



Hunterdon County Department of Health



Public Health
Prevent. Promote. Protect.

www.co.hunterdon.nj.us/health.html

Karen DeMarco, MPH
Health Officer/Director

November 5, 2021

Carla Conner, Secretary
Clinton Township Board of Health
1225 Route 31., Suite 411
Lebanon NJ 08833

Re: Septic System Alteration Waivers
Municipality: East Amwell Township
Block: 83 Lot: 3.03
Location: 533 Hamden Rd.

Dear Carla,

This department has received septic alteration plans dated October 21, 2021 designed by Bayer-Risse Engineering, Inc., to correct a malfunctioning to an existing 2 bedroom with no expansion with the use of an Advanced Treatment Unit (ATU). This design incorporates a Norweco Singular Green ATU which is adequate for a 2 bedroom dwelling and is NSF approved according to standards 40 and 245. The Board can approve the proposed design since the DEP has given the Local Boards of Health the authority to approve these technologies.

The following waivers or special approvals will need to be acted on by the Board:

1. The proposed disposal bed toe of slope will be only 6 feet from the property line, which does not meet the minimum setback requirement of 10 feet according County policy. The engineer will inspect the grading and provide certification that the final grading has not impacted offsite conditions.
2. The proposed disposal bed will be only 44 feet from the existing stream, which does not meet the minimum setback requirement of 50 feet from a water course as per state code. The use of an ATU addresses this issue.
3. The proposed disposal bed will be only 51 feet from the existing well, which does not meet the minimum setback requirement of C100 feet. As per 7:9A-4.3, the distance can be reduced to 50 feet provided there is 50 feet of casing. Since there is no well record available, the engineer has proposed an ultra violet device on the well with added protection. A water test for coliform shall be done after installation.

In addition, all requirements for an Advanced Treatment Unit shall be adhered to include signed service agreement with provider for the life of the system, deed restriction, telemetry device, which is stated on page 9 of the plot plan.

Since this is a malfunctioning system, and according to 7:9A-3.3(C)2 i+ii, and the proposed system is closer to being in full conformance with the chapter than the original system, the Board can consider the waiver request.

The design engineer shall be at the next available Board meeting to present the design and waivers to the Board.

If you have any questions, please call.

Very truly yours,

ORIGINAL IS SIGNED AND ON FILE AT HUNTERDON COUNTY HEALTH DEPARTMENT

Robert Vaccarella, REHS
Principal Environmental Health Specialist

RV:dv

cc: Ted Bayer, PE

ct83_303

- Fee Enclosed
- New Design \$250.00
 - Alteration \$225.00
 - Redesign \$ 90.00 (Of previously approved design)
 - Re-Review \$ 15.00 (After initial plan rejection)

Receipt #: _____
 1st Re-Review Receipt # _____
 2nd Re-Review Receipt # _____

Municipality Clinton Township Block 83 Lot 3.03

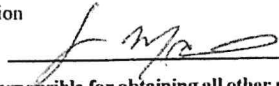
HUNTERDON COUNTY HEALTH DEPARTMENT
APPLICATION FOR PERMIT TO ALTER
AN INDIVIDUAL SUBSURFACE SEWAGE DISPOSAL SYSTEM
 Form 1 - General Information:

1. Name of Applicant (print): Jackie Matthews
2. Applicant's Present Address: 533 Hamden Road, Annandale, NJ 08801
3. Applicant's Phone Number: Day: 352-396-9346 Night: _____
4. Applicant's Email Address: jack.ash.mat@gmail.com

BUILDING LOCATION MUST BE STAKED. DATE STAKED existing

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

<input type="checkbox"/> a. New Construction	<input checked="" type="checkbox"/> b. Alteration / No Expansion or Change of Use
<input type="checkbox"/> c. Alteration / Expansion or Change in Use	<input checked="" type="checkbox"/> d. Alteration / Malfunctioning System
<input type="checkbox"/> e. Repairs (in-kind replacement) / Malfunctioning System	<input type="checkbox"/> f. Repairs (in-kind replacement) / Not Malfunctioning
<input checked="" type="checkbox"/> g. Deviation from Standards	<input type="checkbox"/> h. New System Installed (existing structure)
6. Location of Project: Street Address: 533 Hamden Road Zip Code: 08801
7. Type of Facility: Residential Commercial / Institutional Specify Type of Establishment: _____
8. Type of Wastes to be Discharged: Sanitary Sewage Industrial Wastes Other - Specify Type: _____
9. If d. or e. in 5. above are checked, indicate the type of malfunction and its cause (check all that apply)
 - Contamination of nearby wells or surface water bodies by sanitary sewage or effluent
 - Ponding or breakout of sanitary sewage or effluent on to the surface of the ground
 - Seepage of sanitary sewage or effluent into portions of building below ground
 - Back-up of sanitary sewage, which is not caused by a physical blockage of the internal plumbing
 - Any manner of leakage observed from components that are not designed to emit sanitary sewage or effluent
 - Direct discharges to ground water (no zone of treatment)
 Describe the cause of the malfunction: saturated disposal area
10. Please expand on Question #5, above, by checking if any of the following apply:
 - A privy, outhouse, latrine or pit toilet is present, a system must be installed
 - A system must be upgraded as part of a real estate property transfer
 - A cesspool has been identified during a real estate property transfer and a conforming system must be installed
 - A malfunctioning cesspool has been identified and a conforming system must be installed
11. Other Approvals / Certification / Waivers / Exemptions(attach to application):
 - US Army Corps of Engineers NJDEP - Bureau of Flood Plain Management Other - Specify: _____
12. I hereby certify that the information furnished on this application is true. I am aware that false swearing is a crime in this state and subject to prosecution

Signature of Applicant  Date 10-21-21

NOTE: The applicant is responsible for obtaining all other required Federal, State or local approvals prior to the commencement of work under this approval, including but not limited to, NJDEP permits to conduct activities in freshwater wetlands, freshwater wetlands transition areas, or flood plain jurisdictions. Failure to obtain these permits prior to conducting regulated activities within these areas may result in removal of the system and or the assessment of significant civil penalties.

FOR HEALTH DEPARTMENT USE ONLY

_____ Application Denied, see attached letter
 _____ Application Approved
 _____ Application Approved Subject to Approval of NJDEP
 _____ Date of Action Signature of Authorized Agent: _____

Name and Title _____
 EXPIRATION DATE: _____

HUNTERDON COUNTY HEALTH DEPARTMENT
APPLICATION FOR PERMIT TO ALTER
AN INDIVIDUAL SUBSURFACE SEWAGE DISPOSAL SYSTEM
Form 2a General Site Evaluation Data

Municipality Clinton Township Block 83 Lot 3.03

1. Name of Site Evaluator (print): Mark B. Anderson

2. Business Address of Site Evaluator: Bayer-Risse Engineering, Inc.
78 Route 173 West
Suite 6
Hampton, NJ 08827

3. Business Phone Number of Site Evaluator: (908) 735-2255

4. Special Site Limitations Identified (Check Appropriate Categories):
Flood Plains, Excessively Stony, Sand Dunes, Bedrock Outcrops, Disturbed Ground, Steep Slopes, Wetlands, Sink Holes
Other - Specify limited area, proximity to well and watercourse

5. Soil Logs - Enter on Form 2b - Use one sheet for each soil log.

6. Considerations Relating to Disturbed Ground: N/A

a. Type of Disturbance (Check Appropriate Categories): Filled Area, Excavated Area, Re-graded Area, Subsurface Drains, Other - Specify

b. Existing 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, Procter Test Performed - % Standard Procter Density =

7. Hydraulic Head Test: N/A

a. Hydraulically Restrictive Horizon: Depth Top to Bottom

b. Piezometer A: Depth to Bottom:
Depth of Water Level (24 hrs.):

c. Piezometer B: Depth to Bottom:
Depth of Water Level (24 hrs.):

d. Witnessed by:
Signature Date:

8. Attachments (Check items included): Site Plan, Key Map Showing Location of Site on USGS Quadrangle or Other Accurate Map, Key Map Showing Location of Site on USDA 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. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-9.

