

**NUMBER NINE WIND FARM
MDEP NRPA/SITE LOCATION OF DEVELOPMENT COMBINED APPLICATION**

Section 17.
Wastewater Disposal

SECTION 17. WASTEWATER DISPOSAL

17.1 SITE PLAN

The sewage disposal system for the Number Nine Wind Farm (Project) will be sited near the Operations and Maintenance (O&M) building in a location with adequate soil drainage that is more than 100 feet from the water supply well. The proposed O&M site plan is included in the civil design plans for the Project in Exhibit 1-A, and is included as Exhibit 17-A for reference.

17.2 WASTEWATER SOURCES

The wind turbines and electrical system produce no wastewater. During construction, temporary facilities will be used by workers and serviced by a licensed wastewater transporter. During construction, up to 3 temporary concrete batch plants, located in T9R3 WELS, T8R3 WELS, and E Township, may be used during construction of turbine foundations, and will be serviced by a licensed wastewater transporter. During operation, the only potential wastewater generation would be from the proposed O&M building located in the center of the Project in T9R3 WELS.

It is expected that the O&M building will provide services for up to 20 staff per day, resulting in wastewater generation of no more than 240 gallons per day. Wastewater generation will be limited to domestic quality wastewater (e.g., toilet, sink, shower). There will be no commercial or industrial wastewater generation associated with this Project.

17.2.1 Septic Design

The proposed septic design includes a concrete septic tank with a standard stone bed septic system that meets the standards of the State of Maine Subsurface Wastewater Disposal Rules, 10-144A CMR 241. The proposed septic system is on suitable soils, as classified by the Maine Subsurface Wastewater Disposal Rules. An HHE-200 form and associated narrative is attached for the septic design (Exhibit 17-B).

17.2.2 Concrete Batch Plants

The Project will include up to 3 temporary batch plant sites, in T9R3 WELS, T8R3 WELS, and E Township, all of which are located adjacent to existing gravel roads. The batch plants will be required to furnish concrete for the construction of the turbine foundations. The aggregates, cement, and water required for the operation of the batch plant is to be obtained from offsite sources. Each batch plant site will be up to 7 acres and will contain concrete truck wash-out pit(s) as necessary which shall be maintained throughout construction. There shall be no

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wastewater discharges from the batch plants. Concrete truck wash-down will be contained within the wash-out pit(s) and will not be allowed to flow into waters of the State (38 MRSA §464).

As described in Section 16, water (up to 20,000 gallons per day, spread by tanker trucks) to be used for concrete batch plants will be drawn from publicly accessible, off-site non-potable water sources, such as Number Nine Lake, and will not include streams, brooks, or ground water sources. Surface water withdrawals will be done in accordance with the requirements of 38 MRSA §470-B, and if applicable, pond water level regulations in 06-096 Chapter 587.

After construction of the Project is complete, the batch plant sites will be converted to permanent equipment storage areas that will house off-road vehicles necessary for operations and maintenance of the Project.

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EXHIBIT 17-A O&M SITE PLAN (DUPLICATE FROM EXHIBIT 1-B)

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EXHIBIT 17-B HHE-200 FOR O&M BUILDING



Albert Frick Associates

Soil Scientists & Site Evaluators
95A County Road Gorham, ME 04038
(207) 839-5563 FAX (207) 839-5564

Albert Frick, SS, SE
James Logan, SS, SE
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Noel Dunn, Office Manager

**INSTRUCTION MEMO FOR PROCESSING YOUR
SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION
(no variance)**

Enclosed are four copies of a completed subsurface wastewater disposal application. As applicant or property owner, please review and sign all copies where indicated on page 1, if the plans are acceptable to you. Submit three copies of the plan to the Local Plumbing Inspector in your town or city so that the application can be reviewed and a permit issued. The fourth copy is intended for your contractor, along with the Fill Estimation Worksheet, if included.

The Town will charge a **minimum** State permit fee, as listed below. Please note that local municipalities do have the authority to increase permit fees by local ordinance. In order to verify the local permit fee amount, you will need to check with your Town's Local Plumbing Inspector.

Feel free to call Albert Frick Associates if you have any questions or if we can be of service to you in the future.

