Wallace Farm Inc.
Type 3 Compost Facility
Davie County Site

Wallace Farm
Soil Products
est. 1945

Permitting Report

July 2014

GARRETT & MOORE
Engineering for the Power and Waste Industries

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07/09/14

GARRETT & MOORE
Engineering for the Power and Waste Industries

July 9, 2014

Ms. Donna Wilson
North Carolina Department of Environment and Natural Resources
Division of Waste Management
Solid Waste Section
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

RE: Permit Application
Wallace Farm Inc. Type 3 Compost Facility
Davie County, North Carolina

Dear Ms.Wilson:

On behalf of Wallace Farm Inc., we are pleased to submit the enclosed permit application for the proposed Type 3 Compost Facility located in Davie County, North Carolina. The permitting report is organized to address the three specific approvals required from NCDENR as follows:

Part 1 – Compliance with NCDENR Solid Waste Section Rule .1400 – Solid Waste Compost Facilities

Part 2 – Notice of Intent for National Pollutant Discharge Elimination System application for coverage under General Permit NCG240000

Part 3 – Erosion and Sediment Control Permit Application

The permitting report and permit drawings are being submitted to the appropriate representatives in the Water Quality Permitting Section and the Land Quality Section for review and approval.

If you have any questions or need additional information, please call.

Sincerely,

GARRETT & MOORE, INC.

Bernie Garrett

Bernie Garrett P.E.

Cc: Eric Wallace

1100 Crescent Green Drive, Suite 208, Cary, North Carolina 27518 • O: 919-792-1900 • F: 866-311-7206

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Part 1 – Compliance with NCDENR Solid Waste Section Rule .1400 – Solid Waste Compost Facilities

PERMIT APPLICATION DEMONSTRATING COMPLIANCE WITH SOLID WASTE SECTION RULE .1400-SOLID WASTE COMPOST FACILITIES FOR WALLACE FARM, INC.

DAVIE COUNTY TYPE 3 COMPOST FACILITY

OWNER:

Wallace Farm, Inc.

14410 Eastfield Road
Huntersville, NC 28078
Phone: 704-875-2975

ENGINEER:
Garrett & Moore, Inc.
1100 Crescent Green Drive
Suite 208
Cary, NC 27518
Phone: 919-792-1900

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1.0 - GENERAL

Wallace Farm, Inc. (herein also referred to as Wallace Farm) plans to operate a Large Type 3 Compost Facility off Lee Jackson Rd. in Davie County, North Carolina. The facility will process various types of feedstocks, including animal manures, yard waste, wood waste, land clearing debris, waste water treatment residuals, cotton and tobacco materials, food and/or animal processing residuals, and food waste. All of the feedstocks used at the facility are non-hazardous. (Further details on materials for composting operations are detailed below.) These operations help ease environmental and energy burdens on the state, and produce useful end-products, while helping meet the state's recycling goals.

General Statute 130A-309.04 calls for reducing the public's use of, and reliance upon, landfills. Composting is a key, preferred method for achieving this goal. With its green operations, Wallace Farm enhances and promotes this critically important goal for all citizens of North Carolina.

The accompanying permit documents have been compiled to meet requirements of the North Carolina Department of Environment and Natural Resources (NC DENR) Division of Waste Management - Solid Waste Section as outlined in the North Carolina Solid Waste Compost Rules - Section .1400 - Solid Waste Compost Facilities.

2.0 - APPLICATION REQUIREMENTS

This application addresses requirements for a Large, Type 3 Solid Waste Compost Facility, as detailed in the North Carolina Solid Waste Compost Rules - Section .1400. These materials were prepared under the supervision and direction of a professional engineer duly registered in the State of North Carolina.

2.1 – PERMIT DRAWINGS

Permit drawings, which address the requirements of Rule .1405 (b) (1) and (b) (5), are included as an attachment to this report.

2.2 - ZONING

A letter from the unit of government having zoning jurisdiction over the site is included in Appendix A. The compost facility is allowed within existing zoning.

2.3 - SITING AND DESIGN STANDARDS

The following sections include description of how the solid waste composting operations comply with siting and design standards in Rule .1404 of the North Carolina Solid Waste Compost Rules.

2.3.1 - Floodplain

The solid waste composting operations are not within the 100 year floodplain.

2.3.2 - Property Line Buffer

Wallace Farm will operate such that the minimum 100 foot buffer from the property line to the solid waste composting area will be maintained. The permit drawings demonstrate compliance with the property line buffer.

2.3.3 - Residences Buffer

The facility is to operate such that the minimum 500 foot buffer between areas for composting solid waste and pre-existing residences will be met. The permit drawings illustrate compliance with residence buffer.

2.3.4 - Well Buffer

One well is located on the property near the existing building. A minimum 100 foot buffer will be maintained between the well and compost areas as indicated on the permit drawings. Each residence identified on the permit drawings is assumed to have a well located at the property boundary of the facility. The permit drawings demonstrate compliance with the well buffer.

2.3.5 - Perennial Streams/Rivers Buffer

A minimum 50 foot buffer is to be maintained between perennial streams/rivers and solid waste composting areas. The permit drawings demonstrate compliance with perennial stream/river buffers.

2.3.6 - Surface Water Quality Standards

The stormwater from the proposed facility will discharge to Sugar Creek, which is part of the Yadkin-Pee Dee River Basin. There are no water classifications or water quality standards that prohibit locating the Type 3 compost facility along Sugar Creek. Stormwater discharges from the facility will be permitted in accordance with NPDES General Permit No. NCG 240000. The permit application package is included in Part 2 of this permit document. Issuance of NPDES General Permit No. NCG 240000 NCDENR and compliance with the permit by the Owner constitutes compliance with the surface water quality standards of Rule15A NCAC 2B .0200 – Classification and Water Quality Standards Applicable to Surface Waters in North Carolina.

2.3.7 - Closed-Out Disposal Area

The composting facility is not located over a closed-out disposal area.

2.3.8 - Adequate Access

A 25 foot minimum distance will be maintained around the periphery of the composting areas to allow adequate access by fire fighting equipment. The permit drawings demonstrate compliance with adequate access.

2.3.9 - Surface Water Requirements

As site shall meet the following surface water requirements:

(A) A site shall not cause a discharge of materials or fill materials into waters or wetlands of the state that is in violation of Section 404 of the Clean Water Act; No waters or wetlands of the state will be filled to construct or operate the proposed facility.

(B) A site shall not cause a discharge of pollutants into waters of the state that is in violation of the requirements of the National Pollutant Discharge Elimination System (NPDES), under

Section 402 of the Clean Water Act. Stormwater discharges for operations of the proposed facility will be permitted in accordance with NPDES General Permit No. NCG 240000.

(C) A site shall not cause non-point source pollution of waters of the state that violates assigned water quality standards. Stormwater discharges during construction of the proposed facility will be permitted in accordance with NCDENR's Erosion and Sediment Control rules.

2.3.10 - Groundwater Requirements

Soil Survey Review

Initially, a desktop review of available literature was performed to characterize the soil and groundwater conditions anticipated at the site. Review of the Soil Map for Davie County, North Carolina, as presented on the Web Soil Survey maintained by the United States Department of Agriculture, National Resource Conservation Service (http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx) indicates the soils at the site consist primarily of Oak Level clay loams (OkB2 & OkC2) and Rasalo fine sandy loam (RaB). Per the Soil Survey, the typical profiles for the clay loams (OkB2 & OkC2) includes clay loam from 0 to 7" below ground surface, clay 7"-30", clay loam 30-38", and loam 38-80". The typical profile for the fine sandy loam (RaB) includes fine sandy loam from 0 to 9" below ground surface, clay 9"-23", clay loam 23-36", and fine sandy loam 36-80". The reported depth to the water table presented in the Web Soil Survey is greater than 200 centimeters (greater than about 6.5 feet) at the site.

Site Investigation

A site investigation was performed to confirm the soil survey findings and further characterize the site with respect to near surface soil and groundwater conditions. On May 30th, 2014, a professional geotechnical engineer visited the site to perform and observe a series of test pits. A total of 12 test pits were advanced across site at the approximate locations shown on the permit drawings. The test pits were excavated using a Bobcat 325 mini-excavator with depths ranging from about 4.5 to 6 feet below the ground surface. During the test pit excavations, the geotechnical engineer visually characterized the soils, collected bulk samples, and observed and logged the subsurface conditions.

The soil conditions were observed to be generally consistent across the site and typically consist of:

1. Sandy Clay (CL) w/ near-surface rootmat:
    a. low plasticity, 15-25% fine sand (estimated), brown, moist
    b. ground surface to depth of 6” to 12”, underlain by:
2. Clay with Sand (CL/CH):
    a. low to medium plasticity, 5-15% fine sand (est.), orange/brown, moist
    b. extending to about 2.5’-3.0’ below ground surface, underlain by:
3. Sandy Silt (ML/MH):
    a. low elasticity fines, 15-25% fine sand (est.), orange/brown, moist
    b. extending to about to about 3.5’-4.5’ below ground surface, underlain by:
4. Sandy Silt to Silty Sand (ML to SM):
    a. low to non-elasticity fines, 25-50% fine sand, orange/brown/grey, moist.

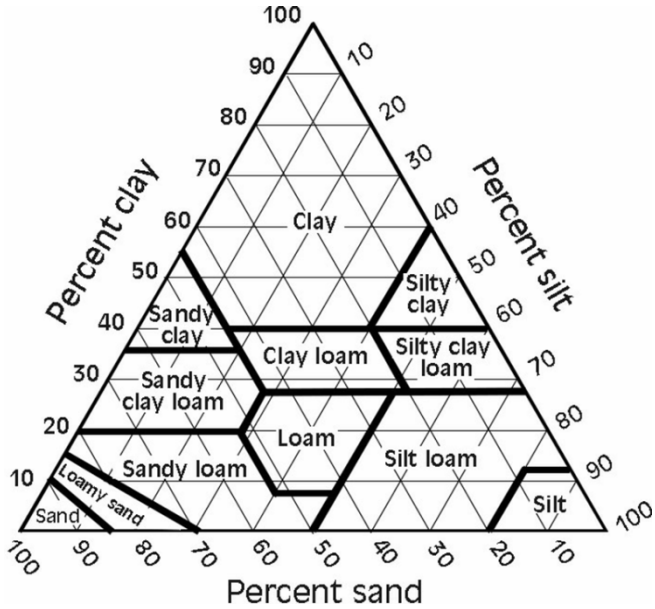
Isolated boulders were observed at various depths in the test pits along the western boundary of the site (TP-8, TP-9, and TP-10). No evidence of bedrock was observed in any of the test pits.

No evidence of groundwater (wet and/or saturated soils; standing or visible water, grayish colors suggestive of saturated conditions) was observed within 24” of the ground surface. While no wet/saturated soils or visible water where observed throughout the vertical extent of the test pits, some limited grayish coloring was observed in the sandy silt/silty sand layer encountered near the bottom of the test pits at depths greater than 3.5-4.5’ below ground surface, which suggest the potential that groundwater could be present in this zone part of the year.

Consistency with Section .1400

Siting/design requirements (Rule .1404.(a)(10)(B)) requires that portions of the site used for waste receipt and storage, active composting, and curing shall have a soil texture finer than loamy sand and the depth to the seasonal high water table shall be maintained at least 24 inches for a Type 3 facility.

Loamy sand is not defined in .1400, however the United State Department of Agriculture (USDA) characterizes loamy sand as soil material that contains between 70 and 91% sand and the percentage of silt plus 1.5 times the percentage of clay is 15 or more; and the percentage of silt plus twice the percentage of clay is less than 30. A graphical representation for loamy sand from USDA is found below:



The soils encountered in the test pit explorations at the site have a soil texture finer than loamy sand. The estimated percentage of sand for the soil in the upper 3-4' of the site were less than 50% (estimated as 25% or less) and classify as clays/silts. The sandier material encountered at the bottom depths of the test pits also were observed to have estimated sand contents of 50% or less. Loamy sand is characterized by USDA as having between 70 and 91%. As discussed above, the site soils are significantly finer than loamy sand and therefore this portion of Rule .1404(a)(10)(B) is satisfied.

As earlier discussed, no evidence of groundwater (wet and/or saturated soils; standing or visible water, grayish colors suggestive of saturated conditions) was observed within 24" of the ground surface. While no wet/saturated soils or visible water where observed, some limited grayish coloring was observed in the sandy silt/silty sand layer encountered near the bottom of the test pits at depths greater than 3.5-4.5' below ground surface, which suggest the potential that groundwater could be present in this zone part of the year. Provided portions of the site used for waste receipt and storage, active composting, and curing are graded such that finish grades are no greater than 1-1.5' below existing grades, the depth to the seasonal high water table will be maintained at least 24 inches and this portion of the Rule .1404(a)(10)(B) is satisfied.

2.3.11 - Public Access

The facility will not allow uncontrolled public access. A fence surrounds the proposed facility on all sides.

2.3.12 - Sedimentation Pollution Control Law

Stormwater discharges during construction of the proposed facility will be permitted in accordance with NCDENR's Erosion and Sediment Control rules.

Stormwater discharges for operations of the proposed facility will be permitted in accordance with NPDES General Permit No. NCG 240000.

2.3.13 - Air Pollution Control Requirements

The facility is to be operated to meet air pollution control requirements to minimize fugitive odorous emissions and to minimize odors at the property boundary. Minimize means to reduce to the smallest amount, extent, or degree reasonably possible. Operational procedures for maintaining aerobic conditions within the compost piles will be applied to minimize odor generation. These procedures include adjusting the porosity, moisture content and pH of mixes. Additionally, the carbon to nitrogen (C:N) ratio of the initial mix will be greater than 20:1 to minimize the release of nitrogen based compounds such as ammonia.

An additional step that may be utilized is covering windrows with carbonaceous materials, as described in Section 2.6 and in the O&M Manual. A conveyor mounted on a spreader may be used to apply a layer of carbonaceous materials to windrows after formation, and following turning.

The composting operations have been strategically placed on site to minimize odors at the property boundary.

2.4 – FEEDSTOCK AND MATERIAL TYPES

Feedstocks to be composted under this permit include animal manures, wood materials, yard waste, cotton materials, food and/or animal processing residuals, food waste, waste water treatment residuals, grease trap residuals, US domestic tobacco material, wood ash, cardboard, bleaching clay, cosmetics production materials, virgin gypsum board, lime, and starch water. Wood materials to be composted at the facility under this permit include land clearing debris, yard waste, wood shavings,

sawdust, and pallets. Wood materials are from ground and unground land clearing debris and pallets. Ground and unground yard waste is generated by local municipalities and the general public. The wood shavings are generated from sawmill and furniture manufacturing operations. All wood materials will not have been painted, stained, glued, nor treated. The ash is from facilities that have received approval from NCDENR or DWQ for ash distribution.

The food processing residuals result from biological treatment of animal and/or food processing wastewater (with no human components) and the food waste comes from vegetable, dairy, meat, and bakery products. No domestic wastewater is included in the food residuals, food waste, the cosmetic, or starch water waste streams. New waste streams will not be received until approval by the Division of Waste Management.

The only feedstocks that presently can be expected to have seasonal variations in availability are leaves, yard waste, and mulch. Leaves are seasonal and arrive in the fall and winter. Ground mulch typically arrives during the drier months of the year when land clearing jobs are undertaken. These factors vary depending upon the economy and the extent of construction activities. It is very important for Wallace Farm to stockpile this material when it is available to help make it through times when it is not.

Estimated annual quantities of feedstocks are summarized in Table 1. Please note that, as can be shown in annual reports submitted by Wallace Farm, exact quantities received will vary from year to year and from feedstock to feedstock, and in some years certain feedstocks might not be available at all.

Table 1. Estimated[1] Annual Feedstock Quantities

Feedstock	Estimated Annual Range (Tons)	Estimated Density[2], lb/ cubic yard	Estimated Annual Range (cubic yards)
Ground Wood Debris	35000 - 60000	700	100000 – 171400
Yard Waste	8000 – 18000	600	26700 – 60700
Food Processing Residuals	35000 - 45000	1650	42400 - 54500
Cotton	500 - 1000	400	2500 - 5000
Sawdust/Shavings	500 - 1000	440	2300 - 4500
Food Waste	1000 - 2500	1400	1400 - 3600
Animal Manures	1000 - 1500	750	2700 - 4000
Tobacco	500 - 1000	400	2500 - 5000
Wood Ash/Lime	1500 - 6000	1100	2700 - 10900
Cardboard	100 - 1000	260	800 - 7700
Virgin Gypsum Board	100 - 1000	1485	100 - 1300
Bleaching Clay	2000 - 4000	685	5800 - 11700
Cosmetic Production Residuals	500 - 1000	1500	700 - 1300
Starch Water	7000 - 8000	1685	8300 - 9500
Vegetable Waste	12000 – 50000	550	43600 - 181800
Unground Wood	1000 - 4000	850	2400 - 9400

[1]Quantity estimates are for years when feedstocks are available. Not all feedstocks are available each year The estimated values are subject to change.
[2]Densities are field measurements, or estimated from various references.

2.4.1 Design (or maximum throughput) capacity

The design capacity (or maximum throughput rate) of a windrow based facility is a function of a number of factors, including composting, curing, and storage times. These factors can vary depending on operations approaches (composting has minimum time and temperature requirements, for example, but longer times may be used), market conditions, and sales outlets' timing and needs. One means of estimating the design capacity is to consider product mixing rates. Based on experience of operating the Type 3 compost facility in Huntersville, production rates are anticipated to approximately 110,000 tons per year, using a single shift for product mixing. The maximum throughput based on product mixing for two shifts a day would be about two times this rate, or on the order of 200,000 tons per year. The maximum practicable throughput rate of the facility is approximately 200,000 tons per year.

2.4.2 Soils

Refer to Section 2.3.1

2.5 - SITE PLAN

The facility site plan is included in the permit drawings.

2.6 - OPERATION DESCRIPTION

Facility Operator: Eric Wallace
14410 Eastfield Road
Huntersville, NC 28078
Tel (704) 875-2975

The following describes facility operations. Dry carbonaceous materials (including wood materials, yard waste, sawdust, wood shavings, and cotton materials) are delivered to the facility and off loaded in the receiving area. A 1564 Hogzilla tub grinder, Multiple Volvo, John Deere, and Cat wheel loaders, and a 320 Cat excavator are used for regrinding land clearing debris and for grinding unground land clearing debris, yard waste, and pallets. Materials with significant water content (including food and/or animal processing residuals, waste water treatment residuals, manures, US

domestic, tobacco waste, food wastes, cosmetics waste, and starch water) are unloaded directly into the concrete receiving/mixing pit for preparing compost mixes. The mixing pit can hold approximately 900 cubic yards of dry materials and approximately 120 tons of material with significant water content.

The facility will utilize frac tanks or vertical tanks for storing liquid products that arrive when the mixing pit is in use. Multiple tanks will be utilized to provide up to 45,000 gallons of liquid storage. These tanks can also be used for off-loading shipments of high-water content feedstocks that arrive when the mixing pit is in use and/or filled to capacity. Use of the tanks will help maximize operations efficiency. (More detail on these tanks is provided in Section 2.7.)

The mixing pit will be approximately 90 feet by 75 feet with up to 10' high walls. The mixing pit will be constructed of 8" thick concrete floor and 10" thick concrete walls. A concrete unloading and washout area will be located above the pit.

Materials are blended in the mixing pit by thorough mixing using one or two Volvo, John Deere or Cat front end loaders at a rate of 300-400 yards per hour, targeting a homogenous mixture with a C:N ratio of 20:1 to 30:1 and a moisture content of 40-60%. After the last mixture is prepared and removed for further processing, the walls and dump areas are washed down with a high pressure hose. The wash water is directed into the pit, to which fresh bulking material is added on the bottom to absorb the moisture.

Analytical laboratory results for incoming feedstocks are used to determine the quantity of each feedstock to use in each compost mix. The feedstocks will be sampled annually and such analytical results will be updated and provided to the Division.

Parameters for each feedstock (%C, %N, moisture content, and bulk density) are entered into standard mass-balance equations for composting—those in use were originally acquired by Wallace Farm at a one of the national composting schools**.** In addition, a standard computer spreadsheet is on-hand for verifying product mix ratios. Quantities of feedstocks used in mixtures are measured using two approaches: mass measurements of each feedstock load (known using tare readings), and by using the volume of the front end-loader buckets. When liquid wastes are stored, volumes routed to the mixing pit are measured from knowledge of the fraction of tank capacity utilized.

Within two hours of blending, the mix is transported to the composting pad using dump trucks and placed into windrows. A front end loader is used to improve the shape of the windrows

as necessary. Windrows are constructed approximately 14 - 16 feet wide, 5 - 7 feet high, and several hundred feet long. The windrows are turned periodically using a Backhus windrow turner to maintain aerobic conditions within the pile and to invert and fluff the windrow. The composting areas slope with the natural lay of the land to facilitate drainage and allow access during any weather conditions.

Material generally remains in the turned windrows for approximately eight to sixteen weeks, followed by placement in a static pile for a minimum of six months. The material achieves the process to further reduce pathogens (PFRP) requirements (as well as Vector Attraction Reduction requirements) in the windrows by maintaining pile temperatures at or above 131°F for at least 15 consecutive days. Windrows are turned at least five times during the period when temperatures are ≥ 131ºF. During the PFRP period, temperatures are measured one time per week until requirements have been met. An oxygen meter is used to measure oxygen content of compost pile pore space, and usually is applied at the same time that temperatures are checked. Current process durations for the various steps are shown in Table 2.

Working windrows vary from 5 - 7 feet in height by 14 - 16 feet in width. Cross-sections vary depending upon initial size at set-up, and due to shrinkage. Windrow lengths may vary. Other windrow sizes may be used, depending upon equipment settings, and other factors.

Table 2. Process durations at Wallace Farm.

Step	Process duration
Receiving	• 0.5 hours for weighing and removal • Storage of feedstocks and bulking agents up to 180 Days • Storage of high water content feedstocks up to 72 hours
Preparation	• 1 hour for each mixing pit loading • 2 days for each windrow
Composting	8 to 16 weeks
Curing	6 to 18 months
Distribution	• 36 months of onsite storage • Occurs all year, with increases in distribution occurring in the Spring and Fall.

In the event that a batch of compost does not meet state or facility requirements for distribution, the material can be added to a new compost mix for reprocessing or applied to farm land. (Land application of compost not meeting state requirements must be pre-approved by DENR.) If land is not available for land application, then an approved municipal solid waste landfill can be used as a last resort for disposal.

After composting, the material is screened to approximately ½-3/8 inch to prepare for marketing. The compost is marketed as Composted Cow Manure, Grade A Compost Plus, and Mushroom Compost. In addition, the compost is mixed with other materials to create a variety of products. These products include items such as Blended Top Soil, Planting Soils, and Potting Soils.

These products are marketed in both bulk and bagged form. Many professional landscape organizations and retail outlets utilize the final products. In the event material cannot be marketed, it will be applied according to regulations to pasture or farmland to supplement commercial fertilization practices.

Personnel at Wallace Farm are trained to perform various work tasks on the farm and in conjunction with the composting operation. There is not a precise routine at the composting facility. Different personnel will work together to perform specific operations on a specific day. For

example, moving material off of the composting pad to the static pile may be the priority one week, whereas screening the material in preparation for marketing may be the priority the next week.

Listed below are some general operations typically performed by personnel at the facility:

General Manager - Manage all operations and direct work efforts
Office Manager - Coordinates all billings and administrative activities
Fleet Manager - Coordinates all deliveries and trucking operations
Tractor Trailer and Dump Truck Drivers - Haul feedstocks and finished materials
Front End Loader Operator - Mixes feedstocks/shapes windrows/loads product/mixes and screens finished products
Compost Turner Operator - Turns windrows/monitors compost piles
Bagging Line Operator - Bags finished products

The operation schedule varies as for other farm operations. Operations procedures may be performed seven days per week depending on the work to be accomplished.

There are few routine tasks performed at the start of each day. Other than unlocking the buildings, work is resumed from the previous evening. For example, bagging lines are restarted, and compost mixing recommences.

Activities performed at the end of each day include: washing down the concrete receiving area and mixing pit, removing keys from all trucks and equipment, locking fuel tanks and buildings.,

Airborne particulates are generally associated with dry compost. The initial mix solids content can be varied during mixing to prevent over drying of the piles during composting. In addition, water from the collection pond, or water from an on-site farm pond may be used to add moisture, if necessary. A tractor driven PTO (power take-off) pump is used to fill a 4,000 gallon Hydroforce water tank that is mounted on an International truck, and/or a 5,000 gallon Hydroforce water tank mounted on a Volvo, off-road truck. The water trucks are equipped with spray nozzles for applying water to travel areas and are equipped with specially designed nozzles for applying water to the top of compost windrows.