Signature of Soil Evaluator Mark B. Anderson Date 10/21/2021

Signature of Professional Engineer Seal Date 10/21/2021

**HUNTERDON COUNTY HEALTH DEPARTMENT
APPLICATION FOR PERMIT TO ALTER
AN INDIVIDUAL SUBSURFACE SEWAGE DISPOSAL SYSTEM
Form 2b Soil Log and Interpretation**

Municipality Clinton Township Block 83 Lot 3.03

1. Log Number 831-1 Method: Profile Pit Boring

2. Soil Log: Date Recorded: 08/31/2021

Depth (Inches) Top - Bottom	Munsell Color Name and Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragment, If Present; Structure; Moist or Dry Consistence; Mottling Abundance, Size and Contrast, If Present
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0-4"	Topsoil with fine/medium roots.
4-48"	5YR5/6 Yellowish Red Silt Loam; subangular blocky, friable, 10% gravel; few, fine, faint mottling 30-48" (5YR7/1 Light Gray); no seepage.
48-144"	2.5YR4/4 Reddish Brown Sandy Loam; subangular blocky, friable, 30% gravel; few, medium, distinct mottling throughout (2.5YR7/1 Light Reddish Gray); slight to moderate seepage at 72" and below.
>144"	Stop test Textural Analysis TA-1 performed on sample collected at 66" (K3)

2a. If mottling give reason for mottling: Regional Water Table

3. Ground Water Observations:
 Seepage - Indicate Depth: 72"
 Pit/Boring Flooded Depth after _____ hours = _____

4. Soil Limiting Zones:
 Fractured Rock Substratum - Depth to Top: _____
 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. Soil Suitability Classification: IW_r

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 Soil Evaluator Mark B. Anderson Date 10/21/2021

Signature of Professional Engineer [Signature] Date 10/21/2021

N.J. License No. 33806 Seal

HUNTERDON COUNTY HEALTH DEPARTMENT
APPLICATION FOR PERMIT TO ALTER
AN INDIVIDUAL SUBSURFACE SEWAGE DISPOSAL SYSTEM
Form 2b Soil Log and Interpretation

Municipality Clinton Township Block 83 Lot 3.03

1. Log Number 831-2 Method: Profile Pit Boring

2. Soil Log: Date Recorded: 08/31/2021

Depth (Inches) Top - Bottom	Munsell Color Name and Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragment, If Present; Structure; Moist or Dry Consistence; Mottling Abundance, Size and Contrast, If Present
0-4"	Topsoil with fine/medium roots.
4-48"	5YR5/6 Yellowish Red Silt Loam; subangular blocky, friable, 10% gravel; few, fine, faint mottling 30-48" (5YR7/1 Light Gray); no seepage.
48-120"	2.5YR4/4 Reddish Brown Sandy Loam; subangular blocky, friable, 30% gravel/cobble mix; few, medium, distinct mottling throughout (2.5YR7/1 Light Reddish Gray); moderate to rapid seepage at 72" and below.
>120"	Stop test

2a. If mottling give reason for mottling: Regional Water Table

3. Ground Water Observations:
 Seepage - Indicate Depth: 72"
 Pit/Boring Flooded Depth after _____ hours = _____

4. Soil Limiting Zones:
 Fractured Rock Substratum - Depth to Top: _____
 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. Soil Suitability Classification: IIWr

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 Soil Evaluator Mark Anderson Date 10/21/2021

Signature of Professional Engineer J Date 10/21/2021

N.J. License No. 33806

Seal

**HUNTERDON COUNTY HEALTH DEPARTMENT
APPLICATION FOR PERMIT TO ALTER
AN INDIVIDUAL SUBSURFACE SEWAGE DISPOSAL SYSTEM
Form 3a. Soil Permeability Data**

Municipality Clinton Township Block 83 Lot 3.03

Assign a number for each test and a letter for each test replicate. Show test data and calculations on Form 3b, 3c, 3d, 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*
Soil Permeability Class Rating	TA-1	A	66"	K3
Soil Permeability Class Rating	TA-1	B	66"	K3

*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 of second filling, negative otherwise.

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

3. Type of Limiting Zone Identified Test Number

4. Attachments (Check items included):
Form 3b - Tube Permeameter Test Data - Number of Sheets: _____
Form 3c - Soil Permeability Class Rating Test Data - Number of Sheets: 2
Form 3d - Percolation Test Data - Number of Sheets: _____
Form 3e - Piezometer Test Data - Number of Sheets: _____
Form 3f - Pit Bailing Test Data - Number of Sheets: _____
Form 3g - Basin Flooding Test Data - Number 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 Site Evaluator Mark B Anderson Date 10/21/2021

Signature of Professional Engineer [Signature] Date 10/21/2021
 Seal

N.J. License No. 33806

HUNTERDON COUNTY HEALTH DEPARTMENT
APPLICATION FOR PERMIT TO ALTER
AN INDIVIDUAL SUBSURFACE SEWAGE DISPOSAL SYSTEM
Form 3c - Soil Permeability Class Rating Test Data

Municipality Clinton Township Block 83 Lot 3.03

I. Test Number: TA-1 Replicate (letter): A

II. Sample Depth: 66" Soil/Pit Boring Number: SL 831-1 Date Collected: 08/31/2021

III. Coarse Fragment Content:
 Total Weight of Sample, W.T., grams: 313.1
 Weight of Material Retained on 2 mm sieve, W.C.F., grams: 139.7
 Wt. % Coarse Fragment (W.C.F. / W.T. × 100): 44.6 %

IV. Oven Dry Weight (24 hrs., 105°C) of 40 gram Air Dry Sample, grams, Wt.: 39.8

V. Hydrometer Calibration, Rc: 5

VI. Hydrometer Reading - 40 seconds, grams, R1: 17
 Temperature of Suspension, °F: 71

VII. Corrected Hydrometer Reading, grams, R1': 12.6

VIII. Hydrometer Reading - 2 hours, grams, R2: 10.0
 Temperature of Suspension, °F: 71

IX. Corrected Hydrometer Reading, grams, R2': 5.6

X. % sand = (Wt. - R1') / Wt. × 100 = $(39.8 - 12.6) / 39.8 \times 100 = 68.3 \%$


XI. % clay = (R2' / Wt.) × 100 = $5.6 / 39.8 \times 100 = 14.1 \%$


XII. Sieve Analysis:
 a. Oven Dry Wt. (2 hrs., 105°C) Total Sand Fraction (Soil Retained in 0.045 mm Sieve), grams: 24.4
 b. Wt. of Fine Plus Very Fine Sand Fraction (Sand Passing 0.25 mm Sieve), grams: 4.8
 c. % Fine Plus Very Fine Sand (b/a): 19.7 %

XIII. Soil Morphology (Natural Soil Samples Only):
 Structure of Soil Horizon Tested: subangular blocky, friable
 Consistence of Soil Horizon Tested: Dry Moist

XIV. Soil Permeability Class Rating (Based upon average textural analysis of this replicate and other replicate samples):
K3

XV. 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  Date 10/21/2021

Signature of Professional Engineer  Date 10/21/2021

N.J. License No. 33806 Seal

**HUNTERDON COUNTY HEALTH DEPARTMENT
APPLICATION FOR PERMIT TO ALTER
AN INDIVIDUAL SUBSURFACE SEWAGE DISPOSAL SYSTEM
Form 3c - Soil Permeability Class Rating Test Data**

Municipality Clinton Township Block 83 Lot 3.03

I. Test Number: TA-1 Replicate (letter): B

II. Sample Depth: 66" Soil/Pit Boring Number: SL 831-1 Date Collected: 08/31/2021

III. Coarse Fragment Content:

Total Weight of Sample, W.T., grams: 313.1

Weight of Material Retained on 2 mm sieve, W.C.F., grams: 139.7

Wt. % Coarse Fragment (W.C.F. / W.T. × 100): 44.6 %

IV. Oven Dry Weight (24 hrs., 105°C) of 40 gram Air Dry Sample, grams, Wt.: 39.8

V. Hydrometer Calibration, Rc: 5

VI. Hydrometer Reading - 40 seconds, grams, R1: 17

Temperature of Suspension, °F: 71

VII. Corrected Hydrometer Reading, grams, R1': 12.6

VIII. Hydrometer Reading - 2 hours, grams, R2: 10.0

Temperature of Suspension, °F: 71

IX. Corrected Hydrometer Reading, grams, R2': 5.6

X. % sand = (Wt. - R1') / Wt. × 100 = $(39.8 - 12.6) / 39.8 \times 100 = 68.3 \%$

XI. % clay = (R2' / Wt.) × 100 = $5.6 / 39.8 \times 100 = 14.1 \%$

XII. Sieve Analysis:

a. Oven Dry Wt. (2 hrs., 105°C) Total Sand Fraction (Soil Retained in 0.045 mm Sieve), grams: 24.4

b. Wt. of Fine Plus Very Fine Sand Fraction (Sand Passing 0.25 mm Sieve), grams: 5.6

c. % Fine Plus Very Fine Sand (b/a): 23.0 %

XIII. Soil Morphology (Natural Soil Samples Only):

Structure of Soil Horizon Tested: subangular blocky, friable

Consistence of Soil Horizon Tested: Dry Moist

XIV. Soil Permeability Class Rating (Based upon average textural analysis of this replicate and other replicate samples):
K3

XV. 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

Mark Anderson

Date 10/21/2021

Signature of Professional Engineer

J

Date 10/21/2021

N.J. License No. 33806

Seal

**HUNTERDON COUNTY HEALTH DEPARTMENT
APPLICATION FOR PERMIT TO ALTER
AN INDIVIDUAL SUBSURFACE SEWAGE DISPOSAL SYSTEM
Form 4. General Design Data**

Municipality Clinton Township Block 83 Lot 3.03

I. Volume of Sanitary Sewage, gal. 350
 Residential: No. of Dwelling Units: 1 Total No. of Bedrooms: 2
 Expansion Attic (checked if yes)
 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: _____

II. 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: _____
 Describe nature of alteration or repairs: install pressure distribution disposal system

III. System Components:
 a. Grease Trap Capacity, gal: _____ Show Calculation Used: _____
 b. Ejector/grinder pump or garbage disposal
 Existing Yes No
 Proposed Yes No
 Note: If marked yes, tank and field must be enlarged by 50%
 c. Septic Tank Capacities, gal: 1,300 (Norweco Singulair Green) Single(First) Compartment: 450
 Second Compartment: 500 Third Compartment: 350
 d. Effluent Distribution:
 Method: Gravity Flow Gravity Dosing Pressure Dosing
 Dosing Device: Pump Siphon
 e. Dosing Tank Capacities, gal. Total Capacity, gal.: 1000 Dose Volume, gal.: 87.5
 Reserve Capacity, gal.: 681.4
 f. Laterals Number: 3 Total Length: 81'
 Diameter: 1" Spacing: 3.75'
 g. Connecting Pipe Diameter: 4" Length: 3'
 h. Manifold Diameter: 2" Length: 7.5'
 i. Disposal Field - Type of Installation: Soil Replacement, Fill Enclosed
 Design Permeability (Percolation Rate): 6-20 in/hr
 Trenches - Width: _____ Total Length: _____ Bed - Area: 400 SF
 j. Seepage Pits: Design Percolation Rate: _____ Number of Pits: _____
 Total Percolating Area Provided: _____

IV. Attachments (Check items included):
 General Plan of System Showing Location of All System Components, No Larger Than 8 1/2 Inches x 14 1/2 inches, Unless Prior Approval Given.
 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: _____

V. I hereby certify that the information furnished on Form 4 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. 7:148.