PERMIT FEES FOR COMPLETE DISPOSAL SYSTEMS

Non-engineered system	\$250.00*
Primitive system (includes one alternative toilet)	\$100.00
Separate gray waste disposal field	\$35.00
Seasonal conversion permit	\$50.00
*DEP surcharge for all non-engineered systems listed above	\$15.00

* NOTE: Most towns require a separate check for DEP payment

PERMIT FEES FOR SEPARATE PARTS OF DISPOSAL SYSTEMS

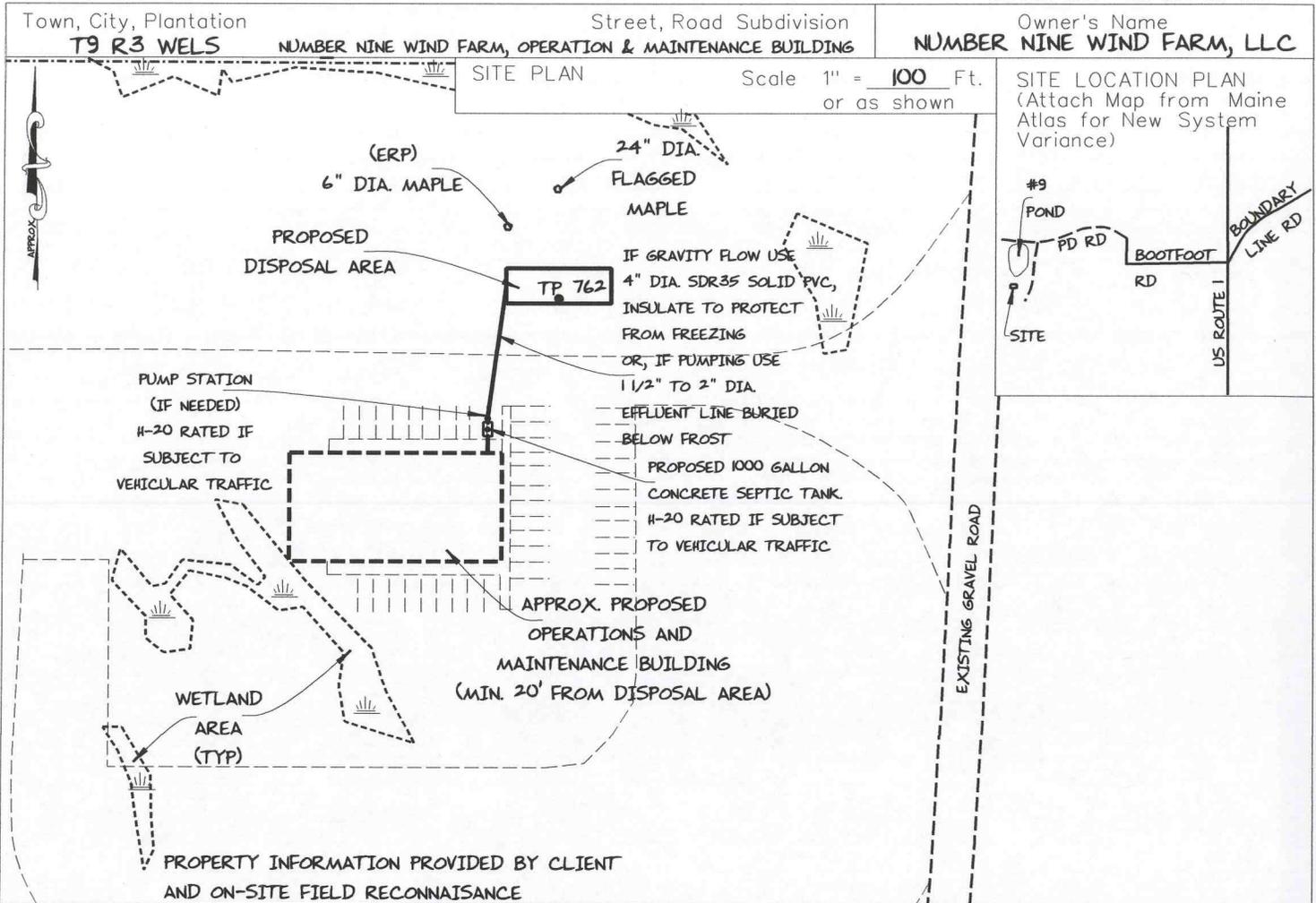
Alternative toilet only	\$50.00
Disposal field (non-engineered system)	\$150.00
Treatment tank (non-engineered system)	\$150.00
Holding tank	\$100.00
Other components (complete pump station, piping, other)	\$30.00

PERMIT FEES FOR VARIANCES

First-Time System Variance	\$20.00
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SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
Division of Health Engineering, Station 10 SHS
(207) 287-5672 FAX (207) 287-4172



SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 762 Test Pit Boring
" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Mottling
0			BLACK	
0-10	SILT LOAM	FRIABLE	DARK YELLOW BROWN	FEW, FAINT
10-20	GRAVELLY SILT LOAM	VERY FIRM	OLIVE BROWN	△△△
20-25				FREE WATER
25-30		LIMIT OF EXCAVATION		
30-40				
40-50				

Soil Classification I Profile	D Condition	Slope 0-3 %	Limiting Factor 12"	<input checked="" type="checkbox"/> Ground Water <input type="checkbox"/> Restrictive Layer <input type="checkbox"/> Bedrock <input type="checkbox"/> Pit Depth
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Observation Hole _____ Test Pit Boring
" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Mottling
0				
10				
20				
30				
40				
50				

Soil Classification Profile	Condition	Slope	Limiting Factor	<input type="checkbox"/> Ground Water <input type="checkbox"/> Restrictive Layer <input type="checkbox"/> Bedrock <input type="checkbox"/> Pit Depth
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Site Evaluator Signature

Albert Frick

163 SE #

Date

11/25/2014

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
 Division of Health Engineering, Station 10 SHS
 (207) 287-5672 FAX (207) 287-4172

Town, City, Plantation

Street, Road, Subdivision

Owner's Name

T9 R3 WELS

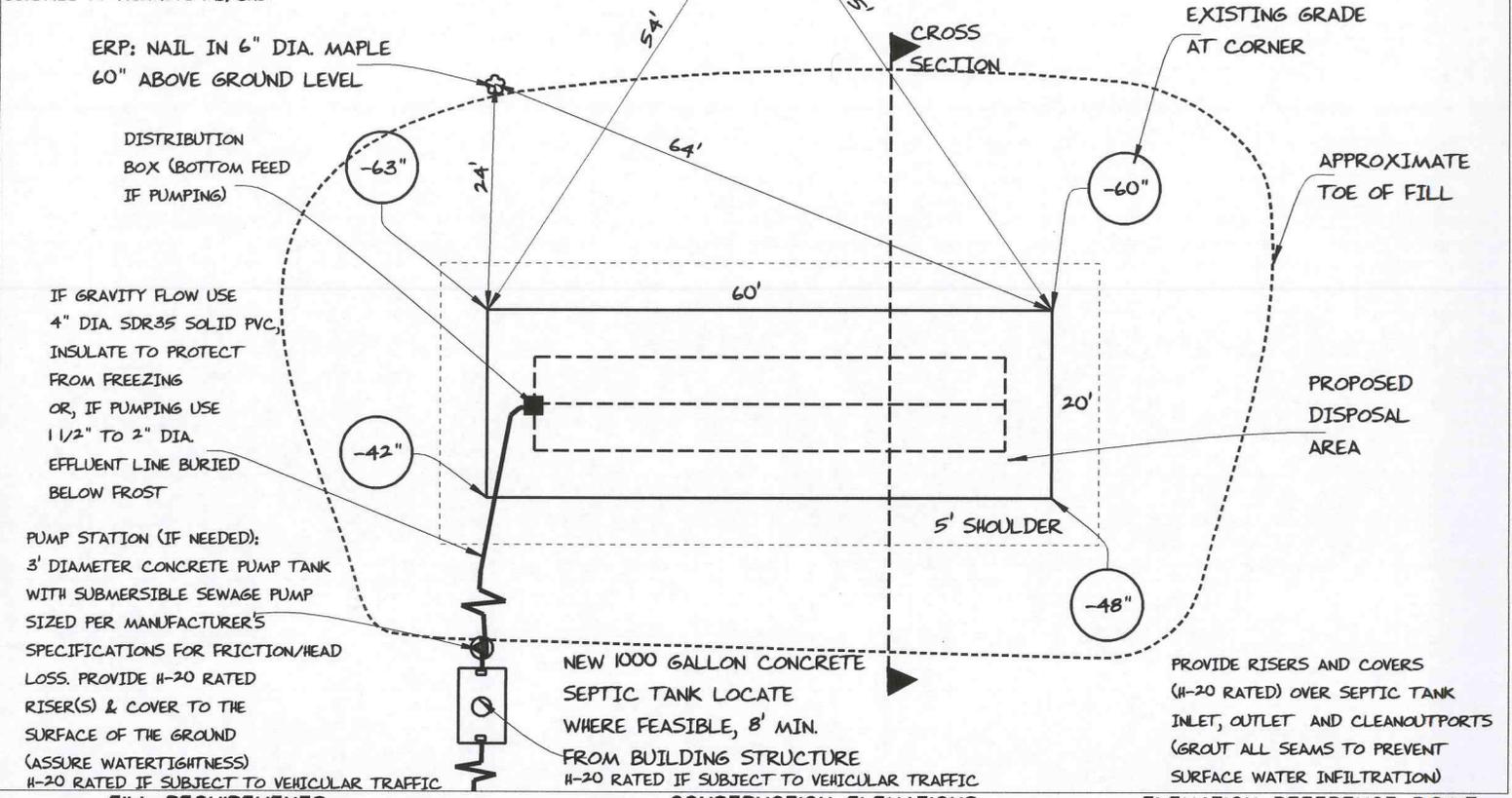
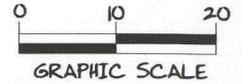
NUMBER NINE WIND FARM, OPERATION & MAINTENANCE BUILDING

