Brook Dr, Princeton, NJ

3. Name and Present Address of Applicant: [Redacted] (Same)
Applicant's Phone Number [Redacted]

Part B - Professional Engineer's Certification

I certify under penalty of law that the subsurface sewage disposal system identified in Part A has been located, constructed, installed or altered in compliance with the requirements of N.J.A.C. 7-9A-1 and the Application to Construct/Alter/Repair and Individual Subsurface Sewage Disposal System which was approved by the administrative authority. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

John M. Waldner
Signature

Seal

John M. Waldner NJPE #15525
Name (Type or Print), License #

Part C - Certification by Administrative Authority

I certify under penalty of law that the subsurface sewage disposal system identified in Part A has been located, constructed, installed or altered in compliance with the requirements of N.J.A.C. 7-9A-1 and the Application to Construct/Alter/Repair and Individual Subsurface Sewage Disposal System which was approved by the administrative authority. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Authorized Signature

Type of License Held

Name (Typed or Printed)

License Number

PART C -Certification by Administrative Authority

I certify under penalty of law that the subsurface sewage disposal system identified in Part A has been located, constructed, installed or altered in compliance with the requirements of N.J.A.C. 7:9A-1 and the Application to Construct/Alter/Repair an Individual Subsurface Sewage Disposal System which was approved by the administrative authority. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Authorized Signature

Type of License Held

Name (Typed or Printed)

License Number

Date:

For Agency Use Only

Date Received: 11/29/07

Form Determined to be: X *Complete*

Incomplete _____

Date Returned _____

Date Received _____

Date Certification Approved: 12-6-07

Authorized Signature: *Stewart*

Form 3c. Soil Permeability Class Rating Data

1. Test Number 1 Replicate (Letter)

2. Sample Depth 7.1 Soil Pit/Boring Number Date Collected

3. Course Fragment Content:

Total Weight of Sample, W.T. 209.7 grams

Weight of Material Retained on 2mm sieve W.C.F. grams 5.04

Wt. % Coarse Fragment (W.C.F./W.T. x 100): 2.40%

4. Oven Dry Weight (24 hrs, 105°C) of 40 Gram Air Dry Sample, 38.9 grams, Wt

5. Hydrometer Calibration, R_____ 10/10

6. Hydrometer Reading—40 seconds, grams, RI B.9
Temperature of Suspension, °F 69.0

7. Corrected Hydrometer Reading, grams, R₁' 3.4

8. Hydrometer Reading—2 hours, grams, ml 9.5
Temperature of Suspension, °F 69°

9. Corrected Hydrometer Reading, $\text{Fr}_{\text{m}}, R_2'$ 2.4

$$10. \text{ \% sand} = (\text{Wt.} - \text{RI}) / \text{Wt.} \times 100 = \frac{38.9 - 3.4}{38.9} \times 100 = 91.2 \%$$
$$11. \% \text{ clay} = \frac{R_2}{Wt.} \times 100 = \frac{2.4}{38.9} \times 100 = \underline{6.17\%}$$

12. Skew Analysis:

2. Oven Dry Wt. (2 hrs., 105°C) Total Sand Fraction
(Soil Retained in 0.047 mm Sieve) 35.6 gms

b. Wt. of Fine Plus Very Fine Sand Fraction
(Sand Passing 0.25 mm Sieve), Grams 3.1

c. % Fine Plus Very Fine Sand (b/a) 8.7%

13. Soil Morphology (Natural Soil Samples Only):

Structure of Soil Horizon Text

Confidence of Soil Horizon Tested: Dry _____ Moist _____

14. Soil Permeability Class Rating (Based upon average textural analysis of this replicate and other replicate samples) 4-5

15. I hereby certify that the information furnished on Form 3c 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

Signature of Professional Engineer

15525

Form 3b. Tube Permeometer Test Data

1. Test Number 1 Replicate (Letter) — Date Collected —
2. Material Tested: Fill — Test In Native Soil—Indicate Depth —
3. Type of Sample: — Undisturbed ✓ Disturbed
4. Sample Dimensions: Inside Radius of Sample Tube, R_i in cm 1.354 cm
Length of Sample, L , in inches 4 "

5. Bulk Density Determination (Disturbed Samples Only):
Sample Weight (Wt. Tube Containing Sample—Wt. of Empty Tube),
grams —

Sample Volume ($L \times 2.54\text{cm/inch} \times 3.14R_i^2$), cc —
Bulk Density (Sample Wt./Sample Volume), grams/cc —

6. Standpipe Used: ✓ No — Yes
—Indicate Internal Radius, cm $R=1"$, $r=.1875$

7. Height of Water Level Above Rim of Test Basin, in inches:
At the Beginning of Each Test Interval, H_i , —
At the End of Each Test Interval, H_f , —

8. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T_i	Time, End of Test Interval, T_f	Length of Test Interval, T , minutes
6:12.05	6:12.23	18 sec
6:13.44	6:14.02	18 sec
6:15.11	6:15.29	18 sec
6:16.1875 $\frac{1}{4}$ "	4" / 0.33 x 11" / 1 1/2" = 9.78	$L_n = .3829412$

Signature of Site Evaluator James H. Williams 9-20-03
Signature of Professional Engineer John M. W. Jones License 15525

Permit valid for 2 years from issue date

Per No. 23029

03-28-2003

HOPEWELL TOWNSHIP HEALTH DEPARTMENT
201 Washington Crossing - Pennington Road
Titusville, New Jersey 08560
TEL. (609) 737-0120 FAX (609) 737-2770

PERMIT
Rosemary Laplace Rutherford

43.05

8

Applicant _____ Block _____ Lot _____
To _____ Alteration/Repair to an existing Sewage Disposal System: Y
Location _____ 15 Honey Brook Drive _____
Fee _____ \$ 100.00