Signature of Professional Engineer _____ Date 10/21/2021
 N.J. License No. 33806 Seal

HUNTERDON COUNTY HEALTH DEPARTMENT
APPLICATION FOR PERMIT TO ALTER
AN INDIVIDUAL SUBSURFACE SEWAGE DISPOSAL SYSTEM
Form 5. Design of Pressure or Gravity Dose System

Municipality Clinton Township Block 83 Lot 3.03

I. Configuration of Distribution Network:
Type of Manifold: [X]End []Central
Distribution Laterals: Number 3 Length, ft 27 Total Lateral Volume (Vl), gal. 3.3
Hole Diameter, ins. 1/4 Hole Spacing, ins. 36
Diameter of Laterals, ins. 1.0

II. Lateral Discharge Rate
Design Pressure Head at Distal End of Laterals, Hp, ft. 2.5
Hole discharge rate, Q, gpm: 1.18
Number of Holes per Lateral, n: 9
Lateral Discharge Rate, (Q x n), gpm: 10.62

III. Manifold Length, ft. 7.5 Manifold Diameter, ins. 2" Total Manifold Volume (Vm), gal. 1.2

IV. System Discharge Rate, gpm 31.9

V. Dose Volume:
Design Volume of Sewage, gal/day 350
Design Permeability, in/hr 6-20 or Percolation Rate, min/in
Total Volume of Delivery Pipe (Vp), gal.: 10.6
Internal Volume of Distribution Network (V), (Vp + Vm + Vl), gal.: 15.1
Dose Volume, gal.: 87.5
Pump Tank Size (ft²) 36.13

VI. a. Pump Selection:
Length of Delivery Pipe (ft) 65 Delivery Pipe Diameter (ins) 2 Volume (gal.) 10.6
Friction Loss in Delivery Pipe, Hf, ft. 1.32
Elevation of Dosing Tank Low Water Level 159.25
Elevation of Lateral Invert: 164.50
Elevation Head, He, ft 5.25
Total Operating Head, Ht (Hp + Hf + He), ft. 9.1
Pump Model Goulds 3885 WE03L Rated Horsepower 1/3
Pump Discharge Rate at Total Operating Head, gpm 75 +/-
Pump Displacement Volume, gal.: 7.5

b. Siphon Elevation:
Diameter of Delivery Pipe Length of Delivery Pipe Volume:
Friction Loss in Delivery Pipe, Hf, ft.
Velocity Head, Hv, ft.
Total Operating Head, Ht (Hp + Hf + Hv):
Elevation of Lateral Invert
Elevation of Siphon Invert:
Internal horizontal area of dosing tank in (ft²):

VII. I hereby certify that the information furnished on Form 5 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 Professional Engineer Seal Date 10/21/2021
N.J. License No. 33806

Septic System Alteration Design

for

Jackie Matthews

Block 83, Lot 3.03

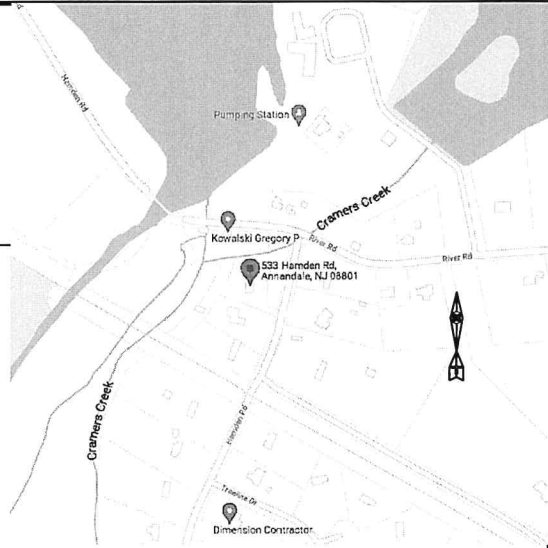
*Clinton Township,
Hunterdon County, New Jersey*

October 21, 2021

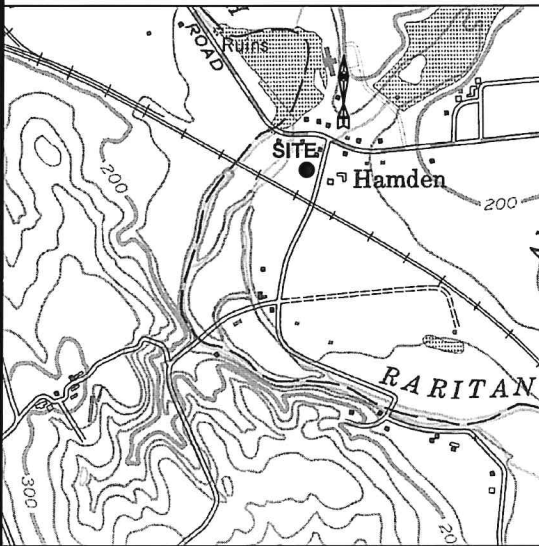
<i>SHEET INDEX</i>	
<i>Sheet #</i>	<i>Sheet Name</i>
<i>MAT-1</i>	<i>Cover Sheet</i>
<i>MAT-2</i>	<i>Key Maps</i>
<i>MAT-3</i>	<i>Existing & Proposed Conditions</i>
<i>MAT-4</i>	<i>Disposal Field Details</i>
<i>MAT-5</i>	<i>Aerobic Treatment Tank Details</i>
<i>MAT-6</i>	<i>Pump Tank Details</i>
<i>MAT-7</i>	<i>Piping Details</i>
<i>MAT-8</i>	<i>Design Notes</i>
<i>MAT-9</i>	<i>General Notes</i>
<i>MAT-10</i>	<i>SESC Details</i>
<i>MAT-11</i>	<i>SESC Notes</i>

 THEODORE H. BAYER, P.E. New Jersey Professional Engineer License No. GE33806		BAYER-RISSE ENGINEERING, INC. 78 ROUTE 173 WEST, SUITE 6 HAMPTON, NEW JERSEY 08827 PHONE 908-735-2255 FAX. 908-735-5838 <small>Certificate of Authorization No. 24GA27943900</small>					
REVISION DESCRIPTION	DATE	APPROVED	DWG NO. <i>MAT-1</i>	BRE JOB#: <i>21-2380</i>	DATE <i>October 21, 2021</i>	SHEET: <i>1 of 11</i>	

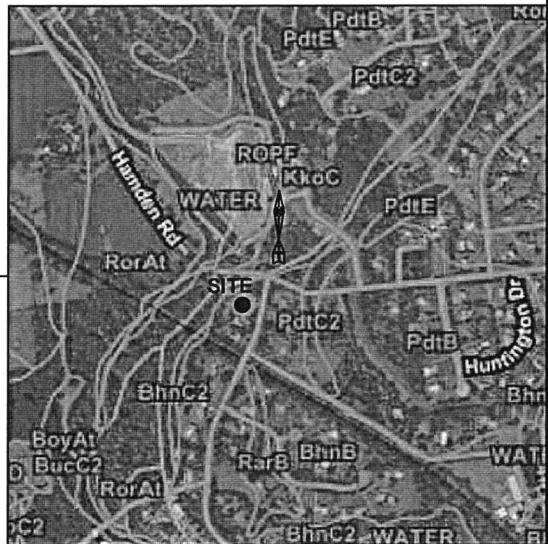
**SITE MAP
1:26,000**



**USGS PITTSTOWN, NJ
QUADRANGLE
1:24,000**



**USDA HUNTERDON COUNTY
SOIL SURVEY
1:15,840**



**Septic System Alteration Design
Key Maps**

Jackie Matthews Block 83, Lot 3.03 Clinton Township, Hunterdon County, New Jersey 533 Hamden Road

