CITY OF TUSCULUM

FIRST IN EDUCATION

Tusculum, Tennessee
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(Mail)
P.O. Box 5014 Tusculum Station
Greeneville, TN 37743

(City Hall)
145 Alexander Street
Tusculum, TN 37745

November 26, 2014

Subject: Application for Sewer Connection

The city of Tusculum values our residents and Businesses and is determined to provide sewer service to those along and adjacent to Highway 11E. The system is scheduled to be on line by November 30, 2014 and will be referred to as a decentralized waste water treatment facility. The company whose treatment equipment we are using has installed over 800 of these systems, many of which are located in Tennessee. The system has been approved by the State of Tennessee (TDEC) and the U.S. Environmental Protection Agency (EPA). Basically, the system uses new waterproof septic tanks installed at each location with a pump that delivers waste water to the treatment plant. The waste water pumped from septic tanks is what is normally discharged into traditional field lines.

The cost of new septic tanks, including a grease interceptor or grease trap, if needed, pump, connection lines to the street and electrical connections will be the customer's responsibility. There will be no additional tap fee. Our contract engineers will inspect all installations. The inspection cost will also be the customer's responsibility. The contractor's quoted price should include the inspection cost. The selected contractor will be required to use Vaughn & Melton Engineers to perform the inspection. They may be contacted by calling (865) 546-5800, Attn: Edwin Deyton, PE. Vaughn & Melton will advise on their price for the inspection. After installation, Tusculum will maintain the septic tank including pump replacement and pumping of sludge as needed at no cost to the customer.

The user fee will be $9.09 per 100 cubic feet of water as shown on Greeneville Water Commission (GWC) water bills ($.012154 per gallon).

For your convenience, a partial list of approved contractors is provided below:

Volunteer Industries, LLC
146 Volunteer Drive,
Elizabethton, Tennessee 37643
Phone: (423) 357-8713
ATTN: Coy W. Owens

T&B Contractors
Phone: (423) 968-5967
ATTN: Frank Witt

Merkel Brothers
Phone: (423) 639-3116
ATTN: Rance Merkel

Barger & Sons
Phone: (865)270-8070
ATTN: Wesley Barger or Mickey Barger

After the attached Application Form and the other information on the attached forms have been completed by the customer, the septic tank size, etc. will be determined by Tusculum and Vaughn & Melton engineers.

Enclosed are forms and excerpts from the Tusculum Sewer Ordinance:

Incl 1- Step System Application Form
Incl 2- Fog (Fats, Oils, & Grease) Application Form for Commercial and/or Restaurant Waste Water Discharge

Incl 3- Pages 12-15, Section 108 – Septic Tank and Pump Specifications
Incl 4- Pages 17-19, Item#2 – Fats, Oils and Grease.

The complete Tusculum Sewer Ordinance is available at the Tusculum City Hall, 145 Alexander Street between 9 am and 1 pm, Monday thru Friday.

Mayor Alan Corley will be available to assist with the application process. Mayor Corley can be reached via e-mail at tusculummayor@comcast.net.

Thank You,
City of Tusculum

Incls: as

City of Tusculum
PO Box 5014
Tusculum, TN 37743

STEP System Application Form

Site Address:			Zip:	Bldg. Permit #
Legal Description	Lot	Block	Subdivision	Sec #
OR	Acres	of the		Survey #
Tax Parcel #				

Property Owner:	Phone:	Email:
Mailing Address:	Fax:	
Designer's Name:	Phone:	Email:
Mailing Address:	Fax:	
Builder or Agent:	Phone:	Email:

Type of Development

☐Single Family Residential	Living area size:	Bedrooms:
Estimated daily water use (Gallons):		
☐**Non-residential (or multi-family residential)**		
Type of use:	Size of building:	
No. of employees:	Days occupied per week:	No of customers:
Estimated daily water use (Gallons):	Is water used in a manufacturing process?	

☐ Onsite Common Field (Decentralized System)

Distance from the property lines to the closest organized sewer line:

☐ Less than 100 feet (Actual Distance: ft.)

☐ Greater than 100 feet (Actual Distance: ft.)

