

LINCOLN COUNTY SEWER SYSTEM

Fats, Oils and Grease Program



Adopted 9/16/2024

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I. PURPOSE

Lincoln County Sewer System, in order to comply with the County Sewer Use Ordinance and all applicable State and Federal laws, has developed a "Fats, Oils and Grease (FOG) Program" designed to provide uniform requirements for commercial and/or industrial establishments that discharge FOG within our collection system. This program requires all FOG producing establishments that discharge into the County's sanitary sewer system to install and maintain a grease interceptor/trap.

Our goal is to limit sewer blockages and prevent any sanitary sewer overflows by preventing the excessive introduction of FOG into the Publicly Owned Treatment Works (POTW). FOG blockages result in sanitary sewer overflows causing raw sewage to be released into communities, dangerous health conditions, and environmental impacts. These are costly events for the County to clean up, dangerous for public health, and can degrade the water quality of North Carolina's public waters. The County is required to track and report the cause and environmental impact of a sanitary sewer overflow to the North Carolina Department of Environment and Natural Resources.

This program is in no way intended to discourage development, but rather to protect the establishment's facilities and the County's infrastructure as it relates to the sanitary sewer system.

II. OVERVIEW

All Users shall provide means of preventing grease and oil discharges to the POTW. All interceptors/traps shall be maintained for continuous, satisfactory and effective operation by the User at their expense. Interceptors/traps shall be of a type and capacity approved by the County and shall be readily accessible for cleaning and inspections.

It is unlawful for any establishment producing oil and grease waste to discharge into the County's POTW without authorization. Authorization shall be given to the User, upon inspection and approval, in the form of a FOG discharge permit.

The County's FOG program will be evaluated periodically and will be modified or changed as necessary to maximize the effectiveness of the FOG program and/or to comply with County codes and State/Federal regulations.

III. DEFINITIONS

Approved Pumper/Hauler – A company/person permitted (NC General Statute 130A-291.1(c)) to engage in pumping, transporting, storing, treating or disposing of septic (NC General Statute 130A-290) and has been approved by the FOG unit. The pumper/hauler is responsible for assuring that all federal, state and local regulations are followed regarding waste transportation. A County approved pumper/hauler list will be updated on a regular basis.

County – Lincoln County.

Fats, Oils and Grease (FOG) - Organic polar compounds derived from animal and/or plant source that contains multiple carbon chain triglycerides molecules. It is a byproduct of food preparation, cooking, and cleanup of dishes, pots and pans, utensils, mopping of grease laden floors, etc. The substances are detectable and measurable using analytical test procedures in 40 CFR 136.

FOG Unit – Lincoln County personnel responsible for the enforcement and regulations of the Fats, Oils, and Grease Program.

FOG Generating Establishments (FGE) – Any commercial or industrial establishment that has the potential to release FOG to the POTW.

- **Food Service Establishments (FSE)** – Any commercial or industrial establishment engaged primarily or incidentally in the preparation of food, whether consumption occurs on or off the premises, for human or animal consumption. This includes, but is not limited to, restaurants, motels, hotels, hospitals, bakeries, delis, bars, cafeterias, meat processing operations, schools, and food trucks commissary.
- **Grease Generating Establishments (GGE)** – Any commercial or industrial establishment that may be capable of accumulating and discharging grease into the POTW.
- **Oil Generating Establishments (OGE)** – Any commercial or industrial establishment that may be capable of accumulating and discharging oil into the POTW. This includes, but is not limited to, automotive repair facilities with oil storage vessels in proximity to drains connected to the POTW or automotive carwashes.

Grease Interceptor/Trap – a device designed to separate grease and oils and settle food waste while allowing the remaining wastewater to be discharged to the County's POTW. They may be located inside or outside of the establishment. The terms "interceptor" and "trap" are used interchangeably throughout this document.

NOV – Notice of violation.

Oil/Water Separator – an in-line device used to remove oils, grease and immiscible solids from industrial/commercial process wastewater.

POTW – (Publicly Owned Treatment Works) a treatment works as defined by § 212 of the Federal Water Pollution Control Act (33 U.S.C §1292), which is owned in this instance by Lincoln County. This definition includes any devices or systems used in the collection, storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes, and other conveyances only if they convey wastewater to the POTW treatment plant.

SUO – refers to Lincoln County Sewer Use Ordinance which is codified as a Chapter 51 of the Lincoln County Code of Ordinances.

User – any owner, leaseholder or operator of a business, commercial or industrial, that discharges or has the potential to discharge wastewater containing FOG into the County POTW.

IV. GENERAL REQUIREMENTS

A. New Facilities:

All new FOG Generating Establishments are required to install a grease interceptor/trap. The County requires a minimum of a 1,000 gallon interceptor/trap and no greater than 1,500 gallon interceptor/trap. If more capacity than 1,500 gallons is needed, interceptors/traps shall be placed in series.

No new FOG Generating Establishments will be allowed to initiate operation until a grease interceptor/trap is installed by a licensed plumber and approved by the County FOG Unit.