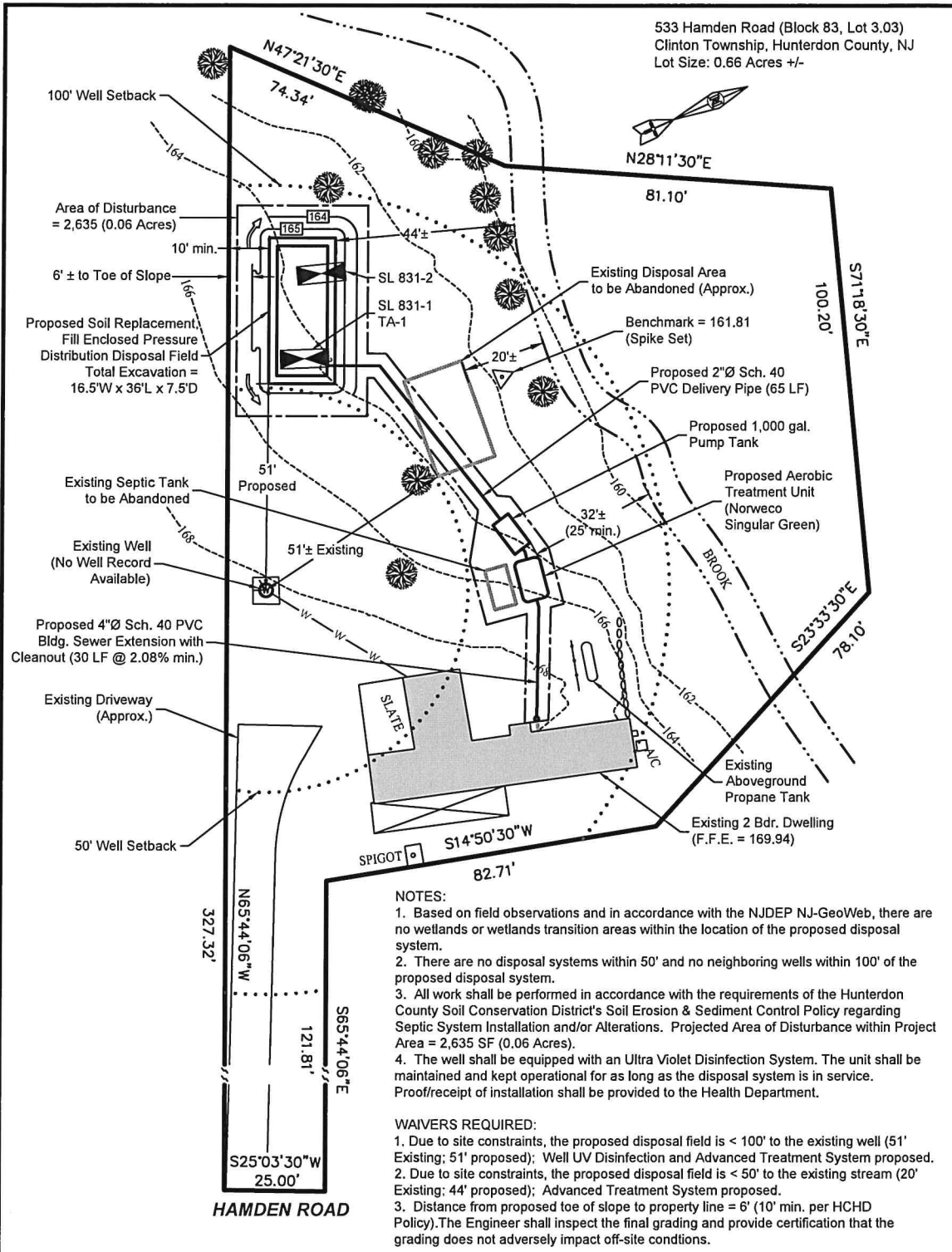
DRAWN BY: WMJ	DESIGNED BY: WMJ	CHECKED BY: THB	DWG NO. MAT-2	BRE JOB#: 21-2380	SCALE: As Noted	DATE: October 21, 2021	SHEET: 2 of 11
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THEODORE H. BAYER, P.E.
New Jersey Professional Engineer License No. GE33806



BAYER-RISSE ENGINEERING, INC.
78 ROUTE 173 WEST, SUITE 6
HAMPTON, NEW JERSEY 08827
PHONE 908-735-2255 FAX. 908-735-5838
Certificate of Authorization No. 24GA27943900

533 Hamden Road (Block 83, Lot 3.03)
 Clinton Township, Hunterdon County, NJ
 Lot Size: 0.66 Acres +/-

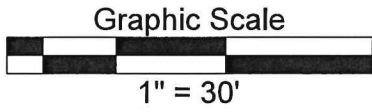


NOTES:

1. Based on field observations and in accordance with the NJDEP NJ-GeoWeb, there are no wetlands or wetlands transition areas within the location of the proposed disposal system.
2. There are no disposal systems within 50' and no neighboring wells within 100' of the proposed disposal system.
3. All work shall be performed in accordance with the requirements of the Hunterdon County Soil Conservation District's Soil Erosion & Sediment Control Policy regarding Septic System Installation and/or Alterations. Projected Area of Disturbance within Project Area = 2,635 SF (0.06 Acres).
4. The well shall be equipped with an Ultra Violet Disinfection System. The unit shall be maintained and kept operational for as long as the disposal system is in service. Proof/receipt of installation shall be provided to the Health Department.

WAIVERS REQUIRED:

1. Due to site constraints, the proposed disposal field is < 100' to the existing well (51' Existing; 51' proposed); Well UV Disinfection and Advanced Treatment System proposed.
2. Due to site constraints, the proposed disposal field is < 50' to the existing stream (20' Existing; 44' proposed); Advanced Treatment System proposed.
3. Distance from proposed toe of slope to property line = 6' (10' min. per HCHD Policy). The Engineer shall inspect the final grading and provide certification that the grading does not adversely impact off-site conditions.



REVISION DESCRIPTION	DATE	APPROVED

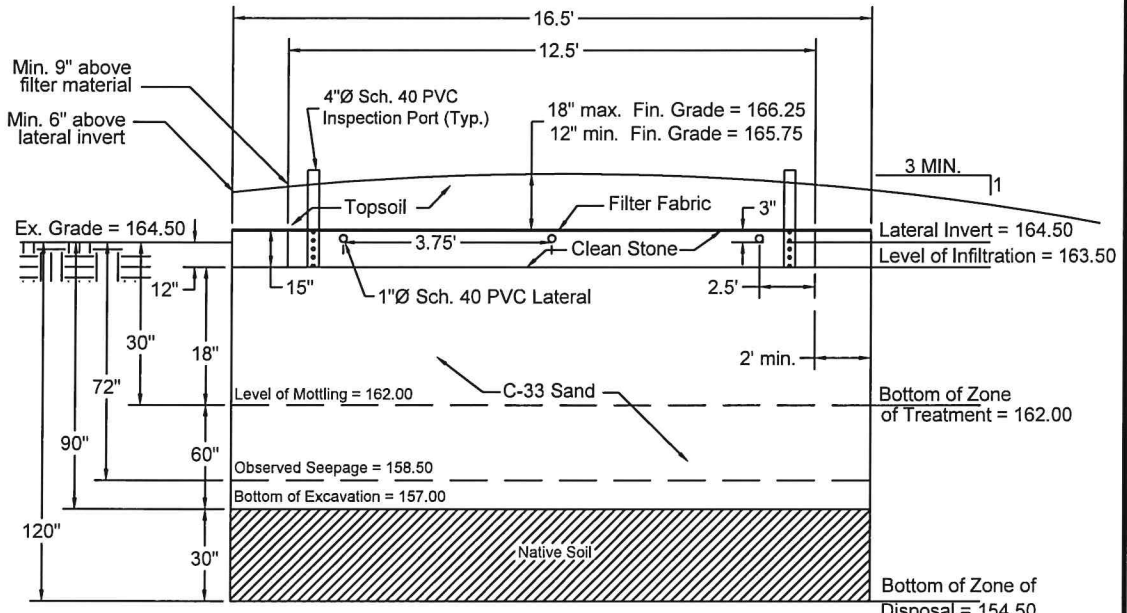
**Septic System Alteration Design
 Existing & Proposed Conditions**

Jackie Matthews Block 83, Lot 3.03 Clinton Township, Hunterdon County, New Jersey 533 Hamden Road

DRAWN BY: WMJ	DESIGNED BY: WMJ	CHECKED BY: THB	DWG. NO. MAT-3	BRE. JOB#: 21-2380	SCALE: As Noted	DATE: October 21, 2021	SHEET: 3 of 11
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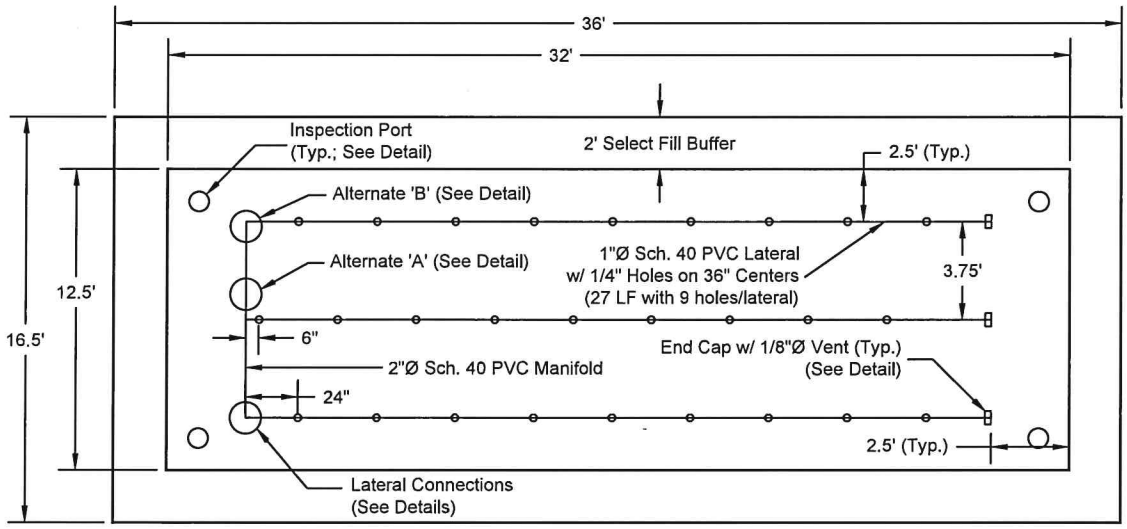
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*Filter Fabric shall be a non-woven geotextile product (See General Note #18).
 **Clean filter stone shall be NJDOT #3, 4, or 24 (See General Note #22)

DISPOSAL FIELD SECTION VIEW
 Not to Scale



Note: Laterals shall be installed approximately level. The maximum slope shall be 2 in. per 100 ft.