Wallace Farm reports the following operational approach for meeting PFRP. During the first month following windrow formation, Wallace Farm targets turning windrows every 5-10 days. If necessary, water from the collection or a farm pond is added to windrows during this time, which is prior to the start of PFRP. PFRP is typically met during the second month of active composting. (As stated in the regulations, for meeting PFRP, “Aerobic conditions shall be maintained during the

compost process. A temperature of 131 degrees F (55 degrees Celsius) or greater shall be maintained in the windrow for at least 15 days. During the high temperature period, the windrow shall be turned at least five times." As noted above, Vector Attraction Reduction is accomplished by meeting PFRP requirements.) If additional water is needed during this PFRP period, well water is used. After PFRP has been met, turning frequency is reduced to approximately every 10 days.

Household wastes are not part of the Wallace Farm feedstocks, such that household hazardous wastes (nor any type of hazardous wastes) are not expected. If household hazardous wastes were delivered, they would be seen during unloading and/or during product mixing, and they would be removed and disposed of in an approved facility.

2.7 - PROCESS FLOW

The process flow is depicted in Figure 3, with further details in the Process Flow Fact Sheet which follows. Processing steps are described in following sections. The tonnage values are estimates only and are subject to change. The total annual quantity received will not exceed 200,000 tons.

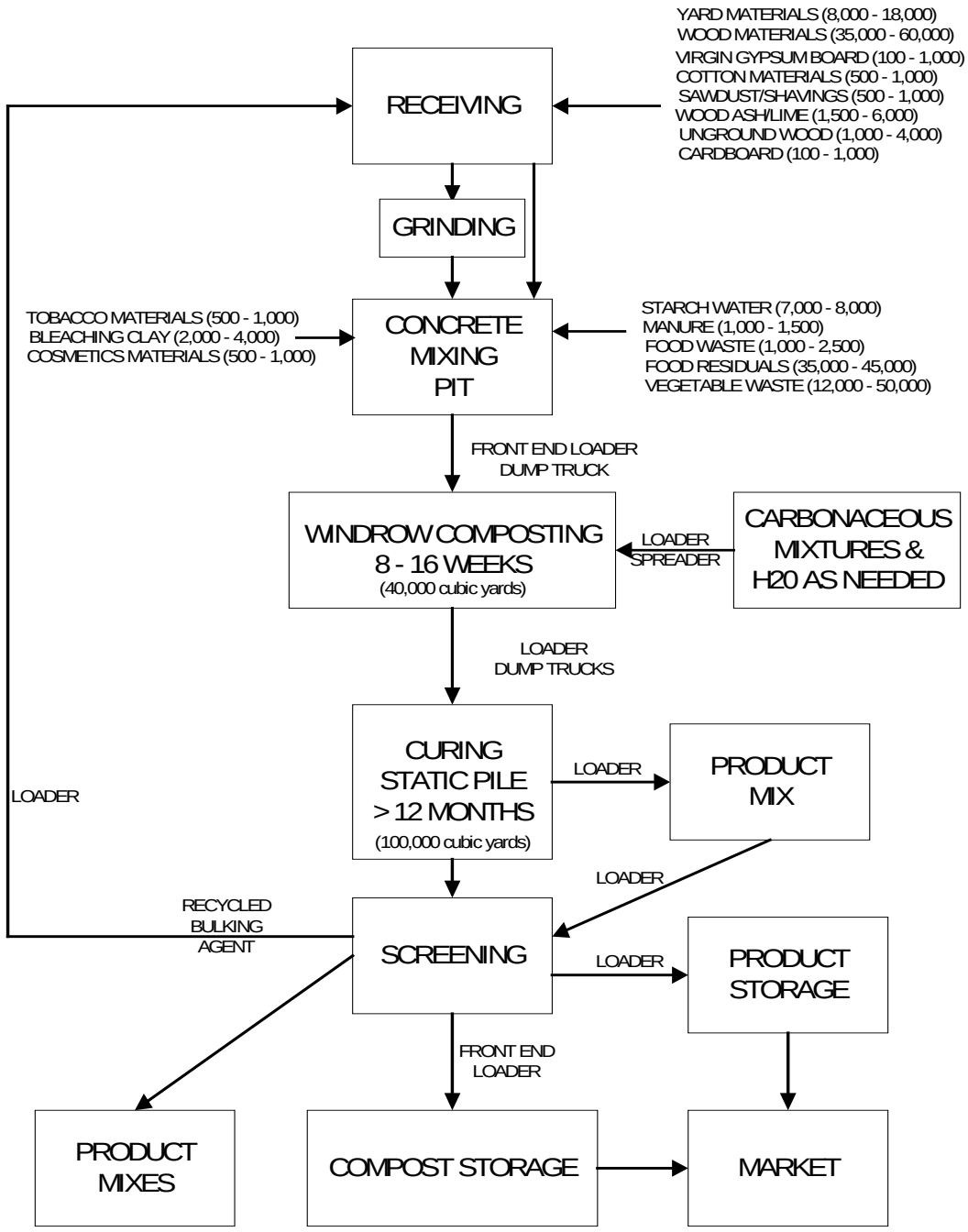


Figure 3. Wallace Farm Solid Waste Composting Facility Process Flow Diagram (see text for further details). All values are in tons/year, unless otherwise indicated.

Process Flow Fact Sheet

This Fact Sheet information summarizes the processing steps and equipment at the facility. Note that aeration capacity is not cited because passive aeration is the method in use.

Grinding

- A 1564 Hogzilla tub grinder is used to grind and regrind incoming wood and yard materials at 240 cu yds/hr.
  Volvo 150, Cat 962, John Deere 644 or 724 loaders and a Cat 320 excavator are also used when the grinder is in operation. Bucket sizes are 6 and 2 cubic yard, respectively.

Mixing Pit

- Volume: approximately 1500 cubic yards
- The detention time when mixing is performed is from 1 to 3 hours
- Equipment Used at Mixing Pit:
  - (1-2) Volvo 150 wheel loaders (6 cubic yard bucket)
  - Caterpillar 962 wheel loader (5 cubic yard bucket)
  - John Deere 724 wheel loader (5 cubic yard bucket)
  - (3) John Deere 250 articulated dump trucks (18 cubic yard capacity each)
  - (4) Ford 8000 tandem dump trucks. (18 cubic yard capacity each)
  - The equipment listed above is capable of mixing and hauling approximately 300 cubic yards per hour.

Windrow Composting

- Bachkus self-propelled compost turner on tracks. The Bachkus turner is capable of turning a windrow 5-7 feet tall and 14-16 feet wide at approximately 1200 cubic yards per hour.
- A 4055 or 4455 John Deere tractor and Knight manure spreaders that have been modified with a custom side discharge conveyers will be used to apply carbonaceous materials to the top of windrows. The Knight spreader has a capacity of approximately 18 cubic yards which will adequately cover one windrow.
- An International water truck and a Volvo off-road truck is used to apply water to windrows as needed. The water trucks are equipped with 4000 and 5000 gallon Hydroforce tanks, respectively. Each truck is capable of applying approximately 8000 gallons of water per hour.

Windrow Composting to Static Pile

- Equipment Used to Transport Compost from Windrow to Static Pile
  - Volvo 150 wheel loader (6 cubic yard bucket)

- Caterpillar 962 wheel loader (5 cubic yard bucket)
- John Deere 644 and 724 wheel loaders (4.25-5 cubic yard buckets)
- (3) John Deere 250 articulated dump trucks (18 cubic yard cap.)
- (4) Ford 8000 tandem dump trucks (18 cubic yard capacity)

- Equipment Used to Construct Static Piles
  - Caterpillar D6 bulldozer
  - Caterpillar 963 track loader

- Equipment Used to Add 3” to 6” of Finished Compost or other Carbonaceous Material to Windrows
  - John Deere 4055 and 4455 4WD Tractors
  - (2) Knight 8000 Series spreaders with custom built side conveyer

Static Pile to Product Mix Area

1. Equipment Used to Move Compost from Static Pile to Mixing Area
   - Volvo 150 Wheel loaders
   - Cat 962 wheel loader
   - John Deere 644 and 724 wheel loaders
   - Cat 320 excavators
   - (3) John Deere 250 articulated dump trucks as needed
   - (4) Tandem dump trucks as needed

Finished Product Mixing

1. Equipment Used in Product Mixing
   - Volvo 150 wheel loaders (6 cubic yard bucket)
   - John Deere 644 or 724 wheel loaders (4.25-5 cubic yard buckets)
   - Backhus compost turner

Product Screening

Equipment Used for Screening:

- (2) Powerscreen 2100 Phoenix trommel screens with a screening capacity of 225 cubic yards per hour per machine.

Storage capacity

- Feedstocks with high water content: 45,000 gallons total storage.
- Feedstocks with low water content: Receiving and storage areas shown on the Site Plan
- Storage for finished Product
  - A 200’ x 80’ building for product ready to be marketed.

- An additional 200’ x 80’ building includes three packaging lines used to package and palletize products for distribution.
- Outdoor storage: 100,000 cubic yards; pallet storage noted below

Bulking agent:

Only wood materials are accumulated, and quantities vary with local construction practices. The stored quantities can range from zero to approximately 75,000 cubic yards; and are on site from zero to 365 days.

Quantities and timing summary

Active compost

Approximately 40,000 cubic yards, composting for 8 to 16 weeks.

Compost in curing stage

Approximately 100,000 cubic yards for 1 year to 18 months.

Compost finished and ready for bagging after curing

Approximately 50,000 cubic yards, for up to 12 months

Products bagged and ready to go to market

Approximately 12,000 pallets, on-site up to 5 months, with ongoing production and shipping throughout the year

Topsoil

Approximately 75,000 cubic yards, 365 days

2.7.1 - Materials Receiving/Processing

Wood materials, yard waste, sawdust, wood shavings and cotton materials are delivered by truck to the site and unloaded in the receiving and bulking agent storage area. Grinding of wood materials will be performed with a 1564 Hogzilla Tub Grinder. Any contaminants such as metal or trash that are inadvertently mixed with the wood material are disposed of at a landfill. Manure, food processing residuals, and other feedstocks with high water content are delivered to the concrete receiving/mixing pit shown on the site plan for immediate processing.

2.7.2 - Mixing

Mixing is accomplished by a front end loader as described in Section 2.6. The mix is then moved by front end loader and dump trucks to a composting area.

2.7.3 - Composting

The mix is placed into windrows. A front end loader is used to shape the windrows, as required. Carbonaceous materials may be placed on top of the windrows to increase solids content to adjust the C:N ratio, or to minimize compost smells. The windrows are periodically turned with the Bachkus compost turner. Windrows are constructed approximately 14-16 feet wide at the base and 5-7 feet high and several hundred feet long. The temperatures are measured in each windrow one time per week until PFRP is achieved by maintaining temperatures above or equal to 131°F for a minimum of 15 consecutive days. Windrows are turned at least five times during this period in which temperatures are $\geq$ 131 ºF. (Vector attraction reduction is met by having temperatures higher than 104 Fahrenheit with an average temperature higher than 113 degrees for 14 days or longer.) Material remains in windrows for approximately eight to sixteen weeks during the active composting period.

2.7.4 - Curing and Storage

After active composting, material is stored in a static pile for approximately six to twelve months prior to screening. Compost will be stored in the compost storage shed, or in large piles or windrows outdoors. The piles and windrows may be covered with vented plastic covers to keep the compost dry during wet weather. Final curing and storage capacity for approximately thirty six

months of compost production is available outdoors. Additionally, approximately twelve months of storage capacity is provided under a roof.

2.7.5 - Screening

The material is screened to approximately ½-3/8 inch to produce a more marketable compost product. The overs (material greater than 3/8 inch in nominal size) are recycled and stored in the receiving area until being mixed with incoming feedstocks.

2.7.6 - Air Emissions and Control Technologies

Operational procedures such as maintaining aerobic conditions within the composting process (through control of porosity, moisture content, oxygen levels, and proper turning), maintaining a neutral pH, and increasing the C:N ratio will be followed. In addition, nitrogen-containing materials will be handled promptly, helping prevent formation of nitrogenous compounds such as ammonia. Efforts will be made to avoid turning windrows during unfavorable weather conditions such as inversion conditions and undesirable wind directions. Data from an onsite weather station will be monitored on a daily basis. Windrows may also be covered with carbonaceous materials (taking care not to reduce air flow), if offensive odors are observed.

. .

Airborne particulates are generally associated with dry, dusty compost piles. The initial mix solids content can be varied during mixing to prevent over drying of the piles during composting. In addition, the water collected in the collection pond, or water from an on-site well and/or farm ponds may be used to add moisture back to the piles, if necessary. A tractor driven pto pump is used to fill 4000 or 5000 gallon truck mounted Hydroforce water tanks. The water trucks are equipped with spray nozzles for applying water to travel areas and are equipped with specially designed nozzles for applying water to the top of compost windrows. Water from the collection pond and the farm pond is not added to windrows after the start of the PFRP period.

2.7.7 - Leachate Treatment

Stormwater from composting areas is routed using natural contours and installed diversion berms to the stormwater pond. Water from the stormwater pond is used on windrows that require

additional moisture for dust suppression (but not during or after PRFP), and may be used for compost mixes.

2.8 - PRODUCT LABEL

A copy of the Wallace Farm product information sheets and product labels and compost (and feedstock) analytical datais included in Appendix G. The Grade A composted cow manure is registered with the NCDA as a fertilizer. The material is required to meet a minimum N-P-K value of .5-.5-.5. It is routinely tested by the NCDA Agronomic Division. Grade A compost plus and mushroom compost are registered with NCDA as a soil amendment.

2.9 - ENGINEERING PLANS AND SPECIFICATIONS

No additional site modifications are planned at present. Manufacturers' performance data for equipment utilized at the facility is included in Appendix F.

3.0 - REQUIRED INFORMATION FOR OPERATING PERMIT

The following section describes the information required for reviewing an application for a permit to operate the composting facility.

3.1 - CONTINGENCY PLANS

Contingency plans for unusual and adverse conditions are as follows:

3.1.1 - Equipment Breakdown

Wallace Farm has a full time mechanic on staff. Wallace Farm conducts regular equipment maintenance. Sufficient storage of the feedstocks is provided to allow for routine maintenance problems. If the compost turner breaks down, loaders can be used while it is under repair. Wallace Farm also maintains a good relationship with its vendors and can get equipment repaired quickly. However, equipment can be rented as necessary to maintain operations.

3.1.2 - Air Pollution/Odors

These approaches are described in Section 2.7.6.

3.1.3 - Non-Conforming Materials

Incoming feedstocks will be inspected upon arrival. Non-conforming materials are not allowed on the site and visual inspection prevents this from being a problem. Any rocks found in shipments are removed. Plastics are not a factor; however these would be separated out, by hand, if present and placed in the on-sited dumpster.

3.1.4 - Spills

Spills of non-composted material will be cleaned up by a front end loader and added to active compost piles.

3.1.5 - Fires

The local fire department will be called if needed in the event of any fire at the facility. If piles of material catch on fire, a bulldozer and loaders will be used to separate the unburned material from the burning material and prevent the fire from spreading.

3.1.6 - Particulates

Particulates are generally associated with overly dry compost piles. Water from on-site farm ponds, from the collection pond, or from an on-site well can be used to increase moisture content and reduce particulates. As noted above, addition of water from on-site ponds will not be performed after the start of PRFP.

3.1.7 - Noise

Equipment normally associated with farm operations and grading operations is used on the site, and some equipment noise is expected

3.1.8 – Vectors

Vector attraction reduction takes place during composting. To meet vector attraction reduction, materials are to be treated in an aerobic process for 14 days or longer, during which time the temperature of compost shall be higher than 40 degrees Celsius (104 degrees F) and the average

temperature shall be higher than 45 degrees Celsius (113 degrees F). Periodic turning occurs throughout the composting process, as discussed above and in the O&M Manual. This approach is considered very effective at controlling vectors. Nevertheless, Wallace Farm staff makes visual observations for vectors.

Process modifications will be made, if required, to ensure these vector attraction reduction requirements are met. This may include increasing the amount of wood material and cotton material in the initial mix. Mixing of incoming wet materials and bulking agents occurs is outlined in Section 2.6. Periodic turning occurs throughout the composting process, as discussed above and in the O&M Manual.

3.1.9 - Unusual Traffic Conditions

Delivery schedules may be modified, if required, to prevent traffic impacts.

3.1.10 – Adverse Weather Conditions

Operations will be curtailed as necessary during wind, heavy rain, snow, freezing or other adverse weather conditions. If conditions are very severe, feedstock delivery will be stopped, and operations will cease. The compost turner, which runs on tracks, permits operations under all but the most severe conditions. Delivery and other operations will also be reduced to match staff absences due to inclement weather.

3.2 - OPERATIONS AND MAINTENANCE MANUAL

A separate operations and maintenance (O&M) manual for the facility has been prepared and is included with this permit application.

3.3 - QUALITY ASSURANCE PLAN

Detailed records, including quantity and type of incoming materials, outgoing products, pile temperatures, moisture and oxygen levels, turning frequency, and product testing will be maintained at the facility. Composite compost samples will be taken quarterly and compared to the standards shown in Table 4. Wallace Farm uses certified laboratories and their testing procedures are noted on

each lab analysis. Wallace Farm will test or obtain test data on the cotton material, food processing residuals, and other incoming feedstocks annually to ensure metals are below Solid Waste standards as shown in Section .1407.

Non-compostable materials are not allowed on the site. Wallace Farm receives feedstocks of very consistent quality that does not contain any sort of non-compostable materials. Should non-compostable materials be delivered, they will be sent back to those that sent them, if allowable by law. If hazardous materials are received, Wallace Farm will report to the Division of Waste Management immediately to seek solutions with them and determine proper removal and disposal procedures to follow. If non-compostable materials are screened from initial delivery, they will be separated and processed according to law. If they are non-hazardous, they will be routed to a landfill. If hazardous, Wallace Farm will follow directions of experts at the Division of Waste Management.

Table 4. Quarterly monitoring for Class A compost requirements.

Parameter	Unit	Limit
Foreign Matter	%	< or = 6
Cadmium	mg/kg dry wt.	39
Copper	mg/kg dry wt.	1500
Lead	mg/kg dry wt.	300
Nickel	mg/kg dry wt.	420
Zinc	mg/kg dry wt.	2800
Selenium	mg/kg dry wt	36
Arsenic	mg/kg dry wt	41
Mercury	mg/kg dry wt	17
Pathogens (fecal coliform)	MPN/g dry wt.	< 1000 per g
Total N	%	None
Phosphorous	%	None
Potassium	%	None

3.4 - PROCESS FLOW

The process flow is described in Section 2.7.

3.5 - PERMITS AND APPROVALS

A copy of the local zoning authority approval to operate the composting facility is included in Appendix A

3.6 - PRODUCT MARKETING AND DISTRIBUTION PLANS

Wallace Farm successfully markets the final compost in both bag and bulk form to large chain retail outlets, area landscapers, and homeowners.

REFERENCES

Epstein 1997. *The Science of Composting.* Technomic Publishing Co., Inc., Lancaster, Pennsylvania p. 340.

Radcliffe, D.E., K.A. McVay, and D.E. Brune, 1997. "Nitrogenous and Phosphorus Losses from Dairy Loafing Areas and Lagoons." From the Proceedings of the Southeastern Sustainable Animal Waste Management Workshop. February 11 - 13, 1997, Tifton, Georgia, p. 25.

Permit Drawings

See Attached Permit Drawings

Appendix A – Zoning Verification

DAVIE COUNTY
DEVELOPMENT SERVICES

298 EAST DEPOT ST. MOCKSVILLE, NORTH CAROLINA 27028
PH :(336)753-6050 FAX :(336)751-7689

April 22, 2014

Eric Wallace
Wallace Farms
14410 Eastfield Road
Huntersville, NC 28078

Re: Zoning Interpretation, Compost Manufacturing Facility

Dear Mr. Wallace,

This letter is in response to your request to how the Davie County Zoning Ordinance defines and or regulates a Compost Manufacturing use. The Davie County Zoning Ordinance does not specifically list a Compost Manufacturing as a use within §155.125 Table of Use Districts. The Ordinance does allow in §155.124 Other Uses Not Specifically Listed, the Zoning Enforcement Officer to make a determination whether a use is permitted in a particular district. The term "Compost Manufacturing", the industrial processing and mixing of organic matter and materials for commercial product sales, as determined by this office shall be regulated by §155.125 (B), Industrial, Manufacturing C. A Manufacturing C use is defined as:

MANUFACTURING C. A manufacturing establishment primarily engaged in the processing and manufacturing of materials or products not otherwise classified under Manufacturing A, Manufacturing B, or other use defined in this section. Manufacturing C includes the processing and manufacturing of products from extracted or raw materials, the assembly of large or heavy machinery, and the storing or using of flammable, explosive, hazardous, or toxic materials in the manufacturing processes. Because of the nature of its operations and products, Manufacturing C may impact surrounding properties due to noise, odor, vibration, glare, and/or air and water pollution. This definition may include the uses in the following NAICS group(s):

3133 Textile and Fabric Finishing and Fabric Coating Mills
3161 Leather and Hide Tanning and Finishing
321114 Wood Preservation
3212 Veneer, Plywood, and Engineered Wood Product Manufacturing
3221 Pulp, Paper and Paper Board
3241 Petroleum and Coal Products Manufacturing
3259 Other Chemical Product and Preparation Manufacturing
3262 Rubber Product Manufacturing
3271 Clay Product and Refractory Manufacturing
3272 Glass and Glass Product Manufacturing
3279 Other Nonmetallic Mineral Product Manufacturing
331 Primary Metal Manufacturing
3329 Other Fabricated Metal Product Manufacturing
3333 Commercial and Service Industry Machinery Manufacturing
3353 Electrical Equipment Manufacturing
3359 Other Equipment and Component Manufacturing
3369 Other Transportation Equipment Manufacturing

DAVIE COUNTY
DEVELOPMENT SERVICES

298 EAST DEPOT ST. MOCKSVILLE, NORTH CAROLINA 27028
PH :(336)753-6050 FAX :(336)751-7689

The property indicated for this proposed use, Davie County Tax Parcel E6/1001 has a zoning classification of Industrial I-4 Special Conditions. These conditions include:

(1) THE FOLLOWING SHALL NOT BE PERMITTED:
- LANDFILLS
- CARBON & BATTERY PRODUCTS MANUFACTURING
- CHEMICAL MANUFACTURING
- POLE TREATING PLANTS, COAL AND WOOD YARDS
- TIRE MANUFACTURING AND RECAPPING
- WASTE SITES (HAZARDOUS)
- WRECKING YARDS OR JUNK YARDS

(2) ALL ENTRANCES ON PUBLIC STREETS MUST BE LANDSCAPED
(3) ANY BOUNDARY WITH AN ADJOINING RESIDENTIALLY ZONED PROPERTY (EXCEPT THE LAKE) SHALL HAVE A DENSELY PLANTED AND MAINTAINED BUFFER STRIP OF AT LEAST 30 FEET WIDTH AT LEAST 20 OF WHICH IS TO BE MAINTAINED OUTSIDE ANY PERIMETER FENCING
(4) COMPLIANCE WITH ALL FEDERAL, STATE, AND LOCAL SITE REQUIREMENTS.

A Compost Manufacturing use shall be determined to fall within the North American Industrial Classification (NAICS) Group 325 and is permitted within this zoning classification, provided all other conditions of zoning being met.

Please be advised that this interpretation shall not authorize the establishment of such use nor the development, construction, reconstruction, alteration or moving of any building or structure. It shall merely authorize the preparation, filing, and processing of applications for any approvals and permits that may be required by the codes and ordinances of the County including, but not limited to, a zoning permit, a building permit, a certificate of occupancy, subdivision approval, and site plan approval.

