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DEPT. OF ENVIRONMENT AND ENERGY

Pete Ricketts, Governor

PRIVATE ONSITE WASTEWATER TREATMENT FACILIITY GENERAL CONSTRUCTION and OPERATING PERMIT

PERMIT NUMBER: GMS220000 **Permit Name: Mound System**

Project Description: Private Onsite Wastewater Treatment System (Mound System)

Revised or Superseded Construction Permits: none

Pursuant to Nebraska Administrative Code Title 124, this general construction permit approves the construction of specific types of onsite wastewater treatment systems. This permit document and the associated onsite wastewater treatment system registration form make up the complete permit for the owner of the dwelling/non-dwelling facility identified in the registration.

Compliance with this permit will not be a defense to any enforcement action resulting from endangering the environment, health and human safety, or violating any State statute, regulation, or local ordinance. The permit holder will assure that the installation, operation, and maintenance of all equipment is in compliance with all of the conditions of this permit.

Pursuant to a Delegation Memorandum dated July 1, 2021, and signed by the Director, the undersigned herby issues this permit on behalf of the Director under the authority of Nebraska Administrative Code Title 124 – On-site Wastewater Treatment Systems.

6/27/2022
Date

Shelley Schneider
Permitting and Engineering Division Administrator

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I. Definitions

"**Baffle**" means a partition installed in a septic tank for proper operation of the tank and to provide maximum retention of solids, and includes sanitary tees.

"**Bedroom**" means any room within a dwelling that might reasonably be used as a sleeping room.

"**Bentonite**" means high swelling clay derived from a chemically altered volcanic ash.

"**Blackwater**" means wastes carried off by toilets, urinals, and kitchen drains. Blackwater is wastewater for the purposes of these regulations.

"**Building drain**" means that portion of the lowest horizontal piping of a drainage system which receives the wastewater discharge from within the walls of the building and conveys it to the building sewer beginning 30 inches outside the building footings.

"**Building sewer**" means that part of the drainage system extending from the end of the building drain to a treatment system or other approved point of disposal.

"**Certified Professional**" means a private onsite wastewater treatment system professional certified under the Private Onsite Wastewater Treatment System Contractors Certification and System Registration Act to perform the tasks for which the certification has been issued.

"**Chamber or chambers**" means a pre-formed manufactured conduit with an open-bottom configuration used to distribute effluent in a soil absorption system.

"**Construction**" means the installation of an onsite wastewater treatment system or the replacement, reconstruction, alteration, modification, expansion, or closure of an existing system including the installation of required wastewater lagoon fencing. Construction includes excavation or similar activity related to the installation, replacement, reconstruction, alteration, modification, or expansion of an onsite system, or closure of an onsite system.

"**Department**" means the Nebraska Department of Environment and Energy.

"**Depth marker**" or "**depth gauge**" means a device used to measure the liquid level present in a septic tank, wastewater lagoon, or other onsite wastewater treatment system.

"**Design flow**" means the maximum volume of wastewater estimated to be generated by a dwelling or non-dwelling facility in a twenty-four-hour period. It includes both a typical

operating capacity and a surge capacity for the system during periodic heavy use events. The sizing and design of the onsite wastewater treatment system components are based on the design flow.

"**Director**" means the Director of the Department of Environment and Energy.

"**Distribution box**" means a watertight box that receives effluent from a wastewater treatment component and distributes the flow by gravity to each individual section of a soil absorption system at a rate proportional to the bottom surface area of that section.

"**Distribution system, distribution piping, or distribution line**" means piping or other devices which distribute effluent within a soil absorption system either by gravity (gravity distribution system) or pressure (pressure distribution system).

"**Domestic septage or septage**" means the liquid or solid material removed from a septic tank, holding tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic wastewater. Domestic septage does not include liquid or solid material removed from a septic tank, holding tank, cesspool, portable toilet, or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant. Domestic septage does not include wastewater containing high strength disinfectants, biological inhibitors, or deodorants or similar chemicals such as those used in camper waste tanks, laboratories, medical or veterinary facilities, or industrial facilities.

"**Domestic waste or domestic wastewater**" means human body waste and household type wastes including bath and toilet wastes, household laundry wastes, household kitchen wastes, and other similar wastes from a dwelling or a non-dwelling facility. Domestic waste or wastewater does not include drainage from roofs; footing or foundation drains; process waste from any industrial, agricultural, or commercial establishment; automotive or industrial chemicals or petroleum products; kitchen waste or wastewater from a restaurant or food preparation facility; water carrying animal waste or commercial process water or wastewater; or similar waste.

"**Dose or dosing**" means the use of a pump or siphon device to convey intermittent discharges of effluent by gravity or pressure distribution to a soil absorption system. Dosing is characterized by brief periods of high flow followed by long periods of no flow.

"**Dosing chamber or dosing tank**" means a watertight receptacle containing a pump or siphon device and that retains effluent until it is intermittently pumped or siphoned to the distribution system or soil absorption system.

"**Drop box**" means a watertight box that receives the discharge of effluent from a septic tank and provides serial or sequential distribution of effluent by gravity to each soil absorption system trench where such trenches are installed at progressively lower elevations.

"**Dwelling**" means a building, structure, or place used or intended to be used for human occupancy as a single family or multi-family residence and which generates domestic wastewater. If any portion of the wastewater generated at such a building, structure or place is a non-domestic wastewater, the facility must be considered a non-dwelling facility.

"**Effluent**" means the liquid flowing out of a septic tank or other treatment component of an onsite wastewater treatment system.

"**Encroachment**" means an intrusion on a required setback distance.

"**Fill"** means soil, rock, gravel, or waste material which has been placed over the original soil or bedrock and is characterized by a lack of distinct horizons or color patterns as found in naturally developed, undisturbed soils.

"**Filter material or filter media or treatment media**" means washed-gravel, rock, crushed stone, slag, clean gravel, or tire chips, any of which that range in size from one-quarter inch to 2½ inches. The filter media must be free of clay, silt, rubber crumbs, and other fine material. Flat slabs of tire are not acceptable for use as tire chips. Crushed stone must be durable and non-calcareous.

"**Gravelless distribution system**" means a distribution pipe, chamber, or other conduit designed for use in a soil absorption system without filter material.

"**Gravity Distribution or Gravity Dosing**" means to intermittently discharge effluent using the force of gravity to distribute effluent to a soil absorption system.

"**Graywater**" means all domestic waste excluding blackwater and including bath, lavatory, laundry, and sink waste except kitchen sink waste. Graywater is wastewater for the purposes of these regulations.

"**Grease trap or grease trap tank or grease interceptor**" means a watertight tank designed for the collection and retention of fats, oils, and grease, and which is accessible for periodic removal of the contents.

"**Groundwater**" means water occurring beneath the surface of the ground that fills available openings in rock or soil materials such that they may be considered saturated.

"**Holding tank**" means a tank for the storage of wastewater until it can be transported to a point for proper disposal.

"**Industrial waste**" means wastewater not otherwise defined as domestic wastewater, including the runoff and leachate from areas that receive pollutants associated with industrial or commercial storage, handling, or processing.

"**Influent**" means wastewater flowing into an on-site wastewater treatment system component or device.

"**Layout**" means the practice of determining wastewater design flows and loadings, selecting system type, sizing and selecting system components, or locating system components for the purpose of construction, reconstruction, alteration or modification of an onsite wastewater system.

"**Liner**" means the material or substance used to line the bottom of a wastewater lagoon, sand filter, wetlands cell, or other onsite wastewater treatment system so that percolation of liquids through the soil is controlled.