DISPOSAL FIELD PLAN VIEW
 Not To Scale

REVISION DESCRIPTION	DATE	APPROVED

**Septic System Alteration Design
 Disposal Field Details**

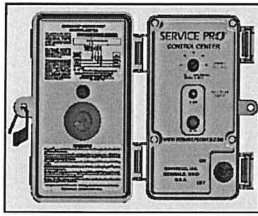
Jackie Matthews Block 83, Lot 3.03 Clinton Township, Hunterdon County, New Jersey 533 Hamden Road

DRAWN BY: WMJ	DESIGNED BY: WMJ	CHECKED BY: THB	DWG NO. MAT-4	BRE JOB#: 21-2380	SCALE: As Noted	DATE: October 21, 2021	SHEET: 4 of 11
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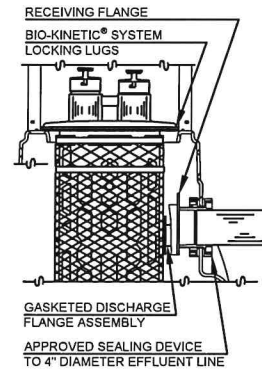
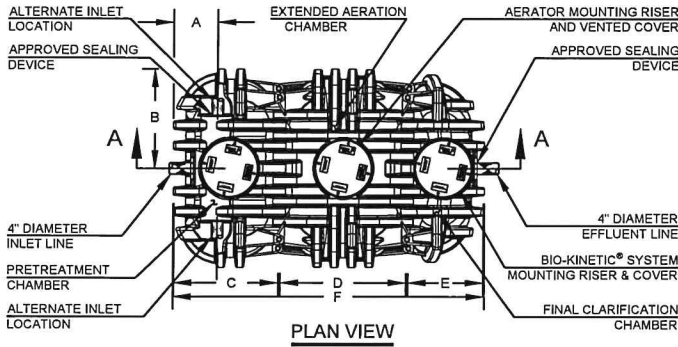
- TANK NOT RATED FOR VEHICULAR TRAFFIC.
- 12" MIN. SAND SHALL BE PLACED ALONG BOTTOM & SIDES OF TANK

SERVICE PRO® CONTROL CENTER
(autodialer/telemetry control as specified by manufacturer)

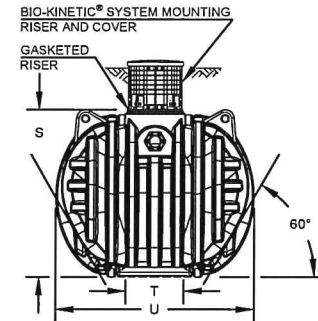
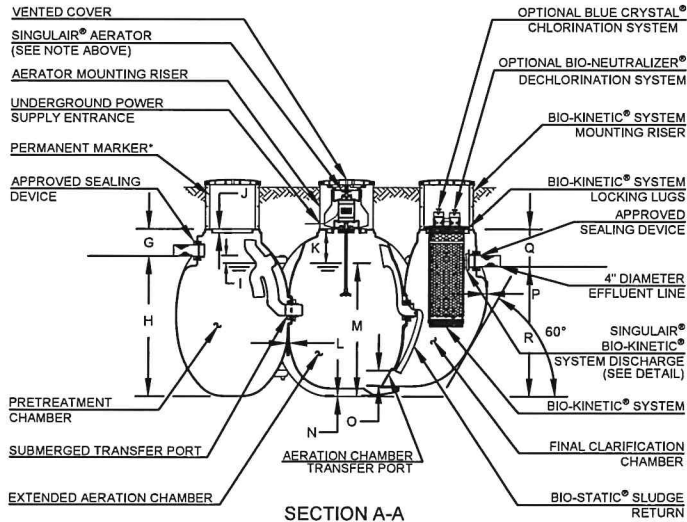
GENERAL NOTES:

- SINGULAIR 9 AERATOR, AS TESTED AND ACCEPTED BY NSF.
- FALL THROUGH SINGULAIR PLANT FROM INLET INVERT TO OUTLET INVERT IS FOUR INCHES. INLET INVERT IS TEN AND ONE HALF INCHES BELOW TANK TOP.
- ON DEEPER INSTALLATIONS, RISERS MUST BE USED TO EXTEND AERATOR MOUNTING RISER AND BIO-KINETIC SYSTEM MOUNTING RISER TO GRADE. INSPECTION COVER ON PRETREATMENT CHAMBER MUST BE DEVELOPED TO WITHIN TWELVE INCHES OF GRADE.
- REMOVABLE COVERS ON RISERS ARE EACH SECURED TO PREVENT UNAUTHORIZED ACCESS.

CRITICAL DIMENSIONS			
A	1'- 5 1/2"	N	0'- 0 3/8"
B	3'- 3"	O	0'- 6"
C	3'- 5 1/4"	P	0'- 0 3/8"
D	4'- 1 3/4"	Q	1'- 2 1/2"
E	2'- 5 3/4"	R	4'- 3 1/2"
F	10'- 3"	S	5'- 6"
G	0'- 10 1/2"	T	1'- 11"
H	4'- 7 1/2"	U	6'- 6"
I	0'- 3"	V	
J	0'- 1 1/2"	W	
K	1'- 0"	X	
L	0'- 0 3/4"	Y	
M	4'- 4"	Z	



BIO-KINETIC® SYSTEM DISCHARGE DETAIL



OUTLET END VIEW

NOTE: TOTAL SYSTEM CAPACITY: 1,300 GALLONS
RATED CAPACITY: 600 GALLONS PER DAY

INLET = 163.00
OUTLET = 162.67

**NORWECO SINGULAIR GREEN AEROBIC TREATMENT UNIT
WITH SERVICE PRO® CONTROL CENTER**

Not to Scale

*A PERMANENT, NON-CORROSIVE MARKER A MINIMUM OF 6 (SIX) SQUARE INCHES IN SIZE SHALL BE ATTACHED TO THE MANHOLE COVER OR RISER IMMEDIATELY BELOW THE COVER AND CONTAIN THE FOLLOWING INFORMATION:

1. ADMINISTRATIVE AUTHORITY NAME & PERMIT #;
2. DATE OF INSTALLATION;
3. TYPE OF SYSTEM;
4. DESIGNED FLOW IN GALLONS PER DAY

REVISION DESCRIPTION	DATE	APPROVED

**Septic System Alteration Design
Aerobic Treatment Tank Details**

Jackie Matthews Block 83, Lot 3.03 Clinton Township, Hunterdon County, New Jersey 533 Hamden Road