I CERTIFY THAT THE ABOVE STATEMENTS ARE TRUE AND CORRECT. UTHORIZATION IS HEREBY GIVEN TO THE CITY OF TUSCULUM TO ENTER UPON THE ABOVE ESCRIBED PRIVATE PROPERTY FOR THE PURPOSE OF SITE EVALUATIONS AND NSPECTIONS OF THE STEP SYSTEM.

Signature of Owner **Printed Name of Owner** **Date**

City of Tusculum, TN
PO Box 5014
Tusculum, TN 37743

FOG APPLICATION FORM FOR COMMERCIAL AND/OR RESTAURANT WASTEWATER DISCHARGE

SECTION A – GENERAL INFORMATION

1. Company Name: _____

   A. Facility Name: _____

   B. Corporate Owner, if different: _____

2. Facility Address

   Street: _____

   City: _____ State: _____ Zip: _____

3. Business Mailing Address:

   Street or P.O. Box: _____

   City: _____ State: _____ Zip: _____

4. Designated signatory authority of the facility:
   (Attach similar information for each authorized representative)

   Name: _____

   Title: _____

   Address: _____

   City: _____ State: _____ Zip: _____

   Phone: _____

5. Designated facility contact:

   Name: _____

   Title: _____

   Phone: _____

SECTION B – WATER SUPPLY

1. Name as it appears on the water bill: _____

   Additional Name, if applicable: _____

   Street: _____

   City: _____ State: _____ Zip: _____

2. Water Service Account Number(s) _____

3. Attach a copy of last water bill: _____

SECTION C – WASTEWATER DISCHARGE INFORMATION

1. Wastewater Classification Sheet (WCS) – Use the attached blank template to describe each wastestream in relation to the grease interceptor and/or grease trap at your facility.

2. Are any changes or expansions planned during the next three years that could alter wastewater volumes or characteristics? Consider expansion and any other significant wastewater volume increases.

   ☐ Yes
   ☐ No (If No, skip question 3)

3. Briefly describe these changes and their effects on the wastewater volume and characteristics: (Attach additional sheets if needed.)

_____

_____

_____

SECTION D - TREATMENT

1. Does your facility have a grease interceptor or grease traps?

   ☐ Yes
   ☐ No (If No, skip to section E)

2. List the location, size, and specifications for all grease interceptors at your facility:

Location	Size	Additional Specifications	Type (Circle One)
			Grease Interceptor / Fixture Trap
			Grease Interceptor / Fixture Trap
			Grease Interceptor / Fixture Trap

3. Are these grease traps/interceptors serviced regularly (i.e. pumped on, at least, a quarterly basis)?

☐ Yes
☐ No

How often are they serviced?

Location	Service Frequency

4. Are there additives placed into the grease interceptor (i.e. enzymes, bacteria, etc.)?

☐ Yes
☐ No

How often are they added to the interceptor?

Location	Service Frequency

List all additives used?

Location	Service Frequency

SECTION D – FACILITY OPERATIONAL CHARACTERISTICS

1. Shift Information

Work Days	[ ] Mon	[ ] Tues	[ ] Wed	[ ] Th	[ ] Fri	[ ] Sat	[ ] Sun
Shifts worked per day							
Employees per shift – 1st							
Employees per shift – 2nd							
Employees per shift – 3rd							

2. List all major equipment used for food preparation at your facility (i.e. grills, garbage disposals, fryers, dishwashers, sinks etc.):

Type	Size/Specifications

3. Provide a copy of the indoor and outdoor plumbing floor diagrams, which should include the ocation of all water meters, facility sewer connections, grease interceptors/traps, sinks, floor drains, dishwashers, restrooms, etc. If no professional drawing exists a hand drawn copy will be acceptable.

SECTION F - CONFIDENTIAL BUSINESS INFORMATION

All information contained in this application and corresponding Wastewater Discharge Permit are considered public information and is available to any member of the public upon request. All effluent data collected or submitted shall be made available to the public without restriction.

Confidential information is information that is considered proprietary, trade secrets, or have an adverse impact on a business advantage should it be divulged. Any information that is considered confidential will be handled as such and kept in our records department under separate cover and is not available to the public.