"**Loamy sand**" means a soil material containing 70 to 85 percent sand, up to 30 percent silt, and up to 15 percent clay.

"**Mound system**" means an onsite wastewater treatment system that includes a septic tank for primary treatment, an effluent pumping system, and a soil absorption system that includes a pressurized effluent distribution system within a prescribed layer of rock or acceptable treatment media that is elevated above the original ground surface by a layer of clean sand. The distribution system is pressure dosed to provide uniform distribution of effluent over the entire layer of treatment media, and treatment media is capped by a protective layer of geotextile fabric (to prevent fine material intrusion from the soil), soil, and grass.

"**Native soil**" means soil that is naturally occurring, formed by normal geologic and biological processes, which is characterized by the distinct soil horizons or color patterns found in naturally developed, undisturbed soil.

"**Non-dwelling facility**" means a building, structure, place of business, place of gathering, or waste collection system which is not a dwelling and which generates wastewater.

"**Onsite wastewater treatment system**" means any system of piping, treatment devices, or other appurtenances that convey, store, treat, or dispose of domestic or non-domestic wastewater, but not including wastewater from a livestock waste control facility, on the property where it originates, or on nearby property under the control of the user, which system is not connected to a public sewer system. An onsite wastewater treatment system begins at the end of the building drain.

"**Percolation rate**" means the rate, usually expressed in minutes per inch or mpi, which is obtained from soil percolation tests conducted to help determine the amount of soil absorption area required for a soil absorption system.

"**Percolation test**" means the determination of the suitability of an area for subsurface wastewater effluent disposal by a standardized test of the rate at which the undisturbed soil in an excavated pit or hole of standard size will absorb liquid per unit of surface area.

"**Plastic limit**" means the water content where soil transitions between brittle and plastic behavior characterized by the point at which a thread of soil begins to crumble when rolled between hands to a diameter of one-eighth inch.

"**Pollution**" means the man-made or man-induced alteration of the chemical, physical, biological, or radiological integrity of water of the State.

"**Private well**" means a well which provides water supply to less than 15 service connections and regularly serves less than 25 individuals.

"**Pressure distribution or pressure dosing**" means the use of a pump to intermittently discharge effluent under positive pressure through a network of piping designed to evenly distribute the effluent throughout a soil absorption system.

"**Professional Engineer or P.E.**" means a person who is licensed as a professional engineer by the Nebraska Board of Engineers and Architects.

"**Pump tank**" means a watertight container with a capacity over 50 gallons which houses a pump or pump unit and associated appurtenances used to convey effluent or sewage. The capacity of a pump tank is measured at the normal high (pump start) operating level. The capacity of a tank housing a pump or used as a pump tank is not considered part of the treatment volume required for a septic tank for the purposes of these regulations.

“**Pump chamber or pump basin**” means a watertight container with a capacity of 50 gallons or less and which houses a float or liquid level activated pump and associated appurtenances used to convey sewage or effluent. The capacity of a pump chamber is measured at the normal high (pump start) operating level. The capacity of a chamber housing a pump or used as a pump basin is not considered part of the treatment volume required for a septic tank and is not subject to tank setbacks for the purposes of these regulations.

"**Pumping**" means the practice of maintaining septic tanks, grease trap tanks, holding tanks, and any other components of onsite wastewater systems through the removal, transportation, and disposal of accumulated liquid and solid wastes.

“**Registered Environmental Health Specialist or REHS**" means a person who has the educational requirements and has had experience in the field of environmental sanitation required by Nebraska Revised Statutes §71-3703 and is registered with the Nebraska Board of Registration for Environmental Health Specialists in accordance with Nebraska Revised Statutes §71-3702 through §71-3715.

"**Repair**" means the correction of a mechanical, electrical, or minor structural defect in an existing onsite wastewater system component such as, but not limited to, sealing a crack in a tank lid, repairing or replacing a tank baffle or access manhole riser, repairing or replacing a pump or electrical switch, leveling a distribution box, replacing a building sewer pipe, or replacing a cracked pipe between the septic tank and soil absorption system. Repair does not include replacement, reconstruction or modification of a tank or soil absorption system; extension or enlargement of a soil absorption component and system; replacement of a distribution pipe; or repair or replacement of a metal or concrete block tank.

"**Sand**" means a soil material composed by weight of at least 90 percent of soil particles ranging in size between 0.05 and 2.0 mm or 0.002 inches and 0.08 inches.

"**Sandy soil**" means the soil having the following textures: sands, fine sands, loamy fine sands, and loamy very fine sands.

"**Septic tank**" means a watertight covered receptacle designed and constructed to receive wastewater from a building sewer, attenuate flows, store digested solids through a period of detention to allow settleable and floating solids to separate from liquids, allow digestion of organic matter by anaerobic bacteria, and allow the clarified liquid to discharge for additional treatment and final dispersal to a soil absorption system.

"**Sewage**" means any water carrying domestic waste exclusive of footing and roof drainage, from any industrial, agricultural, or commercial establishment or any dwelling or any other structures.

Domestic waste includes but is not limited to liquid waste produced by bathing, laundry, cooking operations, and liquid waste from toilets and floor drains and specifically excludes animal waste and commercial process water.

"**Site**" means the area bounded by the dimensions required for the proper location of the soil absorption system.

"**Siting**" means the practice of the investigation, examination, and reporting of design-controlling physical characteristics of an area at which an onsite wastewater system is to be constructed, reconstructed, altered, or modified; including, but not limited to topography, drainage, landscape position, soil evaluation, location and type of wells, water lines, property lines, foundations, and surface water features.

"**Slope**" means the ratio of vertical rise or fall to horizontal distance.

"**Sludge**" means the accumulated settled solids deposited from wastewater and containing water to form a semi-liquid mass.

"**Soil absorption system**" means a the part of the onsite wastewater treatment system that uses the soil to further treat and dispose of effluent from the onsite wastewater treatment system in a manner that does not result in a point source discharge and does not create a nuisance, health hazard, or ground or surface water pollution.

"**Soil Evaluation**" means the practice of the investigation, examination, testing, and reporting of design-controlling characteristics of the soil and subsurface features at an area at which an onsite wastewater soil absorption system is to be constructed, reconstructed, altered, or modified; including, but not limited to soil type, structure, permeability, absorption capacity, and percolation rate, and the depth to seasonal high groundwater, bedrock, or other subsurface barrier layers.

"**Surface waters**" means all waters within the jurisdiction of this state, including all streams, lakes, ponds, impounding reservoirs, marshes, wetlands, watercourses, waterways, springs, canal systems, drainage systems, and all other bodies or accumulations of water, natural or artificial, public or private, situated wholly or partly within or bordering upon the state. Impounded waters in this definition do not include areas designated by the Department as wastewater treatment or wastewater retention facilities or irrigation reuse pits.

"**Tank**" means a watertight structure or container used to hold wastewater for such purposes as aeration, dilution, disinfection, equalization, mixing, sedimentation, storage, collection for transport, treatment, or addition of chemicals.

"**Wastewater**" means liquid and water borne wastes from a dwelling or non-dwelling facility. Wastewater includes both blackwater and graywater.

"**Wastewater works**" means facilities for collecting, transporting, pumping and treating wastewater and the disposal of treated effluent and sludge.

"**Waters of the state**" means all waters within the jurisdiction of this state, including all streams, lakes, ponds, impounding reservoirs, marshes, wetlands, water courses, waterways, wells, springs, irrigation systems, drainage systems and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, situated wholly or partly within or bordering upon the state.