DRAWN BY: WMJ	DESIGNED BY: WMJ	CHECKED BY: THB	DWG NO. MAT-5	BRE JOB#: 21-2380	SCALE: As Noted	DATE: October 21, 2021	SHEET: 5 of 11
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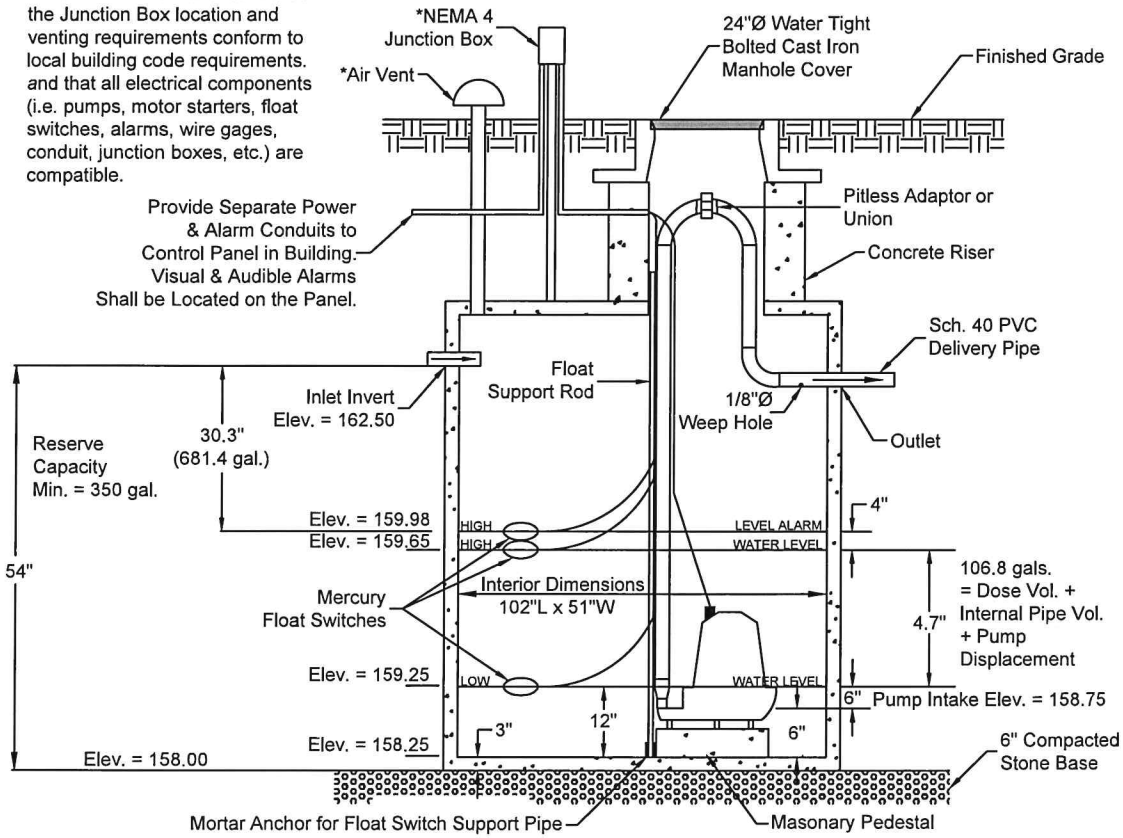
THEODORE H. BAYER, P.E.
New Jersey Professional Engineer License No. GE33806



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HAMPTON, NEW JERSEY 08827
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Certificate of Authorization No. 24GA27943900

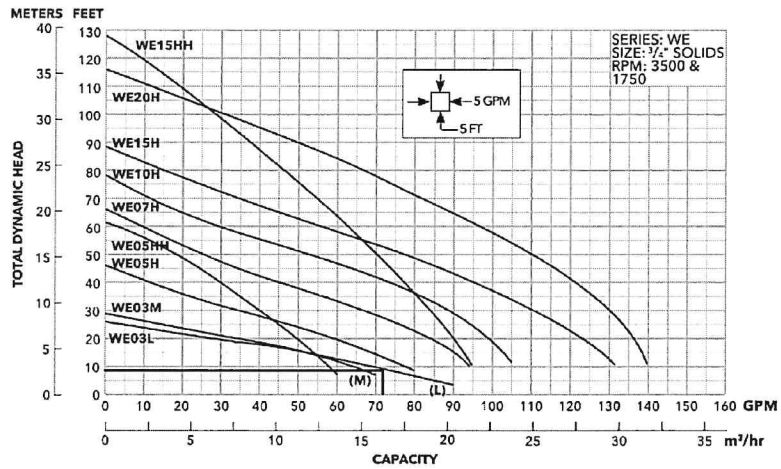
PER NJAC 7:9A-8.2(m)1: ALL TANKS, INCLUDING RISERS & INSPECTION PORTS TO THE HIGHEST JOINT, SHALL BE TESTED FOR WATER TIGHTNESS AFTER INSTALLATION & BEFORE BACKFILLING USING HYDROSTATIC OR VACUUM TEST. THE TEST SHALL BE PERFORMED AND CERTIFIED BY THE TANK MANUFACTURER OR ENGINEER.

*Note: Contractor to ensure that the Junction Box location and venting requirements conform to local building code requirements, and that all electrical components (i.e. pumps, motor starters, float switches, alarms, wire gages, conduit, junction boxes, etc.) are compatible.



Provide Separate Power & Alarm Conduits to Control Panel in Building. Visual & Audible Alarms Shall be Located on the Panel.

1,000 Gal. PUMP DOSING TANK
Not to Scale



The pump shall be a Goulds Model 3885 WE03L (1/3 hp, 115 V, single phase) or approved equal. The pump shall be capable of delivering a minimum of 31.9 gpm against a total dynamic head of 9.1 feet.

REVISION DESCRIPTION	DATE	APPROVED

Septic System Alteration Design Pump Tank Details

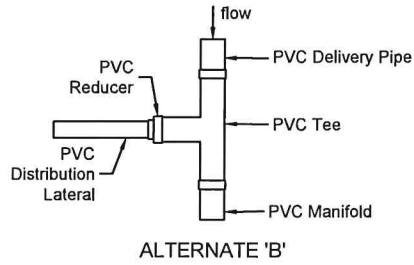
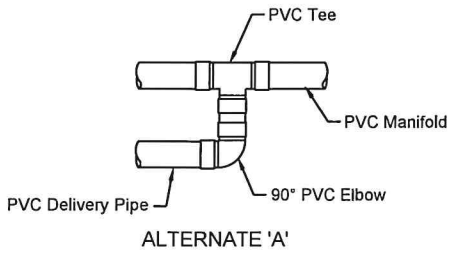
Jackie Matthews Block 83, Lot 3.03 Clinton Township, Hunterdon County, New Jersey 533 Hamden Road

DRAWN BY: WMJ	DESIGNED BY: WMJ	CHECKED BY: THB	DWG NO. MAT-6	BRE JOB#: 21-2380	SCALE: As Noted	DATE: October 21, 2021	SHEET: 6 of 11
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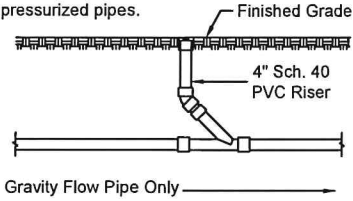


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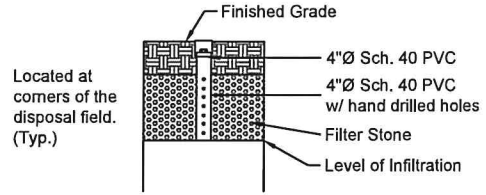


DELIVERY PIPE TO MANIFOLD CONNECTION
Not To Scale

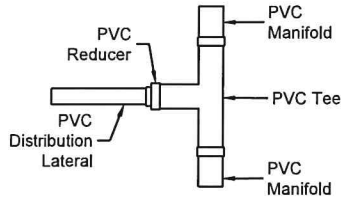
NOTE: Cleanouts shall not be provided on pressurized pipes.



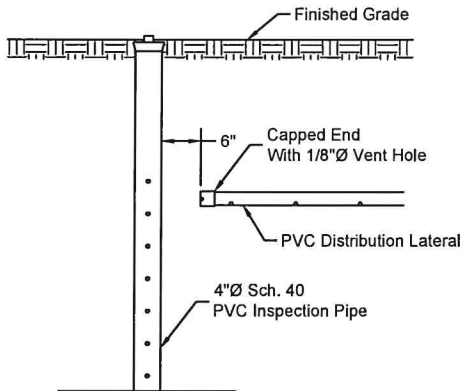
CLEAN OUT DETAIL
Not To Scale



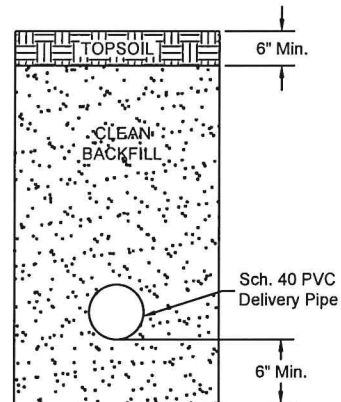
INSPECTION PORT DETAIL
Not To Scale



MANIFOLD TO LATERAL CONNECTION
Not to Scale



DISTRIBUTION LATERAL DETAIL
Not To Scale



Note: Clean Backfill shall be free of large stone and objectionable material. Clean Backfill shall be compacted in 12 inch max. lifts.

FORCE MAIN BEDDING DETAIL
Not To Scale

REVISION DESCRIPTION	DATE	APPROVED

Septic System Alteration Design Piping Details

Jackie Matthews Block 83, Lot 3.03 Clinton Township, Hunterdon County, New Jersey 533 Hamden Road

DRAWN BY: WMJ	DESIGNED BY: WMJ	CHECKED BY: THB	DWG NO. MAT-7	BRE JOB#: 21-2380	SCALE: As Noted	DATE: October 21, 2021	SHEET: 7 of 11
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78 ROUTE 173 WEST, SUITE 6
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SOIL LOGS & DESIGN NOTES

1) SOIL LOGS

SL 831-1

August 31, 2021

- 0-4" Topsoil with fine/medium roots.
- 4-48" 5YR5/6 Yellowish Red Silt Loam; subangular blocky, friable, 10% gravel; few, fine, faint mottling 30-48" (5YR7/1 Light Gray); no seepage.
- 48-144" 2.5YR4/4 Reddish Brown Sandy Loam; subangular blocky, friable, 30% gravel; few, medium, distinct mottling throughout (2.5YR7/1 Light Reddish Gray); slight to moderate seepage at 72" and below.
- >144" Stop test Textural Analysis TA-1 performed on sample collected at 66" (K3)

SL 831-2

August 31, 2021

- 0-4" Topsoil with fine/medium roots.
- 4-48" 5YR5/6 Yellowish Red Silt Loam; subangular blocky, friable, 10% gravel; few, fine, faint mottling 30-48" (5YR7/1 Light Gray); no seepage.
- 48-120" 2.5YR4/4 Reddish Brown Sandy Loam; subangular blocky, friable, 30% gravel/cobble mix; few, medium, distinct mottling throughout (2.5YR7/1 Light Reddish Gray); moderate to rapid seepage at 72" and below.
- >120" Stop test

2) PERMEABILITY TESTS

Test Number	Field	Related Soil Log	Depth	Result
TA 831-1	Primary	SL 831-1	66"	K3

3) DESIGN FLOW

- Existing 2 bedroom dwelling;
- First Bedroom @ 200 gpd;
- 1 additional bedroom(s) 150 gpd / bedroom = 150 gpd
- Total Design flow = 350 gpd

4) DISPOSAL FIELD, SEPTIC TANK, AND DOSING TANK SIZING

- a) The disposal field is a soil replacement, fill enclosed pressure distribution disposal bed system. An aerobic treatment unit shall be provided prior to disposal. N.J.A.C. 7:9A Table 10.2(e) requires a minimum of 0.956 sf/gpd for this type of system. The design permeability for this type of system is 6-20 in/hr.