See design guidelines below.

B. Existing Facilities:

A facility is considered existing if the facility was operating a FOG Generating Establishments prior to the adoption of this program.

The facility will be inspected by the FOG Unit to determine if there is a grease interceptor/trap or oil/water separator connected to the POTW.

If the facility is found to be adequate by the FOG Unit, and no FOG releases into the POTW, the standard guidelines will be followed.

If the facility is found to be deficient by the FOG Unit and FOG releases are entering the POTW, the device and/or the first downstream manhole will be inspected and/or tested. The FOG Unit will notify the User in writing of the deficiencies, required improvements, and given a compliance deadline not to exceed nine (9) months from date of letter.

Failure to be in compliance with this program within the specified time frame will be considered a violation of the SUO and may subject the User to penalties and corrective actions or service discontinuance.

See design guidelines below (section V).

C. New Facilities in Existing Building:

All new FOG Generating Establishments are required to install a grease interceptor/trap. The County requires a minimum of a 1,000 gallon interceptor/trap and no greater than 1,500 gallons.

No new FOG Generating Establishments will be allowed to initiate operation until a grease interceptor/trap is installed by a licensed plumber and approved by the County.

The County may grant a variance to User if warranted by hardship.

See design guidelines below (section V).

D. Variance:

Variances to the design requirements contained herein may be requested when compliance creates an undue hardship or if a smaller grease interceptor/trap is sufficient. Hardships caused by space availability, minimal anticipated FOG production, etc. may be grounds for a variance. The User must submit sufficient documentation, as required by the County.

A variance request application fee will be paid to the County upon the submission of the Grease Interceptor Variance Request Form (Appendix A) and prior to review of the application.

After the review of the application the County will notify the User in writing of acceptance or denial of the variance request. The County may request additional information or field observations pursuant to or as a condition of a variance.

Any User operating under a variance that makes any changes such as equipment, menu, size, etc., may be re-evaluated and treated as a new establishment.

The County reserves the right to add additional conditions to a variance or revoke a variance when deemed necessary to protect the POTW.

V. DESIGN GUIDELINES

All grease interceptors/traps and oil/water separators must be installed by a licensed plumber and shall conform to the NC Plumbing Code chapter 10, section 1003.

The County may, at any time, require establishments to have permanently fixed screens (max 1/4 inch openings) on all drain lines to prevent pass through of larger solids to the grease interceptor/trap and oil/water separator.

A. Grease Interceptors/Traps:

The County requires a minimum of 1,000 gallon interceptor/trap at all Food Service Establishments and Grease Generating Establishments. The maximum size allowed is a 1,500 gallon interceptor/trap. If an establishment is determined to need a volume greater than 1,500 gallons, then additional interceptor/traps should be installed in succession.

Interceptor/trap must have at least two compartments with interior baffles extending to the bottom of the interceptor/trap.

The baffle wall should extend above the waterline for the tank but should allow for an air gap at the top.

A freeboard space is required.

There MUST be access opening(s) over the inlet and outlet of the interceptor/trap. These opening(s) shall be brought up to at least finished grade to protect from surface water runoff and prevent infiltration.

Access covers shall be cast iron or equivalent, a minimum of 24" and not exceed 120 pounds. Access covers must be easily accessible at all times for inspections and cleanings. There shall be no hindrance from plants, shrubs, signs, trees, or objects placed on access covers, etc.

Design MUST accommodate sampling of the interceptors/traps effluent, measurement of the grease layer and solids level, and clean out pumping operations.

The inlet and outlet must have a T-pipe attached that extends down past the expected max fog layer. There should be a clearance at the bottom of the T-pipe to the bottom of the interceptor/trap.

Outlet tee must be 6" wide for sampling reasons, unless a sampling vault is present.

A 2" elevation difference between influent and effluent is required.

All joints need to be properly sealed.

Interceptors/traps will be required on all grease containing drains.

Dishwashers shall not discharge into an interceptor/trap if it is less than 1,000 gallons. All wastewater from a dishwasher's pre-rinse station/sink must be connected to an interceptor/trap.

Flow control fittings may be required to prevent overloading of the grease interceptor/trap and to allow for proper operations.

Wastewater from garbage grinders/disposals shall not be discharged to grease interceptors/traps.

See County's standard drawing for Typical 1000 to 1500 Gallon Grease Interceptor, SS-07, for specific design guidelines (Appendix C).

B. Oil/Water Separators:

The County requires oil/water separator at all Oil Generating Establishment.

Oil/Water Separators shall be designed by Engineer to prevent FOG from entering the POTW.

Since sampling will be difficult from an oil/water separator, Users may be required to take additional actions based upon effluent pollutant analysis.

VI. MAINTENANCE

All interceptors/traps or oil/water separator shall be maintained to ensure continuous, efficient, satisfactory, and effective operation at all times at the User's expense.

It is the Users responsibility to ensure proper cleaning of the interceptor/trap is being performed.

All repairs will be completed at the User's expense.