II. General Conditions

A. Coverage under this permit is granted to an owner of a dwelling/non-dwelling facility who sites, constructs, reconstructs, alters, or modifies a septic system provided:

1. The system is sited, constructed, reconstructed, altered, or modified according to the standards set forth in the Specific Conditions section;
2. The system is sited, constructed, reconstructed, altered, or modified by a certified professional authorized to perform the work in accordance with Title 124;
3. Within 45 days from the completion of construction, reconstruction, alteration, or modification, the system is registered and applicable fees are paid in accordance with Title 124;
4. A copy of the following information is kept on the premises of the facility using the onsite wastewater treatment system and made available to the Department by the owner or installer upon request:
    a. Certification signed by a professional engineer, registered environmental health specialist, or certified professional of compliance with the requirements found in the Specific Conditions section of this permit. A certification number must accompany the signature;
    b. An appropriately scaled drawing of the onsite wastewater treatment system, which specifies location, setbacks, capacity, materials of construction, and the construction details for all components of the system, including pump and pump tank or pump chamber specifications for any system using a pump. The scaled drawing must be on no less than 8.5 by 11 inch paper and must be neatly drawn with appropriate dimensions and fixed reference point indicated;
    c. Data and results for soil percolation tests or seepage tests performed in accordance with Title 124; and
5. Upon review of the system registration and any additional documentation if requested, the Department determines the system qualifies for coverage under this permit.
6. The system is operated in accordance with the conditions of this permit and Title 124.

B. Coverage under this permit is granted to the owner of the dwelling/non-dwelling facility identified in the registration.

1. Coverage under this permit will transfer from the owner identified in the registration to any subsequent owner of the facility.
2. Subsequent owners maintaining coverage under this permit are subject to all obligations and conditions described in this permit.

C. Coverage under this permit may be revoked for cause in accordance with Title 124.

D. Coverage under this permit does not relieve an owner or certified professional from the responsibility to comply with all applicable portions of Title 124, *On-site Wastewater Treatment Systems* and any other requirements under local, State, or Federal law.

1. Nothing in this permit will prevent more stringent local requirements from applying.

E. Any permit noncompliance will constitute a violation of the Private Onsite Wastewater Treatment System Contractors Certification and System Registration Act and/or the Nebraska Environmental Protection Act, and is grounds for enforcement action or permit revocation.

F. Any owner or operator who failed to submit any relevant facts or who submitted incorrect information in a general permit application, upon becoming aware of such failure or incorrect submittal, must promptly notify the Department, and if ineligible for coverage under this general permit, must submit a construction permit application under the provisions of Title 124.

G. The owner of a facility must allow a Department representative to enter upon the premises at reasonable times in order to inspect the onsite wastewater treatment system and to sample and monitor any area affected by the system.

H. This permit may be revoked in accordance with Title 124.

III. Specific Conditions

A. **Site Evaluation**. Each proposed site for the location of an onsite wastewater treatment system must be evaluated by a professional engineer, registered environmental health specialist, Journeyman Installer, or Master Installer, and the following information must be recorded and provided to the Department on request.

1. The type, size, location, and elevation of the proposed system, clearly identified on a scaled drawing of sufficient size which will include: the legal description and survey of the lot and immediate vicinity property lines, buildings, water supply wells, buried water pipes and utility lines, the ordinary high water mark of lakes, rivers, streams, and the location and the type of water supply wells within 1000 feet of the proposed onsite wastewater treatment system
2. Depth to the seasonal highest measured or estimated groundwater table and to the bedrock or other barrier layer surface, if this depth is less than the depth of the seasonal high groundwater table, along with a detailed description of the method used to determine depth. If the depth to seasonal high groundwater or to the bedrock or other barrier layer is less than 10 feet, soil borings or other site specific methods are required to be used
3. Direction of groundwater flow.
4. Soil conditions, properties, and soil percolation test locations, data and results

5. Additional information may be required as part of the application process for a permit or subdivision approval.

B. Design Flow. The design flow for the system must:

1. Be less than 1,000 gallons of domestic wastewater per day.
2. Not include wastewater other than domestic wastewater
3. For a single-family dwelling, the design flow shall not be less than 100 gallons per day plus 100 gallons per day per bedroom. (See Table 1)
4. For a multi-family dwelling or multiple single-family dwellings connected to a common onsite wastewater system component, the design flow shall not be less than 100 gallons per day per dwelling unit plus 100 gallons per day per bedroom based on the total number of bedrooms. (See Table 2)
5. For a non-dwelling facility, the design flow shall not be less than the highest daily wastewater flow that is calculated to be generated based on the characteristics of the occupancy and use of the facility.
    a. For non-dwelling facilities, the quantity of flow generated for various occupancy and uses must be consistent with nationally recognized data published by the United States Environmental Protection Agency, state onsite wastewater regulatory agencies, or nationally recognized plumbing codes. If use of a non-dwelling facility includes residential occupancy, the estimated flow from the non-residential use must be added to a residential design flow of 100 gallons per day plus 100 gallons per day per bedroom.

Table 1 – Design Flow for Single Family Dwelling

Number of Bedrooms*	1	2	3	4	5	6	7	8	9
Design Flow, Gallons per Day	200	300	400	500	600	700	800	900	1,000

Table 2 – Design Flow for Multi-Family Dwelling

Number of Dwelling Units	Total Number of Bedrooms						
	2	3	4	5	6	7	8
	Design flow in Gallons per Day						
2	400	500	600	700	800	900	1,000
3	500	600	700	800	900	1,000	**
4	600	700	800	900	1,000	**	**
5	700	800	900	1,000	**	**	**

C. Groundwater Table. The seasonal high water elevation of the groundwater table must be at least four feet below the bottom of the infiltrative surface of the soil absorption system in order to provide adequate filtration through the soil and avoid pollution of the groundwater.

1. A minimum of one foot of vertical separation of native undisturbed soil is required between the bottom of the sand fill of the mound for a mound system and the top of the seasonal high groundwater level, bedrock, or other limiting soil feature.
2. The minimum vertical separation from the treatment media distribution bed to the top of the seasonal high groundwater, bedrock, or other limiting soil feature is four feet.

3. One or more of the following sources or types of information must be used to determine the seasonal high water elevation of the groundwater.
    a. U.S. Department of Agriculture Natural Resources Conservation Service soils maps and soil interpretation records.
    b. Evaluation of soil color and the presence or absence of mottling.
    c. Evaluation of impermeable or semi-permeable soil layers.
    d. Measured water levels from nearby test holes, observation wells, or water wells.