NUMBER NINE WIND FARM, LLC

NOTE: THOROUGHLY SCARIFY UNDER ENTIRE DISPOSAL FIELD, SHOULDER AREA, & FILL EXTENSION AREA PRIOR TO FILL PLACEMENT, THEN BLEND FIRST 6" LIFT OF FILL INTO EXISTING SOIL SURFACE TO PROMOTE MIXING

SUBSURFACE WASTEWATER DISPOSAL PLAN

SCALE 1" = 20' FT.



FILL REQUIREMENTS

CONSTRUCTION ELEVATIONS

ELEVATION REFERENCE POINT

Depth of Fill (Upslope) = 30" - 36"
 Depth of Fill (Downslope) = 48" - 51"
 DEPTHS AT CROSS-SECTION (shown below)

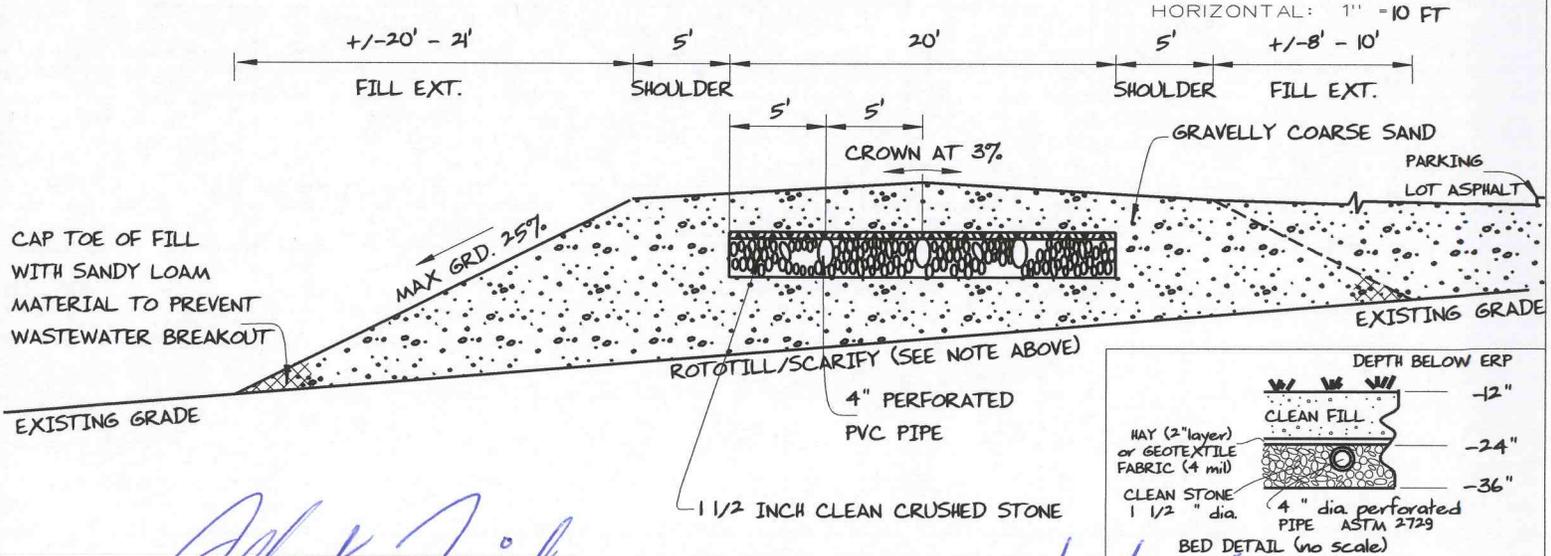
Finished Grade Elevation
 Top of Distribution Pipe or Proprietary Device
 Bottom of Disposal Area