All grease interceptors/traps or oil/water separator shall be pumped and cleaned on a scheduled frequency set by the FOG Unit. Under no circumstances will an interceptor/trap be allowed less than a quarterly (90 days) pump and clean frequency.

A more frequent cleaning schedule will be required by the FOG Unit, if grease interceptor/trap is under 1000 gallons or deemed necessary.

All pumping and cleaning schedules may require adjustments in order to meet all the requirements set forth in this program and the SUO.

The transportation and/or disposal of waste generated by an interceptor/trap shall be subject to applicable federal, state and local regulations.

All Users shall train their employees on proper grease disposal practices (Appendix D).

VII. INSPECTIONS

Grease interceptors/traps or oil/water separators shall be inspected at the FOG Units discretion.

The User shall allow the FOG unit ready access at all reasonable times to all parts of the premises for the purpose of inspection, sampling, and records examination and copying or in the performance of any of their duties. See SUO §51.091

All Users shall maintain a file on-site which contains permits, manifests from the pumper/hauler for cleaning of and any documentation for repairs done to the interceptor/trap or oil/water separator. These records must be kept for three (3) years and readily accessible for inspection by the FOG unit.

All interceptors/traps or oil water separators shall be easily accessible and shall not be obstructed by landscaping, parked cars, signs, kitchen appliances, cleaning supplies, etc. Any obstruction that prevents easy access to inspection/sampling areas shall be removed promptly by the User and at their expense.

The FOG Unit will coordinate with the User and/or Pumper/Hauler to be present during a pump and clean at least annually to inspect the condition of the interceptor/trap or oil/ water separator walls, baffles, bottom, inlet and outlet pipes, etc.

The FOG unit shall have to right to set up on the Users property any devices that are necessary to conduct sampling, inspection, compliance monitoring and/or metering operations.

Denial of access to the Users property shall be deemed a violation. Unreasonable delays may constitute denial of access. See SUO §51.092.

VIII. COMPLIANCE

Any FOG Generating Establishment that is not in compliance with this program shall be subject to enforcement actions as established in the SUO.

A grease interceptor/trap or oil/water separator shall be considered out of compliance and fines/fees will be issued if ANY of the following conditions exist:

- Maintenance cleaning has not been completed within the allotted time approved by the FOG Unit.

- Inspection hindrance
- Failure to maintain on-site records
- Failure to submit records
- Falsification of records
- Failure to maintain interceptor/trap or water oil separator in proper working order
- Source of a sewer blockage or sanitary sewer overflow
- FOG concentrations exceed SUO §51.017

IX. PROHIBITIONS

The introduction of emulsifying agents such as enzymes, chemicals, grease solvents, emulsifiers or biological additives directly or indirectly into the grease interceptor/trap or oil water separator is prohibited.

Grease interceptors/traps or oil/water separators must be emptied of their content for efficient operation. The practice of re-introducing waste and/or wastewater pumped from interceptors/traps or oil/water separators back into the interceptor/trap or oil/water separator is prohibited.

Waste removed from grease interceptors/traps or oil/water separators are prohibited from being discharged into the POTW.

Disposal of fryer oil into the POTW or storm water system is prohibited.

Operating a FOG Generating Establishment without a FOG Unit issued permit is prohibited.

Causing a dilution of an interceptor/trap or oil/water separator is prohibited per SUO §51.020.

Modification to an interceptor/trap or oil/water separator manufactured design is prohibited.

See Lincoln County Sewer Use Ordinance §51.015 for additional prohibitions.

X. ENFORCEMENT

Enforcement of pretreatment violations will generally be in accordance with the SUO. However, the County may take other action against any User when the circumstances warrant and is empowered to take more than one enforcement action against any noncompliant User.

See Lincoln County Sewer Use Ordinance ENFORCEMENT §51.120, §51.121 and §51.122.

XI. PERMIT

ALL FOG Generating Establishments will be issued an annual permit after all fees and/or fines are paid. The permit must accompany all required paperwork for the grease interceptor/trap or oil/water separator.

This permit is written authorization for a FOG Generating Establishment to discharge into the County POTW.

This permit is non-transferable, and the County reserves the right to revoke a permit for non-compliance. See SUO §51.120(F)

A change in ownership of a Fog Generating Establishment shall be reported to the FOG unit, in writing, within thirty (30) days of the ownership change.

Any Users that goes out of business shall report such closure to the FOG Unit, in writing, within thirty (30) days of the closure. The User shall ensure that the grease interceptor/trap or oil/water separator is cleaned and pumped by an approved pumper/hauler prior to the building being vacated. The User shall, within thirty (30) days mail the final manifest to the FOG Unit.

Mailing address for FOG Unit:

Lincoln County
Pretreatment Department
7085 Old Plank Road
Stanley, NC 28164

XII. FEES

Annual permit fee – All FOG Generating Establishments will be assessed an annual permit fee. This fee is to offset the operating cost of the FOG program which includes, but is not limited to, typical monitoring, inspections and permitting.

Re-Visit fee – this fee will be assessed if the FOG Unit must re-visit/re-inspect any FOG Generating Establishment for a noncompliance issue at the discretion of the FOG Unit.