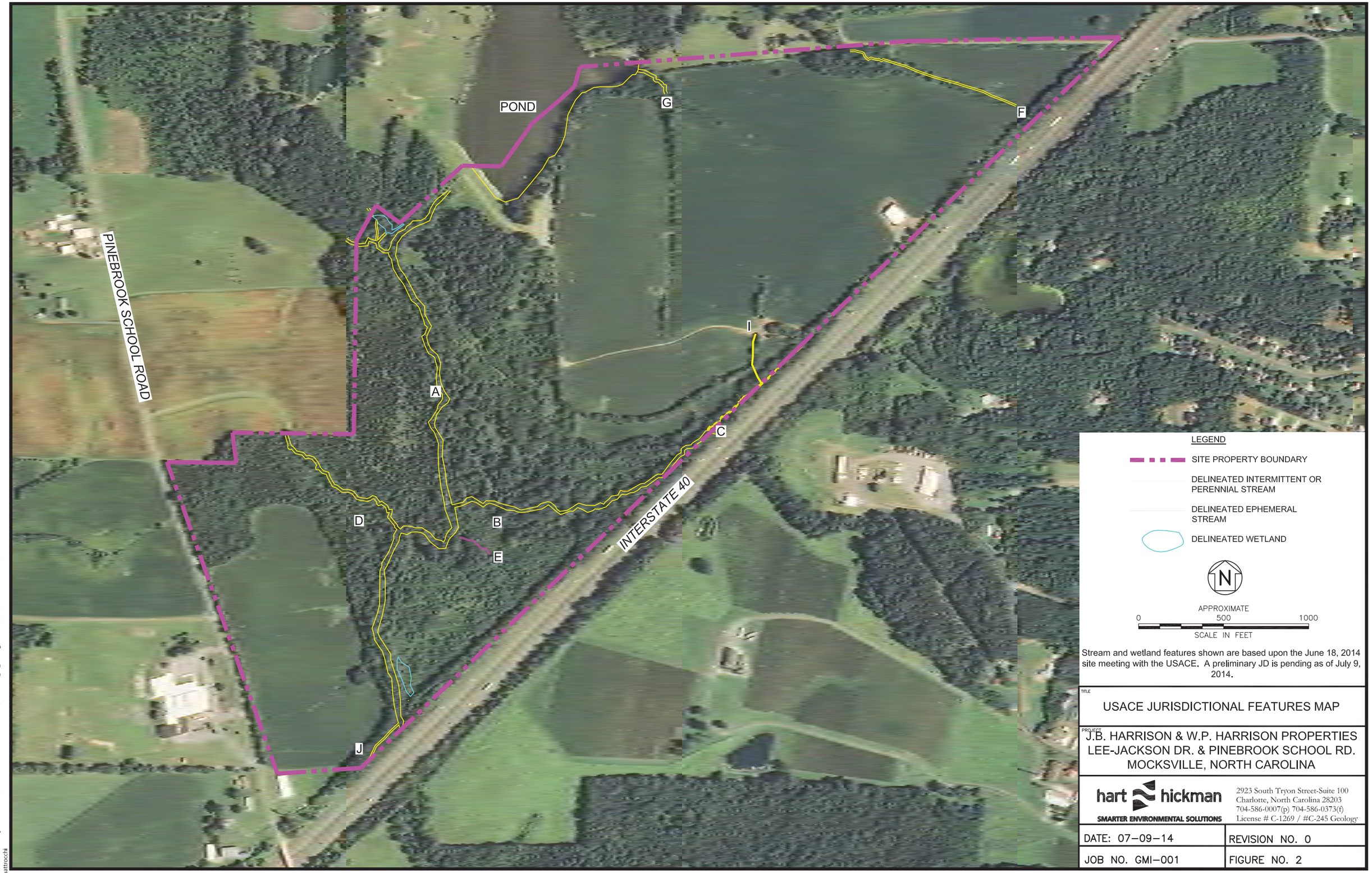
An applicant or any other person or entity adversely affected by a decision administering or interpreting this Section may appeal to the Board of Adjustment. Notice of appeal shall be filed within thirty (30) days of the administrative decision. The appeal shall be filed with the Zoning Administrator and shall specify the decision appealed and the reasons the appellant claims the decision to be in error.

Sincerely,

Andrew Meadwell
Davie County
Development Services

Cc: Ed Vogler, County Attorney

Appendix B – Report on Wetland & Stream Designations



Stream and wetland features shown are based upon the June 18, 2014 site meeting with the USACE. A preliminary JD is pending as of July 9, 2014.

TITLE

USACE JURISDICTIONAL FEATURES MAP

PROJECT

J.B. HARRISON & W.P. HARRISON PROPERTIES
LEE-JACKSON DR. & PINEBROOK SCHOOL RD.
MOCKSVILLE, NORTH CAROLINA

hart hickman
SMARTER ENVIRONMENTAL SOLUTIONS
2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)
License # C-1269 / #C-245 Geology

DATE: 07–09–14	REVISION NO. 0
JOB NO. GMI–001	FIGURE NO. 2

S:\AAA-Master Projects\GMI-001\Wetland and Stream delineation\Feature 07_09_14.dwg, 11x17 L, 7/9/2014 10:40:49 AM, JQuattrocchi

Appendix C – Construction Specifications

March 17, 2004

Industrial Engineering and
Testing Services, P.C.

Mr. Chuck Mayer
C. G. Mayer Construction Company
7826 Caswell Road
Stanley, NC 28164

Subject: **Structural Engineering Services**
Soil Retaining Wall Structure Design Verification
Wallace Farm, Inc. – Huntersville, NC
IETS Project Number 2004-013

Dear Mr. Mayer:

In accordance with your request, and acceptance of our proposal number Pro-2004-022, Industrial Engineering & Testing Services, P.C. (IETS) is pleased to submit this report of the structural adequacy of the retaining wall designs provided by Mr. Chuck Mayer. These walls are a portion of a new debris dumping facility being constructed at Wallace Farm, Inc. This report contains brief project background information and our findings and recommendations.

PROJECT BACKGROUND INFORMATION

On March 15, 2004, Mr. Mayer met with our Mr. Bill Griswold. During the meeting Mr. Mayer provided IETS with the proposed retaining wall design drawings. The walls are a portion of a new truck debris dumping facility that contains a recessed area approximately 60 feet wide and long. One end of the recessed area will be approximately 8 feet deep.

RESULTS OF ENGINEERING CALCULATIONS

Using assumed soil bearing and lateral pressure values, IETS engineers determined the retaining walls, wall foundations, and surrounding concrete slabs are structurally adequate for the proposed loadings and usage. One design change is required. The thickness of the 4-foot tall retaining wall needs to be reduced from 10 inches to 8 inches to meet the code requirements when using a single layer of reinforcing steel.

We appreciate the opportunity to provide our continuing professional services to you and Wallace Farm. If you have any questions please contact us.

Respectfully submitted,

INDUSTRIAL ENGINEERING AND TESTING SERVICES, P.C.

William A. Griswold, Jr., P.E.
Chief Engineer

National Society of Professional Engineers®
Signatory, NSPE Licensed Member

129 Greenwich Road, Charlotte, NC 28211 – Phone: (704) 522-1131 - Fax: (704) 522-1280

C.G.Mayer Construction Co.

7826 Caswell Rd.
Address Line 2
Stanley N.C. 28164
Lincoln

Phone 704-8273793
Fax 704-8273793

February 19, 2004

Wallace Dairy Farm
Eastfield Rd.

Build compost pit

C.G.Mayer Construction Co. proposes to provide labor,material,andequipment to perform the folliowing work.

Footing 64''x12''footing with 8-#4 redars continuous and #4 barsties at36'' on O.C.app.122' LF.

Walls 10'' thick poured walls 8' high approximately 62' w #4 rebar vertically and horizontally at 12'' O.C. front and back
10'' Thick poured wall 9'4'' high approximately 62' w #4 rebars vertically and horizontally at 12;; O.C. Front and back
Brick ledge for slab to rest on 62 LF

Slabs

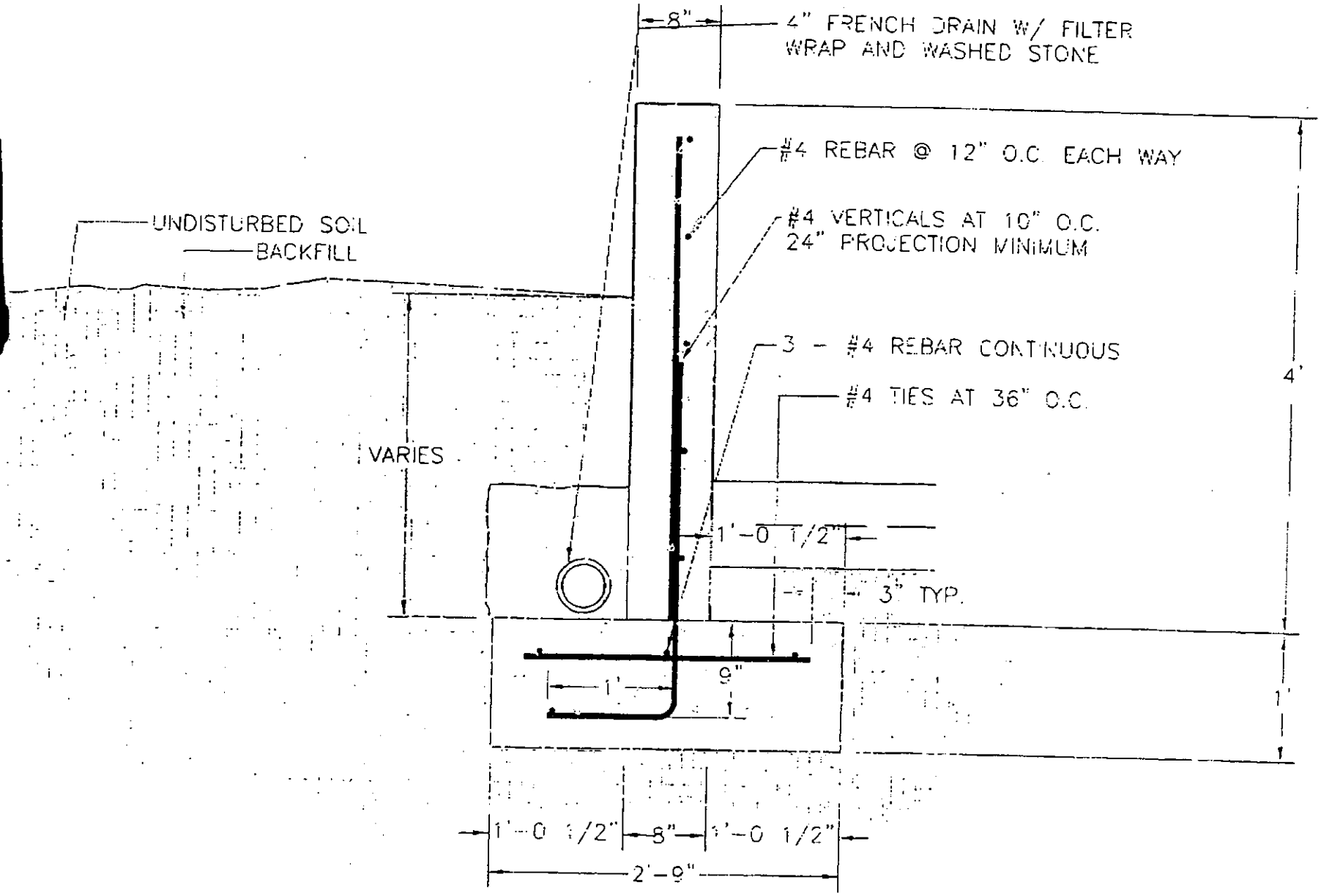
Slab for trucks to backup on 60' wide 30' deep 8''thick with 6x6 2.9/2.9 WWM. with sawed control joints and broom finish

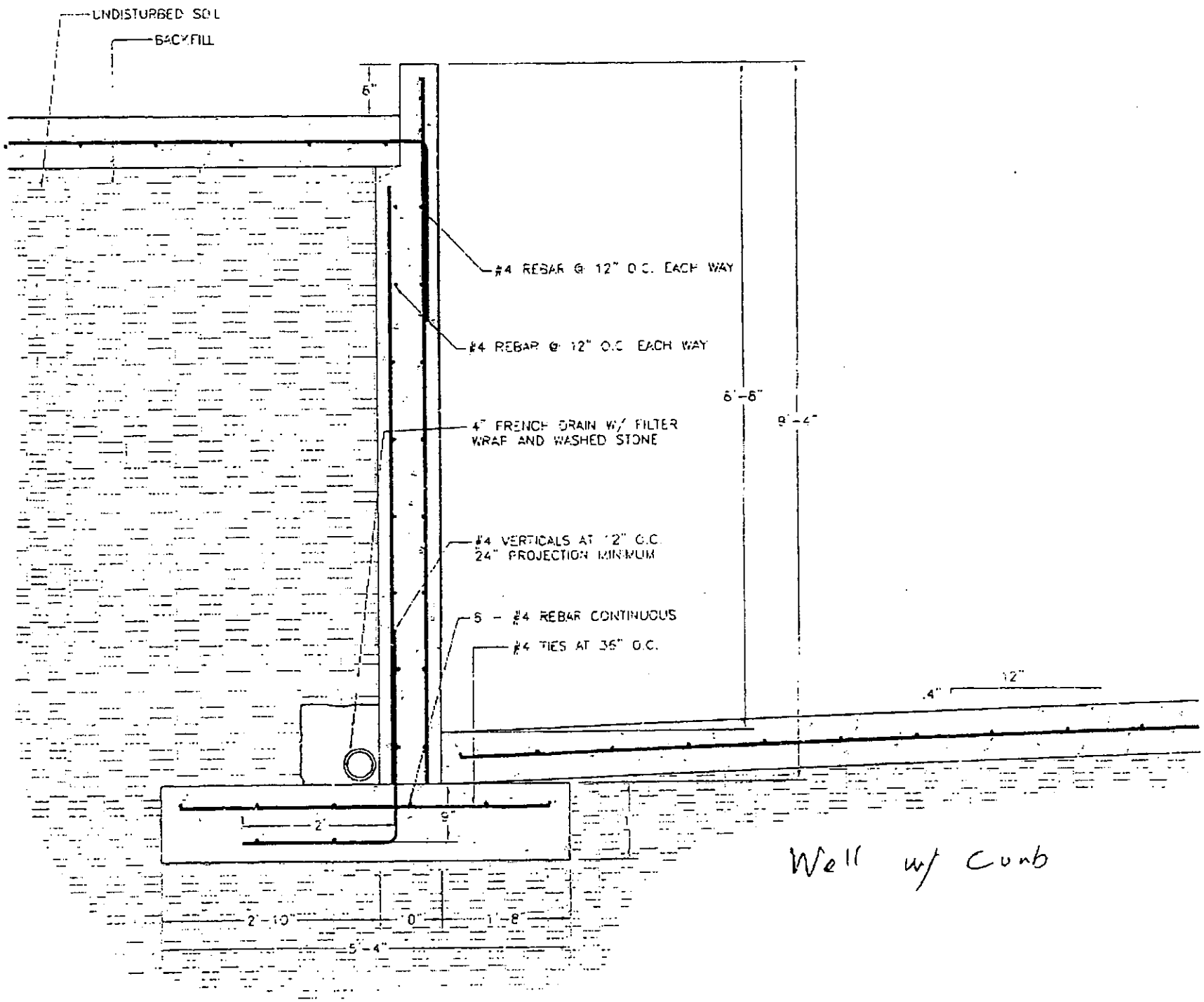
Slab forbottom of pit to be 60'x60' 8'' thick with 6x6 2.9/2.9WWM with broom finish and saw control joints also

If OWNER would rather have rebar #4 in 12''x12' grid in floor slab add 6853.00 to total price

C.G.MAYER will onltybe responsible for diging footing,and fine grading of floor slabs in this quote
All other grading by owner

Water profing as discribed in quote
All concrete to be 3000-PSI.


8"
4" FRENCH DRAIN W/ FILTER WRAP AND WASHED STONE
#4 REBAR @ 12" O.C. EACH WAY
#4 VERTICALS AT 10" O.C. 24" PROJECTION MINIMUM
UNDISTURBED SOIL
BACKFILL
3 - #4 REBAR CONTINUOUS
#4 TIES AT 36" O.C.
4'
VARIES
1'-0 1/2"
3" TYP.
9"
1'
1'
1'-0 1/2"
8"
1'-0 1/2"
2'-9"


UNDISTURBED SOIL
BACKFILL
6"
#4 REBAR @ 12" O.C. EACH WAY
#4 REBAR @ 12" O.C. EACH WAY
6'-6"
9'-4"
4" FRENCH DRAIN W/ FILTER WRAP AND WASHED STONE
#4 VERTICALS AT 12" O.C. 24" PROJECTION MINIMUM
5 - #4 REBAR CONTINUOUS
#4 TIES AT 36" O.C.
12"
4"
2'
9"
2'-10"
0"
1'-8"
5'-4"

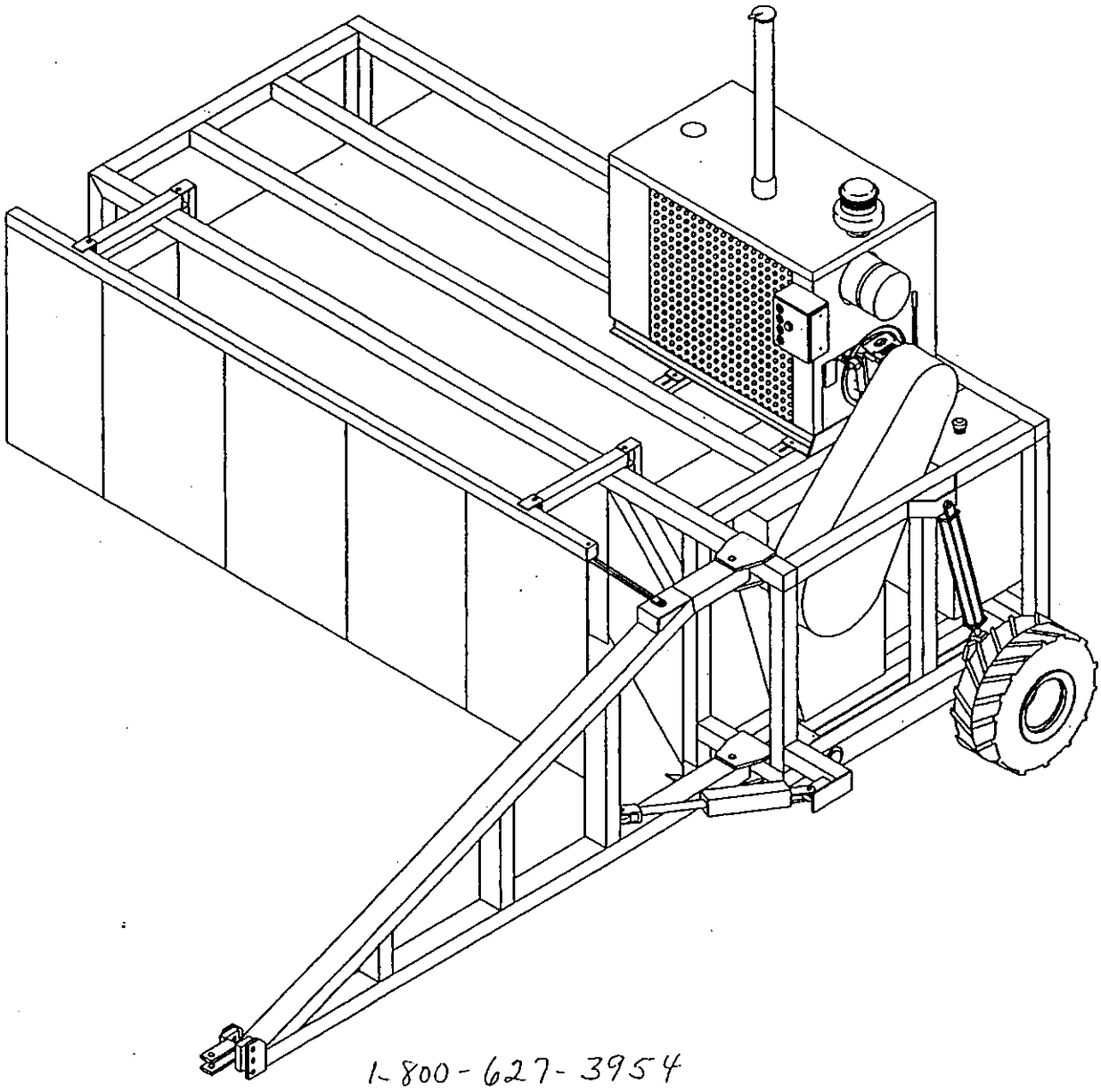
Wall w/ Curb

Appendix D– Manufacturers' Equipment Information

Delivered 8/26/02

WILDCAT EASY-OVER COMPOST TURNER (COMMERCIAL)

TS616-260
OWNER'S MANUAL



1-800-627-3954

ldcat Manufacturing Company, Inc.
.20 South Highway 81
Freeman, South Dakota 57029
Phone: (605) 925-4512