D. Setback Distances. The installation of a system components is prohibited within the horizontal setback distances in Table 2.1 in Title 124. The location restrictions and horizontal setback requirements for soil absorption systems from Table 2.1 in Title 124 apply and must be measured from the toe of the mound. (See following page)

Lagoon, Tank and Soil Absorption System Setbacks (Ref. Title 124, Table 2.1)

	Minimum Setback Distance feet (meters)		
Item	Tanks	Absorption, Infiltrative, and Evaporative Systems	Lagoons
Surface Water	50 ft. (15.2 m)	50 ft. (15.2 m)	50 ft. (15.2 m)
Private Drinking Water Wells	50 ft. (15.2 m)	100 ft. (30.5 m)	100 ft. (30.5 m)
Public Drinking Water Supply Wells:			
Non-Community System*	50 ft. (15.2 m)	100 ft. (30.5 m)	100 ft. (30.5 m)
Community System	500 ft. (152.4 m)	500 ft. (152.4 m)	1000 ft. (304.8 m)
Community System when a septic system or soil absorption system of > 1000 gpd is installed	500 ft. (152.4 m)	1000 ft. (304.8 m)	N/A
Horizontal Closed Loop Geothermal Wells (trenched or dug and above the ground water table)	25 ft. (15.2m)	25 ft. (15.2m)	25 ft. (15.2m)
All Other Water Wells	50 ft. (15.2 m)	100 ft. (30.5 m)	100 ft. (152.4 m)
Water Lines:			
Pressure Main/Service Connection/Suction Lines	10 ft. (3.1 m)	25 ft. (7.6 m)	25 ft. (7.6 m)
Property Lines	5 ft. (1.5 m)	5 ft. (1.5 m)	50 ft. (15.2 m)
Trees	NA	NA	50 ft. (15.2 m)
Parking area, driveway, sidewalk, or other impermeable surface or cover	5 ft. (1.5 m)	5 ft. (1.5 m)	50 ft. (15.2 m)
Foundation:			
Class 1	15 ft. (4.6 m)	30 ft. (9.1 m)	100 ft. (30.5 m)
Class 2	10 ft. (3.1 m)	10 ft. (3.1 m)	100 ft. (30.5 m)
Class 3	7 ft. (2.1 m)	10 ft. (3.1 m)	50 ft. (15.2 m)
Neighbor's Foundation:			
Class 1	25 ft. (7.6 m)	40 ft. (12.2 m)	200 ft. (61.0 m)
Class 2	20 ft. (6.1 m)	30 ft. (9.1 m)	200 ft. (61.0 m)
Class 3	15 ft. (4.6 m)	20 ft. (6.1 m)	100 ft. (30.5 m)

*See NAC Title 179 – Public Water Supply Systems, 7-010, for a complete definition for Non-community systems. It should be noted that some non-community systems may have more stringent setback requirements, per Title 179.

* Class 1 means a basement, a non-basement footing, swimming pool, or slab-on-grade living quarters where any portion of the living quarters basement, footing, or slab is lower in elevation than the onsite wastewater treatment system component.

* Class 2 means a basement, a non-basement footing foundation, trailer house, swimming pool, or slab-on-grade living quarters higher in elevation than the on-site wastewater treatment system. Any other foundation that is not a Class 1 or Class 3 is a Class 2 Foundation

* Class 3 means slab-on-grade construction that is not used as living quarters.

E. Soil Percolation. Soil percolation tests will be conducted in the area where the soil absorption system will be located. Such tests must not be made on disturbed ground or frozen ground. Where fissured or creviced formations are encountered below the ground surface, the Department will be consulted for assistance. Soil percolation tests must be conducted by a professional engineer, registered environmental health specialist, or a certified professional holding a certificate in the category of Inspector, Soil Evaluator, Master Installer, or Journeyman Installer, and using a methodology approved by the Department. The Department may require verification of percolation rates when submitted results are inconsistent with other known data.

1. The percolation rate of the native undisturbed soil beneath the sand fill must not be slower than 60 minutes per inch.
2. The percolation rate of the native undisturbed soil must be measured in the top 12 inches of the soil.

F. Tank Construction.

1. A septic, holding, dosing, pumping, grease trap, or other tank used in an onsite wastewater treatment system must be constructed of materials not subject to excessive corrosion or decay and must be watertight. Acceptable tank construction materials are concrete, fiber reinforced plastic, high density plastic, and fiberglass.
2. When precast and cast in place reinforced concrete tanks are used they must be properly cured and of watertight construction.
3. All concrete interior surfaces of a tank that are exposed to air must be coated with a bitumastic or similar protective compound beginning at an elevation 3 inches below the normal effluent operating level to minimize corrosion and degradation of the concrete.
4. Concrete block, brick and metal are not acceptable materials for new tank construction.
5. The tank must be designed to withstand soil pressures when empty and not collapse or undergo excessive deflection which would prevent the proper operation of the system, crack or distort components of the system such as the baffles, prevent proper sealing of lids over manholes and inspection ports, reduce capacity below the required minimum tank design capacity, or reduce the design working volume of the system.
6. All septic tanks must be permanently marked to specify the capacity in gallons, manufacturer, and the manufacturer's address. The gallon and manufacturing identification label must be located next to the manhole towards the inlet side.

G. Tank Design and Placement. For coverage under this permit, all septic tanks and holding tanks regardless of material or method of construction will conform to the following criteria.

1. The depth from the invert of the outlet to the floor of the tank (liquid depth) of any septic tank or compartment thereof shall not be less than 36 inches and a liquid depth greater than 78 inches shall not be considered in determining tank capacity. The diameter of a septic tank shall not be less than 60 inches and the length must be approximately two times the width.
2. No septic tank or compartment thereof shall have an inside horizontal dimension less than 24 inches.
3. Inlet and outlet connections of the septic tank must be provided with baffles.
4. The space in the septic tank between the liquid surface and the top of the inlet and outlet baffles must be equivalent to 20 percent of the total required liquid capacity, except that in horizontal cylindrical tanks and tanks with other irregular, non-rectangular cross-sectional shapes this space must be equivalent to15 percent of the total required liquid capacity.
5. Inlet and outlet baffles must be constructed of acid resistant concrete, acid resistant fiberglass, or plastic.
6. Sanitary tees must be affixed to the inlet or outlet pipes with a permanent waterproof adhesive. Baffles must be integrally cast with the septic tank, affixed with a permanent waterproof adhesive, or affixed with stainless steel connectors top and bottom.
7. The septic tank inlet baffle must extend at least six inches but not more than 20 percent of the total liquid depth below the liquid surface and at least one inch above the crown of the inlet sewer.
8. The septic tank outlet baffle and the baffles between compartments must extend below the liquid surface a distance equal to approximately 40 percent of the liquid depth, except that the penetration of the indicated baffles or sanitary tees for horizontal cylindrical tanks and tanks with other irregular, non-rectangular cross-sectional shapes must be approximately 35 percent of the total liquid depth. In no case shall the baffles or tees extend less than six inches above the liquid surface.
9. There must be at least one inch between the underside of the top of the septic tank and the highest point of the inlet and outlet devices.
10. The septic tank inlet invert must be at least one inch above the outlet invert.
11. The septic tank inlet and outlet must be located opposite each other along the axis of maximum dimension and must be constructed of non-corrosive materials. The horizontal distance between the nearest points of the inlet and outlet devices must be at least four feet. A septic tank with two or more compartments may have the inlet and outlet located along the end of the tank or within 12 inches of the end of

the tank as long as the inlet and outlet baffle requirements identified in this chapter are met.