Sampling fee – this fee will be assessed if sampling is required at any FOG Generating Establishment at the discretion of the FOG Unit.

Variance Request fee – this fee will be assessed if a variance request form is completed and submitted to the FOG Unit for consideration.

All Fees will be determined each fiscal year and set forth in the County's schedule of charges and fees. This schedule can be found at:

[https://lincolncountync.gov/DocumentCenter/View/19440/FY24 Approved Schedule of Fees?bidId=](https://lincolncountync.gov/DocumentCenter/View/19440/FY24%20Approved%20Schedule%20of%20Fees?bidId=)

XIII. FINES

The fines provided in this section are not exclusive and do not prohibit the POTW Director from using any other remedy provided by the law. See SUO §51.999

A. Minor Violations:

1st Offense

Failure to submit/maintain on-site records:	Notice of Non-compliance
Inspection hindrance (equipment related):	Notice of Non-compliance
Failure to pump & clean interceptor/trap on assigned schedule:	Notice of Non-compliance

2nd Offense (within 12 months of 1st offense)

Failure to submit/maintain on-site records:	\$100.00 + NOV
Inspection hindrance (equipment related):	\$100.00 + NOV
Failure to pump & clean interceptor/trap on assigned schedule:	\$250.00 + NOV

3rd Offense (within 6 months of 2nd offense)

Failure to submit/maintain on-site records:	\$200.00 + NOV
Inspection hindrance (equipment related):	\$200.00 + NOV
Failure to pump & clean interceptor/trap on assigned schedule:	\$500.00 + NOV

4th Offense (within 3 months of 3rd offense)

Failure to submit/maintain on-site records:	\$400.00 + NOV
Inspection hindrance (equipment related):	\$400.00 + NOV
Failure to pump & clean interceptor/trap on assigned schedule:	\$1,000.00 + NOV

B. Intermediate Violation:

Failure to maintain necessary equipment in proper working order
(T's, baffles, watertight, etc.)

1st Offense	Notice of Non-compliance
2nd Offense	\$200.00 + NOV
3rd Offense	\$500.00 + NOV
4th Offense	Sewer Service Discontinued

C. Major Violation:

1st Offense

Falsification of records:	\$500.00 + NOV
Source of sewer blockage:	\$500.00 (min.) + NOV
Source of sanitary sewer overflow:	\$500.00 (min.) + NOV

2nd Offense (within 12 months of 1st offense)

Falsification of records:	\$1,000.00 + NOV
Source of sewer blockage:	\$1,000.00 (min) + NOV
Source of sanitary sewer overflow:	\$1,000.00 (min) + NOV

3rd Offense (within 6 months of 2nd offense)

Falsification of records:	Sewer Service Discontinued
Source of sewer blockage:	Sewer Service Discontinued
Source of sanitary sewer overflow:	Sewer Service Discontinued

Failure to pay all related fees and/or fines and remediation costs may result in sewer discontinuance.

Any User whose permit is denied, or is granted subject to conditions they deem unacceptable, or assessed a fine shall have the right to an adjudicatory hearing (see SUO §51.051 (l) Hearings).

APPENDIX A:

Variance Request Form



Grease Interceptor Variance Request

Lincoln County, NC

Date: _____

Variance Application Fee (\$300) must be received prior to consideration of variance request.

Food Handling Facility:

Facility Name: _____

Facility Mailing Address: _____

Company Name: _____

Company Address: _____

(If different from above)

Contact/Title: _____

Telephone: _____

Email: _____

A variance is to provide specific exceptions to the Fats, Oils and Grease (FOG) Program of Lincoln County, NC. Said variance is intended to give food handling facilities an avenue to provide substantial evidence to modify the FOG Program requirements while meeting the intent of the County Sewer Use Ordinance/FOG Program. If the variance request is approved and modifications are granted, all other requirements of the Sewer Use Ordinance/FOG Program, and any other requirements, remain in effect.

I understand that if a variance request is approved and substantial changes are later made in terms of food service (menu or production), seating capacity, or handling procedures, the variance may become void. I also understand that if this facility does not comply with all conditions of approval that may be made in granting this variance request or, if the County subsequently obtains evidence that excessive FOG is entering the sanitary sewer collection system from this facility or contributes to a sanitary sewer overflow, the variance may become void. Fees for sampling and laboratory analyses, if required, are in addition to the Variance Application Fee.

In completing this Variance Request, I certify under penalty of law that this document and all attachments were prepared under my direction or my supervision of qualified personnel. To the best of my knowledge, the information submitted herein is 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.