$350 \text{ gpd} \times 0.956 \text{ ft}^2/\text{gpd} = 334.6 \text{ ft}^2$

Per NJAC 7:9A-10.2(e), the disposal field shall be a minimum of 400 sf.

The disposal field shall be 12.5 ft wide x 32 ft long = 400 ft². (16.5 ft x 36 ft with buffer)

Use one 2" dia. Sch. 40 PVC end manifold system with three (3) 1.0" dia. Sch. 40 PVC laterals, 27' long on 3 ft centers (see detail). Laterals shall be hand drilled with 1/4" dia. holes on 3-ft centers. Holes shall be offset by 1.5 ft on adjacent laterals. *All holes shall be hand reamed to remove burrs prior to assembly.* The pump shall be a Goulds model 3885 WE03L (1/3 hp, 115 V, single phase) or approved equal; and shall be capable of delivering a minimum of 31.9 gpm at a total dynamic head of 9.1 ft.

- b) The existing septic tank shall be pumped and abandoned in place unless otherwise directed by the administrative authority (crushed and buried or filled with sand). A licensed hauler shall pump the existing tank. Receipt of septage removed shall be submitted to the local Health Department.
- c) An advanced aerobic treatment unit with a telemetry control panel shall be provided. Per the manufacturer's recommendation, the unit shall be a Norweco Singulair Green. The unit shall be fit with inspection ports and risers flush with grade as necessary. (See Aerobic Treatment Tank Detail)
- d) A 1,000 gallon concrete pump dosing tank with on/off float switches and high level alarm shall be provided and meet all the requirements of N.J.A.C. 7:9A-8.2 and 7:9A-9.2. (See Pump Tank Detail)
- e) Inspection ports shall be placed in the disposal field and shall extend down to the level of infiltration.

REVISION DESCRIPTION	DATE	APPROVED

**Septic System Alteration Design
Design Notes**

Jackie Matthews Block 83, Lot 3.03 Clinton Township, Hunterdon County, New Jersey 533 Hamden Road

DRAWN BY: WMJ	DESIGNED BY: WMJ	CHECKED BY: THB	DWG NO. MAT-8	BRE JOB#: 21-2380	SCALE: As Noted	DATE: October 21, 2021	SHEET: 8 of 11
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GENERAL NOTES:


1. This Wastewater disposal system has been designed to be closer in conformance with the requirements of N.J.A.C. 7:9A, Standards for Individual Subsurface Sewage Disposal Systems, and the requirements of the Clinton Township Health Department. This plan is not a survey and is to be used for construction of the septic system only. It is not intended to be used as a plot plan for construction of any structures or proposed improvements.
2. Property line information has been obtained from a survey plan prepared by Decker & Coriell, Inc., dated June 17, 1986 as provided by the applicant/owner. Topographic information has been obtained from a field survey performed by Bohren & Bohren Associates in October 2021.
3. All soil testing was conducted by Bayer-Risse Engineering, Inc. on August 31, 2021 and witnessed by a representative of Clinton Township.
4. The Engineer and the Health Department shall be notified 48 hours prior to construction so that all inspections may be scheduled. All phases of the construction shall be inspected and approved by the Engineer and Health Department prior to backfilling.
5. Inspection Schedule
 - Stake out and stockpiling of sand
 - Open ditch
 - Sand emplacement, compaction, and percolation rate
 - Stone & Lateral emplacement
 - Tanks and final grading
6. Sand Specifications: C-33 Sand shall have:
 - A coarse fragment content (greater than No. 8 sieve) less than 15% by volume or less than 20% by weight
 - A textural analysis (composition by weight of the size fraction passing the particular sieve as stated):
 - 80%-100% passing No. 8 sieve; 50%-85% passing No. 16 sieve; 25%-60% passing No. 30 sieve; 10%-30% passing No. 50 sieve; 2%-10% passing No. 100 sieve.
 - Permeability from 6 - 20 in./hr. (percolation rate 3-15 min./in.)
7. All sand shall be stockpiled on-site and tested by the Engineer prior to placement into the disposal area.
8. Sand shall be installed in twelve inch (12") maximum lifts and compacted in conformance with N.J.A.C. 7:9A-10.4f(3). After installation and compaction, percolation tests shall be conducted at the level of infiltration in accordance with the number and placement requirements shown in Appendix C of N.J.A.C. 7:9A.
9. No wheeled vehicles are to be driven over any part of the disposal area.
10. The Engineer will inspect the entire installation of the system and provide a Suitable Fill Certification and Record Drawings to the Health Department.
11. Prior to the disposal bed stake out by the Engineer and any construction activities by the installer, the installer shall have all underground utilities located by the responsible utility company(ies). CALL 1-800-272-1000 BEFORE YOU DIG.
12. Construction information is based on topography of plan. Elevations may be modified after final survey.
13. Disposal area shall be graded so that surface runoff is diverted away from the disposal area.
14. The Engineer and the Health Department shall review and approve any deviations or field changes from this design.
15. The installer shall be responsible for obtaining any and all of the required permits prior to construction.
16. After completion of backfilling and final grading, all disturbed areas shall be raked, seeded and mulched to establish a vegetative cover in a manner acceptable to the Administrative Authority.
17. The installer shall ensure that all materials used in the construction of the system are in accordance with N.J.A.C. 7:9A et. seq. and meet the specifications of the design.
18. Filter fabric shall be a non-woven geotextile product (TerraTex SD or approved equal).
19. No trees are to remain within ten feet (10') of the disposal area.
20. Septic tank(s) shall be located a minimum of 10 ft and disposal areas shall be located a minimum of 25 ft from dwellings.
21. Septic tank(s) shall be located a minimum of fifty feet (50'), disposal area(s) shall be located a minimum of one hundred feet (100)***, and building sewer(s) shall be located a minimum of twenty-five feet (25') from a well. **WAIVER REQUIRED
22. Crushed stone filter material shall be NJDOT number 3, 4, or 24 size stone and be free of fines, dust, ashes, or clay.
23. All septic disposal fields shall be constructed at least 25 feet from excavated cuts (drop) greater than 2 feet.
24. There are no off-site wells within 100 ft and no off-site disposal fields within 50 ft of the proposed disposal field.
25. Bayer-Risse Engineering, Inc. makes no representation as to the location and/or adequacy of the internal plumbing and electric service. The limits of this design are from the septic tank to the disposal area.
26. This septic design has been based on the soil conditions and site constraints evident at the time soil testing was performed. If subsurface conditions present at the time of construction vary significantly from those documented during soil testing the contractor shall immediately cease construction and notify the Engineer and the Health Department so that appropriate action may be taken.
27. Garbage disposal units shall not be permitted with this sewage disposal unit. Water softeners shall not discharge into this disposal system.
28. All tanks shall be tested for water tightness upon installation of all tank connections including piping network, manholes and inspection ports as specified by the design.
29. An operation, maintenance and annual monitoring agreement (maintenance contract) shall be secured with an approved contractor provided by the manufacturer's representative of the proposed aerobic treatment unit for as long as the proposed design is installed and operational. All records and agreements shall be provided to the owner and kept with the house and provide a copy of the executed service contract with the administrative authority.
30. The aerobic treatment unit shall be installed by an authorized/certified installer (NEHA-CIOWTS: National Environmental Health Association - Certified Installer of Onsite Wastewater Treatment Systems) or overseen by the manufacturer's representative and shall be physically present at all times during installation of an advanced wastewater pretreatment device and either install or directly oversee the installation of the advanced wastewater pretreatment device.
31. The manufacturer's representative shall provide the aerobic unit with an autodialer or telemetry control device as required.
32. Bayer-Risse Engineering, Inc. is an authorized designer of the aerobic treatment system and is sufficiently knowledgeable of the technology to design the proposed system.
33. A deed notice indicating the required maintenance agreement and technology being utilized shall be filed for the property.