12. Sanitary tees must be at least four inches in diameter. Inlet baffles must be located no less than six inches or no more than 12 inches measured from the end of the inlet pipe to the nearest point on the baffle. Outlet baffles must be located six inches measured from beginning of the outlet pipe to the nearest point on the baffle.
13. Septic Tank or Holding Tank Access
    a. There must be one or more access manholes at least 12 inches in diameter and located within six feet of all walls of the tank. Each access manhole must have a properly secured cover.
        i. The manhole must extend through the top of the tank to a point within 12 inches but at least six inches below grade for a tank with no manhole riser. The manhole cover must be covered with at least six inches of soil unless otherwise properly secured to prevent unwarranted access.
        ii. For a tank with a manhole riser, the riser must be sufficiently large to allow for access and removal of the manhole cover. The manhole riser may extend to or above the ground surface. The manhole riser must have a properly secured cover to prevent unwarranted access.
    b. Each septic tank must have an inspection pipe at least six inches in diameter over both the inlet and outlet devices. The inspection pipe must extend to or above the ground surface and be capped flush or above finished grade. The inspection pipe cap must be properly secured to prevent unwarranted access. A manhole access riser that meets the requirements of this permit may be used over both the inlet and outlet devices to satisfy the inspection pipe requirement.
14. Single Tank
    a. Where a septic system has a single septic tank larger than 3,000 gallons that is fabricated as a single unit, the tank must be divided into two or more compartments.
    b. When a septic tank is divided into two compartments, the volume in the first compartment in the direction of flow must not be less than one-half or more than two-thirds of the total volume of the tank.
    c. When a septic tank is divided into three or more compartments, one-half of the total volume must be in the first compartment and the other half equally divided in the other compartments.
    d. Connections between compartments must be baffled so as to obtain effective retention of scum and sludge. The submergence of the inlet

and outlet baffles of each compartment must be as specified in g and h of this section.

e. Adequate venting must be provided between compartments by baffles or by an opening of at least 50 square inches near the top of the compartment wall.

f. Adequate access to each compartment must be provided by one or more manholes.

15. Multiple Tanks

a. Where more than one septic tank is used to obtain the required liquid volume, the tanks must be connected in series.

b. The first septic tank must not be smaller than any subsequent tanks in series.

16. Septic tanks must be bedded with at least six inches of sand or fine gravel where rock or other undesirable conditions are encountered. The tank must be placed level. Backfilling the excavation for the tank must be done in layers with sufficient compaction to avoid settling. Backfill material must be free of large stones and debris.

17. A tank subject to flotation, such as one located in an area where the seasonal high water table may be higher than the bottom of the tank, must be properly secured or ballasted to prevent flotation.

H. Tank Capacity.

1. Dwelling

a. The minimum septic tank capacity for a single family or multi-family dwelling must be determined using the design flow and the tank capacity listed in Table 3. The capacity of any pump tank or pump chamber is not considered part of or applicable to the required minimum septic tank capacity.

b. For a dwelling served by more than one septic system, the total design flow for the dwelling must be distributed between the separate systems based on the percentage of the design flow that will be conveyed to each system. The minimum septic tank capacity for each system must be as listed in Table 3. In no case shall the minimum septic tank capacity for any system be less than 1,000 gallons.

c. A pump tank serving a dwelling or non-dwelling must have a minimum storage capacity above the normal high (pump start) operating level for one day of flow at the design flow rate.

2. Non-dwelling facility

a. The liquid capacity of a septic tank serving a non-dwelling facility must be at least equal to 1,125 gallons plus 0.75 times the design flow in

gallons per day (gpd) for flows over 1,500 gpd. For flows of 1,500 gpd or less, 1.5 times the design flow may be used but a minimum of a 1,000 gallon tank is required. For a non-dwelling facility served by multiple septic systems, the minimum septic tank capacity for each system must be 1,000 gallons.

3. Septic tank capacity for a single compartment tank must be increased by 50 percent to provide adequate attenuation when a pump is used to deliver wastewater from the building, or after the building drain, into the septic tank.
4. The capacity of a septic tank means the interior volume of the tank below the level of the inside bottom of the outlet or effluent pipe. The capacity shall not include the volume of the air space above the normal operating water level of the tank.
5. The capacity of a holding tank or a pump tank means the interior volume of the tank below the level of the inside bottom of the inlet or influent pipe. The capacity shall not include the volume of the air space at the top of the tank.

Table 3 - Minimum Septic Tank Capacity for a Dwelling *

Design Flow in Gallons per Day	Septic Tank Capacity in Gallons		
	For Dwelling without a Garbage Grinder or a Large Capacity Tub	Dwelling with a Garbage Grinder or a Large Capacity Tub	Dwelling with a Garbage Grinder and a Large Capacity Tub
200	1,000	1,000	1,000
300	1,000	1,000	1,250
400	1,000	1,250	1,500
500	1,250	1,500	1,750
600	1,500	1,750	2,000
700	1,750	2,000	2,250
800	2,000	2,250	2,500
900	2,250	2,500	2,750
1,000	2,500	2,750	3,000

* A “large capacity tub” means any bathtub or similar fixture with a maximum working volume greater than 50 gallons. A “garbage grinder” is typically used or placed in the kitchen sink drain and may also be referred to as a garbage disposal or waste disposal.

I. Percolation Tests.

1. At least three test holes must be dug and spaced uniformly over the proposed absorption field site. If the difference between the fastest and the slowest measured percolation rate is greater than 20 minutes per inch, or there are other indications that soil conditions are highly variable, a minimum of four test holes and two test holes per lateral is required.
2. These holes must be dug or bored with horizontal dimensions of from four to twelve inches and vertical sides to the depth of the bottom of the proposed distribution trench. Holes can be bored with a posthole type auger.
3. Roughen or scratch the bottom and sides of the holes to provide a natural surface. Remove all loose material from the hole. Place about two inches of 1/4 to 3/4 inch gravel in the hole to prevent bottom scouring.
4. Fill the hole with clear water to a minimum depth of 12 inches over the gravel. By refilling, if necessary, or by supplying a surplus reservoir of water (automatic siphon), keep water in the hole for at least four hours and preferably overnight.
5. Soils with moderately slow permeability or that contain greater than 30 percent clay will require several days soaking to reach saturation, especially when the soil is dry, in order to obtain the required saturation prior to making measurements.
6. In sandy soils containing little or no clay, soaking is not necessary. If after filling the hole twice with 12 inches of water the water seeps completely away each time in less than 10 minutes then the test can proceed immediately and described in below.
7. Percolation rate measurements should be made on the day following the saturation process, except in highly permeable sandy soils with fast percolation rates as noted below or in less permeable soils with high clay content and slow percolation rates, as note above. For all soils, the percolation rate of the planned last test measurement for any one test hole should approach a uniform rate and not vary more than 10 percent from the previous measurement for that test hole.
8. If the water remains in the test hole after overnight saturation, adjust the water depth to a minimum of six inches over the gravel. From a fixed reference point, measure the drop in water level during an approximate 30 minute period.
9. If no water remains in the hole after overnight saturation, add clear water to a depth of six inches over the gravel. From a fixed referenced point, measure the drop in water level at approximate 30 minute intervals over a four hour period, refilling the hole to a depth of six inches as necessary after each 30 minute period. The drop which occurs during the final 30 minute period is used to calculate the percolation rate.
10. A shorter measurement time interval of 10 minutes may be used for sandy or coarse grained soils with fast permeability where the first six inches of water seeps away in less than 30 minutes even after the overnight saturation or swelling

period. Six test measurements must be taken, one at the end of each 10 minute interval, refilling the hole to a depth of six inches as necessary after each interval. The drop that occurs during the final 10 minutes is used to calculate the percolation rate.

11. The percolation test data must be recorded and maintained on the premises, and made available to the Department by the owner or installer upon request.
12. Other methods of determining the percolation rate may be approved by the Department if the method is recognized as providing accurate and consistent results.
13. The percolation rate of a test hole (the time in minutes for the water level in the test hole to drop one inch) is determined by dividing the number of minutes elapsed by the water level drop in inches during the final measurement period. The design percolation rate for the soil absorption system must be determined by averaging the percolation rate of all the test holes unless the difference between the fastest and slowest measured rates in an area is more than 20 minutes per inch, in which case the slowest percolation rate must be used.