Signature of Authorized Representative

Title (if signature is not the "Contact" listed above)

Grease Interceptor Variance Request
Lincoln County, NC

1. Written explanation for the need to vary from the Lincoln County FOG Program

(Separate letter may be attached)

2. Food handling facility's hours of operation:

Monday _____ Tuesday _____ Wednesday _____ Thursday _____

Friday _____ Saturday _____ Sunday _____

If seasonal, identify months of operation _____

3. Does your facility currently have a grease trap(s)/interceptor? _____ Yes _____ No

If yes, please complete the following:

Provide information on Grease Separation Device(s): *(Attach additional sheet if necessary)*

Location: _____

Size (Capacity): _____

Manufacturer: _____

Model #: _____

Location: _____

Size (Capacity): _____

Manufacturer: _____

Model #: _____

Frequency of service: _____

Grease Hauler: _____

Name: _____

Contact: _____

Phone: _____

4. List all major equipment used for food preparation (i.e. grills, fryers, woks, etc. – include sizes/capacities if applicable):

5. Total seating capacity: _____

6. Does your facility ever utilize catering or off-site food preparation companies to provide meals?

_____ Yes _____ No

If YES, are any of the kitchen sink fixtures used to wash soiled dishes? _____ Yes _____ No

Grease Interceptor Variance Request
Lincoln County, NC

7. Provide an up-to-date copy of the indoor and outdoor plumbing plans including facility sewer connection, floor drains, grease removal equipment, sinks, restrooms, etc.

8. Submit a copy of the food service menu. (Breakfast, lunch, dinner, snacks, etc.)

9. Is all food served on single use serve ware? (Plates do not need to be washed)

_____ Yes _____ No

10. List kitchen fixture locations, intended use, number of compartments (i.e. Pre-rinse, 1-2-3-4 compartment sinks, prep sinks, dishwasher, garbage disposal, etc.)

Location	Intended Use (ex. Wash, prep, pre-rinse)	# of Compartments (ex. 1,2,3,4)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

TO BE COMPLETED BY COUNTY PERSONNEL:

Reviewed by:

_____ *Name/Title* _____ *Date*

Variance Request is: _____ Approved _____ Denied

If approved, the County allows the following specific exception(s) to the FOG Program.

With the following conditions:

APPENDIX B:

Sizing Worksheet

For

Interceptor Variance

Lincoln County Grease Interceptor Sizing Worksheet for Variance Requests - Manning Formula

WORKSHEET DIRECTIONS:

1. List all the fixtures required to be connected to grease interceptor.
2. List the actual drain sizes of each fixture.
3. List the quantity of each type of fixture.
4. Find the fixture rating based on drain size using the *Fixture Rating Table*¹ below.
5. Find the fixture multiplier for each fixture using the *Table of Common Commercial Kitchen Fixtures and their Corresponding Rating*² below.
6. Multiply "A" X "B" X "C" to figure the maximum GPM "D" for each type of fixture.
7. Add values in column "D" to figure the total GPMs for all fixtures "E".
8. Multiply "E" by the required retention time of 24 minutes to figure the minimum required grease interceptor gallongage.

Sum of column "D" (GPM) = "E"

X Retention Period (Minutes)

= Minimum Grease Interceptor Size (Gallons)

NOTE: Use the following maximum GPM values

Dishwasher = 10 GPM per unit

Mop sink and can wash = 6 GPM per fixture

¹Fixture Rating per Drain Size Table:

- 0.5 inch pipe diameter = 0.8 GPM/fixture
- 1.0 inch pipe diameter = 5.0 GPM/fixture
- 1.5 inch pipe diameter = 15 GPM/fixture
- 2.0 inch pipe diameter = 33 GPM/fixture
- 2.5 inch pipe diameter = 59 GPM/fixture
- 3.0 inch pipe diameter = 93 GPM/fixture

² Table of Common Commercial Kitchen Fixtures and their Corresponding Rating:

- 2,3, or 4 compartment pot sink = 1.0
- 1 or 2 compartment meat prep. sink = 0.75
- Pre-rinse sink = 0.5
- 1 or 2 compartment vegetable prep. sink = 1.0
- Floor drains = 0

EXAMPLE

X Retention Period (Minutes)

24

= Minimum Grease Interceptor Size (Gallons)