24 Hour Inspection Notification Required
This Permit is NOT Transferable

Authorized by
Hopewell Township Health Department

Permit is not transferable
Permit valid for 2 years from issue date



Lot No. 7

2270'-

R.O.W. Line 2

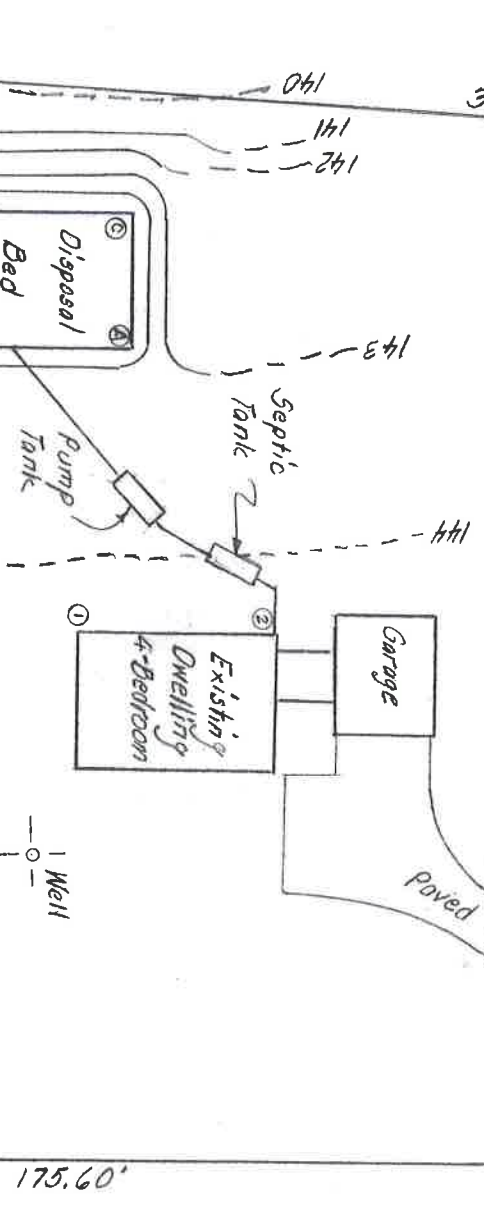
LOCATION SEPTIC SYSTEM

1-A	60.5'
1-B	70.0'
1-C	85.0'
1-D	88.0'
1-Septic Tank	52.0'
1-Pump Tank	42.0'
2-A	70.0'
2-B	92.5'
2-C	93.0'
2-D	116.0'
2-Septic Tank	24.0'
2-Pump Tank	38.0'

BLOCK No. 43.05
LOT No. 8
Containing 1.7+ acres

Lot No. 11 (19)

363.08'



AS - BUILT DESIGN APPROVED
DATE: 12/6/07
HOPEWELL TOWNSHIP HEALTH DEPT.

HONEY BROOK DRIVE

"AS BUILT" September 2003

RUTHERFORD
Township of Hopewell - County of Mercer
New Jersey

JOHN M. WALDNER, P.E. 15525
Licensed New Jersey Professional Engineer
John M. Waldner 11/21/07
69 Upper Ferry Rd., Trenton, NJ 08628: 883-7754 Phone: 609

SEPTIC SYSTEM DESIGN
Block No. 43.05 Lot No. 8
Date: November 12, 2007 Scale: 1"=40'

123027

RECEIVED

COUNTY/MUNICIPALITY Mercer/Hopewell Twp.

MAR 7 2003

APPLICATION FOR PERMIT TO CONSTRUCT/ALTER/REPAIR
AN INDIVIDUAL SURFACE SEWAGE DISPOSAL SYSTEM
Hopewell Township Health Dept.

Form 1 - General Information

1. Type of Permit Needed (Check applicable categories):

☐ New Construction ☒ Alteration/No Expansion or Change of Use
☐ Alteration/Expansion of Change in Use
☐ Alteration/Malfunctioning System
☐ Deviation from Standards ☐ Repairs to Existing System

2.

Location of Project:
Municipality Hopewell Twp. Block No. 43.05 Lot No. 8
Street Address 45 Honey Brook Drive, Princeton, N.J. ZIP 08540

3.

Name of Applicant (print): [REDACTED]

4.

Applicant's Present Address: 45 Honey Brook Drive, Princeton, N.J.

5.

Applicant's Phone Number: [REDACTED]

6.

Type of Facility:
☒ Residential
☐ Commercial/Institutional
Specify Type of Establishment: _____

7.

Type of Wastes to be Discharged:
☒ Sanitary Sewage
☐ Industrial Wastes
☐ Other - Specify Type _____

8.

Other Approvals/Certification/Waivers/Exemptions (Attach to Applications):
☐ Pinelands Commission
☐ U.S. Army Corps of Engineers
☐ NJDEP - Bureau of Flood Plain Management
☐ Other - Specify: _____

9.

I hereby certify that the information furnished on Form 1 of this application is true. I am aware that false swearing is a crime in this State and subject to prosecution.

Signature of Applicant

Alfred J. Corrali

Date

3/7/03

FOR AGENCY USE ONLY

Application Denied - Reason for Denial/Citation of Rules Violated _____

☒

Application Approved
Application Approved Subject to Approval of NJDEP

Date of Action 3/26/03 Signature of Authorized Agent

[Signature]



TOWNSHIP of HOPEWELL

DEPARTMENT of HEALTH

Serving Hopewell Borough and Pennington Borough

201 WASHINGTON CROSSING PENNINGTON ROAD, TITUSVILLE, N.J. 08560

TELEPHONE 609-737-0120 / FAX 609-737-2770

March 27, 2003

~~15 Honey Brook Drive~~
~~Princeton, NJ 08540~~

Re: Block 43.05 Lot 8

To whom it may concern:

Your application for an alteration to an onsite subsurface sewage disposal system has been approved with the following conditions:

SEWAGE DISPOSAL PERMITS ARE VALID FOR TWO YEARS FROM DATE OF ISSUE.

1. A copy of this letter must be forwarded to your construction contractor and sewage disposal installer prior to installation of said system.
2. The sewage disposal system must be located and staked prior to installation by a licensed surveyor or professional engineer to guarantee the proper alignment of the system in the area of the soil tests, and to insure it will conform to all site restrictions as represented on the attached design.
3. An acceptable grading plan has been included and must be constructed accordingly and can only be changed with township and design engineer approval.
4. The required elevation of the sewage disposal system should be verified by the licensed professional engineer or surveyor, the builder and the plumbing contractor as it relates to the foundation height, the point where the sewer line exits the dwelling and the height of the septic tank. If this is a gravity system and the minimum height of the sewer line is not maintained, an ejector system will be required after the septic tank.
5. An onsite conference is required with your installer and a representative from this office prior to installation of any part of this system. This should avoid any problem during the installation which can be costly to all parties concerned.
6. The design engineer must be notified at the beginning of the installation. Field measures must be made for the required as-built design, and grading plan certifications. The as-built must show soil test location, distances to the tank and D-box as measured from two fixed points, also, any changes caused by site conditions, construction changes and installation problems. If this is a raised system, the as-built grading plan must be certified by the engineer that it is as designed, showing all inverts and contour lines. The as-built will provide a detailed location of the installed system so it can be located once it is covered.
7. No excavating machinery shall be permitted in the excavation during construction. A track-hoe or back-hoe must be used to dig the excavation.