J. Site Preparation.

1. Vegetation over two inches tall and loose organic matter must be removed prior to placing the sand layer. Trees and brush must be cut flush with the ground surface and the roots left in place.
2. The supply pipe from the pump to the effluent distribution system must be installed prior to preparation of the soil surface with minimal native soil disruption. The pipe trench must be backfilled using the excavated native soil and compacted level to avoid future settlement.
3. The native undisturbed soil under the entire mound area must be roughened to a depth of six to eight inches using backhoe teeth or chisel plow to improve the surface contact between the native soil and sand fill of the mound. The roughening must be performed with a four to six inch layer of sand in place and only when the moisture content of the soil is below its plastic limit. The native soil must not be pulverized or compacted. Rototilling is not permitted. Disking is permitted only if the native soil is sand or loamy sand. The roughening must be performed along the contour or perpendicular to the slope.

K. Sand Layer.

1. A layer of clean sand must be installed over the original ground surface to a thickness that provides at least 48 inches of vertical separation between the elevation of the bottom of the treatment media distribution bed as described below and seasonal high groundwater, bedrock, or any other barrier layer. The sand

layer must also be at least 12 inches thick below the uphill edge of the Treatment Media Distribution Bed.

2. The sand for the sand layer must be clean, natural silica free of fines and debris, meeting the gradation shown in Table 4.

Table 4 - Sand Specification for Endorsed Mound Sand Layer

Sieve Size	Percent Passing
3/8 inch	100
No. 4	95 to 100
No. 8	80 to 100
No. 16	45 to 85
No. 30	15 to 60
No. 50	3 to 15
No. 100	0 to 4
No. 200	0 to 2

3. The first six inches of the sand layer must be placed immediately prior to roughening the native undisturbed soil surface. The first sand layer must be placed without driving vehicles of any kind on the area of the soil surface to be roughened. The remaining sand must be placed using techniques that minimize compaction and if vehicle traffic is necessary only track-type equipment must be used in placing and leveling the remaining sand with at least six inches of sand must be kept underneath equipment.
4. The top of the sand layer under the treatment media distribution bed must be level in all directions.
5. The sand layer must extend up on all sides of the treatment media layer to the same elevation as the top of the media.
6. The side slopes of the sand layer must not be steeper than three horizontal units to one vertical unit.
7. The sand layer must be constructed to the dimensions shown in Tables 6 through 8. Dimensions must be based on the depth to groundwater or impermeable layer, the percolation rate, the ground slope, and the number of bedrooms for dwellings or the maximum daily wastewater flow for non-dwellings.
8. The length direction of the sand layer must be oriented parallel to ground surface contour lines. On ground slopes greater than one percent, the length of the sand layer must be curved to match the site contour lines.

L. Treatment Media Distribution Bed.

1. A treatment media distribution bed at least 12 inches thick must be constructed on top of the sand layer. The media serves a number of purposes including but not limited to providing a biological treatment media, holding the effluent distribution

piping in place, and helping to distribute the partially treated effluent flow over the sand layer.

2. For rock used as the treatment media the rock must be ¾-inch minimum to 2 ½-inch maximum dimension, clean, durable, non-calcareous, and meeting the gradation specified in Table 5. Alternately, cylindrical bundles of expanded polystyrene synthetic aggregate contained in high-strength polyethylene netting may be used.

Table 5 - Rock Specification for Endorsed Mound Media Distribution Bed

Sieve Size	Percent Passing
2 ½	95 - 100
¾	0 – 5
No. 200	0 – 1

3. The width of the treatment media distribution bed must be 10 feet.

4. The length of the treatment media distribution bed must be as given in Tables 6 through 8. When the sand layer is curved to match site contour lines, the media layer must be curved to match the curvature of the sand layer.
5. There must be at least eight inches of media below and two inches above the effluent distribution piping. The media must encase the distribution piping. The effluent distribution piping must be level. For rock, the bottom nine inches of the media layer must be placed on top of the sand layer then the effluent distribution piping must be placed on top of the rock, and the remaining three inches of rock placed over the entire rock bed media area, encasing the distribution piping.
6. A minimum four-inch diameter PVC inspection pipe with removable cap must be installed from the bottom of the media bed extending to six inches above the mound surface. The bottom six inches of the inspection pipe must have two rows of holes three-eighth inch in diameter spaced nominally three inches apart around the circumference of the pipe.

M. Effluent Distribution Piping.

1. Pressure distribution must be used to distribute effluent evenly throughout the treatment media bed. Distribution must be by a piping system consisting of a force main pipe, manifold pipe, and lateral distribution pipes.
2. All pipe used for pressure distribution must be at least Schedule 40 or stronger PVC pipe with a suitable pressure rating for the intended use.

N. Force Main.

1. The nominal force main pipe inside diameter must be determined using Table 9.
2. If the distribution laterals in the mound are lower than the low water level in the pump tank, a sewage vacuum breaker valve must be installed at the high point of the force main or a three-sixteenth inch weep hole must be adequately placed in the bottom of the force main inside the pump tank to prevent siphoning of the pump tank contents to the mound.
3. The force main must be installed at a continuous slope to allow the pipe to drain completely between pump cycles to prevent freezing. There shall be no sags or low spots that collect water. The force main must be buried between the pump tank and the mound at a depth sufficient to protect the pipe from damage.

O. Manifold Pipe.

1. The nominal manifold pipe inside diameter must be two inches.
2. The manifold pipe must run perpendicular to the long direction of the treatment media distribution bed.
3. The manifold pipe shall be located at either end of the rock bed or shall be at the midpoint of the length of the mound, with equal-length lateral distribution pipes running each side from the center-located manifold.

P. Lateral Distribution Pipes.

1. The 10-foot wide treatment media distribution bed must have three lateral distribution pipes running lengthwise, spaced 40 inches apart and 20 inches from the sides of the media bed.
2. The nominal inside diameter of the lateral distribution pipes must be 1.5 inches.
3. Each lateral pipe must have three-sixteenth inch diameter orifice holes drilled at 24 inch centers in a straight line along the bottom of the pipe. When a center-located manifold is used, the first orifice on each lateral must be 12 inches from the center of the manifold so that the 24 inch center-to-center spacing is maintained. All orifice holes must be precision drilled using a drill press, and the pipe must be deburred inside and outside.
4. Orifice shields must be affixed over each orifice to protect the orifice from blockage from contact with the treatment media, except that orifice shields are not required when the lateral distribution pipes are placed in perforated pipe, the perforated pipe must not exceed four inches nominal diameter, and there must be at least eight inches of treatment media below and two inches above the perforated pipe. Orifice shields must be designed with drain holes or slots to allow complete drainage to prevent freezing and must be removable to allow for orifice cleaning.
5. The number of orifices per lateral must be as shown in Table 10.

6. The downstream end of each lateral must be equipped with a sweep elbow turning up and terminating a minimum of six inches above the surface. Each sweep elbow must be equipped with either a shut-off valve readily accessible from the surface through a valve box or a screw-on cap, to allow flushing of the laterals.

Q. Soil Cover.

1. A layer of non-woven geotextile fabric must be placed over the top and sides of the treatment media distribution layer. The fabric must be of adequate thickness to resist tearing. The fabric must allow passage of water and must prevent migration of soil particles into the media layer.
2. A cover layer of loam or sandy loam soil must be placed over the media and fabric layers as well as the sand side slopes. Clay soil is not acceptable. This cover layer must be at least six inches thick over the side slopes and at the edges of the media bed, and must be crowned to provide at least 12 inches of cover soil over the middle of the media bed to promote surface drainage.
3. A layer of topsoil at least six inches thick, suitable for sustaining a healthy growth of perennial grass, must be placed over the entire mound area. After placement of the topsoil layer, the final minimum thickness of the loam and topsoil layers over the sand layer and media bed must be 12 inches and crowned to a minimum of 18 inches over the middle of the media bed.
4. Following construction of the mound, a shallow rooted perennial grass must be established and maintained on the entire surface of the mound and the ground surface upslope from the mound must be graded to drain precipitation around the ends of the mound. Brush, trees, or garden plants (including flowers or vegetable plants) must not be grown on the mound.