1,716

Round up to next standard grease interceptor size: Use 2,000 gallon interceptor

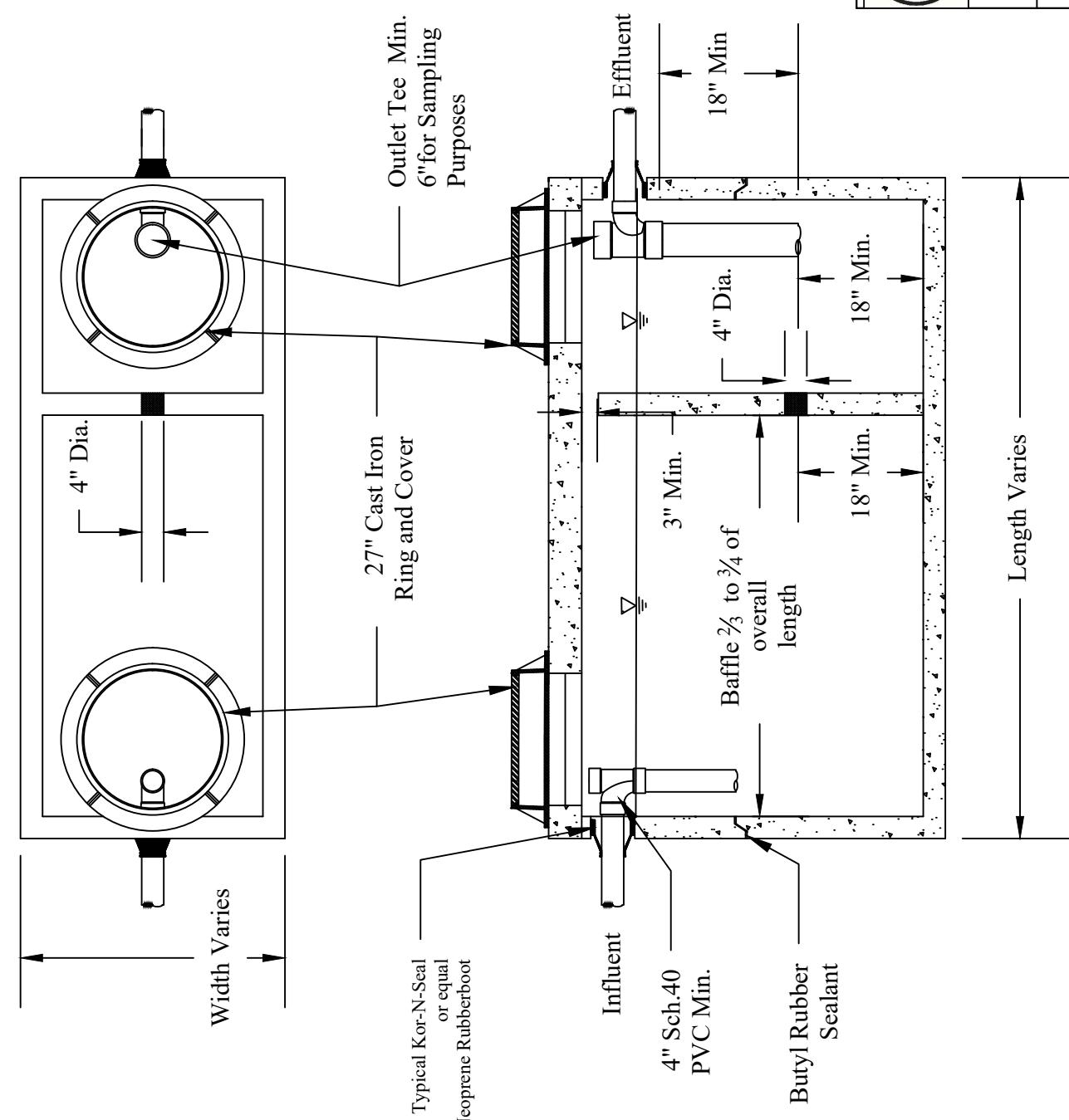
APPENDIX C:

Lincoln County

Typical Drawing

For

Grease Interceptor



LINCOLN COUNTY PUBLIC UTILITIES
115 W. MAIN STREET
LINCOLNTON, NC 28092
Phone (704) 736-8495
www.lincolncountync.gov

TYPICAL 1000 TO 1500 GALLON GREASE INTERCEPTOR

APPROVED:	JDD	11/13/2023	DRAWN BY:	JDH
SCALE:	N.T.S.	FIGURE :	SS-07	

APPENDIX D:

DEQ Fact Sheet

For

Best Management Practices

A Fact Sheet for Best Management Practices for Fats, Oils, and Grease



Fats, oils and grease (FOG) is a constant food service management issue. FOG going down into a facility's drain system from ware washing, floor cleaning, and equipment sanitation can be intercepted in the grease trap if conditions are right. If FOG passes through the grease trap into a sanitary sewer system - neither designed nor equipped to handle the FOG – accumulation will occur inside of pipes, manholes, and lift stations. Sanitary sewer overflows (SSOs) are in-part the result of FOG pipe blockages from residential, institutional and commercial sources. The best way to manage FOG is to keep the material out of the plumbing system drains. The following best management practices suggestions will help minimize FOG discharges.

Practice Dry Clean-Up

Removing food waste materials by methods such as scraping or wiping before using water will capture FOG containing residues before they go down the drain. Washing before any dry clean-up will flush the FOG along with other high-strength waste. Grease traps may have to be pumped more frequently if dry clean-up techniques are not followed. Never allow any quantities of FOG to be poured down the drain. Never allow food scraps to be disposed of down any drain. Staff education and availability of the tools for removal of food waste before washing will boost the success of dry clean up.

To practice dry clean up:

- Use rubber scrapers to remove fats, oils and grease from cookware, utensils, chafing dishes, and serving ware.
- Use food grade paper to soak up oil and grease under fryer baskets.
- Use paper towels to wipe down work areas.

Spill Prevention

Preventing spills will help reduce the amount of food preparation waste and areas that require clean up. Properly designed containers are necessary for spill prevention. Safety will be enhanced with fewer slips, trips and falls.