Sand must be available at the start of construction to cover the bottom and to protect open fractures etc.

8. All trees within 10 feet of a conventional disposal system or within the area of the extended clay fill and sloped area of a raised disposal/mound system must be removed.

9. All phases of construction of the disposal system must be inspected by the Health Department. It is your responsibility (or your contractors) to notify the Health Department by no later than 9:00 a.m. on every day that construction is underway so inspections can be scheduled. Systems will be dug up if not inspected by this official

10. A certificate of compliance will not be issued if the system is not completed and the grades certified. Raised systems must be stabilized. All systems must be seeded or sodded and have established vegetative growth.

11. All septic tanks must comply with new tank requirements and also be provided with locking manhole access lids to final grade as required by NJDEP 7:9A.

12. All sand and clay fill must be stock piled on site and certified by a licensed laboratory or by the design engineer once in place using a perc test.

Effective January 1, 1990 the New Jersey Department of Environmental Protection enacted a law requiring all Existing septic tank must be fitted with concrete risers and cast-iron manhole covers to grade.

Very truly yours,



George K. Kiesel
Environmental Health Coordinator

cc:

LB.0518



Housing Services Inc.
234 Hawthorne Avenue - P.O. Box 1101
Point Pleasant Beach, NJ 08742-1101
732/714-0036 • 732/714-8390

May 7, 2003

RECEIVED

MAY 9 2003

Hopewell Township Health Dept.

[REDACTED]
15 Honey Brook Drive
Princeton, NJ 08540

RE: Hopewell Township Housing Rehabilitation Program Log # 02-040

This letter is being sent to you to confirm our site meeting on Monday May 5, 2003. When I arrived you and Consoli & Sons were on site. We talked about the removal of the dirt from the job site. Mr. Consoli said as part of his contract he would truck out approximately six (6) loads of dirt/rock. At this time your response was you wanted all of the dirt/rock to remain on site and would like it to be rough graded in your rear yard.

The next person to come to the site was Bob English from the Township Health Department. After talking with Mr. English he said you understood and agreed that any and all problems that may develop from the fill dirt would be your responsibility; water, trees and soil erosion. Consoli & Sons will seed and hay the surfaces but will not be responsible for any lawn other than the footprint of the septic system. Also it was clear to me that you requested that trees and/or tree parts cut down on site be left for your use.

Please sign a copy of this letter and return it to Housing Services Inc in the enclosed self addressed stamped envelope. Keep a copy for your files.

Sincerely,
Housing Services Inc

Tom Woodruff
Tom Woodruff
Senior Building Inspector

[REDACTED]

C: Consoli & Sons, B. English, C. Smeltzer
Certified Mail Receipt 7000 0600 0028 7573 1181



TOWNSHIP of HOPEWELL

DEPARTMENT of HEALTH

Serving Hopewell Borough and Pennington Borough

201 WASHINGTON CROSSING – PENNINGTON ROAD
TITUSVILLE, NEW JERSEY 08560-1410

Telephone 609-737-0120 / Fax 609-737-2770

May 14, 2003

~~REDACTED~~
15 Honey Brook Drive
Princeton, NJ 08540

RE: Block 43.05, Lot 8 (15 Honey Brook Drive)

Dear ~~REDACTED~~:

The purpose of this notice is to document the changes in grading that has been performed at the above referenced property. The changes occurred as follows:

1. On May 5, 2003 Consoli Excavating began to dig the septic bed for the above referenced property. The septic installation was required by the Township of Hopewell to abate the existing malfunctioning septic system.
2. While excavating the bed, Consoli Excavating, needed to remove material (Fractured Red Shale) from the property in order to construct the septic bed to meet the proposed grading plan. This plan had been designed based on soil permeability tests and were available to all involved parties for review at any time.

3. ~~REDACTED~~ stopped Consoli Excavating from removing this material. She decided at this point NO material should be removed from the property. As a result a Consoli Exc. Representative contacted Mr. Tom Woodruff from Housing Services Inc. as well as Robert English from Hopewell Township Health Department.

4. A site meeting took place and the following decisions were made:

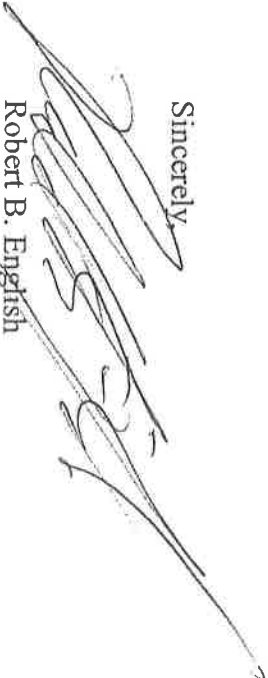
1. Per [REDACTED]'s request as property owner, no material was removed from the site. All materials were spread throughout the back yard in areas of [REDACTED]'s choosing.
2. The area impacted by the spread of material would be rough graded and seeded only.
3. No additional grading work would be performed in other areas of the lot.

Due to the decision made by [REDACTED] to spread all excavated materials in the rear of her property, all parties involved in design, installation and inspection of the septic system have concerns for the future of this property. Robert English discussed with [REDACTED], during the meeting at the site, that Hopewell Township, Consoli Excavating, Housing Services Inc. and Frank Mazzella would not be held responsible for the following:

1. Lot Grading /drainage issues created by the filling of the yard other than that created by the proposed individual subsurface sewage disposal system
2. Grading and stabilization of the filled area.
3. Damage to any trees from the filling of the yard.
4. Removal of the cut trees specifically left behind by [REDACTED]'s request.
5. Soil Erosion from any part of the lot other than areas addressed on the approved individual subsurface sewage disposal system plan.