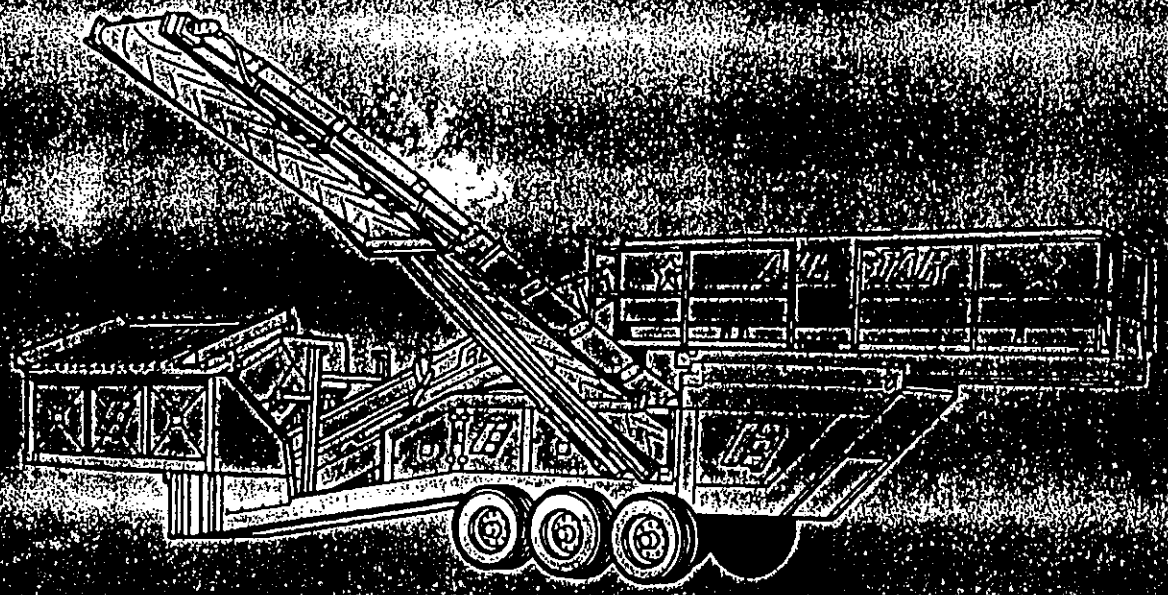
Model TS-616-260

Serial Number: 6330602

EXTEC ALLSTAR

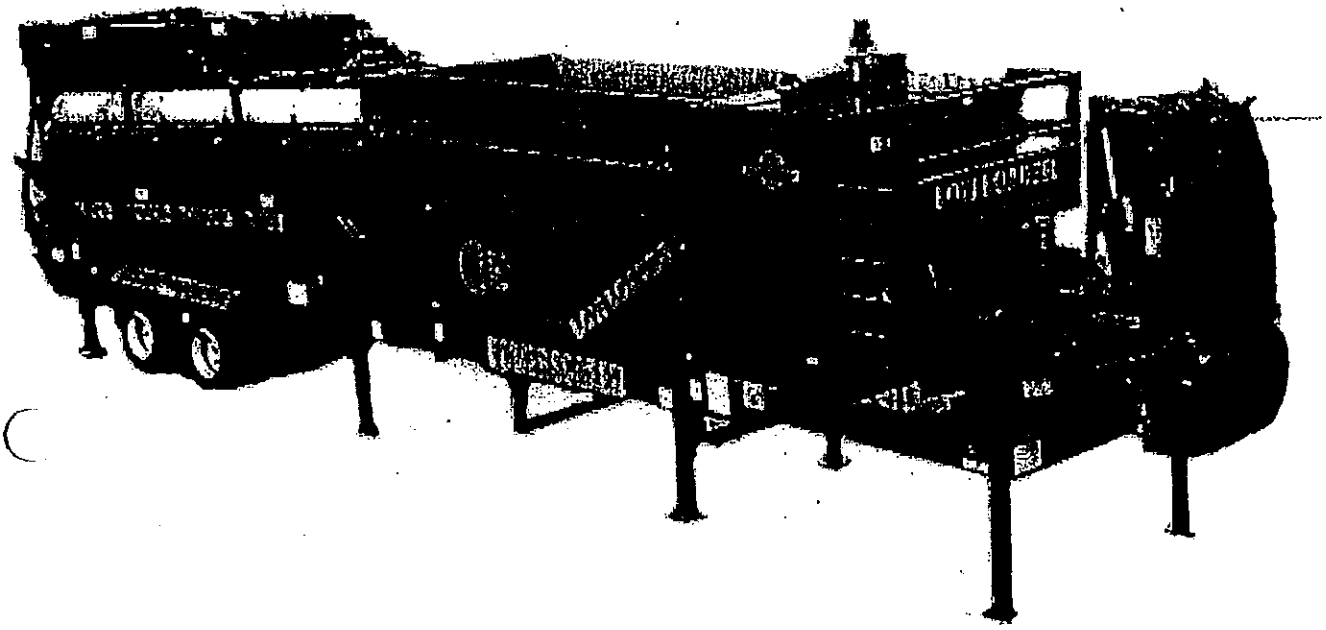
Parts Dept

1-800-447-2733



POWERSCREEN

A Terex Company

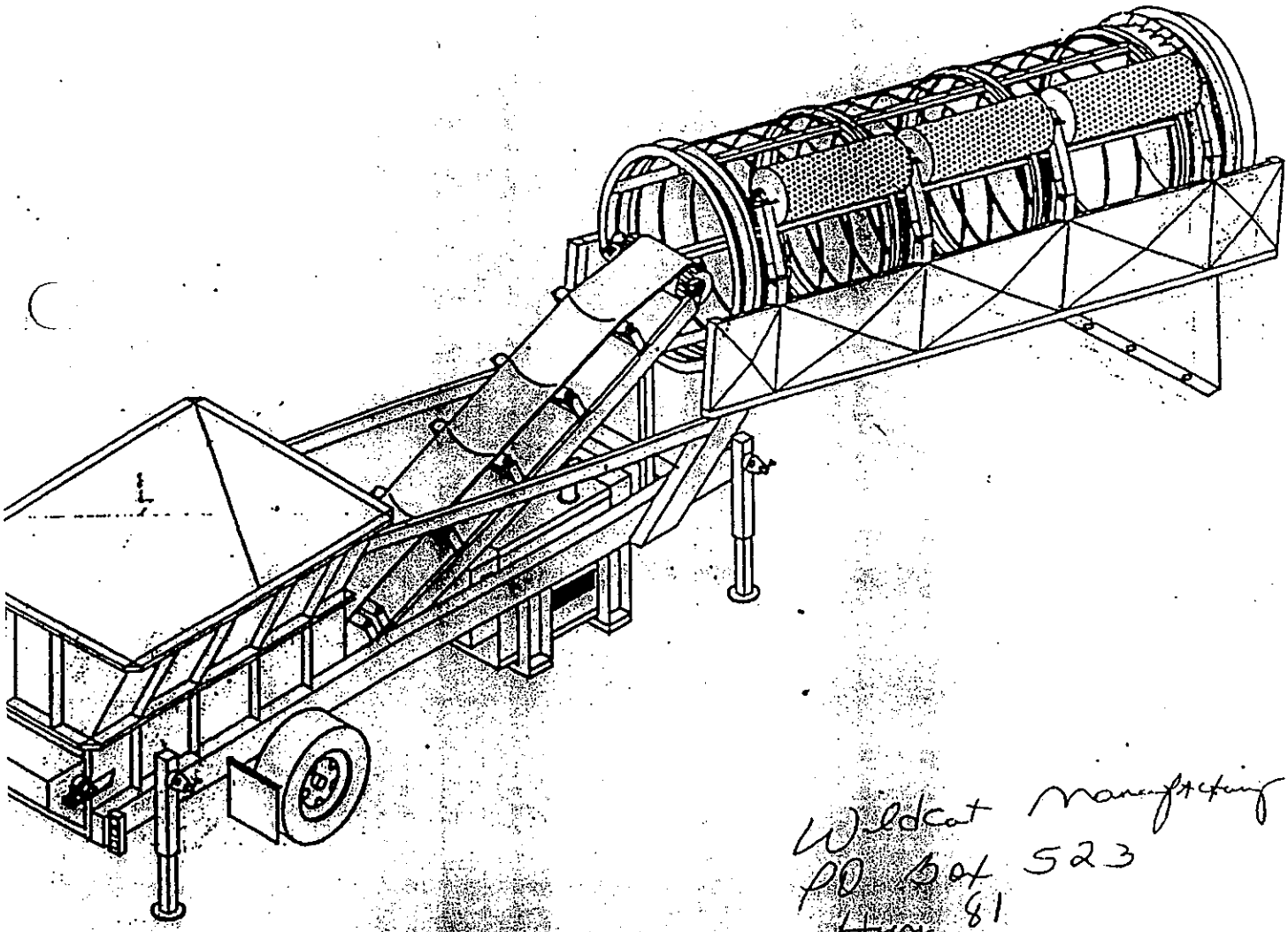


Powerscreen TROMMEL 725 LL

User's & Spare Parts Manual

Powerscreen Ltd., Kilbeggan, Rep. of Ireland.

6-160
TROMMEL SCREENING PLANT



Wildcat Manufacturing Co.
PO Box 523
Hwy 81
Freeman, S.D.
57029
(1-605-925-4512)
*(1-800-627-3954)

FC1251

SCREEN USA

Screen USA
Tornado Star 4012 Deluxe

SERVICE & WARRANTY MANUAL

Serial # 3880500

MANUFACTURED BY:
SCREEN USA
1772 CORN ROAD
SMYRNA, GA. 30080
770-433-2440

GEG00135-02

WALLACE FARM, INC.
14410 Eastfield Road
Huntersville, NC 28078

LUBRICATION & MAINTENANCE GUIDE

920 & 930 WHEEL LOADERS

SERIAL NUMBERS | 41J1-41J1310 79J1-79J1479 75J1-75J1084 41K1-41K2038 62K1-62K3039

CATERPILLAR®

SEBU5764-03
August 1985

Maintenance Manual

966D
Wheel Loader

35S1-UP
94X1-UP
99Y1-UP

644H Loader and 644H MH Material Handler

Brandon
800-736-0300
Rocky Mt.

JOHN DEERE

OPERATOR'S MANUAL

T176884 J8

CATERPILLAR®

SEBU5847-03
September 1986

Maintenance Manual

963 Track-Type Loader

UP
6 P
UP
UP
UP
UP

Transmission fitter 1R074

VME

Operators Instruction Manual

1994

Volvo BM L120B

Purchased 6/16/01 from L B Smith Inc

Serial # L120V [illegible]

Return to Office

VOLVO BM

CATERPILLAR®

SEBP2003
May 1992

Parts Manual

936F Wheel Loader

8AJ1-Up (Vehicle)
7Z27900-Up (Engine)
1ZX1-Up (Transmission)

Powered by 3304 Engine

KUHN KNIGHT

8000 Series ProTwin® Slingers

OPERATOR'S MANUAL and PARTS BOOK

PHONE : 608-897-2131
FAX : 608-897-2561

www.kuhnknight.com
E-MAIL: info@kuhnknight.com

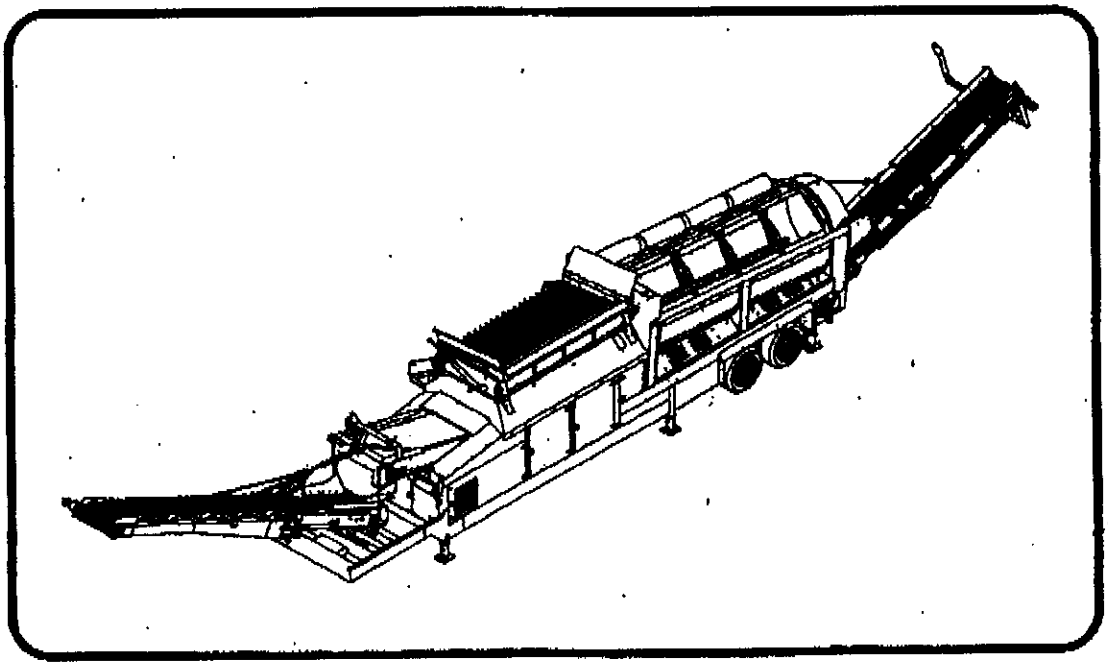
1501 WEST 7th AVENUE
P.O. Box 167
BRODHEAD, WISCONSIN 53520-0167
U.S.A.

8032, 8032HF, 8040 TRAILER TYPE
PARTS & OPERATOR'S

PRINTED IN U.S.A.
005916R120502

POWERSCREEN
A TEREX COMPANY

PHOENIX 2100



PRODUCT USER MANUAL

OPERATION
INSTALLATION
MAINTENANCE AND SERVICE

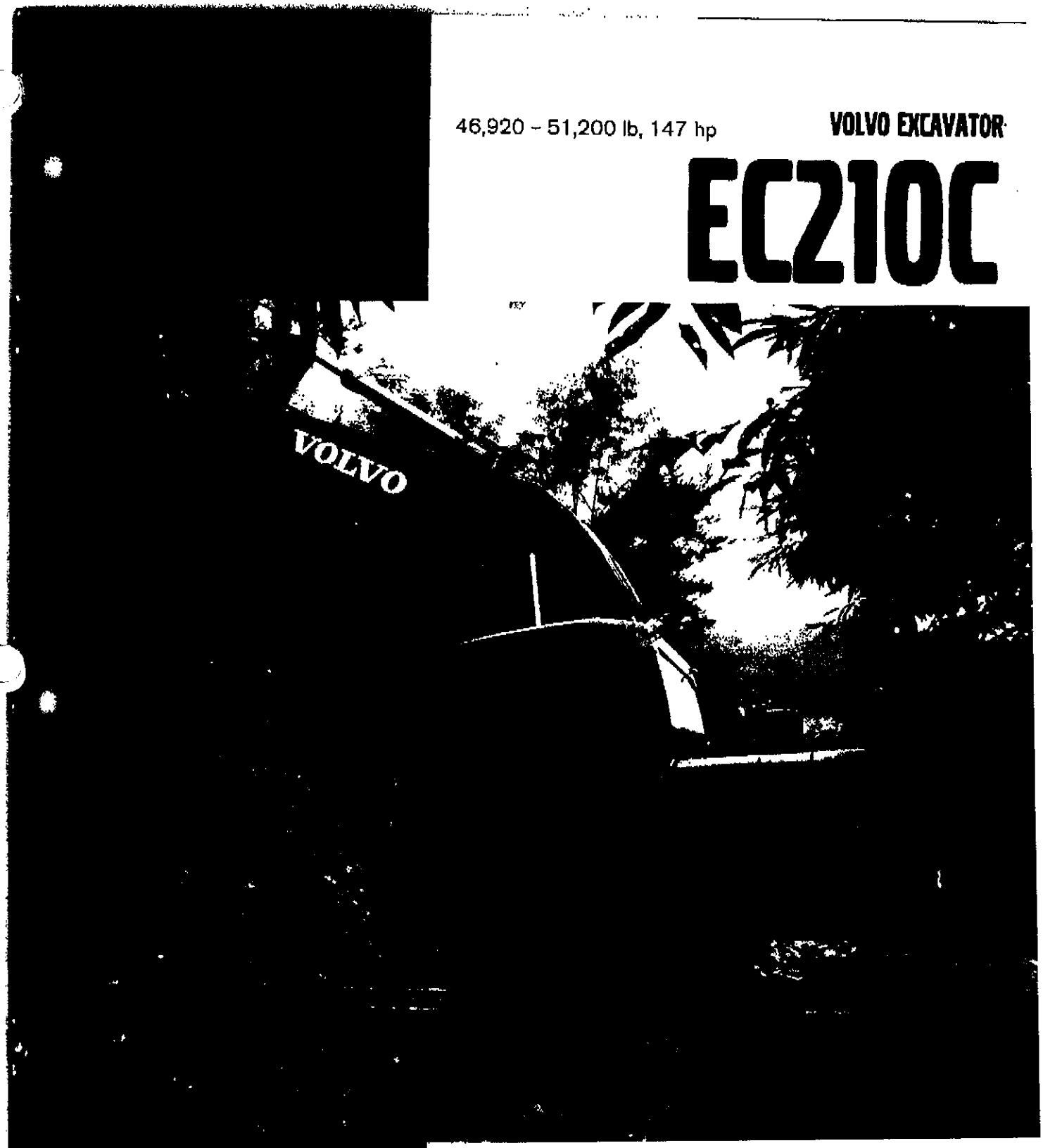
WARNING WARNING WARNING WARNING WARNING

DO NOT ATTEMPT TO OPERATE THIS PRODUCT UNLESS YOU HAVE READ AND UNDERSTOOD THESE SAFETY INSTRUCTIONS. FAILURE TO DO SO WILL INCREASE THE RISK OF INJURY OR MAY RESULT IN DEATH!

46,920 – 51,200 lb, 147 hp

VOLVO EXCAVATOR

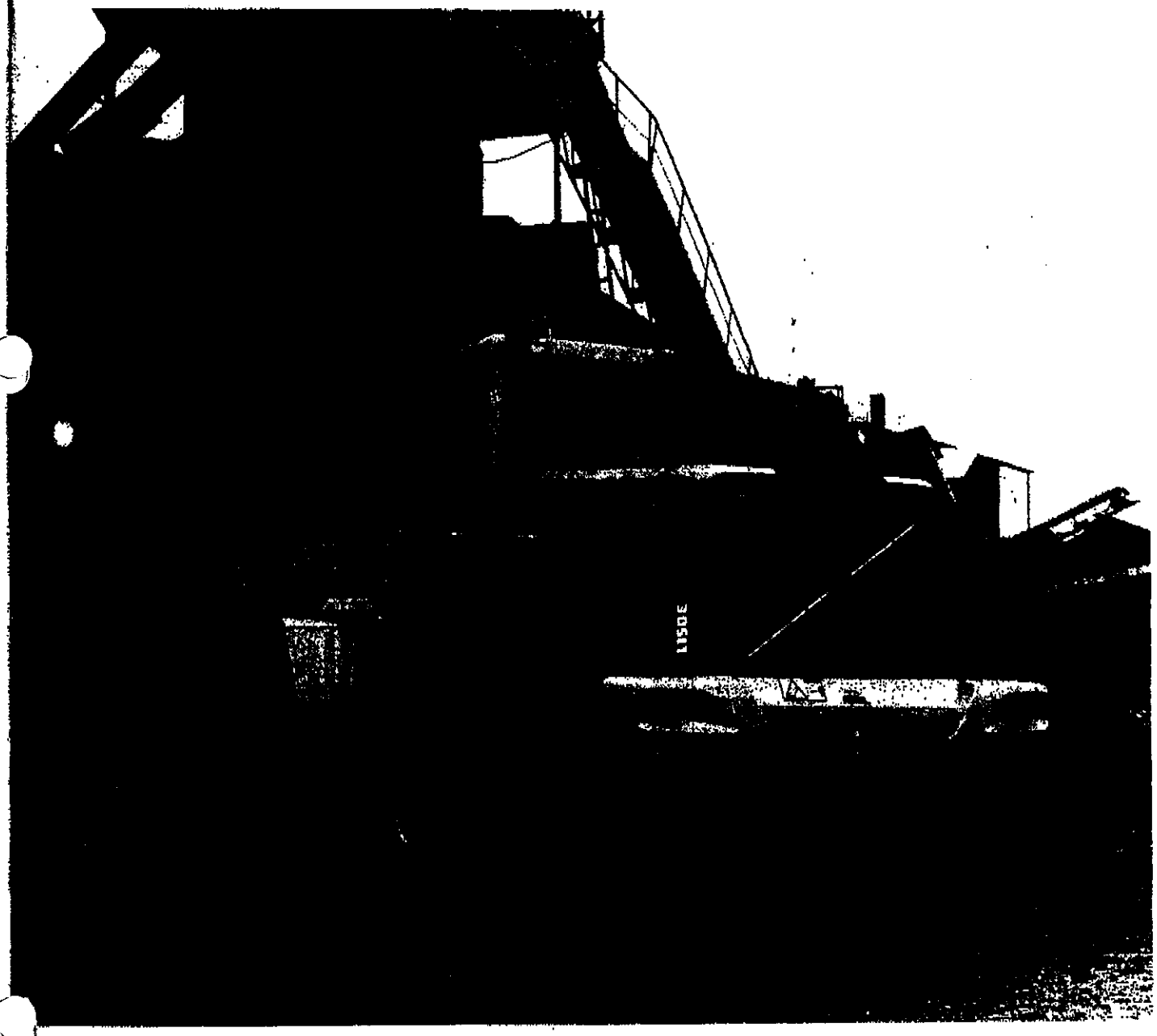
EC210C



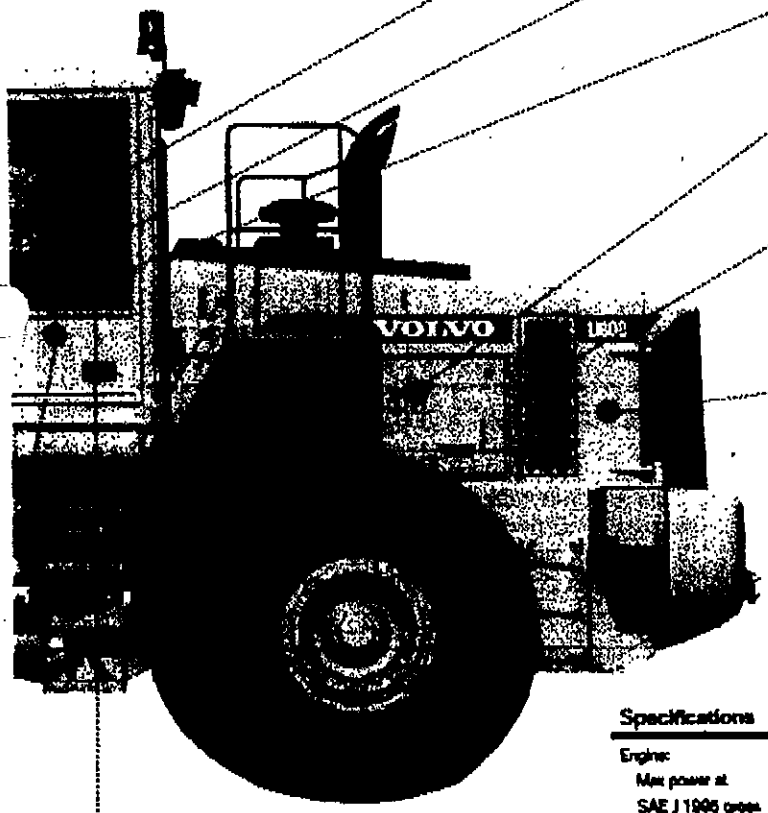
MORE CARE. BUILT IN.

VOLVO WHEEL LOADER

L150E



VOLVO



Load-sensing steering
Low fuel consumption and easy steering at low rpm are two important benefits of the load-sensing steering system.

Hydraulic System
The open center hydraulic system, with efficient high capacity vane pumps, allows precise control and quick movements even at low rpm.

Comfort Drive Control (CDC)*
Operator fatigue is reduced with the CDC lever steering system*, which allows you to steer and shift with easily operated controls mounted on the left armrest of the seat.

High Performance Low Emission Engine
The Volvo engine generates high torque at low rpm, giving quick response and low exhaust emissions that meet existing requirements.

Low external noise levels
An insulated engine compartment with an external radiator and hydraulically driven cooling fan help to keep external noise levels low. Optional EU 2006 noise reduction kits are available for both L150D and L180D.

Excellent serviceability
Easily accessible service panels and service points, a swing-out radiator* for quick cleaning and the Contronic II watchdog are just a few of the service-friendly solutions.

* Optional.

APS II
Volvo's unique automatic shifting system, APS II, monitors both engine speed and ground speed to provide optimum control of gear shifting in any application. A dashboard-mounted mode selector allows you to choose one of four different shifting programs to customize machine performance to your job. A 1st gear kickdown button and forward/reverse rocker switch mounted on the hydraulic console allow you to operate the APS II system with your right hand so that your left hand can stay on the steering wheel at all times.

Specifications	L150D	L180D
Engine:	Volvo TD 103 KCE	Volvo TD 122 KHE
Max power at	35 r/s (2,100 r/min)	35 r/s (2,100 r/min)
SAE J 1995 gross	188 kW (257 hp)	209 kW (284 hp)
ISO 9249, SAE J 1349 net	186 kW (253 hp)	206 kW (280 hp)
Max. torque at	18,3 r/s (1,100 r/min)	15,0 r/s (900 r/min)
SAE J 1995 gross	1 390 Nm (1,025 lbf ft)	1 580 Nm (1,165 lbf ft)
ISO 9249, SAE J 1349 net	1 390 Nm (1,025 lbf ft)	1 580 Nm (1,165 lbf ft)
Breakout force:	180,7 kN* (40,623 lbf)*	210,3 kN** (47,275 lbf)**
Static tipping load: at full turn	15 180 kg* (33,486 lb)*	18 410 kg** (40,587 lb)**
Buckets:	3,5 m³–12,0 m³ (4,6–15,7 yd³)	4,2 m³–14,0 m³ (5,5–18,3 yd³)
Timber grapples:	1,6–3,1 m³ (17,2–33,4 yd³)	1,8 m³–3,5 m³ (17,2–37,7 yd³)
Operating weight:	23,2–26,5 t (51,150–58,210 lb)	26,0–29,0 t (57,320–63,930 lb)
Tires:	26.5 R25	28.5 R25

* Bucket: 3,7 m³ (4,8 yd³) straight edge wheels and tagnum (die-cast). Tires: 26.5 R25 L3, Std. beam.
** Bucket: 4,2 m³ (5,5 yd³) straight edge wheels (die-cast). Tires: 28.5 R25 L3, Std. beam.

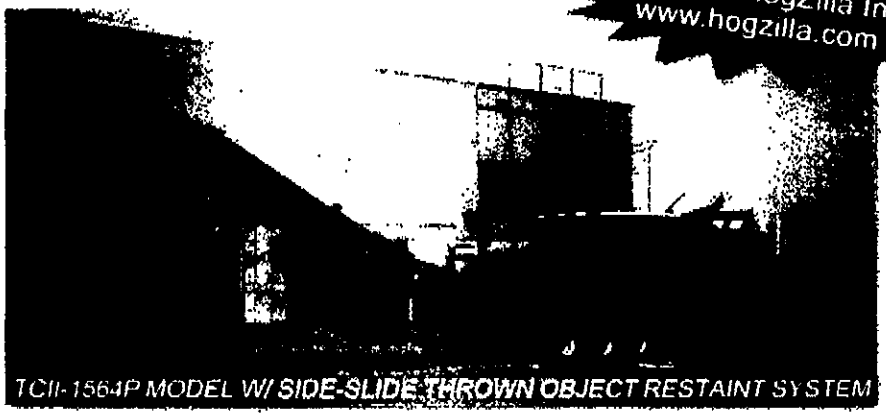
HOGZILLA

INDUSTRIAL MONSTER GRINDERS

TC SERIES

TCII-1564P MODEL

Visit our Website for further HogZilla Info. www.hogzilla.com



TCII-1564P MODEL W/ SIDE-SLIDE THROWN OBJECT RESTAINT SYSTEM

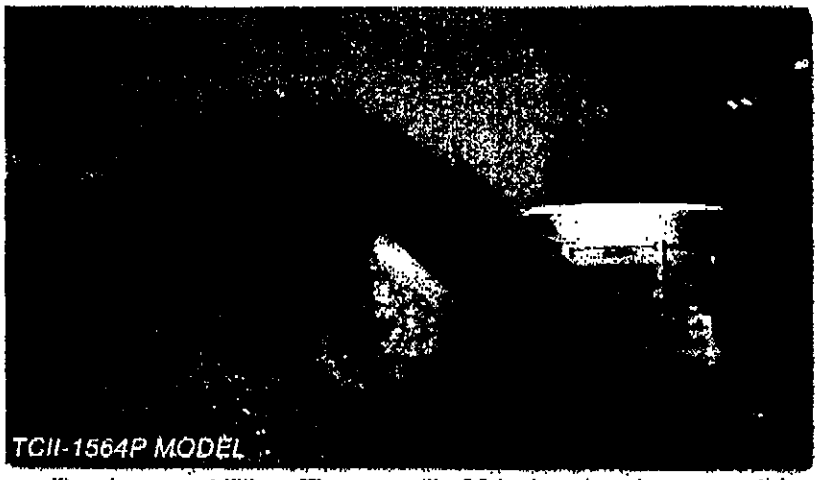
The Big Daddy of the HogZilla family. *All TC Models are built to be the world's most reliable high capacity grinders. This assures maximum production at the end of a day, be it acres, tons or yards of material being ground.*

All TC models use a Torque Converter to drive the hammermill which multiplies engine torque for maximum production.