SEE
 DETAIL
 BELOW

Location & Description 6" DIA. MAPLE NAIL 60" ABOVE BASE
 Reference Elevation is: 0.0" or -----

DISPOSAL AREA CROSS SECTION

SCALE:
 VERTICAL: 1" = 5 FT
 HORIZONTAL: 1" = 10 FT



Albert Frick
 Site Evaluator Signature

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SE #

11/25/2014
 Date

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 HHE-200 Rev. 10/02

TOWN

LOCATION

APPLICANT'S NAME

- 7) The actual waste water flow or number of bedrooms shall not exceed the design criteria indicated on this application without a re-evaluation of the system as proposed
- 8) The general minimum setbacks between a well (public or private) and septic system serving a single family residence is 100-300 feet, unless the local municipality has a more stringent requirement. A well installed by an abutter within the minimum setback distances prior to the issuance of a permit for the proposed disposal system may void this design.
- 9) When a gravity system is proposed: BEFORE CONSTRUCTION/INSTALLATION BEGINS, the system installer or building contractor shall review the elevations of all points given in this application and the elevation of the existing and/or proposed building drain and septic tank inverts for compatibility to minimum pitch requirements. In gravity systems, the invert of the septic tank(s) outlet(s) should be at least 4 inches above the invert of the distribution box outlet at the disposal area.
- 10) When an effluent pump is required: Pump stations should be sized per manufacturer's specifications to meet lift requirements and friction loss. Provisions shall be made to make certain that surface and ground water does not enter the septic tank or pump station, by sealing/grouting all seams and connections, and by placement of a riser and lid at or above grade. An alarm device warning of a pump failure shall be installed. Also, when pumping is required of a chamber system, install a 'T' connection in the distribution box and place 3 inches of stone or a splash plate in the first chamber. Insulate gravity pipes, pump lines and the distribution box as necessary to prevent freezing.
- 11) On all systems, remove the vegetation, organic duff and old fill material from under the disposal area and any fill extension. Additional fill beyond indicated on plan may be necessary to replace organic matter. On sites where the proposed system is to be installed in natural soil, scarify the bottom and sides of the excavated disposal area with a rake. Do not use wheeled equipment on the scarified soil surface. For systems installed in fill, scarify the native soil by roto-tilling or scarifying with teeth of backhoe to a depth of at least 8 inches over the entire disposal and fill extension area to prevent glazing and to promote fill bonding. Place fill in loose layers no deeper than 8 inches and compact before placing more fill (this ensures that voids and loose pockets are eliminated to minimize the chance of leakage or differential settling). Do not use wheeled equipment on the scarified soil area until after 12 inches of fill is in place. Keep equipment off proprietary devices. Divert the surface water away from the disposal area by ditching or shallow landscape swales.
- 12) Unless noted otherwise, fill shall be gravelly coarse sand, which contains no more than 5% fines (silt and clay). Crushed stone shall be clean and free of any rock dust from the crushing process.
- 13) Do not install systems on loamy, silty, or clayey soils during wet periods since soil smearing/glazing may seal off the soil interface.
- 14) Seed all filled and disturbed surfaces with perennial grass seed, with 4" min. soil or soil amendment mix suitable for growing, then mulch with hay or equivalent material to prevent erosion. Alternatively, bark or permanent landscape mulch may be used to cover system. Woody trees or shrubs are not permitted on the disposal area or fill extensions.
- 15) If an advanced wastewater treatment unit is part of the design, the system shall be operated and maintained per manufacturer's specifications.



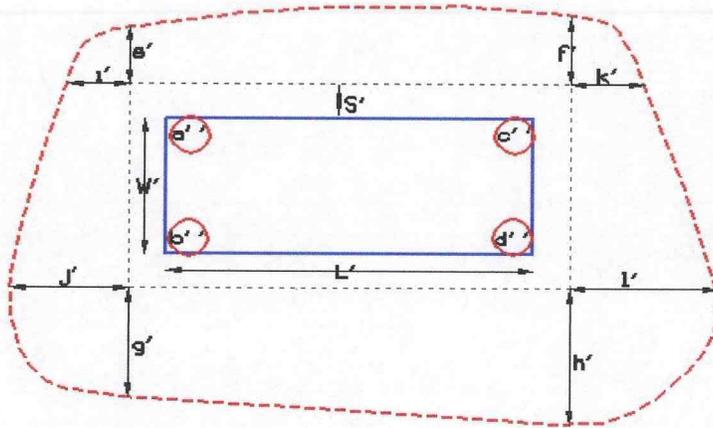
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Fill Estimation Worksheet