Your prompt attention to this matter is appreciated. You may contact this office at (609) 737-0120 with any questions you may have regarding this matter. Our office hours are Monday through Friday, 8:30 - 4:30.

Sincerely,


Robert B. English
R.E.H.S.

CC: Gary Guarino - Health Officer
Consoli & Sons Excavating
Tom Woodruff - Housing Services Inc.
File

Form 2a - General Site Evaluation Data

Lot 8 Block 4305

1. Name of Site Evaluator (print): Frank Mazzella
2. Business Address of Site Evaluator: 215 Pleasant Valley Rd., Titusville, N.J. 08561
3. Business Phone Number of Site Evaluator: 609 737 3632
4. Special Site Limitations Identified (Check appropriate categories):

☐ Flood Plains	☐ Bedrock Outcrops	☐ Wetlands
☐ Excessively Stony	☐ Disturbed Ground	☐ Sink Holes
☐ Sand Dunes	☐ Steep Slopes	
☐ Other - Specify _____		
5. Soil Logs - Enter on Form 2b - Use one sheet for each soil log.
6. Considerations Relating to Disturbed Ground:
 - a) Type of Disturbance (Check appropriate categories):

☐ Filled Area	☐ Excavated Area	☐ Re-graded Area
☐ Subsurface Drains	☐ Other - Specify _____	
 - b) Pre-existing Natural Ground Surface
Elevation Relative to Existing Ground Surface _____
Method of Identification _____
 - c) Suitability of Disturbed Ground
☐ Unsuitable: Objects Subject to Disintegration or Change in Volume
☐ Excessively Coarse
☐ Proctor Test performed - % Standard Proctor Density = _____
7. Hydraulic Head Test:
 - a) Hydraulically Restrictive Horizon: Depth Top to Bottom _____
 - b) Piezometer A: Depth to Bottom _____ Depth of Water Level (24 hr) _____
 - c) Piezometer B: Depth to Bottom _____ Depth of Water Level (24 hr) _____
 - d) Witnessed by _____ Signature _____ Date _____
8. Attachments (Check items included):

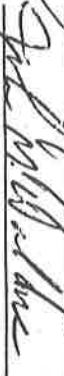
☒ Site Plan
☒ Key Map Showing Location of Site on U.S.G.S. Quadrangle or Other Accurate Map
☒ Key Map Showing Location of Site on U.S.D.A. Soil Survey Map
☐ Other - Specify _____

9. I hereby certify that the information furnished on Form 2a of this application (and the attachments thereto) is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:104-1 et seq.) and is subject to penalties prescribed in N.J.A.C. 7:14-8.

Signature of Soil Evaluator

Date March 1, 2003

Signature Professional Engineer

Lic. # 15525

Form 2b - Soil Log and Interpretation Lot B Block 43.05

1. Log Number 1 Method (Check One): ☒ Profile Pit ☐ Boring
2. Soil Log R-24-03

Depth Munsel Color Name and Symbol; Estimated Textural Class;
(Inches) Estimated Volume % Coarse Fragment, If Present; Structure;
Top-Bottom Moist or Dry Consistence; Mottling - Abundance, Size and
Contrast, If Present.

Pit used for Pit Bailing Test

0-8" Dark Brown (5R 3/4) silt loam; saturated; friable; common roots; weak
fine subangular blocky structure; clear smooth boundary
8-48" Dark Reddish Brown (5R 3/3) clay loam; saturated; sticky; few roots;
moderate fine subangular blocky structure; gradual wavy boundary
48-74" Reddish Brown (5R 4/4) silt loam; saturated; friable; moderate coarse angular
structure; 45% coarse fragments; gradual wavy boundary
74-96" Reddish Brown (5R 4/3) silt loam; saturated; friable; platy strong coarse;
90% coarse fragments

Machine Refusal

3. Ground Water Observations:

☒ Seepage - Indicate Depth 48"
☒ Pit/Boring Flooded - Depth after 32" Hours 24 hrs

4. Soil Limiting Zones (Check appropriate categories):

☒ Fractured Rock Substratum - Depth to Top 74"
☒ Massive Rock Substratum - Depth to Top 96"
☒ Excessively Coarse Horizon - Depth Top to Bottom 48"-74"
☒ Excessively Coarse Substratum - Depth to Top 74"-96"
☒ Hydraulically Restrictive Horizon - Depth Top to Bottom 8"-48"
☐ Hydraulically Restrictive Substratum - Depth to Top
☐ Perched Zone of Saturation - Depth Top to Bottom
☒ Regional Zone of Saturation - Depth to Top 32"

5. Soil Suitability Classification: I, II_{HC}, III_{HR}, II_{WR}

6. I hereby certify that the information furnished on Form 2b 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

Frank J. Manella Date March 1, 2003

Signature Professional Engineer

John M. McDermott License # 15525

Form 2b - Soil Log and Interpretation

Lot B Block 43.051. Log Number 2 Method (Check One): ☒ Profile Pit ☐ Boring2. Soil Log 2-24-03

Depth Munsell Color Name and Symbol; Estimated Textural Class;
(Inches) Estimated Volume % Coarse Fragment, If Present; Structure;
Top-Bottom Moist or Dry Consistence; Mottling - Abundance, Size and
Contrast, If Present.

0-8" Dark Brown (7.5YR 3/4) Silt Loam; Saturated; Friable; Common Rocks; Weak Fine
Subangular Blocky Structure; Clear Smooth Boundary
8-48" Dark Reddish Brown (5YR 3/3) Clay Loam; Saturated; Sticky; Few Roots; Moderate
Fine Subangular Blocky Structure; Gradual Wavy Boundary
48-69" Reddish Brown (5YR 4/4) Silt Loam; Saturated; Friable; Moderate Coarse Angular
Structure; 40% Coarse Fragments; Gradual Wavy Boundary
69-86" Reddish Brown (5YR 4/3) Silt Loam; Saturated; Friable; Platy Strong Coarse;
90% Coarse Fragments
86" "Machine Refusal"

3. Ground Water Observations:

☒ Seepage - Indicate Depth 46"
☒ Pit/Boring Flooded - Depth after 8" Hours 30 min.