For spill prevention:

- Empty containers before they are full to avoid spills.
- Use a cover to transport interceptor contents to a rendering barrel.
- Provide employees with the proper tools (ladles, ample containers, etc.) to transport materials without spilling.

FOG Maintenance

Equipment used to pump, collect, filter and store cooking oil has to work properly every time or spills can occur. Ensure that all FOG management equipment is regularly maintained. An adequate number of staff should be trained to operate oil supply, filtration and waste collection equipment. Ergonomic containers should be available to protect worker safety. Daily and weekly maintenance schedules are highly recommended so FOG equipment is well managed.

Best Management Practice Ideas:

- Outdoor waste oil containment that is exposed to stormwater will need special attention, because spills and poor housekeeping in this location can result in a stormwater violation.
- Hood oil catch pans should be frequently dumped into waste oil and grease container to prevent overflow drips.

- Contract with a management company to professionally clean large hood filters. Small hoods can be hand-cleaned with spray detergents and wiped down with cloths. Hood filters can be cleaned by spraying with hot water, using little or no detergents, with the captured water discharged to a grease trap (this concentrated FOG will separate well in the grease trap). Afterwards filter panels can go into the dishwasher for complete cleaning with detergents.
- Skim/filter fryer grease daily. Change oil when necessary. Use a fryer oil test kit (from your food service distributor) rather than simply a “guess” to determine when to change oil. This extends the life of both the fryer and the oil.
- Develop a rotation system if multiple fryers are in use. Designate a single fryer for products that create high levels of deposits – filter that one more often.
- Used fryer oil should be collected in a waste oil tank to be held until transport for recycling.

Waste Oil & Grease Collection Container

- Waste cooking oil and grease is a valuable commodity if it is handled properly.
- Companies collecting these materials will pay for clean, water-free product.
- Storage containers kept outside need to be secured to prevent theft or vandalism.
- Storage containers should be storm secure to prevent seepage of water into the container.

FOG + Food Waste

- Food waste container can receive food wastes that contain residuals of cooling oil and grease that is not feasible to separate.
- Empty grill top scrap baskets and scraping boxes into food waste container.
- Do not allow any food wastes to be discharged into any sinks – it belongs in the food waste container.

Grease Trap / Interceptor

- Effective grease trap / interceptor operation requires: time for oil to separate from water; temperature low enough for grease to congeal; turbidity limited so that separated FOD will not re-mix into the flow through water; and pH is not too high from use of too much cleanser, keeping oils in an emulsion that passes through.
- Cleaning intervals depend upon the size and type of food establishment involved - removing all liquids and solids and scraping the walls maintains the full operating capacity of the interceptor.
- Complete removal of organic solids sediment on the bottom is as important as removing the grease at the top, so pumping frequency is in-part determined by how thick this layer accumulates between service intervals.
- Under-sink grease interceptors will require dedicated devices and / or containers to safely service these systems.
- During servicing of the grease trap, make sure it is inspected to verify condition of sanitary tees and baffle penetrations.
- Make sure that all grease-bearing drains discharge into a grease trap: mop sinks; woks; wash sinks; prep sinks; utility sinks; pre-rinse sinks; dishwashers; and all food preparation area floor drains.
- Make sure no lavatory wastewater is plumbed to the grease trap.
- Restaurants that would like to clean their own grease interceptors must have a septage management firm permit.

Service Provider Consumer Tips

Make sure FOG service providers are compliant with all applicable regulations before doing business.

- Grease trap / interceptor service providers must be permitted as waste haulers by the Division of Waste Management.
- Ask vendors (service providers) to explain the various permits they are required to hold.
- Ask your public utility's pretreatment staff for wastewater technology / services advice and recommendations.
- Ask for references, then call to verify claims for service proposals.
- Compare service provider companies.
- Beware of technologies that are "too exceptional to be true."
- Ask about what happens to all materials removed by a service provider.
- Ask for manifest documents and keep a copy on file as a permanent record.
- If you ever suspect improper material disposal by a service provider, contact NC DENR Customer Service at (877) 623-6747.



The Grease Goblin is the mascot for DEACS' Oil and Grease Management Program. He serves as a reminder to keep grease out of sinks and drains before it becomes a nuisance.

APPENDIX E:

DEQ Fact Sheet

For

Capturing Restaurant Oil and Grease

A Fact Sheet for Capturing Restaurant Oil and Grease



The Issue

Improperly managed fats, oils and grease (FOG) going into sinks and drains may not necessarily be captured even with an in-line grease trap / interceptor. Un-captured FOG may travel onward into a sanitary sewer system to become a big problem for both wastewater collection and treatment plant systems. FOG accumulates in pipes, manholes, and pump stations in the sanitary sewer collection system. Many sanitary sewer overflows (SSOs) can be attributed, at least in-part, to FOG blockage within the sewer system. SSOs are untreated wastewater (liquid sewage) spewing onto the ground, traveling a path of least resistance, gathering in low lying areas, or moving through stormwater channels into streams, creeks, rivers or lakes. All along the way, SSOs endanger public health because contact with raw sewage can transmit deadly diseases. Cleanup of SSOs is an expensive task - costs plus civil penalties can be imposed for causing a SSO. Costs of cleaning up SSOs not attributed to a specific sewer user are passed along to all customers in the form of higher wastewater treatment utility rates. Please help to keep FOG out of sinks and drains in order to protect the environment and to avoid additional costs.