REVISION DESCRIPTION	DATE	APPROVED

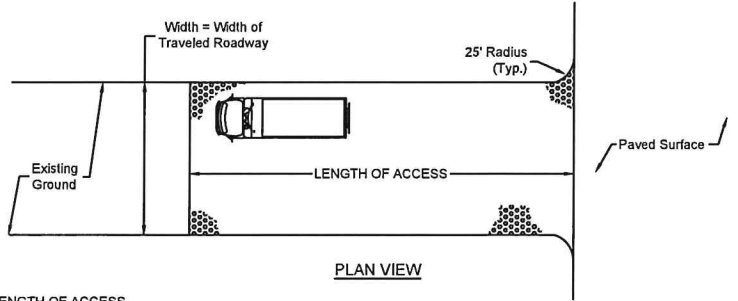
**Septic System Alteration Design
General Notes**

Jackie Matthews Block 83, Lot 3.03 Clinton Township, Hunterdon County, New Jersey 533 Hamden Road

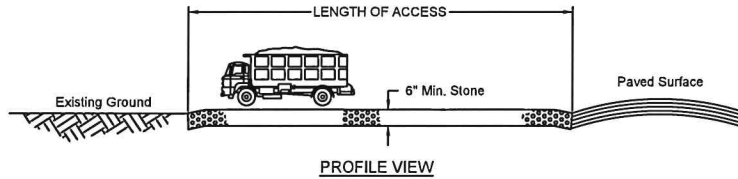
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LENGTH OF ACCESS
 0-2% Slope = 50 ft. Coarse Grained Soil; 100 ft. Fine Grained Soil
 2-5% Slope = 100 ft. Coarse Grained Soil; 200 ft. Fine Grained Soil.
 > 5% Slope = Entire Surface Stabilized with FABC Base Course



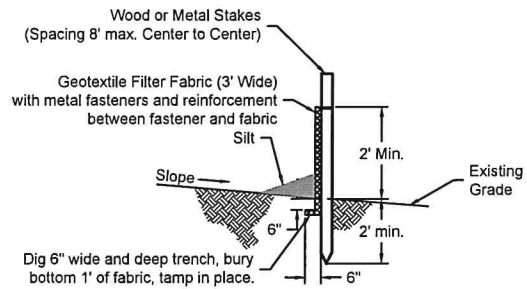
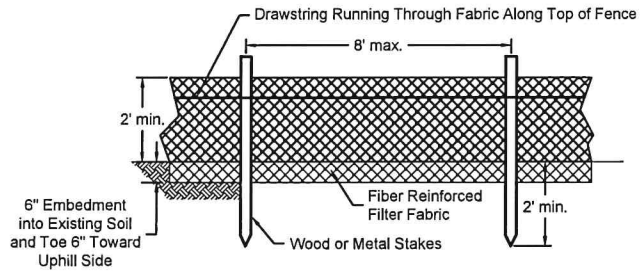
NOTES:

1. Stone is shall be 1.5" - 2".5 crushed angular stone, not round.
2. Provide appropriate transition between stabilized construction entrance and public R.O.W.
3. If poor drainage conditions exist, underlay filter fabric on existing grade before placing stone.

MAINTENANCE

1. Periodic addition of stone to thickness and length to prevent flow of sediment or tracking.
2. All sediment tracked onto the public R.O.W. must be removed at the end of each day.

STABILIZED CONSTRUCTION ENTRANCE
 Not To Scale



NOTES:

1. Stakes shall be spaced 8" center to center or closer, extended 2' above and below grade.
2. Filter Fabric shall be buried at least 6" deep in the ground and extended at least 2 ft. above the ground.
3. Filter Fabric shall have a draw string running through fabric along the top of the fence.

SILT FENCE DETAIL
 Not To Scale

REVISION DESCRIPTION	DATE	APPROVED

Septic System Alteration Design
SESC Details

Jackie Matthews Block 83, Lot 3.03 Clinton Township, Hunterdon County, New Jersey 533 Hamden Road

DRAWN BY: WMJ	DESIGNED BY: WMJ	CHECKED BY: THB	DWG NO. MAT-10	BRE JOB#: 21-2380	SCALE: As Noted	DATE: October 21, 2021	SHEET: 10 of 11
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AGRONOMIC SPECIFICATIONS FOR LAWNS AND SEPTIC SYSTEMS

- (1) All disturbed areas that are not being graded, not under active construction, or not scheduled to be permanently seeded within 30 days shall be temporarily stabilized as per specifications below.
- (2) All exposed areas which are to be permanently vegetated shall be seeded and mulched within 10 days of final grading.
- (3) Straw mulch (hay mulch may be substituted if approved by the District) is to be applied to all seeding at a rate of 1.5 to 2 tons per acre (approx. 100 to 130 bales per acre).
- (4) Mulch anchoring is required after mulching to minimize loss by wind or water. This shall be done using one of the methods (crimping, liquid mulch binders, nettings, etc.) in the "Standards for Soil Erosion and Sediment Control in New Jersey".
- (5) Existing weedy and poorly-vegetated areas with less than 80% perennial grass cover must receive permanent stabilization (as specified below).
- (6) All bags shall be saved for lime, fertilizer, seed, and liquid mulch binder (if used as mulch anchoring method). Such proofs shall be submitted to the district inspector for verification of materials and quantities used for all seeding.

SEED-BED PREPARATION FOR ALL SEEDINGS

- (1) **SUB-SOIL PREPARATION:** Immediately prior to seeding and topsoil application, the surface should be scarified to a depth of 6-12" where there has been soil compaction (e.g. areas of heavy construction traffic). This practice is to be applied to all compacted areas where there is no danger to underground utilities (cables, irrigation systems, etc.).
- (2) **TOPSOILING:** Areas to be seeded shall have a minimum of 5" of friable, loamy topsoil free of objectionable weeds, stones and debris.
- (3) **FINAL GRADING:** Grading shall be smooth of ruts and free of objectionable stones, depressions, vehicle tracks and rough edges. There shall be positive drainage away from all buildings and dwellings. Refuse from seedbed preparation (roots, sticks, stones, construction debris) must be disposed of properly.
- (4) **LIMING/FERTILIZING:** Apply limestone and fertilizer to soil test recommendations or as follows;
 - A. Lime shall applied at the rate of 2 tons (4,000 lbs) per acre. Lime may be any product type as long as the CCE Calcium Carbonate Equivalency = 2 tons/acre. Pelletized and liquid products may be preferred because of their lack of dust and ease of handling but must meet the fore-mentioned criteria.
 - B. Starter fertilizer, specified as 10-20-10, shall be applied at 500 lb. per acre.
 - C. Lime and fertilizer shall be worked into the soil to a depth of 4 inches.

TEMPORARY SEEDING

Temporary seeding shall be used on all disturbed areas where permanent stabilization will not be accomplished for a period up to 6 months.

<u>Product</u>	<u>Rate</u>	<u>Recommended optimum seeding dates</u>
Perennial Ryegrass	100 lbs. per acre	3/15 – 5/15 & 8/15 – 10/1
Spring Oats	86 lbs. per acre	3/15 – 6/1 & 8/1-10/1
Winter Cereal Rye	112 lbs. per acre	8/1 – 11/15
Winter Barley	96 lbs. per acre	8/15 – 10/1
Pearl Millet	20 lbs. per acre	5/15 – 8/15
German or Hungarian Millet	30 lbs. per acre	5/15 – 8/15

STABILIZATION WITH SOD

Stabilization with sod is permitted in areas where maintenance and irrigation are adequate to insure proper establishment and longevity. Seedbed preparation shall be consistent with any other stabilization requirements. (Lime and fertilizer bags are to be retained for district inspections). On slopes greater than 3:1, sod must be properly anchored to the slope in accordance with the NJ Standards for Soil Erosion and Sediment Control.

PERMANENT SEEDING

- (A) Seed shall be incorporated into the soil 1/4" – 1/2".
- (B) Lawn seedings shall be a mixture of bluegrasses, turf-type fescues, and turf-type perennial ryegrasses to insure longevity, tolerance, and durability. No seed shall be accepted with a germination test date of more than 12 months old unless retested.
- (C) Professional seed mixtures are recommended rather than mixing seed yourself.
- (D) Seed mixture (as specified below) shall be applied at a minimum rate of 200 lb. per acre of perennial seed.
- (E) Optimum seeding period for Hunterdon County is from March 1 to May 15 and August 15 to October 1. Outside of those periods, the seeding rates shall be increased by 50% (i.e.: 300 lb. per acre of perennial seed instead of the required 200 lb. per acre during optimum periods).
- (F) Seedings shall receive an application of fertilizer such as 10-10-10 or equivalent at 400 lb. per acre approximately 6 months after first application.

SEEDING MIXTURE FOR GENERAL SEEDING (Example: lawns)

40% turf-type tall fescue 10% creeping red fescue 10% chewing fescue 10% Kentucky bluegrass 30% turf-type perennial ryegrass
OR
60% Kentucky bluegrass 20% turf-type perennial ryegrass 20% chewing fescue

SEEDING MIXTURE FOR HIGH TRAFFIC & CRITICAL AREAS - (examples: athletic fields, waterways, diversions, etc.)

80% turf-type tall fescue 10% Kentucky, bluegrass 10% turf-type perennial ryegrass

Other seed mixtures, such as blended varieties of perennial turf-type ryegrass, turf-type tall fescues, or bluegrasses may also be acceptable if approved by the District.

REVISION DESCRIPTION	DATE	APPROVED

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SESC Notes**

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