4. Soil Limiting Zones (Check appropriate categories):

☒ Fractured Rock Substratum - Depth to Top 69"
☒ Massive Rock Substratum - Depth to Top 86"
☒ Excessively Coarse Horizon - Depth Top to Bottom 48"-69"
☒ Excessively Coarse Substratum - Depth to Top 69"
☒ Hydraulically Restrictive Horizon - Depth Top to Bottom 8"-48"
☐ Hydraulically Restrictive Substratum - Depth to Top
☒ Perched Zone of Saturation - Depth Top to Bottom
☒ Regional Zone of Saturation - Depth to Top 32"

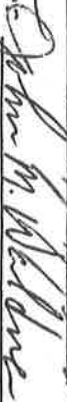
5. Soil Suitability Classification: I, II Hc, III Hc, II Wt

6. I hereby certify that the information furnished on Form 2b 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 March 1, 2003

Signature Professional Engineer

License # 15525

Form 3a - Soil Permeability Data

Lot 8 Block 43.05

Assign a number for each test and a letter for each test replicate. Show test data and calculations on Form 3b, 3c, 3e, 3f, or 3g. Use one sheet for each separate test or test replicate.

1. Summary of Data - Enter data for each test replicate on a separate line.

Type of Test	Test (number)	Replicate (letter)	Depth (inches)	Result*
--------------	------------------	-----------------------	-------------------	---------

Pit Bailing Test

96" 4.374

*For tube permeameter, pit-bailing and piezometer tests report results in inches per hour. For Soil permeability class rating give soil permeability class number. For percolation test report result in minutes per inch. For basin flooding test report result as positive if basin drains completely within 24 hours after second filling, negative otherwise.

2. Design Permeability/Percolation Rate: Specify Test Number 1
✓ Average of Test Replicates Single Replicate
Slowest of Replicates

3. Type of Limiting Zone Identified

Test Number

4. Attachments (Check Items Included):

Form 3b - Tube Permeameter Test Data - No. of Sheets _____
Form 3c - Soil Permeability Class Rating Test Data No. of sheets _____
Form 3d - Percolation Test Data - No. of Sheets _____
✓ Form 3e - Pit Bailing Test Data - No. of Sheets 1
Form 3f - Piezometer Test Data - No. of Sheets _____
Form 3g - Basin Flooding Test Data - No. of Sheets _____

5. I hereby certify that the information furnished on Form 3a of this application (and the attachments thereto) 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 Soil Evaluator

Frank Pappalardo

Date March 1, 2003.

Signature of Professional Engineer

John M. McDone

License # 15525

Form 3f. Pit-Bailing Test Data

1. Test Number 1 Reference Soil Log 1 Date Tested 2-25-03
2. Using the reference level established, measure and record the following:

-- Depth to Bottom of Pit, ft, D Pit 8.0'
 -- Depth to Water Level after 2 hr. Stabilization Period, ft. Dwater 2.667'
 -- Depth to Impermeable Stratum, ft., Dstratum 12.0'
 (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 9.333'
 (H = Dstratum - Dwater)
 -- Length of Time Interval, T, in minutes varied

3. At the interval chosen, record the following data in the table below:
 - Time of Measurement, t, minutes
 - Depth of Water Level Below Reference Level, d, inches
 - Water Surface dimensions, ft: l, w

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

-- Water Surface Area, ft², A
 -- Water level rise hrise (Subtract current value of d from previous value)
 -- Ave. Water Surface Area, ft², A_{av} (Take average of A and previous A)
 -- Ave. Height of Water Level Above Impermeable Stratum, ft, h (Take ave. of d and previous value of d convert to ft., and subtract from Dstratum
 -- Permeability, in/hr., Ka (calculate using formula):

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

t	d (in.)	l, w (ft.)	A (ft.2)	hrise (in.)	A _{av} (ft.2)	h (ft.)	K a
t ₀	<u>10:14</u>	<u>75"</u>	<u>4.33x2.5'</u>	<u>10.025</u>	XXXX	XXXX	XXXX
t ₁	<u>10:17</u>	<u>72 1/2"</u>	<u>4.21x2.5'</u>	<u>12.29</u>	XXXX	XXXX	XXXX
t ₂	<u>10:20</u>	<u>71"</u>	<u>5.25x2.5'</u>	<u>13.125</u>	XXXX	XXXX	XXXX
t ₃	<u>10:25</u>	<u>69"</u>	<u>6.0x2.5'</u>	<u>15.0</u>	XXXX	XXXX	XXXX
t ₄	<u>10:30</u>	<u>67"</u>	<u>6.16x2.5'</u>	<u>16.665</u>	XXXX	XXXX	XXXX
t ₀	<u>10:35</u>	<u>65 1/2"</u>	<u>7.16x2.5'</u>	<u>17.9</u>	XXXX	XXXX	XXXX
t ₁	<u>10:40</u>	<u>64 1/4"</u>	<u>7.06x2.5'</u>	<u>19.15</u>	XXXX	XXXX	XXXX
t ₂	<u>10:47</u>	<u>63"</u>	<u>8.03x2.5'</u>	<u>20.025</u>	XXXX	XXXX	XXXX
t ₃							
t ₄							
t ₀							
t ₁							
t ₂							
t ₃							
t ₄							

Form 3f (cont'd)

5. Record the Following Data:

- Final Depth of Pit, D_{pit} , ft 8.0'
- Depth to Impermeable Stratum, ft, $D_{stratum}$ 8.0'
(If no impermeable stratum is encountered assume $D_{stratum} = D_{pit}$)
- Height of Standpipe Above Reference Level, ft, h_{pipe} NA
- Depth to Water Level after 24 hr. Stabilization Period, ft, d_{water} 2.667'
(Take measurement from top of standpipe. Subtract h_{pipe})
- Height of Static Water Level Above Impermeable Stratum, ft, H 5.333'
($H = D_{stratum} - D_{water}$)
- Average Height of Water Level Above Impermeable Stratum, ft, h 2.6979'
(Take average of d from beginning and end of last time interval recorded in section 4, convert this to ft., subtract from $D_{stratum}$)