R. Primary Treatment (Septic Tank).

1. All wastewater discharged to a mound system must have undergone treatment in a septic tank that is designed, installed, and maintained in accordance with all requirements of this Permit.
2. The effluent from the septic tank must pass through a filter with one-sixteenth inch maximum openings before entering the pump to the effluent distribution piping. If more than one septic tank is used then the tanks must be placed in series and the filter must be placed in the outlet of the last tank.

S. Effluent Pumping System.

1. Each mound system must have an effluent pumping system to transport septic tank effluent to the effluent distribution piping in pressurized doses. The pumping system must include a pump tank, effluent pump, discharge piping, level controls, and alarm system.

T. Pump Tank.

1. The minimum pump tank capacity must be as shown in Table 10.
2. The pump tank must meet all the requirements for materials, construction, access, and installation as for septic tanks in accordance with this permit.
3. The pump tank must be watertight and access to the pump tank must extend to the ground surface with a secured lid.

U. Dose Pump.

1. The pump must be for submersible operation, designed for pumping wastewater or septic tank effluent. The pump must be capable of passing a one-sixteenth inch particle or be equipped with an adequate screening device to prevent clogging.
2. The pump must be securely supported within the pump tank to resist movement from starting torque and dynamic hydraulic forces in the discharge piping. The pump inlet must be located at a distance from the tank floor and walls as recommended by the pump manufacturer.
3. The pump must be removable without requiring human entry into the pump tank or other confined space.
4. The pump must be designed to produce the minimum flow rate and minimum discharge pressure listed in Table 10.
5. A pump with an internal check valve shall not be used, unless the check valve is removed or a one-quarter inch weep hole is drilled in the bottom of the discharge pipe to allow the force main to drain back to the pump tank between pump cycles. The discharge pipe must drain completely between cycles.

V. Discharge Piping.

1. The discharge piping must include a union or quick-disconnect fitting that allows the pump to be disconnected from the discharge pipe and removed from the pump tank without human entry into the tank.
2. The discharge piping must be Schedule 40 or stronger PVC pipe, must be no smaller than the pump discharge fitting size, and must provide a smooth transition to the two-inch diameter force main.

W. Pump and Level Controls and Alarms.

1. The pump tank must be equipped with a level control system to start the pump at a preset high water level, stop the pump and a preset low water level, and activate an alarm at a preset high water alarm level.
2. The level control and alarm switches must be of the sealed, weighted float or diaphragm type. The cords must be secured to prevent tangling. The level control switches must be located where they are visible from the ground surface

and accessible for cleaning and adjustment without human entry into the pump tank or other confined space.

3. The pump-stop control switch must be set to stop the pump at or above the minimum pump submergence level recommended by the pump manufacturer.
4. The pump-start control switch must be set to start the pump at a height above the pump-stop level to provide the required dose volume (see Table 10) based on the dimensions of the pump tank plus the volume of the force main pipe if the force main drains back to the pump tank. The volume for the two inch diameter pipe should be taken as 0.15 gallons per linear foot of pipe.
5. The high-level alarm switch must be set approximately three inches above the pump-start level.
6. The dose volume must be as shown in Table 10.
7. The pump control panel must include externally mounted visible and audible alarms. The alarms must be mounted in a location readily visible to the owner. If the control panel is mounted outdoors, the enclosure must be for weather tight duty.
8. The pump electrical power must be supplied on a separate electrical circuit from that of the alarm system.
9. The alarm system must be comprised of both audible and visible alarm indicators.
10. Electrical control panel(s) must be located outside the pump tank, must be protected from the weather and must provide no air path between the panel and the pump tank. Electrical connections inside the tank must be made using moisture and gas resistant connectors suitable for the wastewater environment.

X. Floor Drains.

1. A floor drain in a dwelling garage may be connected to an onsite wastewater treatment system provided the drain does not receive petroleum products, paint, organic solvents, antifreeze, or hazardous materials and meets design requirements of this section. These drains are designed to handle snow and ice melt along with occasional exterior vehicle washing.
2. A floor drain in a dwelling garage that is connected to an onsite wastewater treatment must meet the following design requirements:
    a. The floor drain must have an integral mud trap and oil separator; and
    b. The floor drain must be equipped with a watertight cap or a valve must be located immediately following the drain. The cap must normally be left secured on the drain or the valve must normally be left closed.
3. The design flow of the onsite wastewater treatment system must be increased at least 100 gallons to account for a dwelling garage floor drain connection to the system.

4. A permanent sign must be placed within view of the drain in accordance with Title 124.
5. The discharge of motor vehicle wastes or maintenance shop wastes to a septic system or to a soil absorption system is prohibited. The connection of a floor drain from a maintenance shop to a septic system or soil absorption system is prohibited.
6. Discharge of a non-domestic waste to a septic system is also subject to the requirements of Nebraska Administrative Code Title 122 - Rules and Regulations for Underground Injection and Mineral Production Wells.

Y. Maintenance of Septic Tanks.

1. The owner of a septic tank must have a Master or Journeyman Pumper, a professional engineer, or a registered environmental health specialist periodically inspect the septic tank and remove septage from the tank whenever the top of the sludge layer is less than 12 inches below the bottom of the outlet baffle or whenever the bottom of the scum layer is less than three inches above the bottom of the outlet baffle.
2. Disinfectant or anti-bacterial products must not be used to clean the tank except as an optional step in preparing the tank for closure.

Z. Waste Prohibitions.

1. The type of waste that can be directed to an on-site wastewater treatment system is limited to domestic wastewater. The following wastes are prohibited from entering an onsite wastewater treatment operated under this permit.
2. Cooling water, groundwater infiltration, discharge from roof drains, discharge from foundation tile drains, swimming pool wastewater, or other clear water discharges.
3. Hazardous waste: Any chemical substance or material, gas, solid, or liquid designated as hazardous in accordance with Title 128 – Nebraska Hazardous Waste Regulations.
4. Those pollutants or combination of pollutants or disease causing agents, which after discharge and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will on the basis of information available to the Department cause either death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction), or physical deformations on such organism or its offspring.
5. The discharge of motor vehicle wastes to a septic system is prohibited. For the purposes of this permit, “motor vehicle” means mechanized equipment used in

agriculture, construction, industrial activities, maintenance, recreation, or transportation.

6. The discharge to a septic system of wastewater containing high strength disinfectants, biological inhibitors, or deodorants or similar chemicals (such as those used in camper waste tanks, laboratories, medical or veterinary facilities, or industrial facilities) is prohibited.