The Solution

Captured used cooking oil is a valuable commodity. Whether it is deep fryer oil, remnants from pan frying, or meat fat drippings, if it can be kept somewhat free of contaminants (water and recognizable solids) there are many companies in North Carolina eager to pay for it. Some of these companies will provide a sanitary container to deposit the grease into. Some facilities install large quantity built-in collection tanks, having a lockable external suction hose

connection for convenient pumper truck pick-up. Collection routes are set-up to assure reliable service to pump out used cooking oil containers.

How is Captured Used Cooking Oil and Grease Recycled?

Used cooking oil and grease is recycled based on the "market value" of each batch or load. As a commodity, value is heavily dependent on the quality of the material relative to present end use levels of production and consumption. Economic conditions determine the best channel of re-use / recycling for used oil and grease. Some used cooking oil companies collect for a singular type of reuse / recycling.

Processing collected oil batches begins by heating so water can be rapidly decanted. Additional water is further removed through vacuum separation and centrifuge to remove solids. Batches are tested for pesticides and other contaminants to validate the higher value oil destined for animal feed ingredient markets. Removed solids are also sold for animal feed content if sampling analysis is passed. Other channels for sale and distribution for lesser quality oil may be soap production, cosmetic and skin care products.

Biofuels production is a growing end use channel for used oil and grease – some companies collecting used oil and grease will process the material into biofuel in-house. The popularity of biofuels has increased demand. Biofuels are frequently made from used oil having a lower market value than used oils used for animal feed production. Market conditions for used oils and grease destined to become biofuel are generally lower quality and price than animal feed ingredient used oil and grease.

What Happens to Un-Captured FOG?

The first FOG defense is preventing it from going down the drain. It is impossible to prevent all grease from going down the drain. Even if wares are scraped using dry cleanup techniques, the remaining FOG is washed off and sent down the drain. If conditions are appropriate, this FOG will be separated from the wastewater within the grease interceptor / trap to await pump-out. The grease trap is the final FOG defense for preventing it from entering into the wastewater collection system.

FOG cannot be sufficiently captured within an interceptor if:

1. Retention time is not sufficient for separation;
2. Water temperature is too high for oil to separate from the water;
3. Turbidity occurs as flow moves into each chamber, re-mixing contents; and / or
4. Wastewater pH is too high.

Retained FOG and solids within the interceptor cannot exceed design holding capacity. If too much trap volume is taken up as storage, flow will short circuit through the interceptor – neither oils nor solids will then be able to separate from the influent. FOG will pass through the trap, going out into the sewer system. Periodic trap maintenance is important to prevent separation failure. Backups, odors and drainage problems are delayed indications that the grease trap has not functioned as it should have for quite a long time. Periodic servicing of the trap involves removal of brown grease at the top and settleable solids at the bottom, along with inspection of the sanitary tees, spreaders and baffles. Pumper haulers document a manifest each time a trap is pumped as proof of service and for billing purposes. Customers are required to keep a copy to comply with FOG sewer use ordinance regulations.

What Happens to Captured Brown Grease?

Grease trap material, a.k.a. brown grease, is still considered a waste, requiring pumpers to be permitted by DENR's Division of Waste Management, so the cost of various disposal options is built into interceptor clean-out (pumping) service fees. Presently, grease trap pumpers transport the material to land application site, dewatering facility, wastewater treatment plant, composting operation, or rendering plant. Dewatered grease trap solids are thermophilically composted, anaerobically digested, land applied (after pathogen reduction), rendered or landfilled. Technologies are being developed for separation of energy rich oil components for reuse and this may help to offset some of the disposal costs for the remaining grease interceptor solid constituents. All brown grease disposal options are costly! Best management practices can reduce interceptor loading and potentially lessen pumping frequency.

Benefits of Grease Capture

Compliance - Wastewater utility sewer use ordinances strictly limit concentrations of fats, oil and grease discharged into sanitary sewers. All publicly owned wastewater utilities are required to maintain a FOG Program providing oversight of all food service entities discharging into the collection system. Pumping frequency, sampling, and analysis determines compliance judgement. Best management practices will help to maintain compliance by capturing FOG rather than letting it be discharged into the wastewater collection system.

Cost Avoidance - FOG source reduction techniques such as dry cleanup and cooking oil/ grease collection helps to reduce loading of the grease interceptor, so pump-out intervals may be extended resulting in cost savings.

Economic Incentives – Captured waste oil / grease is a desirable commodity having saleable value!

Environmental Savings - Beneficial reuse of captured used cooking oil / grease saves

natural resources. Capturing FOG helps prevent sanitary sewer overflows, which endanger public health and degrade natural resources.



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