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

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

$$= [1.25 / 7.] \times [146125 / 2.27]$$

$$(5.333 - 2.6979) \times 60 \text{ min/hr} = \underline{4.374}$$

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

Frank J. Warrick Date March 1, 2003

Signature Professional Engineer

John M. McDane License # 15525

Form 4
General Design Data

1. Volume of Sanitary Sewage, gal. 650 Total No. of Bedrooms 4
☒ Residential: No. of Dwelling Units 1
☐ Commercial/Institutional — Indicate type of establishment and show method of calculation.
If estimate is based on water meter data, indicate source of data, frequency of readings, average daily flow, and maximum recorded daily reading _____

2. Alterations or Repairs

- a) Reason for Alteration or Repair (Check appropriate categories):
☐ Expansion or Change in Use ☒ Upgrade Existing Facilities
☐ Correct Malfunctioning System ☐ Other (Specify) _____
b) Describe Nature of Alteration or Repairs: _____

3. System Components:

- a) Grease Trap Capacity, gals _____
Show Calculation Used: _____
b) Septic Tank Capacities, gals: ☒ First (Single) Compartment 1,850
☐ Second Compartment _____ ☐ Third Compartment _____
c) Effluent Distribution Method: ☐ Gravity Flow ☐ Gravity Dosing ☒ Pressure Dosing
Dosing Device: ☒ Pump ☐ Siphon
d) Dosing Tank Capacities, gals:
Total Capacity 1,300; Dose Volume (Vd) 200.996; Reserve Capacity 800
e) Laterals: Number 10; Total Length 834'; Pipe Diameter 1"; Spacing 45"
f) Connecting Pipe: Diameter 3" Length 50'
g) Manifold: Diameter 3"; Length 18.75'
h) Disposal Field: Type of Installation M5R
Design Permeability (Percolation Rate) 3 min. to 15 min per inch
Trenches: Width _____; Total Length _____; Bed: Area 1091.25 sq. ft.
i) Seepage Pits: Design Percolation Rate _____
Number of Pits _____ Total Percolating Area Provided _____

4. Attachments (Check items included):

- ☒ General Plan of System Showing Location of All System Components
☒ X-Sections of Each System Component Including Grease Trap, Septic Tank, Dosing Tank, Disposal Field, Seepage Pits and Interceptor Drains
☒ Pump Performance Curve
☐ Other (Specify) _____

I hereby certify that the information furnished on Form 4 of this application (and attachments thereto) 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 Professional Engineer John M. Melone Date 3/5/03

Form 5
Design of Pressure Dosing System

1. Configuration of Distribution Network:

Type of Manifold: ☐ End ☒ Central

Distribution Laterals: Number 12; Length, ft 234'; Diameter, ins 1"

Total Lateral Volume (Vl) gals. 9,754.2 gals.

Hole Diameter, ins 1/4" Hole Spacing, ins 36"

Number of laterals, n 12

2. Lateral Discharge Rate:

Design Pressure Head at Distal End of Laterals, Hp, ft 2.5'

Hole Discharge Rate, gpm 1.18

Number of Holes per Lateral, n 6

Lateral Discharge Rate, gpm 7.08

3. Manifold Length, ft 18.75'; Manifold Diameter, ins 3" Total Manifold Volume (Vm) 6.885 gals.

4. System Discharge Rate, gpm _____

5. Dose Volume:

Daily Volume of Sewage (Q), gpd 650

Design Permeability, in/hr _____, or Percolation Rate, min/in 3 min. to 15 min. per inch

Total Volume of Delivery Pipe (Vp) 18,36 gals.

Internal Volume of Distribution Network (V), (Vp + Vm + Vl) 34,792.2 gals.

Dose Volume (Vd) 200.2922 gals.

6a. Pump Selection:

Length of Delivery Pipe 50' Diameter of Delivery Pipe 3"

Friction Loss in Delivery Pipe (Hf), ft 0.545'

Elevation of Dosing Tank Low Water Level 137.75

Elevation of Lateral Invert 144.3

Elevation Head (He), ft 6.55'

Total Operating Head (Ht), (Hp + Hf + He), ft 9.595'

Pump Model SPD 504 Rated Horsepower 1/2 HP

Pump Discharge Rate at Total Operating Head, gpm 110

6b. Siphon Elevation:

Diameter of Delivery Pipe _____ Length of Delivery Pipe _____

Friction Loss in Delivery Pipe (Hf), ft _____

Velocity Head (Hv), ft _____

Total Operating Head (Ht), (Hp + Hf + Hv), ft _____

Elevation of Lateral Invert _____

Elevation of Siphon Invert _____

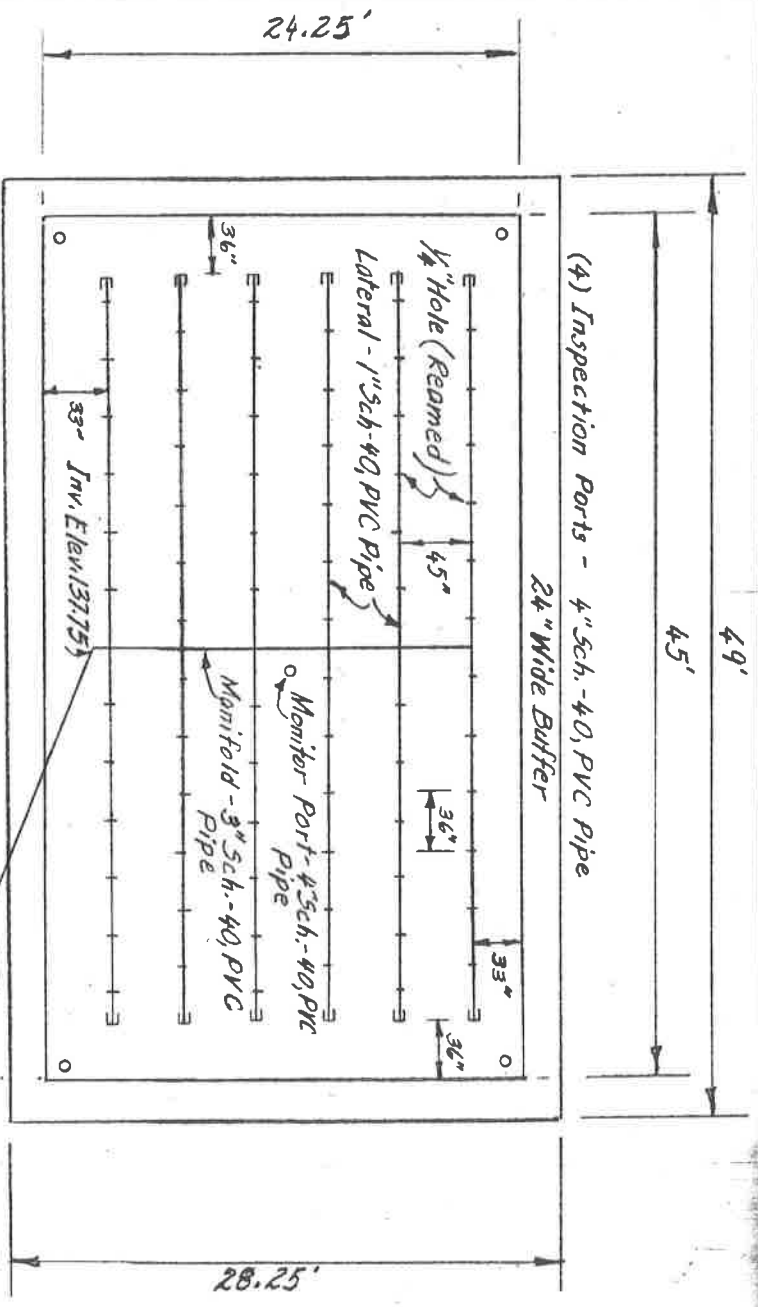
I hereby certify that the information furnished on Form 4 of this application (and attachments thereto) is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Professional Engineer