TCII-1564P MODEL

Whether you grind stumps and logs by the acre, wood waste by the ton or green waste by the yard, HogZilla is engineered to provide maximum production per hour. HogZilla is built for reliability providing you the most profit at the end of each month or year. It's no slacker lying down on the job costing you money. It's performance you can bank on!

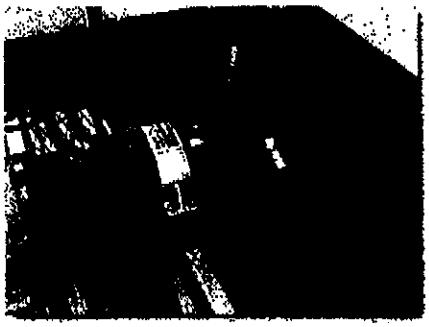
One operator in a loader/excavator feeds HogZilla, controlling it by remote control. The 60° radial stacking elevator allows a couple hours of grinding before the operator needs to attend to a ground pile. This reduces the need for a second loader or operator, however, you could use a second loader to keep your HogZilla properly fed.



TCII-1564P MODEL

TCII-1564P models feature patent adjustable hammermill swing capabilities. The versatile 36 inch swing does everything great, and heavy mulch almost beyond belief. A 38 inch swing is a little more aggressive and allows a larger bolt-on tip. The larger 45 inch swing works better for bushy material which require a bigger bite to utilize all the horsepower.

Check out HogZilla's features, quality and workmanship. You'll see why TC HogZilla Grinders are the most reliable high production grinders in the world.



When the load on the hammermill increases, the hydraulic fluid is automatically re-routed against the turbine blades, adding approx. 30% additional reaction torque to engine torque. The engine is protected by the torque converter fluid absorbing shock loads and torsional vibrations from the hammermill, assuring longer engine life.

TC SERIES

Production Rates (tons per hour)
Yardwaste - 150-200
Stumps & Logs - 100-150
Pallets/Construction Waste - 80-150

Standard Features
Torque Converter
Electronic Horsepower Controller
Remote Control
Radial Stacking Elevator
Trougher Roller Conveyors
Vulcanized Conveyor Belts
Extreme Condition -
Clog & Leak Resistant Radiator
Radiator Precleaner Enclosure
Diesel Service Engine
Auxiliary Hydraulic Power
Air Compressor
Hydraulic Rod Puller

Optional Equipment
Mesabi or Glacier Radiator
Side-Slide Thrown Object Restraint
Bolt-In Tire Grinding Package

TC Series Specifications		TCII-1664W	TCII-1564P	TAC-1564P	TC-1564P
Horsepower	Cat	1000 - 2000	1000 - 1650	1000	860 - 1000
	Cummins	1050 - 1500	1050	1050	750 - 1050
	Detroit	1000 - 1200	1005 - 1200	1005	1005
Hammer-Swing		45" x 64"	38" or 45" x 64"	38" x 64"	36" x 64"
Screen Area		5480 sq.in.	4610/5480 sq.in.	4610 sq.in.	4890 sq.in.
Screen Thickness		1¼"	¾" - 1¼" / 1"	¾" - 1¼"	¾" - 1¼"
Hammer Weight		110#	80 or 110#	80#	80#
Hammer Number		24 - 48	24 - 48	24 - 48	24 - 48
Rod Diameter		3"	3"	3"	3"
Tub Top Width		16'	15'	15'	15'
Conveyor/Elevator Belts		72" & 60"	48" & 42"	48" & 42"	48" & 42"
Trans. Width		13' - 11"	11' - 11"	11' - 11"	11' - 11"
Trans. Length		61' - 9"	56' - 3"	56' - 3"	56' - 3"
Total Weight (approx.)		130,000#	92,000#	88,000#	86,000#

Specifications subject to change without notice. As improvements are made, actual product offered for sale may vary in design.

Represented by:

J & T Equipment
866-242-4949 (office)
Jonathan Kalinoski
mobile 207-266-4231
Tom Ogden
mobile 207-266-5454

CW MANUFACTURING, INC.
14 Commerce Dr., Sabetha, KS 66534
(785) 284-3454 FAX (785) 284-3601
Toll Free: (800) 743-3491
Web: www.hogzilla.com
EMAIL: hogzilla@mewlan.com

07-17

[redacted]

Team Consulting & Contracting, LLC
14 Twin Oaks Drive
North Augusta, SC. 29860
office 803.279.2480 / e.mail:djalmo@bellsouth.net

[redacted]

INVOICE

Invoice No. TCC.0807.001

Customer Attn: Eric Wallace

Name: Wallace Farms
Address: 14410 Eastfield Road
City: Huntersville State NC ZIP 28078
Phone: Phone # Ph.704.875.2975 // Fx.704.875.2394

Misc

Date: 8/2/2007
W/E:
Terms:

Qty	Description	Unit Price	TOTAL
	15,000 gal tanks		
3	Vertical Tanks (used) 10' dia. x 36' ht., Cone Bottom, Carbon Steel Mat'l	$ 12,500.00	$ 37,500.00
	Platforms and Access Ladder to accommodate 3 tanks.		
	Miscellaneous system components as identified during site walkdown on July 19, 2007.		
	Note: Used Equipment Sale, items identified sold to customer with No Warrenty, As Is...		
1	Platforms, Access Ladder & Miscellaneous components. (piping, valves, fittings etc.	$2,500	$ 2,500.00
4	Shipping and Payment of shall be the responsibility of Wallace Farms		
* 1	Wire Transfer of $10,000 Requested.		
1	Wire Transfer of $30,000 Required prior to or date of shippment.		
		SubTotal	$ 40,000.00
		Shipping	
		Tax Rate(s)	
		TOTAL	$ 40,000.00

Payment Check

Comments: Wire Transfer
Name: Wachovia Bank
Acct.# 2000032253917
Routing# 061000227

[redacted]

Thank you!

Shipping charges not included. WF will pay.

RAIN FOR RENT

RENTAL NUMBER 938534

BILL TO
NAME: Wallace Farm
ADD 1: 14410 Eastfield Rd
ADD 2:
CITY, ST.; ZIP: Huntersville N.C. 28078

RENTAL LOCATION
NAME:
ADD 1: SAME
ADD 2:
CITY, ST.; ZIP:
SITE CONTACT / PH #

AM PM	Eric Wallace	AM PM 6350	
828			
AM PM			N
	DWR		RFR

TANK NUMBER	QUANTITY ORDERED	DESCRIPTION	RATING	QUANTITY SHIPPED	RENTAL RATE	EXTENSION
255915	1	(21000 gal)	1	1		
LIQUID		PH CONC. RAILS VAREC PV TIRES LIGHTS DAMAGE				
HAULING / LABOR:						
LIQUID		PH CONC. RAILS VAREC PV TIRES LIGHTS DAMAGE				
HAULING / LABOR:						
LIQUID		PH CONC. RAILS VAREC PV TIRES LIGHTS DAMAGE				
HAULING / LABOR:						
LIQUID		PH CONC. RAILS VAREC PV TIRES LIGHTS DAMAGE				
HAULING / LABOR:						
LIQUID		PH CONC. RAILS VAREC PV TIRES LIGHTS DAMAGE				
HAULING / LABOR:						
LIQUID		PH CONC. RAILS VAREC PV TIRES LIGHTS DAMAGE				
HAULING / LABOR:			7435	$138138		
LIQUID		PH CONC. RAILS VAREC PV TIRES LIGHTS DAMAGE				
HAULING / LABOR:						

COMMENTS:

DRIVERS SIGNATURE 7/17/06 DATE

Eric T. Wallace 7/17/06
RECEIVED BY DATE

TERMS AND CONDITIONS:
This transaction is subject to the terms and conditions stated above and on the reverse side, and customer acknowledges that he has read

DRIVER: OUTBOUND

QUALITY ASSURANCE AND SAFETY CHECKLIST

112344

BRANCH NO. 028 DATE 7/17/06 RENTAL / SALES ORDER NO. 938534

- This unit has been inspected and is operationally "fit for use" within the scope and limitations of its intended use.
- Any relevant delivery concerns / condition(s) *must be clearly documented* in the "COMMENTS" SECTION.

-- **Damages beyond normal wear and tear will be billed to the renter.** Renter's Initials C.T.W.

- PUMP UNITS: RENTOR IS ALSO RESPONSIBLE TO CHECK ALL FLUID AND OIL LEVELS AND CHANGE OIL FILTER EVERY 150-HOURS OF OPERATION.
- TANKS: CUSTOMER IS RESPONSIBLE TO ASSURE PV VALVE IS NOT BLOCKED OFF OR MODIFIED AND ONLY MATERIALS AS SPECIFIED ON THE RENTAL AGREEMENT ARE STORED IN UNIT!
- RENTOR IS RESPONSIBLE TO ASSURE RENTAL UNIT IS NOT MODIFIED WHILE IN THEIR CUSTODIAL CARE.

CUSTOMER NAME: Wallace Farm	RENTAL CUSTOMER'S NUMBER:
DELIVERY ADDRESS/LOCATION: 14410 Eastfield Rd Huntersville N.C. 28078	
UNIT MODEL: 21000 gal	UNIT SERIAL NUMBER: 255915
ADDITIONAL DELIVERY COMMENTS:	

DELIVERED BY: David W Royer DWR (PRINT NAME AND INITIAL) RECEIVED BY: Eric T. Wallace C.T.W. (PRINT NAME AND INITIAL)

FORM No. 306 (REVISED 1/04/2005)

READY TO RENT: INSPECTED BY: D. Hayes CERTIFIED BY: David W Royer DATE: 7/17/06

✓ CHECKED BOX INDICATES SPECIFIED ITEM AND RELATED ACCESSORIES HAVE BEEN INSPECTED AND ARE IN 'READY TO RENT' CONDITION - DETAILS ON BACKSIDE.

MECHANIC

- ALL UNITS [AS APPLICABLE]
  - ☑ PAINT CONDITION ☐ Exterior Structural Condition ☑ INTERIOR STRUCTURAL CONDITION ☑ Electrical Components ☑ Mechanical Components
  - ☑ Rolling Chassis and/or Trailer Assembly ☑ LADDERS & SAFETY RAILS/CHAINS ☑ VALVES, HANDLES, FLANGES & SEATS
  - ☑ ALWAYS ENSURE THAT ALL HATCHES, LADDERS AND RAILS ARE SECURELY FASTENED DOWN BEFORE MOVING UNIT!
- PUMP UNITS:
  - ☐ Fuel Level: OUT [Delivery] ____ IN [Return] ____
  - ☐ Vacuum [hg]: OUT [Delivery] ____ IN [Return] ____
  - ☐ Wear Plate Clearance: OUT [Delivery] ____ IN [Return] ____
  - ☐ Operating time [HR Meter OUT [Delivery] ____ IN [Return] ____
  - ☐ Mechanical Seal Oil [Color]: OUT [Delivery] ____ IN [Return] ____
  - ☐ Pump End ☐ Power & Compressor Units ☐ Belts & Hoses ☐ Battery & Starter
- TANK AND BOX UNITS [AS APPLICABLE] ☐ Doors & Gaskets ☐ Top Lids / Tarps & Accessories
- SRD FILTRATION UNITS: ☐ Filter Media ☐ Vessel Lids, O-Rings & Gaskets ☐ Pressure Gauges ☐ Back-flush Controller ☐ Filter Pressure Sustaining Valve

Comment(s): OK

Similar to ~~[illegible]~~ Wallace Farm's tank.

Stainless Steel Tank
Stainless 304L
Totally enclosed tank
Easy to move

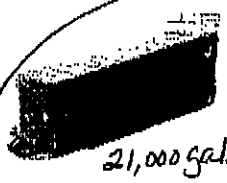
<< More Information >>

Rent me?

Steel Bi-Level Tank
Unique safety stairway
Totally enclosed tank
Rodless and cross style internal bracing

<< More Information >>

Rent me?



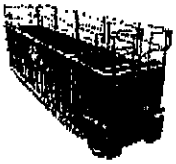
21,000 gal.

Steel Manifold Tank
Totally enclosed tank
Cross style internal bracing

<< More Information >>

Rent me?

18,100 Gallon



Worksafe Open Top Tank
Complete grip strut walkway with safety guardrails
Open top for ease of viewing and cleaning

<< More Information >>

Rent me?

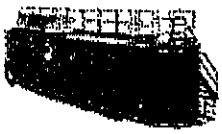
18,100 Gallon

Worksafe Two Weir Tank
Over and under Weirs
Safety stairway

<< More Information >>

Rent me?

18,100 Gallon



Worksafe Flip Top Tank
Complete grip strut walkway with safety guardrails
Flip top lids for ease of access and cleaning

<< More Information >>

Rent me?

18,100 Gallon

Worksafe Mixer Tank
Five horsepower mixers
Individual control for each mixer
Single electrical connection

Totally enclosed and vapor tight

<< More Information >>

Rent me?

Other Storage Tank Solutions

The 12,000 capacity water tower is the portable, tow able solution to getting water to your job site. The tank can be easily converted to a tower with hydraulics. Ideal for construction sites. **NOTE:** The water tower is only available at select branches in California, Arizona and Nevada.

Water Tower

Holds 12,000 gallons of water, 4" fill line

<< More Information >>

Rent me?

terminals. The excavation pits contained storm water runoff contaminated with hydrocarbons, silt, and clay particulates. >the whole story...

Cogeneration Steam Generators

A new cogeneration planet in Klamath Falls, Oregon was being prepared to go online in the summer of 2001. Two Toshiba HRSB (heat recovery steam generators) for the plant needed to be thoroughly, chemically cleaned prior to operation. > the whole story...

Steel Tanks - Features

- Coated/Uncoated Interiors
- Full drain V bottoms
- Safety Staircase

Options

- Vapor Tight
- Manifolds
- Steam Coils
- Flowback
- Weir
- Mixers

Level Gauge Options

Digital Electronic Gauges

- Radar Level Gauge
- Telemetry
- Data Loggers

Poly Tanks - Features

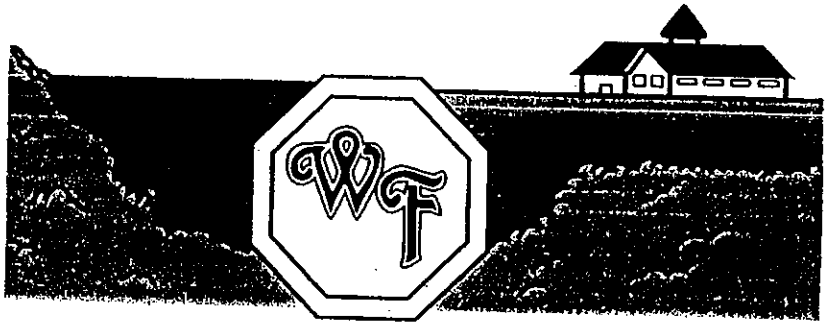
- Superior Chemical Resistance
- Lightweight
- Sloped & Domed Floors
- Safety Ladders

Options

- Mixers
- Double Containment
- Acid Tanks

Appendix E – Product Label and Analytical Information

WALLACE FARM PRIDE



•Superb Soil Amendment
•Excellent Fine Textured Mulch
•Great for Top Dressing

COTTON COMPOST

1 Cu. Ft. (28.3 L)
Net Weight 38 Lbs.

WALLACE FARM, INC.
14410 Eastfield Road
Huntersville, NC 28078
www.wallacefarmproducts.com

WALLACE FARM PRIDE

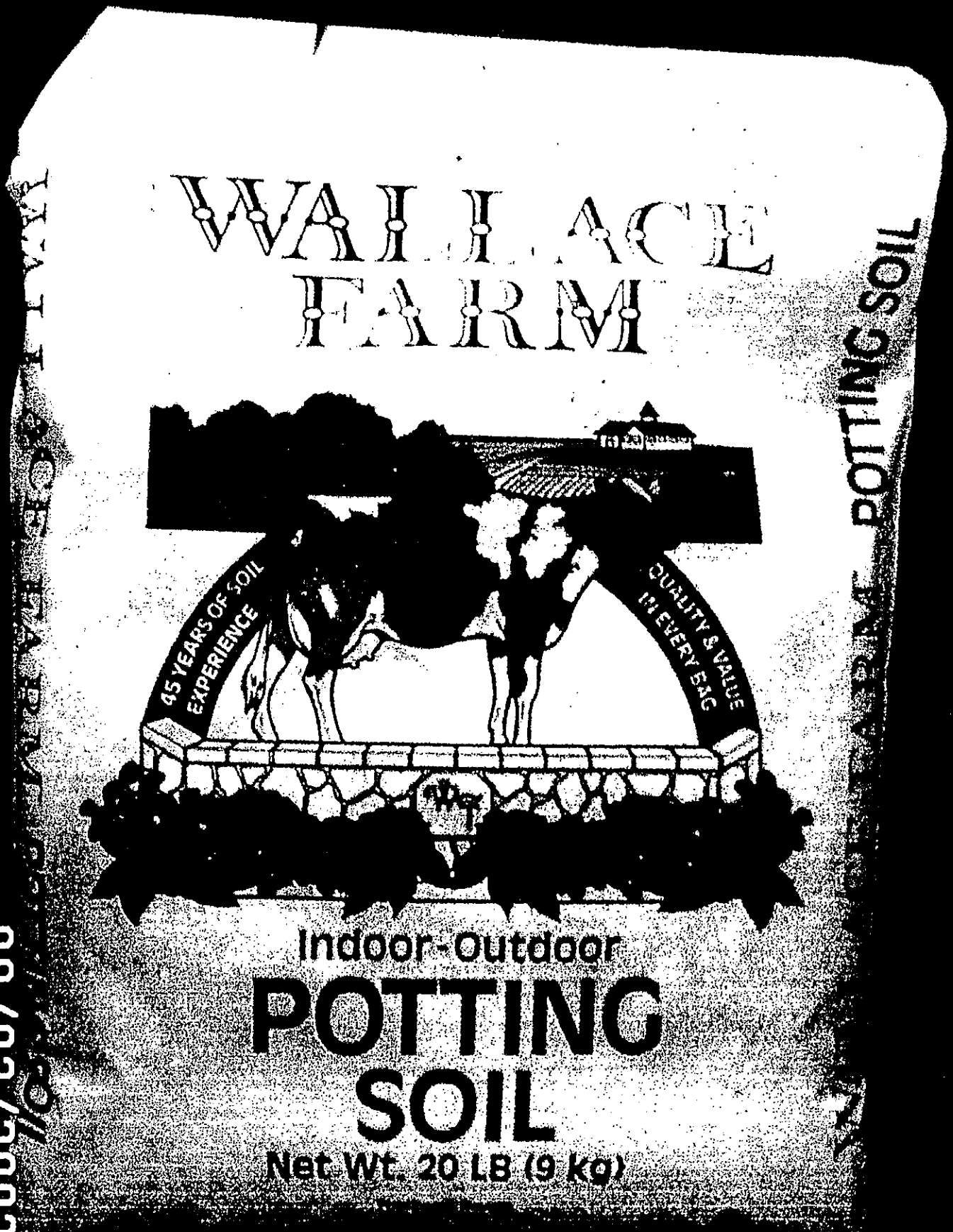
COTTON COMPOST

WALLACE FARM PRIDE

COTTON COMPOST

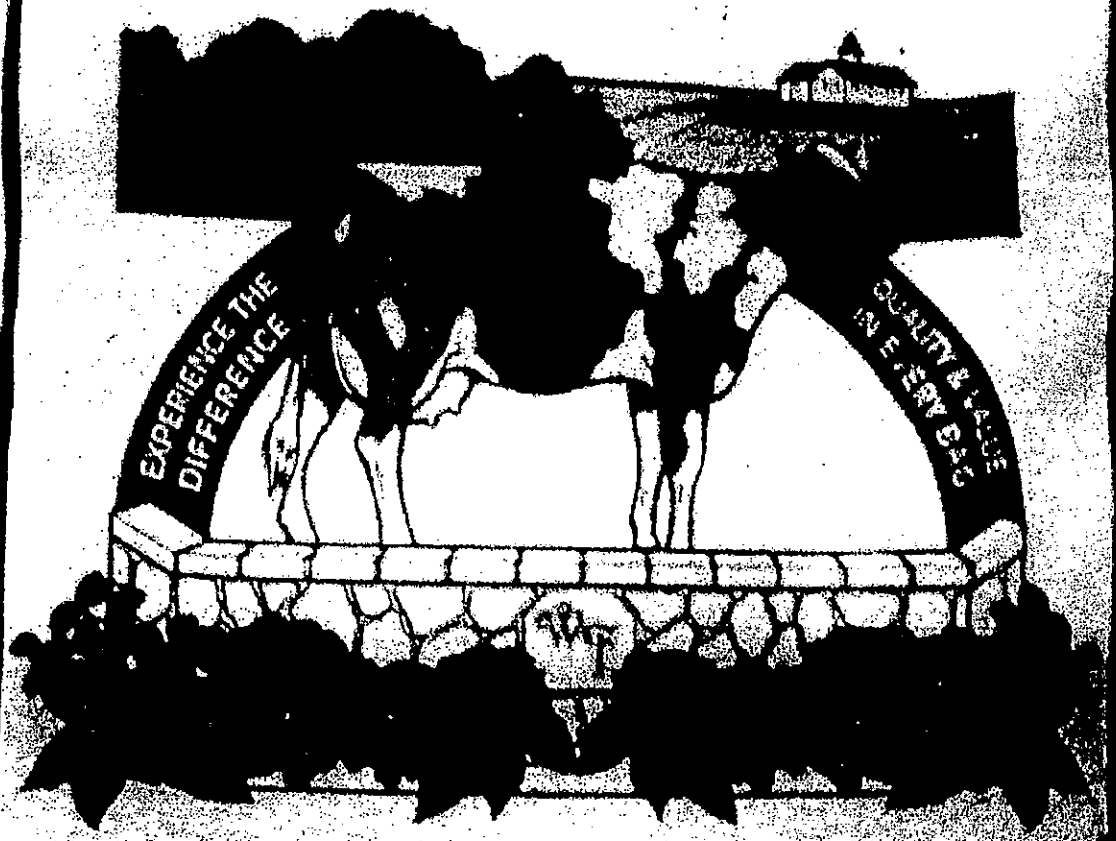
WALLACE FARM PRIDE

COTTON COMPOST


WALLACE FARM
45 YEARS OF SOIL EXPERIENCE
QUALITY & VALUE IN EVERY BAG
Indoor-Outdoor
POTTING SOIL
Net Wt. 20 LB (9 Kg)
POTTING SOIL