Albert Frick Associates Inc.
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E-Mail - Albert@albertfrick.Com
www.albertfrick.com

Town: T3 R3 WELS
Project owner/applicant: Number Nine Wind Farm, LLC
O & M Building
T3 R3 WELS, Maine

This worksheet is being provided as a complimentary tool to assist in estimating the **approximate** amount of fill required to construct the proposed system. This worksheet does not substitute for a personal visit to the site for your own estimate. These calculations are intended to serve as a check to your work. Site features beyond the model (terrain) can vary to affect model projections.



Length (L)	60.00 feet
Width (W)	20 feet
Shoulder (S)	5 feet
<i>Depth of fill:</i>	
upper left (a)	30 inches
upper right (c)	36 inches
lower left (b)	48 inches
lower right (d)	51 inches
<i>Fill Extension:</i>	
left up (e)	8 feet
right up (f)	10 feet
left down (g)	20 feet
right down (h)	21 feet
upper left (i)	8 feet
lower left (j)	20 feet
upper right (k)	10 feet
lower right (l)	21 feet
Cost of fill per yard= \$ 0.00	

Body	268 cubic yards
Fill Down	110 cubic yards
Fill Up	33 cubic yards
Fill left	26 cubic yards
Fill right	32 cubic yards
Fill upleft	2 cubic yards
Fill upright	3 cubic yards
Fill downleft	16 cubic yards
Fill downright	19 cubic yards

SubTotal=	509 cubic yards
Shrinkage %=	15 %
Total Backfill	585 cubic yards

Adjusted cost of Total Backfill= \$ -



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MAINTAINING YOUR SUBSURFACE WASTEWATER DISPOSAL SYSTEM

Care and Maintenance of Your Septic Tank

The septic tank is an essential part of your subsurface wastewater disposal system. Proper care and maintenance of your septic tank protects the disposal field and will help prolong the life of the disposal system.

- ✦ A "starter" is not necessary to stimulate bacterial action in a septic tank. The bacteria present in the domestic wastewater is adequate for bacterial action and will thrive under normal use. The U. S. Environmental Protection Agency and the Maine Department of Human Service both discourage the addition of septic tank additives.
- ✦ Practice water conservation methods whenever possible. Older style fixtures and appliances should be upgraded to today's more efficient low volume models.
- ✦ Normal amounts of household detergents, bleaches, and cleaners may be used without adversely affecting the biological activity in the septic tank. Do not discharge solvents, paints, fuels, oils, hazardous or special wastes into the tank. This is prohibited by laws and regulations.
- ✦ Backwash water from water treatment systems should not be discharged into disposal system without proper design.
- ✦ Avoid disposing of grease, fats, coffee grounds, disposable diapers, feminine napkins, or other non-decomposable materials into the septic tank.
- ✦ Use of a garbage disposal increases the organic loading rate into a septic tank. More frequent pumping and the addition of a septic tank filter is required. Risers and covers should be installed over outlet to provide easy access for maintenance. Filters require periodic maintenance to prevent clogging.
- ✦ Avoid doing excessive loads of laundry in rapid succession. Space the loads out over time to allow for a "rest" period between loads. Newer washing machine models use significantly less water and are recommended for septic systems.

Pumping Your Septic Tank

- ✦ Your septic tank should be pumped every two to three years, or as needed according to the actual use of the system, to remove accumulated solids for final disposal in an approved facility. The inlet and outlet baffles should be inspected with each pumping and replaced if necessary.

Care and Maintenance of Your Disposal Field

- ✦ Do not drive over your disposal field with automobiles, trucks, or heavy equipment unless your disposal field is specifically designed for these loads. Above ground swimming pools should not be installed over disposal system components.
- ✦ Maintain adequate vegetation or mulch over the disposal field unless the field has been designed under pavement.
- ✦ Avoid siting gardens over disposal fields, because annual rototilling tends to erode the surface cover. Rototiller tines can cut into the disposal pipes and units.
- ✦ Vegetation with aggressive shallow root systems should not be grown near systems (willow trees, for example).

Advanced Wastewater Treatment Units

- ✦ If an advanced wastewater treatment unit is part of your septic system, it must be maintained and operated in accordance with manufacturer's specifications.