SECTION G – AUTHORIZED SIGNATURES

Compliance Certification:

1. Are all applicable Federal, State, and local pretreatment standards and requirements being met on a consistent basis?

☐ Yes
☐ No
☐ Not Sure

If No:

a. What additional operations and maintenance procedures are being considered to bring the facility into compliance? Also, list additional treatment technology or practice being considered in order to bring the facility into compliance.

b. Provide a schedule for bringing the facility into compliance. Specify major events planned along with reasonable completion dates. Note that if the City of Tusculum issues a permit to the applicant, it may require the completion of a schedule for compliance different from the one submitted by the facility.

Milestone Activity	Completion Date
_____	_____
_____	_____

Authorized Representative Statement:

I certify under penalty of law that this document and all its attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

_____	_____	
Name	Title	
_____	_____	_____
Signature	Date	Phone

108. Septic tank effluent pump.

Septic Tank Effluent Pump (STEP) systems shall be installed on Owner's property by all users connecting to the City's sewer system.

(1) Equipment requirements.

(a) Septic tanks shall be of water tight construction, structurally sound, and must be approved by the City. Tanks shall be owned by the property owner; tanks shall be maintained by the City.

(b) Pumps must be approved and be maintained by the City.

(c) Approved pump models include A.Y. McDonald 22000 and 24000 Series Pumps and Orenco PF Series Pumps.

(d) Residential users may use a simplex pump. Commercial users shall be required to have a duplex pumping system.

(e) Alarms shall be provided for low water level, high water level, and pump failure.

(2) Installation requirements. Location of tanks, pumps, and effluent lines shall be subject to the approval of the City. The effluent pump shall be located within a screened pump vault. The vault, at a minimum, shall be fitted with 1/8-inch mesh polyethylene screen and a 4-

inch diameter PVC (or equivalent) flow inducer for high-head pump. The pump chamber shall include float switches that turn the pump on and off and activate high and low level alarms. Residential effluent service lines connecting the STEP system to the sewer forcemain shall be of 1-inch PolyFlex (STR-9 Class 200) pipe or approved equal. Commercial connections shall be at a minimum of 2-inch PolyFlex (STR-9 Class 200) pipe or approved equal and subject to approval by the City. Installation shall follow design criteria for STEP system as provided by the superintendent and TDEC Design Criteria for Sewage Works.

The location of septic tanks shall be selected in accordance with the following minimum distances in feet, bearing in mind that local conditions may require increased distances of separation.

	Septic Tank (ft)
Water Supply	50
Dwellings	5
Property Lines	10
*Gullies, Ravines, Dry Stream Beds, Natural Drainage ways, Sinkholes, Streams, and Cut Banks	15
Water Lines	10

*These distances may increase or decrease as soil conditions so warrant as determined by the Commissioner after a special investigation by an approved soil consultant.

(3) Costs. STEP equipment for new construction shall be purchased and installed at the user's expense according to the specifications of the City. Connection will be made to the City sewer only after inspection and approval of the City.

(4) Ownership and easements. The City shall maintain ownership of the pumps, alarms, controls, and force main service line. The property owner shall maintain ownership of the septic tank. Property owners shall pay the City (through user fees) for operation and maintenance of the STEP system. Access by the City to the STEP system must be guaranteed to operate, maintain, repair, restore service, and remove sludge. Access manholes, ports, and electrical disconnects must not be locked, obstructed or blocked by landscaping or construction. The City may charge the property owner for nuisance maintenance activities. The City will bill the property owner, based on the actual cost, for maintenance activities resulting from the property owner's misuse of the system. For example, activities may include frequent removal of solids, fats, oils, or grease.

(5) Existing Septic Tanks. Existing septic tanks shall be removed or abandoned in place.

(a) Standard method of Abandonment: The tank subject to abandonment shall be pumped, and its contents disposed, in accordance with Local, State, and Federal requirements, collapsed, and the remaining hole back-filled and compacted with coarse gravel to within twelve (12) inches of ground surface. The remaining space is to be filled with topsoil to the surrounding grade and appropriately crowned to allow for soil settling.