08/03/2002

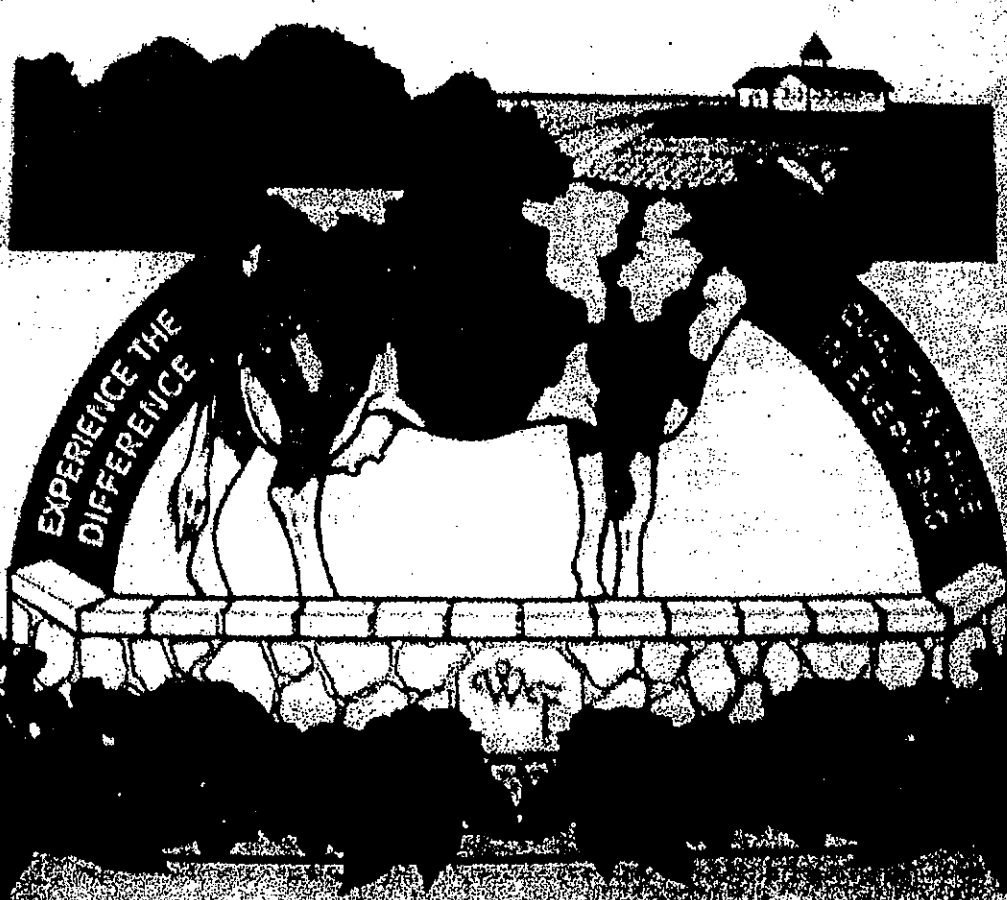
WALLACE FARM



PREMIUM TOP SOIL

WALLACE FARM PREMIUM TOP SOIL

WALLACE FARM



Composted

COW MANURE

.5-.5-.5

1 CU. FT. (28 L)

WALLACE FARM COW MANURE

WALLACE FARM COW MANURE

WALLACE FARM

EXPERIENCE THE DIFFERENCE

Grade A

COMPOST PLUS

1 CU. FT. (28 L)

Wallace Farm, LLC
14810 Eastfield Road
Huntersville, N.C. 28078
www.wallacefarmproducts.com

WALLACE FARM COMPOST PLUS

WALLACE FARM COMPOST PLUS

08/03/2002

WALLACE FARM GARDENER'S DELIGHT

WALLACE FARM

Our Premium

GARDENER'S DELIGHT

PLANTING SOIL

- Ideal Soil Additive For In-Ground Planting
- Improves "Hard Clay" and Sandy Soils
- Promotes Vigorous Root and Plant Growth

WALLACE FARM GARDENER'S DELIGHT

1 Cubic Ft. (28L)

Wallace Farm, Inc.
14410 Eastfield Road
Huntersville, NC 28078
(www.wallacefarmproducts.com)

WALLACE FARM GARDENER'S DELIGHT

WALLACE FARM MUSHROOM COMPOST

WALLACE FARM™

Our Premium

MUSHROOM COMPOST

- Excellent for Flower and Vegetable Gardens
- Enriches the Soil
- Promotes Vigorous and Healthy Plants

WALLACE FARM MUSHROOM COMPOST

1 Cubic Ft. (28L)

Wallace Farm, Inc.
14410 Eastfield Road
Huntersville, NC 28078
(www.wallacefarmproducts.com)

WALLACE FARM MUSHROOM COMPOST

3" Unprinted top of front and back

WALLACE FARM

SOIL CONDITIONER

- 100% Aged Bark Fines
- Intended for In-Ground Planting and Mulching
- Loosens Hard Clay and Sandy Soils

GENERAL USES

Intended to be mixed with hard, compacted soils to loosen the soil and provide a better environment for growing flowers, vegetables, trees, shrubs, and turf. Can also be used in mulching applications where finely ground, premium mulch is needed.

APPLICATION INSTRUCTIONS

FLOWER BEDS AND GARDENS

Loosen existing soil 4-6 inches deep. Apply 2-4 inches of Wallace Farm Soil Conditioner over planting area (2 cu. ft. per 8 sq. ft.) and incorporate into existing soil. Plant and water thoroughly.

RAISED BEDS

Construct bedding perimeter allowing for a minimum depth of 12 inches. Fill the area with a mixture of one part Wallace Farm Soil Conditioner and one part Wallace Farm Premium Top Soil. Alternate emptying soil conditioner and top soil bags, mixing as you go, until desired depth is reached.

TREES AND SHRUBS

Dig a hole one-third larger and one-third deeper than root ball of plant. Disturb root ball *only* if root-bound. Mix one part Wallace Farm Soil Conditioner to one part existing soil. Fill bottom of hole with mixture to allow top of root ball to sit at ground level. Finish filling hole with mixture and lightly pack to avoid air pockets. Water thoroughly.

MULCHING

Wallace Farm Soil Conditioner is ideal for mulching around all types of plants and is especially suitable for use around smaller annuals and perennials. (2 cu. ft. covers approx. 10 sq. ft.)

Other Fine Wallace Farm Products:

- Premium Top Soil
- Planting Soil
- Potting Soil
- Premium Potting Mix
- Composted Cow Manure
- Mushroom Compost
- Compost Plus
- Play Sand

Wallace Farm, Inc.
14410 Eastfield Road
Huntersville, NC 28078
www.wallacefarmproducts.com

2 Cu. Ft. (56L)
Net Weight 38 Lbs.

NCDA Agronomic Division 4300 Reedy Creek Road Raleigh, NC 27607-6465 (919) 733-2655 Report No: W0[illegible]4 W

Grower: **Wallace Farm LLC**
14410 Eastfield Rd.
Huntersville, NC 28078

Copies To: County Extension Director
USDA-NRCS-Mecklenburg

Waste Analysis Report

Farm:

Mecklenburg County

Sample Info.	Laboratory Results (parts per million unless otherwise noted)														
Sample ID:		*N*	*P*	*K*	*Ca*	*Mg*	*S*	*Fe*	*Mn*	*Zn*	*Cu*	*B*	*Mo*	*Cl*	*C*
S1	*Total*	9026	2901	6549	7523	3151	1267	9657	355	123	78.6	22.2			147097
Woodchips	*IN -N*														
Waste Code:	*-NH4*														
NCW	*-NO3*		*Na*	*Ni*	*Cd*	*Pb*	*Al*	*Se*	*Li*	*pH*	*SS*	*C:N*	*DM%*	*CCE%*	*ALE(tons)*
Description:	*OR-N*		1705							6.65	297.00	16.30	69.31		
Non-Composted - Other	*Urea*														

Recommendations:	Nutrients Available for First Crop *lbs/ton (wet basis)*													Other Elements *lbs/ton (wet basis)*						
Application Method	*N*	*P2O5*	*K2O*	*Ca*	*Mg*	*S*	*Fe*	*Mn*	*Zn*	*Cu*	*B*	*Mo*	*Cl*	*Na*	*Ni*	*Cd*	*Pb*	*Al*	*Se*	*Li*
Broadcast	2.5	3.7	8.7	4.2	1.8	0.70	5.4	0.20	0.07	0.04	0.01			2.4						
Soil Incorp	5.0	5.5	9.8	6.3	2.6	1.1	8.0	0.20	0.10	0.07	0.02			2.4						

Sample Info.	Laboratory Results (parts per million unless otherwise noted)														
Sample ID:		*N*	*P*	*K*	*Ca*	*Mg*	*S*	*Fe*	*Mn*	*Zn*	*Cu*	*B*	*Mo*	*Cl*	*C*
S2 Compost Screenings	*Total*	9477	3098	5854	9851	3916	2536	15250	793	119	472	31.2			145614
	IN -N														
Waste Code:	*-NH4*														
FCD	*-NO3*		*Na*	*Ni*	*Cd*	*Pb*	*Al*	*Se*	*Li*	*pH*	*SS*	*C:N*	*DM%*	*CCE%*	*ALE(tons)*
Description:	*OR-N*		2314							6.89	150.00	15.36	58.21		
Composted Dairy Waste	*Urea*														

Recommendations:	Nutrients Available for First Crop *lbs/ton (wet basis)*													Other Elements *lbs/ton (wet basis)*						
Application Method	*N*	*P2O5*	*K2O*	*Ca*	*Mg*	*S*	*Fe*	*Mn*	*Zn*	*Cu*	*B*	*Mo*	*Cl*	*Na*	*Ni*	*Cd*	*Pb*	*Al*	*Se*	*Li*
Broadcast	4.4	5.0	6.5	6.9	2.7	1.8	10.7	0.55	0.08	0.33	0.02			2.7						
Soil Incorp	5.5	6.2	7.4	8.6	3.4	2.2	13.3	0.69	0.10	0.41	0.03			2.7						

Nitrogen is very high in relation to carbon (Low C:N Ratio). If the waste product is to be used as a raw material in composting, blend it with another material with a high C:N ratio. The C:N ratio should be 20-30 for ideal composting conditions.

Soluble salt level is high. The roots of plants growing directly in the compost may be damaged particularly under dry soil conditions. The compost should be blended at least 50:50 with another material of lower salt level. High soluble salts likely indicate high nutrient availability. Take a matching soil sample to further evaluate pH and nutrient availability.

Compost pH is higher than ideal for plant production. If the compost will be used as a landscape or potting soil, blend other materials or add elemental sulfur to decrease pH to the desired range. As a general rule, add 0.25 lb. of elemental sulfur per cu. yd. of soil to lower pH 0.5-1.0 unit. One month after treatment, take a soil sample to determine if pH is within the desired range.

NCDA Agronomic Division 4300 Reedy Creek Road Raleigh, NC 27607-6465 (919) 733-2655 Grower: Wallace Dairy Farms Report No: W02140 Pg 5

Sample Info. | **Laboratory Results (parts per million unless otherwise noted)**

Sample ID:		N	P	K	Ca	Mg	S	Fe	Mn	Zn	Cu	B	Mo	Cl	C
W1	Total	3934	196	748	2339	352	240	8544	210	15.2	6.49	0.68			246981
Woodchips	IN-N	.39%	.02%	.07%											
Waste Code:	-NH4														
NBS	-NO3														
Description:	OR-N														
Non-Composted Bark/Sawdu	Urea														

Na	Ni	Cd	Pb	Al	Se	Li	pH	SS	C:N	DM%	CCE%	ALE(tons)
92.2	0.21	0.03	8.73						62.78	49.71		

Recommendations: | **Nutrients Available for First Crop** | *lbs/ton (wet basis)*

Application Method	N	P2O5	K2O	Ca	Mg	S	Fe	Mn	Zn	Cu	B	Mo	Cl
Soil Incorp	1.6	0.22	0.80	1.2	0.17	0.12	4.3	0.10	0.01	T	T		

Other Elements | *lbs/ton (wet basis)*

Na	Ni	Cd	Pb	Al	Se	Li
0.09	T	T	0.01			

Sample Info. | **Laboratory Results (parts per million unless otherwise noted)**

Sample ID:		N	P	K	Ca	Mg	S	Fe	Mn	Zn	Cu	B	Mo	Cl	C
W2	Total	11379	893	2706	9492	1972	935	3347	960	93.9	11.9	19.6			405894
Leaves	IN-N	1.14%	.09%	.27%											
Waste Code:	-NH4														
NCW	-NO3														
Description:	OR-N														
Non-Composted - Other	Urea														

Na	Ni	Cd	Pb	Al	Se	Li	pH	SS	C:N	DM%	CCE%	ALE(tons)
134	0.35	0.04	28.4						35.67	43.42		

Recommendations: | **Nutrients Available for First Crop** | *lbs/ton (wet basis)*

Application Method	N	P2O5	K2O	Ca	Mg	S	Fe	Mn	Zn	Cu	B	Mo	Cl
Soil Incorp	4.0	1.1	2.5	5.0	1.0	0.49	1.7	0.50	0.05	0.01	0.01		

Other Elements | *lbs/ton (wet basis)*

Na	Ni	Cd	Pb	Al	Se	Li
0.12	T	T	0.02			

NCDA Agrone[illegible] Division 4300 Reedy Creek Road Raleigh, NC 27607-6465 (91[illegible]733-2655 Grower: Wallace Dairy Farms Report No: W[illegible]40 Pg 4

Sample Info.	Laboratory Results (parts per million unless otherwise noted)														
	N	P	K	Ca	Mg	S	Fe	Mn	Zn	Cu	B	Mo	Cl	C
Sample ID: C0 Leighs Cotton	Total 15396	1541	13325	9223	2000	2010	359	49.4	18.7	6.79	21.9			417369
	IN-N 1.54%	.152	1.332											
Waste Code:	-NH4													
NCR	-NO3	Na	Ni	Cd	Pb	Al	Se	Li	pH	SS	C:N	DM%	CCE%	ALE(tons)
Description:	OR-N	218	0.09	0.01	0.40						27.11	65.12		
Non-Composted Crop Residu	Urea													

Recommendations:	Nutrients Available for First Crop lbs/ton (wet basis)													Other Elements lbs/ton (wet basis)						
Application Method	N	P2O5	K2O	Ca	Mg	S	Fe	Mn	Zn	Cu	B	Mo	Cl	Na	Ni	Cd	Pb	Al	Se	Li
Soil Incorp	8.0	2.8	18.7	7.2	1.6	1.6	0.28	0.04	0.01	0.01	0.02			0.28	T	T	T			

Sample Info.	Laboratory Results (parts per million unless otherwise noted)														
	N	P	K	Ca	Mg	S	Fe	Mn	Zn	Cu	B	Mo	Cl	C
Sample ID: C01 Bowers Cotton	Total 20015	2249	15399	14983	2733	2958	234	81.3	22.9	8.79	41.5			425950
	IN-N 2.0%	.22%	1.54%											
Waste Code:	-NH4													
NCR	-NO3	Na	Ni	Cd	Pb	Al	Se	Li	pH	SS	C:N	DM%	CCE%	ALE(tons)
Description:	OR-N	343	0.12	0.01	0.00						21.28	51.28		
Non-Composted Crop Residu	Urea													

Recommendations:	Nutrients Available for First Crop lbs/ton (wet basis)													Other Elements lbs/ton (wet basis)						
Application Method	N	P2O5	K2O	Ca	Mg	S	Fe	Mn	Zn	Cu	B	Mo	Cl	Na	Ni	Cd	Pb	Al	Se	Li
Soil Incorp	8.2	3.2	17.1	9.2	1.7	1.8	0.14	0.05	0.01	0.01	0.03			0.35	T	T	0.00			

Sample Info.	Laboratory Results (parts per million unless otherwise noted)														
	N	P	K	Ca	Mg	S	Fe	Mn	Zn	Cu	B	Mo	Cl	C
Sample ID: S1 Sawdust	Total 6823	126	756	1179	274	241	69.6	22.6	4.63	3.26	1.96			453305
	IN-N .68%	.012	.08%											
Waste Code:	-NH4													
NBS	-NO3	Na	Ni	Cd	Pb	Al	Se	Li	pH	SS	C:N	DM%	CCE%	ALE(tons)
Description:	OR-N	260	0.01	0.00	0.00						66.44	38.86		
Non-Composted Bark/Sawdu	Urea													

Recommendations:	Nutrients Available for First Crop lbs/ton (wet basis)													Other Elements lbs/ton (wet basis)						
Application Method	N	P2O5	K2O	Ca	Mg	S	Fe	Mn	Zn	Cu	B	Mo	Cl	Na	Ni	Cd	Pb	Al	Se	Li
Soil Incorp	2.1	0.11	0.63	0.46	0.11	0.09	0.03	0.01	T	T	T			0.20	T	0.00	0.00			

REPORT NO.
F08016-6006
ACCOUNT NUMBER
90539

A & L GREAT LAKES LABORATORIES, INC.

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www.algreatlakes.com • lab@algreatlakes.com

QUALITY ANALYSES FOR INFORMED DECISIONS

TO: WALLACE FARM LLC
14410 EASTFIELD RD.
HUNTERSVILLE, NC 28078-6636

ATTN: ERIC WALLACE

COMPOST ANALYSIS REPORT

LAB NUMBER: 39625
SAMPLE ID: CGBC Bleaching Clay

DATE RECEIVED: 01/16/2008
DATE REPORTED: 01/25/2008 PAGE: 1

PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Moisture @ 70 C	%	11.92		TMECC 03.09-A
Dry Matter	%	88.08		TMECC 03.09-A
Total Kjeldahl Nitrogen (TKN)	%	0.04	0.04	TMECC 04.02-A
Ammonium Nitrogen (NH4-N)	mg/kg	1	1	TMECC 04.02-C
Nitrate Nitrogen (NO3-N)	mg/kg	1	1	TMECC 04.02-B
Nitrogen, Organic	%	0.04	0.04	TMECC 04.02-A, 04.02-C
Phosphorus (P)	%	0.14	0.16	TMECC 04.03-A
Phosphate (P205)	%	0.32	0.37	TMECC 04.03-A
Potassium (K)	%	0.16	0.18	TMECC 04.04-A
Potash (K2O)	%	0.19	0.22	TMECC 04.04-A
Sulfur (S)	%	0.37	0.42	TMECC 04.05-S
Calcium (Ca)	%	0.48	0.55	TMECC 04.05-CA
Iron (Fe)	mg/kg	9349	10612	TMECC 04.05-FE
Arsenic	mg/kg	1.018	1.156	SW846-6020 04.06-As
Cadmium	mg/kg	0.29	0.33	SW846-6020 04.06-Cd
Chromium	mg/kg	23.30	26.45	SW846-6020 04.06-Cr

COMPOST

TMECC - Test Methods for the Examination of Composting and Compost. The U.S. Composting Council.

REPORT NO.
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TO: WALLACE FARM LLC
14410 EASTFIELD RD.
HUNTERSVILLE, NC 28078-6636

ATTN: ERIC WALLACE

COMPOST ANALYSIS REPORT

LAB NUMBER: 39625
SAMPLE ID: CGBC

DATE RECEIVED: 01/16/2008
DATE REPORTED: 01/25/2008 PAGE: 2

PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Copper	mg/kg	5.44	6.18	SW846-6020 04.06-Cu
Mercury	mg/kg	<0.01	< 0.01	SW846-6020 04.06-Hg
Nickel	mg/kg	11.62	13.19	SW846-6020 04.06-Ni
Lead	mg/kg	2.77	3.14	SW846-6020 04.06-Pb
Selenium	mg/kg	<0.001	< 0.001	SW846-6020 04.06-Se
Zinc	mg/kg	26.31	29.87	SW846-6020 04.06-Zn
pH	-	3.9		TMECC 04.11-A
Organic Matter by LOI @ 550C	%	44.94	51.02	TMECC 05.07-A
Organic Carbon by LOI @ 550C	%	22.47	25.51	Estimated
Carbon:Nitrogen Ratio (C:N)	-	637.8:1	637.8:1	TMECC 05.02-A
Silver	mg/kg	<0.001	< 0.001	SW846-6020
Barium	mg/kg	40.457	45.932	SW846-6020

COMPOST

TMECC - Test Methods for the Examination of Compostino and Compost. The U.S. Comoostino Council.

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TO: WALLACE FARM LLC
14410 EASTFIELD RD.
HUNTERSVILLE, NC 28078-6636

ATTN: ERIC WALLACE

COMPOST ANALYSIS REPORT

LAB NUMBER: 39626
SAMPLE ID: CPW Cosmetic Production Waste

DATE RECEIVED: 01/16/2008
DATE REPORTED: 01/25/2008 PAGE: 3

PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Moisture @ 70 C	%	90.54		TMECC 03.09-A
Dry Matter	%	9.46		TMECC 03.09-A
Total Kjeldahl Nitrogen (TKN)	%	0.15	1.54	TMECC 04.02-A
Ammonium Nitrogen (NH4-N)	mg/kg	29	300	TMECC 04.02-C
Nitrate Nitrogen (NO3-N)	mg/kg	0.1	1	TMECC 04.02-B
Nitrogen, Organic	%	0.14	1.51	TMECC 04.02-A, 04.02-C
Phosphorus (P)	%	0.04	0.37	TMECC 04.03-A
Phosphate (P205)	%	0.08	0.85	TMECC 04.03-A
Potassium (K)	%	0.04	0.47	TMECC 04.04-A
Potash (K2O)	%	0.05	0.56	TMECC 04.04-A
Sulfur (S)	%	0.06	0.63	TMECC 04.05-S
Calcium (Ca)	%	0.13	1.38	TMECC 04.05-CA
Iron (Fe)	mg/kg	560	5898	TMECC 04.05-FE
Arsenic	mg/kg	<0.000	< 0.001	SW846-6020 04.06-As
Cadmium	mg/kg	<0.00	< 0.01	SW846-6020 04.06-Cd
Chromium	mg/kg	1.25	13.18	SW846-6020 04.06-Cr

COMPOST

TMECC - Test Methods for the Examination of Composting and Compost. The U.S. Composting Council.

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TO: WALLACE FARM LLC
14410 EASTFIELD RD.
HUNTERSVILLE, NC 28078-6636

ATTN: ERIC WALLACE

COMPOST ANALYSIS REPORT

LAB NUMBER: 39626
SAMPLE ID: CPW

DATE RECEIVED: 01/16/2008
DATE REPORTED: 01/25/2008 PAGE: 4

PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Copper	mg/kg	3.71	39.23	SW846-6020 04.06-Cu
Mercury	mg/kg	0.37	3.94	SW846-6020 04.06-Hg
Nickel	mg/kg	<0.00	< 0.01	SW846-6020 04.06-Ni
Lead	mg/kg	0.54	5.67	SW846-6020 04.06-Pb
Selenium	mg/kg	0.108	1.140	SW846-6020 04.06-Se
Zinc	mg/kg	41.13	434.75	SW846-6020 04.06-Zn
pH	-	5.0		TMECC 04.11-A
Fecal Coliform/MPN	MPN/g dry		0	SM(20th)-9221E TMECC
Organic Matter by LOI @ 550C	%	8.38	88.63	TMECC 05.07-A
Organic Carbon by LOI @ 550C	%	4.19	44.31	Estimated
Carbon:Nitrogen Ratio (C:N)	-	28.8:1	28.8:1	TMECC 05.02-A
Silver	mg/kg	<0.000	< 0.001	SW846-6020
Barium	mg/kg	2.514	26.580	SW846-6020

COMPOST

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TO: WALLACE FARM LLC
14410 EASTFIELD RD.
HUNTERSVILLE, NC 28078-6636

ATTN: ERIC WALLACE

COMPOST ANALYSIS REPORT

LAB NUMBER: 39632
SAMPLE ID: PRDB Flour-Based Batter

DATE RECEIVED: 01/16/2008
DATE REPORTED: 01/25/2008 PAGE: 15

PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Moisture @ 70 C	%	81.45		TMECC 03.09-A
Dry Matter	%	18.55		TMECC 03.09-A
Total Kjeldahl Nitrogen (TKN)	%	0.63	3.39	TMECC 04.02-A
Ammonium Nitrogen (NH4-N)	mg/kg	16	86	TMECC 04.02-C
Nitrate Nitrogen (NO3-N)	mg/kg	0.4	2	TMECC 04.02-B
Nitrogen, Organic	%	0.63	3.38	TMECC 04.02-A, 04.02-C
Phosphorus (P)	%	0.15	0.80	TMECC 04.03-A
Phosphate (P205)	%	0.34	1.84	TMECC 04.03-A
Potassium (K)	%	0.02	0.10	TMECC 04.04-A
Potash (K2O)	%	0.02	0.12	TMECC 04.04-A
Sulfur (S)	%	0.07	0.36	TMECC 04.05-S
Calcium (Ca)	%	0.01	0.04	TMECC 04.05-CA
Iron (Fe)	mg/kg	401	2165	TMECC 04.05-FE
Arsenic	mg/kg	<0.000	< 0.001	SW846-6020 04.06-As
Cadmium	mg/kg	<0.00	< 0.01	SW846-6020 04.06-Cd
Chromium	mg/kg	3.01	16.21	SW846-6020 04.06-Cr

COMPOST

TMECC - Test Methods for the Examination of Composting and Compost. The U.S. Composting Council.