John M. Valente

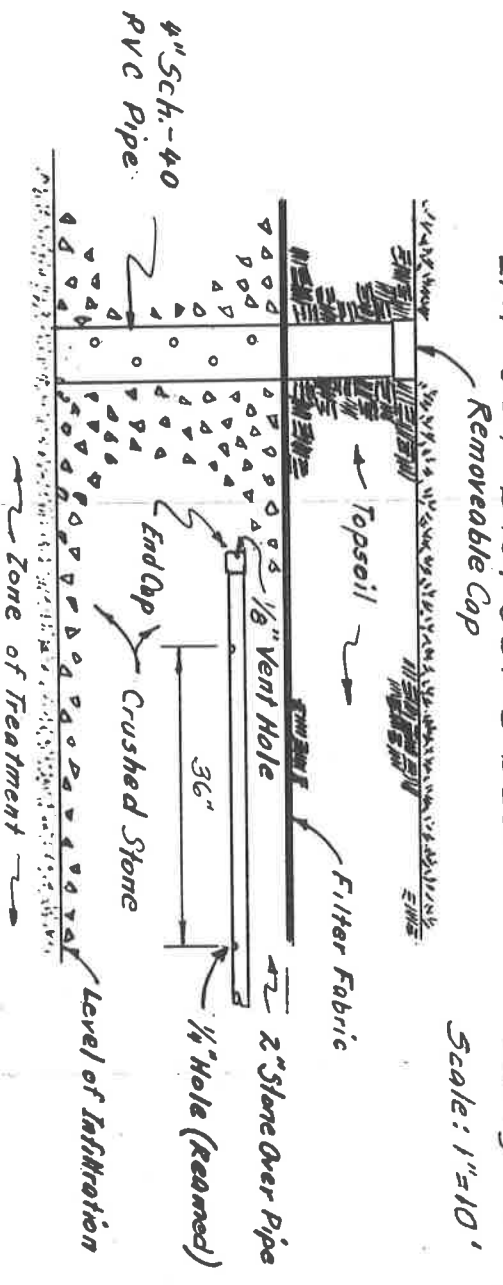
Date 3/5/03

Revised 3-24-03



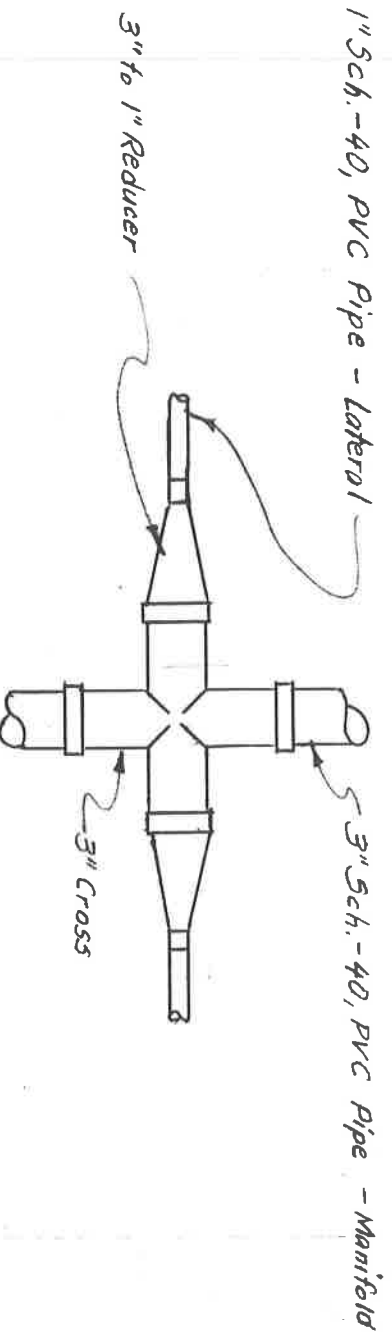
LAY-OUT DISPOSAL BED

Scale: 1"=10'



DETAIL OF INSPECTION PORT & DISTRIBUTION LATERAL

"No Scale"



MANIFOLD TO LATERAL CONNECTION

"No Scale"

RUTHERFORD
Township of Hopewell - County of Mercer
New Jersey

JOHN M. WALDNER, P.E. 15525
Licensed New Jersey Professional Engineer
John M. Waldner 3/5/03
69 Upper Ferry Rd., Trenton, NJ 08628: 883-7754 Phone: 609

SEPTIC SYSTEM DESIGN
Block No. 43.05 Lot No. 8
Date: March 3, 2003 Scale: Noted
Revised 3-24-03