(6) Use of STEP systems.

(a) Home or business owners shall follow the STEP users guide provided by the superintendent.

(b) Home or business owners shall provide an electrical connection that meets

specifications and shall provide electrical power. Namely, the property owner shall provide a 220V power circuit run from a dedicated 30Amp, double pole breaker to a disconnect located on the building wall immediately adjacent to the tank site. The circuit must consist of 10/3 wire with a ground. The disconnect shall be accessible at all times to the City and authorized maintenance staff.

(c) Home or business owners shall be responsible for maintenance and installing sewer lines from the building to the STEP tank.

(d) Maintenance of the STEP tank, pumps, controls, and alarms shall be as provided in Section 108(4).

(e) Prohibited uses of the STEP system.

(i) Connection of roof guttering, sump pumps or surface drains.

(ii) Disposal of toxic household substances.

(iii) Use of garbage grinders or disposers.

(iv) Discharge of pet hair, lint, or home vacuum water.

(v) Discharge of fats, grease, and oil.

(7) Tank cleaning. Solids removal from the septic tank shall be provided by the City. Septic tanks should be pumped when sludge and scum accumulations exceed 30 percent of the tank volume or are encroaching on the inlet and outlet baffle entrances. Periodic pumping of the septic tanks is recommended to ensure proper system performance and reduce the risk of hydraulic failure. If systems are not inspected, septic tanks should be pumped every 3 to 5 years depending on the size of the tank, the number of building occupants, and household appliances and habits. Commercial systems should be inspected and/or pumped more frequently, typically annually.

(8) Additional charges. The City shall be responsible for maintenance of the STEP equipment, and shall charge the user a monthly fee to cover the cost of equipment maintenance and replacement. Repeat service calls for similar problems shall be billed to the property owner or business at a rate of no more than the actual cost of the service call.

109. Septic tank capacity.

(1) Residential septic tank capacity. For residences, the effective liquid capacity of the septic tank shall be a minimum of fifteen hundred (1,500) gallons. The minimum 1,500 gallon liquid capacity requirement will be implemented and enforced at the discretion of the City.

(2) Commercial septic tank capacity. For facilities other than residences, the net volume or effective liquid capacity of the septic tank shall be determined by accounting for a minimum hydraulic retention time of three (3) days in order to allow for adequate settling of solids. The minimum effective liquid capacity of the septic tank shall be fifteen hundred (1,500) gallons. In some instances (restaurants, grocery stores, etc.), a grease trap will be required in addition to the septic tank. Additional tank volume may be necessary where unusual waste water characteristics are expected from a commercial facility. The minimum three (3) day hydraulic retention time will be implemented and enforced at the discretion of the City.

(Commercial users may be required to use two (2) tanks operating in series to achieve volumetric requirements. The first tank shall have an effluent filter screen installed between the effluent pipe of the first tank and the influent pipe of the second. The filter should be inspected and cleaned routinely.)

(3) Effective liquid capacity. The actual effective liquid capacity of a tank to be utilized as a septic tank shall be considered the volume of liquid capacity that occupies the interior space of said tank to the level of the invert of the outlet port of the tank. Therefore, the air-space that lies above the actual surface of the liquid level of a tank shall not be considered as part of a septic tank's effective liquid capacity.

110. Design of septic tanks.

(1) Overview of septic tank design. A septic tank shall be watertight, structurally sound, and not subject to excessive corrosion or decay. Septic tanks shall be of two (2) compartment design. The inlet compartment of a two (2) compartment tank shall be between two-thirds (2/3) and three-fourths (3/4) of the total tank capacity.