Table 6 - Mound Dimensions for Ground Slope of 0% to 1%

Depth to Seasonal High Ground-water (ft)	Percolation Rate (m.p.i.)	Bed-rooms	Flow (gpd)	Sand Layer Height (ft)	Total Berm Height (ft)	Total Mound Width (ft)	Total Mound Length (ft)	Rock Bed Length (ft)	Uphill Berm Width (ft)	Downhill Berm Width (ft)	End Berm Width (ft)
< 1.0	Construction permit required if less than 12 inches to seasonal high groundwater.										
≥ 1.0 and < 2.0	0 to 30	1	200	3	5	42	49	17	16	16	16
		2	300	3	5	42	57	25	16	16	16
		3	400	3	5	42	65	33	16	16	16
		4	500	3	5	42	74	42	16	16	16
		5	600	3	5	42	82	50	16	16	16
	>30 to 60	1	200	3	5	42	49	17	16	16	16
		2	300	3	5	42	57	25	16	16	16
		3	400	3	5	42	65	33	16	16	16
		4	500	3	5	42	74	42	16	16	16
		5	600	3	5	42	82	50	16	16	16
≥ 2.0 and < 3.0	0 to 30	1	200	2	4	36	42	17	13	13	13
		2	300	2	4	36	50	25	13	13	13
		3	400	2	4	36	58	33	13	13	13
		4	500	2	4	36	67	42	13	13	13
		5	600	2	4	36	75	50	13	13	13
	>30 to 60	1	200	2	4	36	43	17	13	13	13
		2	300	2	4	36	51	25	13	13	13
		3	400	2	4	36	59	33	13	13	13
		4	500	2	4	36	68	42	13	13	13
		5	600	2	4	36	76	50	13	13	13
≥ 3.0	0 to 30	1	200	1	3	30	37	17	10	10	10
		2	300	1	3	30	45	25	10	10	10
		3	400	1	3	30	53	33	10	10	10
		4	500	1	3	30	62	42	10	10	10
		5	600	1	3	30	70	50	10	10	10
	>30 to 60	1	200	1	3	34	36	17	12	12	10
		2	300	1	3	34	44	25	12	12	10
		3	400	1	3	34	52	33	12	12	10
		4	500	1	3	34	61	42	12	12	10
		5	600	1	3	34	69	50	12	12	10

Table 7 - Mound Dimensions for Ground Slope of >1% to 3%

Depth to Seasonal High Ground-water (ft)	Percolation Rate (m.p.i.)	Bed-rooms	Flow (gpd)	Sand Layer Height (ft)	Total Berm Height (ft)	Total Mound Width (ft)	Total Mound Length (ft)	Rock Bed Length (ft)	Uphill Berm Width (ft)	Downhill Berm Width (ft)	End Berm Width (ft)
< 1.0	Construction permit required if less than 12 inches to seasonal high groundwater.										
≥ 1.0 and < 2.0	0 to 30	1	200	3	5	43	49	17	15	18	16
		2	300	3	5	43	57	25	15	18	16
		3	400	3	5	43	65	33	15	18	16
		4	500	3	5	43	74	42	15	18	16
		5	600	3	5	43	82	50	15	18	16
	>30 to 60	1	200	3	5	45	49	17	15	20	16
		2	300	3	5	45	57	25	15	20	16
		3	400	3	5	45	65	33	15	20	16
		4	500	3	5	45	74	42	15	20	16
		5	600	3	5	45	82	50	15	20	16
≥ 2.0 and < 3.0	0 to 30	1	200	2	4	37	43	17	12	15	13
		2	300	2	4	37	51	25	12	15	13
		3	400	2	4	37	59	33	12	15	13
		4	500	2	4	37	68	42	12	15	13
		5	600	2	4	37	76	50	12	15	13
	>30 to 60	1	200	2	4	42	43	17	12	20	13
		2	300	2	4	42	51	25	12	20	13
		3	400	2	4	42	59	33	12	20	13
		4	500	2	4	42	68	42	12	20	13
		5	600	2	4	42	76	50	12	20	13
≥ 3.0	0 to 30	1	200	1	3	32	37	17	9	13	10
		2	300	1	3	32	45	25	9	13	10
		3	400	1	3	32	53	33	9	13	10
		4	500	1	3	32	62	42	9	13	10
		5	600	1	3	32	70	50	9	13	10
	>30 to 60	1	200	1	3	39	37	17	9	20	10
		2	300	1	3	39	45	25	9	20	10
		3	400	1	3	39	53	33	9	20	10
		4	500	1	3	39	62	42	9	20	10
		5	600	1	3	39	70	50	9	20	10

Table 8 - Mound Dimensions for Ground Slope of >3% to 5%

Depth to Seasonal High Ground-water (ft)	Percolation Rate (m.p.i.)	Bed-rooms	Flow (gpd)	Sand Layer Height (ft)	Total Berm Height (ft)	Total Mound Width (ft)	Total Mound Length (ft)	Rock Bed Length (ft)	Uphill Berm Width (ft)	Downhill berm width (ft)	End Berm Width (ft)
< 1.0	Construction permit required if less than 12 inches to seasonal high groundwater.										
≥ 1.0 and < 2.0	0 to 30	1	200	3	5	44	49	17	14	20	17
		2	300	3	5	44	57	25	14	20	17
		3	400	3	5	44	65	33	14	20	17
		4	500	3	5	44	74	42	14	20	17
		5	600	3	5	44	82	50	14	20	17
	>30 to 60	1	200	3	5	44	49	17	14	20	17
		2	300	3	5	44	57	25	14	20	17
		3	400	3	5	44	65	33	14	20	17
		4	500	3	5	44	74	42	14	20	17
		5	600	3	5	44	82	50	14	20	17
≥ 2.0 and < 3.0	0 to 30	1	200	2	4	37	43	17	11	16	14
		2	300	2	4	37	51	25	11	16	14
		3	400	2	4	37	59	33	11	16	14
		4	500	2	4	37	68	42	11	16	14
		5	600	2	4	37	76	50	11	16	14
	>30 to 60	1	200	2	4	41	43	17	11	20	14
		2	300	2	4	41	51	25	11	20	14
		3	400	2	4	41	59	33	11	20	14
		4	500	2	4	41	68	42	11	20	14
		5	600	2	4	41	76	50	11	20	14
≥ 3.0	0 to 30	1	200	1	3	32	39	17	9	13	11
		2	300	1	3	32	47	25	9	13	11
		3	400	1	3	32	55	33	9	13	11
		4	500	1	3	32	64	42	9	13	11
		5	600	1	3	32	72	50	9	13	11
	>30 to 60	1	200	1	3	39	39	17	9	20	11
		2	300	1	3	39	47	25	9	20	11
		3	400	1	3	39	55	33	9	20	11
		4	500	1	3	39	64	42	9	20	11
		5	600	1	3	39	72	50	9	20	11

Table 9 - Minimum Force Main Size (inches) – Schedule 40 PVC Pipe

Pumping Rate (gpm)	Total Force Main Length (ft)		
	0 to 100	>100 to 300	>300 to 500
0 to 20	1 1/4	1 1/2	2
>20 to 40	1 1/2	2	2 1/2
>40 to 60	2	2 1/2	3

Table 10 – Design Requirements for Rock Bed Lateral Pipe, Dose Pump, and Pump Tank

Bed-rooms	Flow (gpd)	Rock Bed Length (ft)	End Spacing * (ft)	Number of 3/16" Diameter Holes per Lateral	Number of Spaces at 24" Centers	Minimum Pump Capacity (gpm)	Minimum Pump Discharge Pressure Head ** (ft)	Gallons Pumped per Dose (gal)	Minimum Pump Tank Capacity (gal)
1	200	17	1.5	8	7	15	7 ft + H	70	500
2	300	25	1.5	12	11	22	9 ft + H	95	500
3	400	33	1.5	16	15	29	10 ft + H	120	500
4	500	42	2.0	20	19	36	12 ft + H	145	750
5	600	50	1.0	25	24	44	15 ft + H	170	750

* End Spacing is the distance from either end of the rock bed to the nearest lateral pipe orifice.

** H is the elevation difference between the pump intake and the top of the rock bed.