BED SIZING CALCULATIONS

4-Bedroom Dwelling (Existing)
1st Bedroom -200 gpd
2nd, 3rd and 4th Bedrooms $\frac{-450 \text{ gpd}}{-650 \text{ gals}}$
Daily Volume
650 gals. $\times 1.33 = 864.5 \text{ sq. ft.}$, Required for a Pressure Dosing Disposal Bed
Designed Disposal Bed $20' \times 4.5' = 900 \text{ sq. ft.} \times 1.25 = 1091.25 \text{ sq. ft.}$

DOSING VOLUME CALCULATIONS

Daily Volume - 650 gals.
Max Dosing Volume - 25 % of 650 gals. = 162.5 gals.
PUMP TANK (1300 gals.)
Length (Inside) 134" (11.166')
Width (Inside) 51" (4.25')
Surface Area = 11.166' $\times$ 4.25' = 47.4583 sq. ft.
Low Water Switch Elev. 137.52
High Water Switch Elev. 138.06
Depth of Dosing Volume = 0.5642' (6.78")
7.48 $\times$ 47.4583 $\times$ 0.5642' = 200.996 gals. Actual Dosing Volume
Pump and Controls Displacement Volumes = Est. 3.0 Gals.
Laterals - 1" Pipe, 234' $\times$ 0.0408 = 9.5472 gals.
Manifold - 3" Pipe, 18.75' $\times$ 0.3672 = 6.885 gals.
Delivery - 3" Pipe, 50' $\times$ 0.3672 = 18.36 gals.
(3.0 + 9.5472 + 6.885 + 18.360) = 37.7922 gals.
162.5 + 37.7922 = 200.2922 gals.

SWITCH SETTING CALCULATIONS

$d(\text{Inch}) = (V_d + V_{cp} + V_{td}) \times \left(\frac{1 \text{ ft}^3}{7.48} \right) \times \left(\frac{12 \text{ Inch}}{\text{ft.}} / A \right)$
 V_d = Required Dose Volume
 V_{cp} = Internal Volume of Pipes
 V_{td} = Volume Pump and Controls Displaced
 A = Internal Surface Area, Pump Tank
 $d = \frac{162.5 + 34.7922 + 3.0}{7.48} \times \frac{12}{47.4583}$
 $26.771032 \times 0.2528535 = 6.770$
Convert 6.770" into feet = 0.5642'

PUMP SIZING CALCULATIONS

$H_t (H_f + H_e + H_p)$
 $H_f = 1.09 / 100 \times 50' = 0.545'$ Friction Head
 $H_e = 144.3 - 137.75 = 6.55'$ Elevation Head
 $H_p = 2.5'$ Design Pressure Head
 $H_t = (0.545' + 6.55' + 2.5') = 9.595'$ Total Operating Head

RECOMMEND

$\frac{1}{2}$ HP Effluent Pump to provide 8496rpm against a 9.595' Head
HYDROMATIC Model (SPD 50H) Effluent Pump or equivalent

RUTHERFORD

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Licensed New Jersey Professional Engineer

John M. Waldner 3/5/03

69 Upper Ferry Rd., Trenton, NJ 08628: 883-7754

Phone: 609

SEPTIC SYSTEM DESIGN

Block No. 43.05

Lot No. 8

Date: March 3, 2003

Scale: None

Revised 3-24-03

Proposed Grade Elev. 145.58

Top of Stone Elev. 144.58

Level of Infiltration Elev. 143.3

Existing Grade Elev. 142.0

Zone of Treatment
SHWT Elev. 139.3

Bottom Disposal Bed
Elev. 134.6

88"

Depth of Excavation

Filter 2"
Fabric
Overlap
24" Wide
Buffer
Select
Fill

12" Earth Cover

Filter Fabric
2" Stone Over
Pipe
1 1/2" Sch. 40 PVC Pipe
12" Stone Under
Pipe

ZONE OF TREATMENT
48" Select Filter Material

NOTE:
Shall meet all the requirements of
NJAC 7:9A-10.1(f)4

ZONE OF DISPOSAL
56" Coarse Sand or Select Fill

NOTE:
Shall meet all the requirements of
NJAC 7:9A-10.1(f)5

131"

Depth of Disposal Bed

(MSR) CROSS SECTION DISPOSAL BED

Scale: 1"=2'

SEPTIC SYSTEM QUANTITIES

- 1,250 Gal.-Reinf. Conc. Septic Tank with Metal Lid and Conc. Riser
- 1,300 Gal.-Reinf. Conc. Pump Tank with Metal Lid and Conc. Riser
- 15 Inch - 1 1/2" Washed Crushed Stone, DOT 3, 4 or 24
- 495 Cu.Yds. - Select Filter Material
- 234 Lin.Ft. - 1" Sch.-40, PVC Pipe
- 65 Lin.Ft. - 3" Sch.-40, PVC Pipe
- 30 Lin.Ft. - 4" Sch.-40, PVC Pipe
- 1,200 Sq.ft. - Filter Fabric (Terra Tex Fabric 14 mil.) or equivalent
- 1/2 HP - HYDROMATIC Effluent Pump Model (SPD 50H) or equivalent
- 1 1/2 Inch - Min. Earth Cover

NOTE:
Monitor Port shall extend down through
the zone of treatment and into the zone
of disposal by at least two feet (2').

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Revised 3-24-03

GENERAL NOTES:

- Prior to construction the engineer shall have the septic system staked-out and a bench mark set.
- The design engineer must certify that all sand fill for the zone of treatment and for the zone of disposal has been tested and is in accordance with fill specifications. There shall be no em-placement of fill until the engineer has given his approval after having obtained grab samples from material stockpiled at the site.
- Construction inspections are required by the design engineer. The engineer shall be notified to inspect the following:
 - g) Open pit
 - b) Disposal and Treatment fill emplacement to conduct compaction tests.
 - g) Stone and lateral emplacement
 - d) Back-fill and final grade elevation check
- Changes in this design are not allowed without receiving prior approval from the engineer and the Hopewell Township Health Department.
- When completed the engineer shall prepare as-built plans signed and sealed.
- The engineer shall be notified at least 24 hours prior to start of construction.
- There are no wells or septic systems within 100' of this proposed disposal bed.
- All trees within 10' of the proposed disposal bed must be removed.

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SEPTIC SYSTEM DESIGN

Block No. 43.05

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Date: March 3, 2003 Scale: None