(2) Minimum standards of design and construction of precast reinforced concrete septic tanks:

a. Septic tanks shall be precast concrete and provided by an NCPA certified plant in good standing with the State of Tennessee.
b. Tank shall meet watertight requirements and testing per ASTM C1227 using the hydrostatic test. Tanks failing the test will not be accepted for connection to the City's system. Proof of testing shall be required to be submitted to the City.
c. Tanks shall be structurally sound, with steel rebar reinforcement and 5,000 psi strength (28-day) concrete. Tanks shall be designed and sealed by a Tennessee licensed Professional Engineer.
d. Sealant used in the seam of the tank shall be mastic sealant meeting or exceeding ASTM C990.
e. Pipe penetrations (inlet and outlet) shall be fitted with seals that meet or exceed ASTM C923.
f. Inlet tees shall be required and shall conform to ASTM 1785 standards. Inlet tees shall be installed with a rubber boot poured into the tank wall, and shall be secured using #88 stainless steel bands.
g. A 24" diameter access opening shall be installed above the inlet pipe and effluent pump. Water-tight PRTA adaptors shall be cast-in-place or fastened to the top of the tank with stainless steel concrete anchors and a roll of butyl tape. The adaptor shall be sealed with clear all-purpose Lexel silicone. A watertight Ultra-corr/Ultra rib riser shall be connected to the adaptor and extended to the finished ground elevation. The riser shall be sealed with all-purpose Lexel silicone. The riser shall be equipped with a 24" diameter water tight lid. The lid shall be structural foam and fastened to the riser with four (4) 12x2 stainless steel self-tapping, #3 square drive mounting screws.
h. Partition wall (or baffle) shall be poured monolithically and shall be structurally sound.
i. Air space shall be a minimum of 8-inches above top of the inlet pipe.
j. Tank Labeling – Precast septic tanks shall be provided with a suitable legend, cast or etched in the wall at the outlet end and within six (6) inches of the top of the tank, identifying the manufacturer by name and address or registered trademark and indicating the liquid capacity of the tank in gallons.

(3) Cast-in-place provisions. Not allowed unless explicitly approved by the City in writing.

(2) Fats, oils, and grease (FOG). FOG traps and interceptors, waste food and sand interceptors shall be installed when, in the opinion of the superintendent, they are necessary for the proper handling of liquid wastes containing fats, oils, and grease, any flammable wastes, ground food waste, sand, soil, and solids, or other harmful ingredients in excessive amount which impact the wastewater collection system. Such traps and interceptors shall not be required for single family residences, but may be required on multiple family residences and commercial facilities. All traps and interceptors shall be of a type and capacity approved by the superintendent, and shall be located as to be readily and easily accessible for cleaning and inspection.

(a) Grease trap and interceptor design criteria. Grease traps and interceptors must be designed to satisfy three (3) basic criteria in order to ensure effective separation. These include:

(i) Time. The separation device must provide sufficient retention time for emulsified grease and oil to separate and float to the surface of the chamber.

(ii) Temperature. The separation device must provide adequate volume to allow the wastewater to cool sufficiently for emulsified grease to separate.

(iii) Turbulence. Turbulence through the device must be controlled so that grease and solids are kept in suspension in the wastewater. Turbulence must be controlled, especially during high discharge rates associated with draining a multiple fixtures simultaneously.

(iv.) Performance. In addition, the grease trap and/or interceptor must provide sufficient storage capacity for accumulated grease and solids between cleanings. The grease trap/interceptor shall be designed to ensure that the effluent does not have a FOG concentration in excess of 100 mg/L.

(b) Grease Interceptors. Grease interceptors may be used if the commercial facility's combined flow rate of FOG is less than 50 gpm and grease storage capacity is less than 100 pounds. Grease interceptors shall be approved by the City and cleaned and maintained by the user. In all instances where a grease interceptor is required, it shall be installed upstream of the septic tank. Commercial dishwashers shall not be connected to a grease interceptor, and discharge from dishwasher shall bypass to the septic tank.

(c) Grease Traps. Kitchen drain lines from institutions, hotels, restaurants, schools, lunchrooms, and other establishments from which flow a relatively high combined flow rate of FOG (typically 50 gpm or greater) shall be discharged to a grease trap if a grease interceptor has been determined inadequate. FOG shall be discharged into a grease trap before being discharged into a septic tank. Grease trap effluent shall also be treated in the septic tank before being discharged into the wastewater collection system. Grease traps shall be constructed to insure both the inlet and outlet are properly submerged to trap grease and that the distance between inlet and outlet is sufficient to allow separation of the grease so that grease solids will not escape through the outlet. Grease traps shall be vented so they will not become air bound. A cover shall be provided and located so as to be conveniently accessible for servicing and cleaning. The cover shall be designed to prevent odor and exclude insects and vermin. Proper sizing of the grease trap should be based on efficiency ratings and flow capacities, which are determined by the number and kinds of sinks or fixtures discharging into the trap (See Appendix 1 for details). A detailed list of grease trap design features includes the following:

(i) Construction. Traps shall be constructed of durable, watertight materials, with sufficient structural load bearing capacity for use in traffic areas. Grease traps should be designed with at least two compartments separated by a full width baffle. The baffle should be located approximately 2/3 to 3/4 from the influent wall and extend above the liquid level. No trap filters are to be used due to clogging concerns.

(ii) Access. Access for cleaning should be provided by two 24-inch diameter manholes terminating 1-inch above finished grade with sealed cast iron frames and cover. Manholes should be located above the inlet and outlet tees.

(iv) Inlets and Outlets. Sanitary tees should be installed vertically on the inlet and outlet pipes. Tees should be the same size as the inlet and outlet piping, but not less than 4 inches in diameter. A pipe nipple with open top should be installed in the top of the tee and should terminate 6 inches below the roof of the trap. The inlet tee should have a vertical pipe drop extending 12 inches below the water surface. The outlet tee should have a vertical pipe drop extending to 1/3 of liquid level capacity from the floor. The elevation of the inlet pipe should be approximately 2.5 inches above the elevation of the outlet pipe.

(v) Location. Grease traps should be located just outside the restaurant or kitchen in an easily accessible location out of the way of normal traffic. However, the trap should not be located in flood prone areas. Outdoor installation is preferred due to accessibility. However, indoor installation may be approved by the City in special circumstances.

In all instances where a grease trap is required, it shall be installed upstream of the septic tank.

(vi) Prohibited Discharges. Sanitary wastewater (blackwater) shall connect to the drain line downstream of the grease trap. Garbage grinders are not allowed. Commercial dish washers shall not be connected to the grease trap and shall directly connect to the septic tank.

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(vii) Sizing. Grease traps should be designed based on flow rate and storage capacity, modified by a loading factor that takes into account the type or

location of the commercial facility. (See Appendix 1 for examples of grease trap sizing formulas.) The minimum size for a single grease trap shall be one thousand (1,000) gallons, and the minimum hydraulic detention time shall be 4 hours at design flow. The Owner may consider the use of multiple smaller capacity grease traps in series rather than a single large trap as long as the combined total capacity of the traps is one thousand (1,000) gallons or more.

(viii) Cleaning. Grease traps must be inspected and cleaned at regularly scheduled intervals as dictated by on-site experience, but generally once every three months. Solids and oil removal from the grease trap shall be the responsibility of the user, and shall be disposed of per local, state, and federal requirements. If cleaning is found to be necessary within less than a one month period, then the grease trap may be determined to be undersized.

(d) FOG application and implementation plan.

(i) New construction and renovation. Upon construction or renovation, all restaurants, cafeterias, hotels, motels, hospitals, nursing homes, schools, grocery stores, prisons, jails, churches, camps, caterers, manufacturing plants and any other sewer users who discharge applicable waste shall submit a FOG and food waste control plan that will effectively control the discharge of FOG and food waste.

(ii) Existing structures. All existing restaurants, cafeterias, hotels, motels, hospitals, nursing homes, schools, grocery stores, prisons, jails, churches, camps, caterers, manufacturing plants and any other sewer users who discharge applicable waste shall be required to submit a plan for control of FOG and food waste, if and when the superintendent determines that FOG and food waste are causing excessive loading, plugging, damage or potential problems to structures or equipment in the public sewer system.

(iii) Implementation of plan. After approval of the FOG plan by the superintendent the sewer user must:

(A) Implement the plan as determined by the local hearing authority;

(B) Service and maintain the equipment in order to prevent impact upon the sewer collection system and treatment system.

If, in the opinion of the Superintendent, the user continues to impact the collection system and treatment system, additional measures may be required. The FOG application and implementation plan can be found in Appendix 3.