REPORT NO.
F08016-6006
ACCOUNT NUMBER
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TO: WALLACE FARM LLC
14410 EASTFIELD RD.
HUNTERSVILLE, NC 28078-6636

ATTN: ERIC WALLACE

COMPOST ANALYSIS REPORT

LAB NUMBER: 39632
SAMPLE ID: PRDB

DATE RECEIVED: 01/16/2008
DATE REPORTED: 01/25/2008 PAGE: 16

PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Copper	mg/kg	4.30	23.17	SW846-6020 04.06-Cu
Mercury	mg/kg	<0.00	< 0.01	SW846-6020 04.06-Hg
Nickel	mg/kg	5.23	28.20	SW846-6020 04.06-Ni
Lead	mg/kg	0.37	2.00	SW846-6020 04.06-Pb
Selenium	mg/kg	<0.000	< 0.001	SW846-6020 04.06-Se
Zinc	mg/kg	9.90	53.35	SW846-6020 04.06-Zn
pH	-	3.7		TMECC 04.11-A
Fecal Coliform/MPN	MPN/g dry		0	SM(20th)-9221E TMECC
Organic Matter by LOI @ 550C	%	17.08	92.10	TMECC 05.07-A
Organic Carbon by LOI @ 550C	%	8.54	46.05	Estimated
Carbon:Nitrogen Ratio (C:N)	-	13.6:1	13.6:1	TMECC 05.02-A
Silver	mg/kg	<0.000	< 0.001	SW846-6020
Barium	mg/kg	2.321	12.512	SW846-6020

COMPOST

TMECC - Test Methods for the Examination of Composting and Compost. The U.S. Composting Council.

REPORT NO
F08010-6005
ACCOUNT NUMBER
90539

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TO: WALLACE FARM LLC.
14410 EASTFIELD RD.
HUNTERSVILLE, NC 28078-6636

FOR: COMPOST FEEDSTOCKS

ATTN: ERIC WALLACE

COMPOST ANALYSIS REPORT

DATE SAMPLED: 01/09/2008
DATE RECEIVED: 01/10/2008
DATE REPORTED: 01/22/2008
PAGE: 3

LAB NUMBER: 39590
SAMPLE ID: EQUB Flour - Based Batter

PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Moisture @ 70 C	%	88.27		TMECC 03.09-A
Dry Matter	%	11.73		TMECC 03.09-A
Total Kjeldahl Nitrogen (TKN)	%	0.22	1.88	TMECC 04.02-A
Ammonium Nitrogen (NH4-N)	mg/kg	9	79	TMECC 04.02-C
Nitrate Nitrogen (NO3-N)	mg/kg	0.1	1	TMECC 04.02-B
Nitrogen, Organic	%	0.22	1.88	TMECC 04.02-A, 04.02-C
Phosphorus (P)	%	0.07	0.63	TMECC 04.03-A
Phosphate (P205)	%	0.17	1.45	TMECC 04.03-A
Potassium (K)	%	0.004	0.03	TMECC 04.04-A
Potash (K2O)	%	0.004	0.04	TMECC 04.04-A
Sulfur (S)	%	0.04	0.31	TMECC 04.05-S
Calcium (Ca)	%	0.01	0.07	TMECC 04.05-CA
Iron (Fe)	mg/kg	80	680	TMECC 04.05-FE
Arsenic	mg/kg	<0.000	< 0.001	SW846-6020 04.06-As
Cadmium	mg/kg	<0.00	< 0.01	SW846-6020 04.06-Cd
Chromium	mg/kg	0.68	5.79	SW846-6020 04.06-Cr

COMPOST

TMECC - Test Methods for the Examination of Composting and Compost. The U.S. Composting Council.

REPORT NO.
FO8010-6005
ACCOUNT NUMBER
90539

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TO: WALLACE FARM LLC
14410 EASTFIELD RD.
HUNTERSVILLE, NC 28078-6636

FOR: COMPOST FEEDSTOCKS

ATTN: ERIC WALLACE

COMPOST ANALYSIS REPORT

DATE SAMPLED: 01/09/2008
DATE RECEIVED: 01/10/2008
DATE REPORTED: 01/22/2008
PAGE: 4

LAB NUMBER: 39590
SAMPLE ID: EQUB

PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Copper	mg/kg	1.44	12.24	SW846-6020 04.06-Cu
Mercury	mg/kg	<0.00	< 0.01	SW846-6020 04.06-Hg
Nickel	mg/kg	0.30	2.60	SW846-6020 04.06-Ni
Lead	mg/kg	0.07	0.56	SW846-6020 04.06-Pb
Selenium	mg/kg	<0.000	< 0.001	SW846-6020 04.06-Se
Zinc	mg/kg	7.92	67.48	SW846-6020 04.06-Zn
pH	-	3.9		TMECC 04.11-A
Fecal Coliform/MPN	MPN/g dry		90	SM(20th)-9221E TMECC
Organic Matter by LOI @ 550C	%	11.21	95.54	TMECC 05.07-A
Organic Carbon by LOI @ 550C	%	5.60	47.77	Estimated
Carbon:Nitrogen Ratio (C:N)	-	25.4:1	25.4:1	TMECC 05.02-A
Silver	mg/kg	<0.000	< 0.001	SW846-6020
Barium	mg/kg	0.513	4.375	SW846-6020

COMPOST

TMECC - Test Methods for the Examination of Compostino and Comoost. The U.S. Compostino Council.

REPORT NO.
F08010-6005
ACCOUNT NUMBER
90539

A & L GREAT LAKES LABORATORIES, INC.

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www.algreatlakes.com • lab@algreatlakes.com

TO: WALLACE FARM LLC
14410 EASTFIELD RD.
HUNTERSVILLE, NC 28078-6636

FOR: COMPOST FEEDSTOCKS

ATTN: ERIC WALLACE

COMPOST ANALYSIS REPORT

DATE SAMPLED: 01/09/2008
DATE RECEIVED: 01/10/2008
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LAB NUMBER: 39591
SAMPLE ID: DOLL Vegetable Waste

PARAMETER	UNITS	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Moisture @ 70 C	%	94.94		TMECC 03.09-A
Dry Matter	%	5.06		TMECC 03.09-A
Total Kjeldahl Nitrogen (TKN)	%	0.12	2.43	TMECC 04.02-A
Ammonium Nitrogen (NH4-N)	mg/kg	10	199	TMECC 04.02-C
Nitrate Nitrogen (NO3-N)	mg/kg	43	843	TMECC 04.02-B
Nitrogen, Organic	%	0.12	2.41	TMECC 04.02-A, 04.02-C
Phosphorus (P)	%	0.03	0.54	TMECC 04.03-A
Phosphate (P205)	%	0.06	1.24	TMECC 04.03-A
Potassium (K)	%	0.28	5.57	TMECC 04.04-A
Potash (K2O)	%	0.34	6.68	TMECC 04.04-A
Sulfur (S)	%	0.02	0.36	TMECC 04.05-S
Calcium (Ca)	%	0.05	1.01	TMECC 04.05-CA
Iron (Fe)	mg/kg	19	368	TMECC 04.05-FE
Arsenic	mg/kg	0.016	0.315	SW846-6020 04.06-As
Cadmium	mg/kg	0.06	1.15	SW846-6020 04.06-Cd
Chromium	mg/kg	0.35	7.00	SW846-6020 04.06-Cr

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LAB NUMBER: 39591
SAMPLE ID: DOLL

PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Copper	mg/kg	0.62	12.25	SW846-6020 04.06-Cu
Mercury	mg/kg	<0.00	< 0.01	SW846-6020 04.06-Hg
Nickel	mg/kg	0.17	3.43	SW846-6020 04.06-Ni
Lead	mg/kg	0.02	0.41	SW846-6020 04.06-Pb
Selenium	mg/kg	<0.000	< 0.001	SW846-6020 04.06-Se
Zinc	mg/kg	2.65	52.44	SW846-6020 04.06-Zn
pH	-	4.2		TMECC 04.11-A
Organic Matter by LOI @ 550C	%	4.28	84.68	TMECC 05.07-A
Organic Carbon by LOI @ 550C	%	2.14	42.34	Estimated
Carbon:Nitrogen Ratio (C:N)	-	17.4:1	17.4:1	TMECC 05.02-A
Silver	mg/kg	<0.000	< 0.001	SW846-6020
Barium	mg/kg	0.443	8.757	SW846-6020

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COMPOST ANALYSIS REPORT

DATE SAMPLED: 01/09/2008
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LAB NUMBER: 39592
SAMPLE ID: STOF Dewatered Food Residuals

PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Moisture @ 70 C	%	82.59		TMECC 03.09-A
Dry Matter	%	17.41		TMECC 03.09-A
Total Kjeldahl Nitrogen (TKN)	%	0.28	1.60	TMECC 04.02-A
Ammonium Nitrogen (NH4-N)	mg/kg	0.2	1	TMECC 04.02-C
Nitrate Nitrogen (NO3-N)	mg/kg	0.2	1	TMECC 04.02-B
Nitrogen, Organic	%	0.28	1.60	TMECC 04.02-A, 04.02-C
Phosphorus (P)	%	0.14	0.78	TMECC 04.03-A
Phosphate (P205)	%	0.31	1.79	TMECC 04.03-A
Potassium (K)	%	0.003	0.02	TMECC 04.04-A
Potash (K2O)	%	0.004	0.02	TMECC 04.04-A
Sulfur (S)	%	0.05	0.27	TMECC 04.05-S
Calcium (Ca)	%	0.05	0.28	TMECC 04.05-CA
Iron (Fe)	mg/kg	193	1109	TMECC 04.05-FE
Arsenic	mg/kg	0.070	0.404	SW846-6020 04.06-As
Cadmium	mg/kg	0.05	0.30	SW846-6020 04.06-Cd
Chromium	mg/kg	1.28	7.38	SW846-6020 04.06-Cr

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COMPOST ANALYSIS REPORT

DATE SAMPLED: 01/09/2008
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LAB NUMBER: 39592
SAMPLE ID: STOF

PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Copper	mg/kg	2.59	14.85	SW846-6020 04.06-Cu
Mercury	mg/kg	<0.00	< 0.01	SW846-6020 04.06-Hg
Nickel	mg/kg	0.85	4.88	SW846-6020 04.06-Ni
Lead	mg/kg	0.38	2.20	SW846-6020 04.06-Pb
Selenium	mg/kg	0.122	0.701	SW846-6020 04.06-Se
Zinc	mg/kg	12.84	73.75	SW846-6020 04.06-Zn
pH	-	4.8		TMECC 04.11-A
Fecal Coliform/MPN	MPN/g dry		100	SM(20th)-9221E TMECC
Organic Matter by LOI @ 550C	%	14.95	85.87	TMECC 05.07-A
Organic Carbon by LOI @ 550C	%	7.48	42.94	Estimated
Carbon:Nitrogen Ratio (C:N)	-	26.8:1	26.8:1	TMECC 05.02-A
Silver	mg/kg	<0.000	< 0.001	SW846-6020
Barium	mg/kg	1.392	7.994	SW846-6020

COMPOST

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COMPOST ANALYSIS REPORT

LAB NUMBER: 39630
SAMPLE ID: STAW Starch Water

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PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Moisture @ 70 C	%	92.45		TMECC 03.09-A
Dry Matter	%	7.55		TMECC 03.09-A
Total Kjeldahl Nitrogen (TKN)	%	0.29	3.83	TMECC 04.02-A
Ammonium Nitrogen (NH4-N)	mg/kg	1	9	TMECC 04.02-C
Nitrate Nitrogen (NO3-N)	mg/kg	1	16	TMECC 04.02-B
Nitrogen, Organic	%	0.29	3.83	TMECC 04.02-A, 04.02-C
Phosphorus (P)	%	0.005	0.06	TMECC 04.03-A
Phosphate (P205)	%	0.01	0.14	TMECC 04.03-A
Potassium (K)	%	0.01	0.18	TMECC 04.04-A
Potash (K2O)	%	0.02	0.22	TMECC 04.04-A
Sulfur (S)	%	0.07	0.98	TMECC 04.05-S
Calcium (Ca)	%	0.06	0.76	TMECC 04.05-CA
Iron (Fe)	mg/kg	83	1102	TMECC 04.05-FE
Arsenic	mg/kg	<0.000	< 0.001	SW846-6020 04.06-As
Cadmium	mg/kg	0.04	0.48	SW846-6020 04.06-Cd
Chromium	mg/kg	0.19	2.57	SW846-6020 04.06-Cr

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COMPOST ANALYSIS REPORT

LAB NUMBER: 39630
SAMPLE ID: STAW

DATE RECEIVED: 01/16/2008
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PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Copper	mg/kg	1.10	14.61	SW846-6020 04.06-Cu
Mercury	mg/kg	<0.00	< 0.01	SW846-6020 04.06-Hg
Nickel	mg/kg	0.18	2.42	SW846-6020 04.06-Ni
Lead	mg/kg	0.16	2.12	SW846-6020 04.06-Pb
Selenium	mg/kg	<0.000	< 0.001	SW846-6020 04.06-Se
Zinc	mg/kg	3.77	49.87	SW846-6020 04.06-Zn
pH	-	4.4		TMECC 04.11-A
Fecal Coliform/MPN	MPN/g dry		0	SM(20th)-9221E TMECC
Organic Matter by LOI @ 550C	%	6.92	91.68	TMECC 05.07-A
Organic Carbon by LOI @ 550C	%	3.46	45.84	Estimated
Carbon:Nitrogen Ratio (C:N)	-	12.0:1	12.0:1	TMECC 05.02-A
Silver	mg/kg	<0.000	< 0.001	SW846-6020
Barium	mg/kg	0.818	10.833	SW846-6020

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COMPOST ANALYSIS REPORT

LAB NUMBER: 39629
SAMPLE ID: PMTB Tobacco

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PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Moisture @ 70 C	%	18.69		TMECC 03.09-A
Dry Matter	%	81.31		TMECC 03.09-A
Total Kjeldahl Nitrogen (TKN)	%	0.93	1.14	TMECC 04.02-A
Ammonium Nitrogen (NH4-N)	mg/kg	2776	3415	TMECC 04.02-C
Nitrate Nitrogen (NO3-N)	mg/kg	2282	2807	TMECC 04.02-B
Nitrogen, Organic	%	0.65	0.80	TMECC 04.02-A, 04.02-C
Phosphorus (P)	%	0.37	0.45	TMECC 04.03-A
Phosphate (P205)	%	0.84	1.03	TMECC 04.03-A
Potassium (K)	%	2.56	3.15	TMECC 04.04-A
Potash (K2O)	%	3.07	3.78	TMECC 04.04-A
Sulfur (S)	%	0.32	0.39	TMECC 04.05-S
Calcium (Ca)	%	2.14	2.63	TMECC 04.05-CA
Iron (Fe)	mg/kg	3572	4393	TMECC 04.05-FE
Arsenic	mg/kg	0.631	0.776	SW846-6020 04.06-As
Cadmium	mg/kg	0.96	1.18	SW846-6020 04.06-Cd
Chromium	mg/kg	13.16	16.19	SW846-6020 04.06-Cr

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COMPOST ANALYSIS REPORT

LAB NUMBER: 39629
SAMPLE ID: PMTB

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PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Copper	mg/kg	129.80	159.63	SW846-6020 04.06-Cu
Mercury	mg/kg	<0.01	< 0.01	SW846-6020 04.06-Hg
Nickel	mg/kg	7.51	9.24	SW846-6020 04.06-Ni
Lead	mg/kg	3.99	4.91	SW846-6020 04.06-Pb
Selenium	mg/kg	<0.001	< 0.001	SW846-6020 04.06-Se
Zinc	mg/kg	129.93	159.79	SW846-6020 04.06-Zn
pH	-	5.6		TMECC 04.11-A
Organic Matter by LOI @ 550C	%	67.09	82.51	TMECC 05.07-A
Organic Carbon by LOI @ 550C	%	33.55	41.26	Estimated
Carbon:Nitrogen Ratio (C:N)	-	229.2:1	229.2:1	TMECC 05.02-A
Silver	mg/kg	<0.001	< 0.001	SW846-6020
Barium	mg/kg	72.862	89.610	SW846-6020

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COMPOST ANALYSIS REPORT

LAB NUMBER: 39627
SAMPLE ID: HFIC Ice Cream

DATE RECEIVED: 01/16/2008
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PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Moisture @ 70 C	%	79.39		TMECC 03.09-A
Dry Matter	%	20.61		TMECC 03.09-A
Total Kjeldahl Nitrogen (TKN)	%	0.24	1.17	TMECC 04.02-A
Ammonium Nitrogen (NH4-N)	mg/kg	3	15	TMECC 04.02-C
Nitrate Nitrogen (NO3-N)	mg/kg	0.2	1	TMECC 04.02-B
Nitrogen, Organic	%	0.24	1.17	TMECC 04.02-A, 04.02-C
Phosphorus (P)	%	0.06	0.29	TMECC 04.03-A
Phosphate (P205)	%	0.14	0.67	TMECC 04.03-A
Potassium (K)	%	0.09	0.45	TMECC 04.04-A
Potash (K2O)	%	0.11	0.54	TMECC 04.04-A
Sulfur (S)	%	0.02	0.09	TMECC 04.05-S
Calcium (Ca)	%	0.06	0.31	TMECC 04.05-CA
Iron (Fe)	mg/kg	65	314	TMECC 04.05-FE
Arsenic	mg/kg	<0.000	< 0.001	SW846-6020 04.06-As
Cadmium	mg/kg	<0.00	< 0.01	SW846-6020 04.06-Cd
Chromium	mg/kg	0.19	0.93	SW846-6020 04.06-Cr

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COMPOST ANALYSIS REPORT

LAB NUMBER: 39627
SAMPLE ID: HFIC

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PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Copper	mg/kg	0.42	2.04	SW846-6020 04.06-Cu
Mercury	mg/kg	<0.00	< 0.01	SW846-6020 04.06-Hg
Nickel	mg/kg	0.12	0.59	SW846-6020 04.06-Ni
Lead	mg/kg	<0.00	< 0.01	SW846-6020 04.06-Pb
Selenium	mg/kg	<0.000	< 0.001	SW846-6020 04.06-Se
Zinc	mg/kg	5.43	26.33	SW846-6020 04.06-Zn
pH	-	4.1		TMECC 04.11-A
Organic Matter by LOI @ 550C	%	20.08	97.41	TMECC 05.07-A
Organic Carbon by LOI @ 550C	%	10.04	48.70	Estimated
Carbon:Nitrogen Ratio (C:N)	-	41.6:1	41.6:1	TMECC 05.02-A
Silver	mg/kg	<0.000	< 0.001	SW846-6020
Barium	mg/kg	0.237	1.151	SW846-6020

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COMPOST ANALYSIS REPORT

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LAB NUMBER: 39589
SAMPLE ID: CCSL Soft Drink Treatment Residuals

PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Moisture @ 70 C	%	91.93		TMECC 03.09-A
Dry Matter	%	8.07		TMECC 03.09-A
Total Kjeldahl Nitrogen (TKN)	%	0.58	7.22	TMECC 04.02-A
Ammonium Nitrogen (NH4-N)	mg/kg	41	502	TMECC 04.02-C
Nitrate Nitrogen (NO3-N)	mg/kg	1	11	TMECC 04.02-B
Nitrogen, Organic	%	0.58	7.17	TMECC 04.02-A, 04.02-C
Phosphorus (P)	%	0.12	1.49	TMECC 04.03-A
Phosphate (P205)	%	0.28	3.43	TMECC 04.03-A
Potassium (K)	%	0.05	0.63	TMECC 04.04-A
Potash (K2O)	%	0.06	0.76	TMECC 04.04-A
Sulfur (S)	%	0.06	0.80	TMECC 04.05-S
Calcium (Ca)	%	0.07	0.84	TMECC 04.05-CA
Iron (Fe)	mg/kg	370	4573	TMECC 04.05-FE
Arsenic	mg/kg	0.056	0.688	SW846-6020 04.06-As
Cadmium	mg/kg	<0.00	< 0.01	SW846-6020 04.06-Cd
Chromium	mg/kg	1.97	24.41	SW846-6020 04.06-Cr

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DATE SAMPLED: 01/09/2008
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LAB NUMBER: 39589
SAMPLE ID: CCSL

PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Copper	mg/kg	6.74	83.48	SW846-6020 04.06-Cu
Mercury	mg/kg	<0.00	< 0.01	SW846-6020 04.06-Hg
Nickel	mg/kg	0.67	8.36	SW846-6020 04.06-Ni
Lead	mg/kg	0.35	4.36	SW846-6020 04.06-Pb
Selenium	mg/kg	0.057	0.709	SW846-6020 04.06-Se
Zinc	mg/kg	10.47	129.72	SW846-6020 04.06-Zn
pH	-	7.2		TMECC 04.11-A
Fecal Coliform/MPN	MPN/g dry		170	SM(20th)-9221E TMECC
Organic Matter by LOI @ 550C	%	7.34	90.97	TMECC 05.07-A
Organic Carbon by LOI @ 550C	%	3.67	45.49	Estimated
Carbon:Nitrogen Ratio (C:N)	-	6.3:1	6.3:1	TMECC 05.02-A
Silver	mg/kg	<0.000	< 0.001	SW846-6020
Barium	mg/kg	4.136	51.255	SW846-6020

COMPOST

TMECC - Test Methods for the Examination of Composting and Compost. The U.S. Composting Council.

REPORT NO.
F09174-6004
ACCOUNT NUMBER
90539

A & L GREAT LAKES LABORATORIES, INC.

3505 Conestoga Dr. • Fort Wayne, IN 46808 • 260-483-4759 • FAX 260-483-5274
www.alglreatlakes.com • lab@alglreatlakes.com

QUALITY ANALYSES FOR INFORMED DECISIONS

TO: WALLACE FARM LLC
14410 EASTFIELD RD.
HUNTERSVILLE, NC 28078-6636

Coffee grounds

ATTN: ERIC WALLACE

COMPOST ANALYSIS REPORT

LAB NUMBER: 46202
SAMPLE ID: SDCF

DATE SAMPLED: 06/19/2009
DATE RECEIVED: 06/23/2009
DATE REPORTED: 07/07/2009
PAGE: 1

PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Moisture @ 70 C	%	67.32		TMECC 03.09-A
Dry Matter	%	32.68		TMECC 03.09-A
Total Kjeldahl Nitrogen (TKN)	%	0.89	2.73	TMECC 04.02-A
Ammonium Nitrogen (NH4-N)	mg/kg	138	421	TMECC 04.02-C
Nitrate Nitrogen (NO3-N)	mg/kg	0.3	1	TMECC 04.02-B
Nitrogen, Organic	%	0.88	2.69	TMECC 04.02-A, 04.02-C
Phosphorus (P)	%	0.03	0.09	TMECC 04.03-A
Phosphate (P205)	%	0.07	0.21	TMECC 04.03-A
Potassium (K)	%	0.23	0.69	TMECC 04.04-A
Potash (K2O)	%	0.27	0.83	TMECC 04.04-A
Sulfur (S)	%	0.06	0.17	TMECC 04.05-S
Calcium (Ca)	%	0.08	0.24	TMECC 04.05-CA
Iron (Fe)	mg/kg	621	1899	TMECC 04.05-FE
Arsenic	mg/kg	1.132	3.463	SW846-6020 04.06-As
Cadmium	mg/kg	1.00	3.07	SW846-6020 04.06-Cd
Chromium	mg/kg	1.69	5.17	SW846-6020 04.06-Cr

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COMPOST

08/24/2009 02:10 FAX 704 875 2394 Wallace Farm 004

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QUALITY ANALYSES FOR INFORMED DECISIONS

TO: WALLACE FARM LLC.
14410 EASTFIELD RD.
HUNTERSVILLE, NC 28078-6636

Coffee grounds, cont.

ATTN: ERIC WALLACE

COMPOST ANALYSIS REPORT

LAB NUMBER: 46202
SAMPLE ID: SDCF

DATE SAMPLED: 06/19/2009
DATE RECEIVED: 06/23/2009
DATE REPORTED: 07/07/2009 PAGE: 2

PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	METHOD REFERENCE
Copper	mg/kg	25.41	77.76	SW846-6020 04.06-Cu
Mercury	mg/kg		< 0.01	SW846-6020 04.06-Hg
Nickel	mg/kg	2.53	7.74	SW846-6020 04.06-Ni
Lead	mg/kg	1.66	5.08	SW846-6020 04.06-Pb
Selenium	mg/kg	1.531	4.686	SW846-6020 04.06-Se
Zinc	mg/kg	27.22	83.28	SW846-6020 04.06-Zn
pH	-	4.8		TMECC 04.11-A
Organic Matter by LOI @ 550C	%	31.66	96.89	TMECC 05.07-A
Organic Carbon by LOI @ 550C	%	15.83	48.45	Estimated
Carbon:Nitrogen Ratio (C:N)	-	17.7:1	17.7:1	TMECC 05.02-A
Silver	mg/kg		<0.001	SW846-6020
Barium	mg/kg	7.49	22.93	SW846-6020

TMECC - Test Methods for the Examination of Composting and Compost. The U.S. Composting Council.

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REPORT NO.
F0917[illegible]4
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QUALITY ANALYSES FOR INFORMED DECISIONS

TO: WALLACE FARM LLC
14410 EASTFIELD RD.
HUNTERSVILLE, NC 28078-6636

yeast.

ATTN: ERIC WALLACE

COMPOST ANALYSIS REPORT

LAB NUMBER: 46203
SAMPLE ID: YEST

DATE SAMPLED: 06/19/2009
DATE RECEIVED: 06/23/2009
DATE REPORTED: 07/07/2009
PAGE: 3

PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Moisture @ 70 C	%	92.90		TMECC 03.09-A
Dry Matter	%	7.10		TMECC 03.09-A
Total Kjeldahl Nitrogen (TKN)	%	0.54	7.55	TMECC 04.02-A
Ammonium Nitrogen (NH4-N)	mg/kg	146	2063	TMECC 04.02-C
Nitrate Nitrogen (NO3-N)	mg/kg	0.1	2	TMECC 04.02-B
Nitrogen, Organic	%	0.52	7.34	TMECC 04.02-A, 04.02-C
Phosphorus (P)	%	0.09	1.28	TMECC 04.03-A
Phosphate (P205)	%	0.21	2.94	TMECC 04.03-A
Potassium (K)	%	0.12	1.73	TMECC 04.04-A
Potash (K2O)	%	0.15	2.08	TMECC 04.04-A
Sulfur (S)	%	0.03	0.49	TMECC 04.05-S
Calcium (Ca)	%	0.02	0.23	TMECC 04.05-CA
Iron (Fe)	mg/kg	8	107	TMECC 04.05-FE
Arsenic	mg/kg		< 0.001	SW846-6020 04.06-As
Cadmium	mg/kg		< 0.01	SW846-6020 04.06-Cd
Chromium	mg/kg		< 0.01	SW846-6020 04.06-Cr

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REPORT NO.
F0917 04
ACCOUNT NUMBER
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QUALITY ANALYSES FOR INFORMED DECISIONS

TO: WALLACE FARM LLC
14410 EASTFIELD RD.
HUNTERSVILLE, NC 28078-6636

ATTN: ERIC WALLACE

COMPOST ANALYSIS REPORT

LAB NUMBER: 46203
SAMPLE ID: YEST

DATE SAMPLED: 06/19/2009
DATE RECEIVED: 06/23/2009
DATE REPORTED: 07/07/2009
PAGE: 4

PARAMETER	UNIT	ANALYSIS RESULT	DRY BASIS RESULT	ANALYSIS METHOD
Copper	mg/kg	0.08	1.10	SW846-6020 04.06-Cu
Mercury	mg/kg		< 0.01	SW846-6020 04.06-Hg
Nickel	mg/kg		< 0.01	SW846-6020 04.06-Ni
Lead	mg/kg		< 0.01	SW846-6020 04.06-Pb
Selenium	mg/kg		< 0.001	SW846-6020 04.06-Se
Zinc	mg/kg	0.54	7.56	SW846-6020 04.06-Zn
pH	-	4.5		TMECC 04.11-A
Organic Matter by LOI @ 550C	%	6.59	92.80	TMECC 05.07-A
Organic Carbon by LOI @ 550C	%	3.29	46.40	Estimated
Carbon:Nitrogen Ratio (C:N)	-	6.1:1	6.1:1	TMECC 05.02-A
Silver	mg/kg		< 0.001	SW846-6020
Barium	mg/kg		<0.01	SW846-6020

TMECC - Test Methods for the Examination of Composting and Compost. The U.S. Composting Council.

COMPOST

002

WALLACE FARM, INC.

SOLID WASTE COMPOSTING FACILITY

OPERATION AND MAINTENANCE MANUAL

June 2014

Prepared for:

Wallace Farm, Inc.
14410 Eastfield Road
Huntersville, NC 28078
Phone: 704-875-2975

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1.0 - INTRODUCTION

This Operation and Maintenance (O&M) Manual was developed for Wallace Farm, Inc. The objective of the manual is to provide guidance for operators and outline required activities so that the facility operates in accordance with state regulations, and composting is undertaken with proper regard for the health and safety of the facility's operators and neighbors.

1.1 - COMPOSTING PROCESS DESCRIPTION

Composting is the controlled aerobic (oxygen rich), thermophilic (temperature range 105 °F to 165 °F), biological conversion of organic materials into a stable end product (compost). This conversion is accomplished by microorganisms (bacteria, actinomycetes, and fungi) normally present in organic materials within the composting mass. By optimizing the environment for the microorganisms, the process of decomposition is accelerated.

There are three major objectives in composting. The first is to destroy disease-causing organisms (pathogens) that may be present, by following state requirements for PFRP (Process to Further Reduce Pathogens) which meets Vector Attraction Reduction requirements. The second objective is to stabilize the product so that it does not putresce. The final objective is to produce a stable, manageable product for beneficial use in landscaping and other applications.

The method of composting used at Wallace Farm is the turned windrow method. This method achieves the objectives outlined above, while processing feedstocks efficiently.

1.2 - FACILITY OVERVIEW

The Composting Facility is in Davie County. Wallace Farm is a family owned and operated facility. There is not a precise routine; each employee is trained to perform various tasks. Depending on specific operations on any given day, several people may work together to accomplish the tasks. Operating schedules varies as for other similar operations and the priorities of the day.

Staff and operations each typically performs are listed below.

- General Manager - Manage all operations and direct work efforts
- Office Manager - Coordinates all billings and administrative activities
- Fleet Manager - Coordinates all deliveries and trucking operations
- Tractor Trailer and Dump Truck Drivers - Haul feedstocks and finished materials
- Front End Loader Operator - Mixes feedstocks/shapes windrows/loads product/mix and screen finished product
- Compost Turner Operator - Turns windrows/monitors compost piles

- Bagging Line Operator - Bags finished products
- Grinder Operator – Grinds yard waste, pallets, and other mulch products.

2.0 STANDARD FACILITY OPERATIONS

The following sections cover standard operating procedures for the facility.

2.1 EROSION CONTROL

Stormwater discharges during construction of the proposed facility will be permitted in accordance with NCDENR's Erosion and Sediment Control rules. Stormwater and erosion control measures are shown on the permit drawings.

Stormwater discharges for operations of the proposed facility will be permitted in accordance with NPDES General Permit No. NCG 240000.

2.2 LEACHATE MANAGEMENT

The compost windrows will be constructed with the existing slope to facilitate drainage between windrows. Stormwater discharges for operations of the proposed facility will be permitted in accordance with NPDES General Permit No. NCG 240000.

Stormwater discharges during construction of the proposed facility will be permitted in accordance with NCDENR's Erosion and Sediment Control rules. Passive treatment of storm water from compost areas occurs as the water is routed through rip rap, silt fencing, over grassy areas, and to sedimentation catch basins. Water from composting areas is routed using natural contours and diversion berms to the stormwater ponds shown in the site plan. Water from the stormwater ponds may also be used on windrows for dust suppression (but not during or after PFRP), and in compost mixes.

.

2.3 SITE ACCESS

Uncontrolled public access is not allowed. An existing fence along the property boundary provides control to access onto the site. An operator is on duty at the site when the facility is open. The road to the site is maintained to allow all-weather access.

2.4 SIGNAGE

A sign stating that "no hazardous waste, asbestos containing material, or medical waste is allowed on site" is posted at the site entrance, along with signage providing information on materials that are acceptable, posted at the site entrance. Copies of site signage are included in Appendix B.

2.4A SAFETY REQUIREMENTS

Safety requirements include the following:

- Open burning of solid waste is prohibited.
- As discussed in Section 4.4 and 4.4.1, equipment is provided to control accidental fires; arrangements have been made with the local fire protection agency to immediately provide fire-fighting services when needed (see Section 5.5).
- Personnel training is provided to insure that all employees are trained in site specific safety, remedial, and corrective action procedures. Training is discussed in Sections 4.2 and 4.4.
- In addition, all new employees complete an orientation program covering, at a minimum, the following: general facility orientation; job orientation, emphasizing duties of the employee, including composting procedures; and safety, including fire.

2.5 MATERIALS RECEIVING

Only permitted materials can be accepted. Hazardous materials are not allowed on the site. Incoming materials are inspected, and any unacceptable materials are to be loaded on the truck that brought them and transported to a permitted landfill. Feedstocks to be composted under this permit include animal manures, wood materials, yard waste, cotton materials, food and/or animal processing residuals, food waste, waste water treatment residuals, grease trap residuals, US domestic tobacco material, wood ash, cardboard, bleaching clay , cosmetics production materials, virgin gypsum board, lime, and starch water. Wood materials to be composted at the facility under this permit include land clearing debris, yard waste, wood shavings, sawdust, and pallets. Materials

are received and recorded on a weight (per ton) or volume (per gallon) basis. For materials recorded on a volumetric basis, a gallon of material is weighed. Then the resulting conversion factor (pounds per gallon) is multiplied by the total number of gallons received to convert to total pounds. Total pounds are converted to tons by dividing by 2000. USDA certified scales on site will be used to weigh incoming feedstocks. The dry carbonaceous materials such as the wood materials and cotton materials, are unloaded in the receiving and storage area. A tub grinder is used to adjust the size of wood material products for composting, as described below.

Materials with significant water content (including food and/or animal processing residuals, waste water treatment residuals, manures, US domestic tobacco material, food waste, bleaching clay, starch water, and cosmetic production material, can be unloaded directly into the concrete receiving/mixing pit for preparing compost mixes. In addition, temporary storage for high-water content materials is being developed for the operations. If the mixing pit is filled to capacity or if it is in use when a load of high-water content material arrives, these materials can be off-loaded to the frac tank(s). Use of the tanks will help achieve maximum efficiency in the mixing pit. At a minimum, the tanks are to be emptied every 36 hours.

The scales, receiving areas, storage areas, and concrete receiving/mixing pit are shown on the site plan.

The receiving/mixing pit is cleaned out daily. After the last mixture is prepared and removed for further processing, the walls and dump areas are washed down with a high pressure hose. The wash water is directed into the pit, to which fresh bulking material is added on the bottom to absorb the moisture.

Prior to accepting a new waste material not included in this O&M manual, Wallace Farm, Inc. will thoroughly assess the material and the facility producing it to determine its composition and suitability for composting. NCDENR will be contacted for assistance with these evaluations. Samples will be obtained and tested, and lab results will be forwarded to NCDENR as part of the request for approval for adding the material to the list of allowable feedstocks. New waste materials will not be received without approval by the Division of Waste Management.

Please note that, as discussed in the Application component of the Application/O&M Manual submittal, quantities received will vary from year to year and from feedstock to feedstock, and in some years certain feedstocks are not available at all.

2.6 MIXING

Dry carbonaceous materials (including wood materials; land clearing debris; yard waste; wood shavings; sawdust, virgin gypsum board, and cotton material), are delivered to the facility and off-loaded in the receiving/storage area. Wood materials, including land clearing debris, yard waste, and pallets, are ground as necessary. Materials with significant water content (including food and/or animal processing residuals, waste water treatment residuals, manures, US domestic tobacco material, food waste, starch water, and cosmetic production materials) are unloaded directly into the concrete receiving/mixing pit for preparing compost mixes. These materials are blended with front end loaders in the mixing pit upon arrival. Materials are mixed to obtain a homogenous mix with a C:N ratio of 20:1 to 30:1.

A feedstock database that includes results of laboratory analyses is used to calculate the appropriate mix ratios to obtain a homogenous mix with a C:N ratio of 20-30:1 and target moisture contents of 40 to 60%. The calculations are performed by hand with a calculator using the standard compost mix mass balance equations, obtained by Wallace Farm at a national compost school. Computer spreadsheets are also available for verifying the hand calculations (see, for example, http://compost.css.cornell.edu/download.html).

Within two hours of blending, the mix is transported to the composting pad via dump trucks and placed into windrows. A front end loader is used to improve the shape of the windrows as necessary. The new windrows are turned immediately if favorable climatic conditions exist. If weather conditions are unfavorable,various procedures can be followed, as described in Sections 2.7 and 5.2.

2.7 COMPOSTING

Windrow composting at the facility is accomplished by placing the mix in windrows approximately 5 - 7 feet in height by 14 - 16 feet wide, and up to several hundred feet long. The windrows are periodically turned to break up clumps to expose more surface area to active microorganisms and to expose all materials to temperatures ensuring pathogen destruction and vector attraction reduction.

The facility uses a self-propelled, track driven Backus compost turner and a , state-of-the-art, grinder (this equipment is described in Appendix F). The compost turner performs well during all weather conditions, and will improve mixing and aeration of compost windrows. The grinder will help optimize admixture and compost particle sizes. These machines improve composting efficiency.

To ensure pathogen destruction and vector attraction reduction, the pile temperatures are maintained at or above 131 °F for at least 15 consecutive days. Windrows are turned at least five times during this PFRP (Processes to Further Reduce Pathogens) period during which temperatures are ≥ 131 ºF and temperatures are measured at least one time per week during this period. Temperatures are taken in each windrow at 50-foot intervals down the length of the windrow using a three-foot long dial type or digital thermometer. To measure temperatures, the probe is inserted approximately one to two feet into the pile from the pile surface. Temperatures are recorded as illustrated in the recording sheet shown in Appendix C. Temperatures are measured at least one time per week until the 131 °F for 15 consecutive days has been met. An oxygen meter will be used to measure oxygen content of compost pile pore space, usually at the same time that temperatures are checked. Windrows are turned based on temperature measurements and atmospheric conditions. Material generally remains in the turned windrows for approximately eight to sixteen weeks, the exact time being a function of windrow performance and temperature readings. Following this windrow processing period, the compost is placed in a static pile for a minimum of six months for curing.

If temperatures exceed 160 °F, the windrow requires turning to cool the composting material. If temperatures during the active composting period are less than 120 °F, the windrow requires turning as well. Low temperatures may indicate insufficient oxygen, and pile turning will provide the needed oxygen to the microorganisms. Temperatures determining when the compost pile requires turning are guides and may be adjusted based on long-term pile temperature trends and composting times. If material begins to dry significantly, thereby inhibiting microbial activity, and dusty conditions are prevalent, water can be added to the top of the windrows. This water can come from the potable supply, or, if added prior to the start of PFRP, can be from an on-site farm pond or the collection pond. After adding water, the pile is turned to distribute the moisture. Vector

attraction reduction is met by maintaining pile temperatures above 104 °F for 14 days or longer, during which time the average temperature is greater than 113 °F.

Within two hours of blending, the mix is transported to the composting pad using dump trucks and placed into windrows. A front end loader is used to improve the shape of the windrows as necessary. The windrows are turned periodically using the Bachkus windrow turner to maintain aerobic conditions within the pile and to invert and fluff the windrow.

2.8 COMPOST CURING/STORAGE

As noted above, after active windrow composting, the material is stored in a static pile for a minimum of six months for final curing. Then the material is typically screened and stored in a covered building until marketing. Storage areas are shown on the site plan. Adequate area is provided to store compost outdoors for up to 18 months. For this purpose, piles may be covered during or after curing with a vented plastic cover to help keep compost dry. This sheeting is held securely in place using weights or using rope tied to stakes in the ground on either side of the windrows. At Wallace Farm's option, compost samples are taken monthly to comply with the STA (Seal of Testing Assurance) Certification of the US Composting Council.

2.9 SCREENING

Screening is conducted after curing. The screen size is 3/8-1/2" or as required by the market. The compost (< 1/2") is stored on site prior to distribution. The overs (> 1/2") are returned to the receiving/storage area and added to other feedstocks in amounts determined by experience and using Wallace Farm's feedstock information database.

2.10 PRODUCT DISTRIBUTION

The finished product is distributed in bags and in bulk. Records are maintained of material purchasers. The compost products are registered with the NCDA as a fertilizer and/or soil amendment. Compost marketed as a fertilizer must meet a minimum N-P-K value of *.5-.5-.5*. (Product information is included in Appendix D.)

If product fails to meet state regulatory or facility requirements or is otherwise unmarketable, it can be applied per regulations and with NCDENR pre-approval to land or taken to an approved municipal solid waste landfill. Otherwise, poor quality compost, as well as compost not meeting all regulatory requirements, will be returned to the receiving/processing area and fully reprocessed following the treatment and monitoring steps described above.

2.11 EQUIPMENT MAINTENANCE AND STORAGE

Regular equipment maintenance is required to ensure a marketable product is produced. Refer to specific equipment O&M manuals for equipment maintenance schedules. Small equipment, such as temperature probes, will be stored inside the bagging line building or in the office.

2.12 OPERATOR CHECKLIST

The following chart is a quick reference for operators to ensure performance of proper procedures.

Operator Checklist

	As Required	Daily	Weekly	Monthly	Semi-Annually	Annually
Inspect Incoming Materials						
Turn Windrows						
Perform Equipment Maintenance						
Screen Compost						
Measure Windrow Temperatures			one time per week			
Clean-up Spills						
Prepare/Update Windrow Data Sheets						
Record Information on Windrow Data Sheet						
Prepare Monthly Information Sheet						
Sample/Analyze Compost Product						
Inspect Grass Areas						
Reseed Grass Areas[1]						
Wash Mixing Pit						
Inspect/Repair Access Road						
Submit Report to NCDENR						

[1]Reseed at least semi-annually or more frequently, if required.

2.13 TROUBLESHOOTING

This section presents commonly encountered problems at composting facilities. The following is a guide to potential problem areas, and accompanying corrective action.

Problem/Condition	Corrective Action
Potential neighbor lacks knowledge about compost facility Existing neighbor does not like compost facility	1. Invite interested party to tour compost facility, and educate them. 2. Refer interested party to informative company web-site (www.wallacefarmproducts.com)
Pile temperature too high (>160 °F)	Increase turning frequency and/or decrease pile size.
Pile temperature too low (<110 °F)	Increase turning frequency and/or increase pile size. Check pile moisture content, pH, and C:N
Dry piles	Check pile moisture content. Add water.
Dusty conditions at site	Spray water on windrows to suppress dust.
Odors around compost pad, or off-site odors	-Check for/clean up spills. Cover odorous windrows with compost or carbonaceous blend. -Do not disturb odorous windrow for approximately 10 days following initial turning. -Check incoming feedstocks.
Odors during pile turning	-Adjust as necessary the initial mix C:N ratio, pH, porosity and/or water content of mix. -Avoid turning during adverse atmospheric conditions, if possible.
Odor complaint from neighbor	Follow procedures noted below and in the next section, including: 1. Respond immediately 2. Complete Odor Response Form (see Appendix G) 3. Determine whether corrective action is needed. 4. If needed, perform corrective action to address odors 5. Cover odorous windrows with a layer of carbonaceous materials. 6. Check incoming feedstocks. 7. Consult on-site weather station.
Proposal for processing new material	Contact NCDENR.

Odor complaints are addressed by following the procedures described in the next section.

2.13.1 PROCEDURES FOR RESPONDING TO ODOR COMPLAINTS

Procedures for responding to odor complaints are detailed in this section. Odor complaints can be called in or e-mailed to the Wallace Farm office. If a complaint is received, the following steps are taken:

1. A member of Wallace Farm office staff promptly visits the complaint location.
2. Upon arrival, Wallace Farm staff member completes an Odor Response Form.
3. The Wallace Farm staff member determines if complaint is verifiable.
4. If the complaint is not verifiable, the staff member returns to the office and files the completed Odor Response Form.
5. If the complaint is verifiable, the Wallace Farm staff member immediately contacts the compost facility manager.
6. The compost facility manager promptly investigates to identify the odor source.
7. Corrective Action is implemented immediately.
8. A weather data sheet is attached to the odor response form and filed.

These procedures are presented graphically in Figure 1.

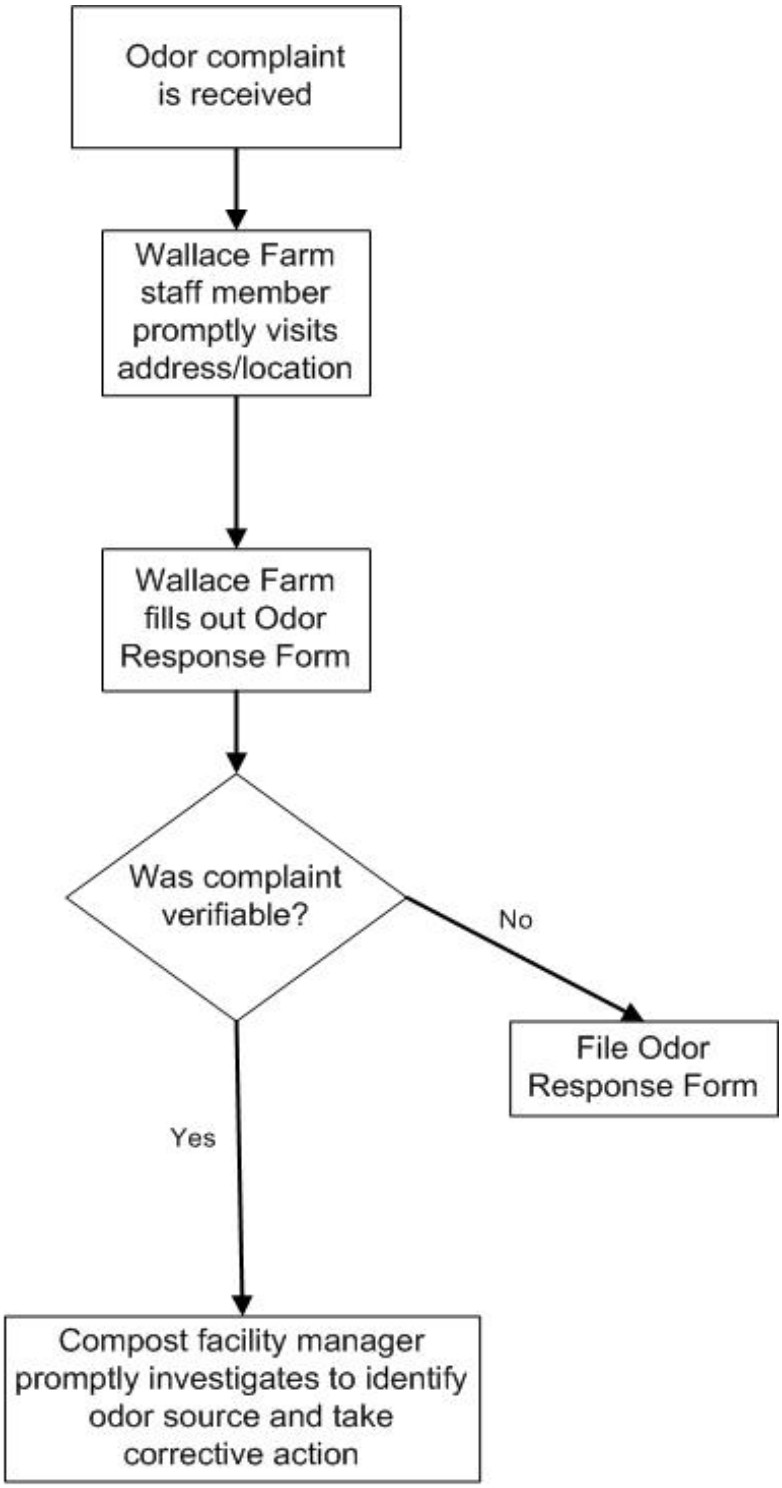

Figure 1. Odor complaint response sequence

3.0 SAMPLING, TESTING, AND RECORD KEEPING

Sampling and testing at the composting facility is necessary to:

- Monitor process efficiency
- Provide data to regulatory agencies
- Provide data for trouble-shooting
- Verify quality of materials for composting

It is extremely important that all sampling and testing be done at representative points in the process and in a consistent manner. The data resulting from any sampling and testing program is only as good as the sample taken. Sampling should be done consistently, on a regular basis, and using specific techniques. This section outlines the sampling schedule and sampling procedures required for a successful sampling and testing program. The operator should make every effort to follow a consistent routine, according to these guidelines.

Parameter testing includes pathogen indicators, regulated metals, nutrients, and foreign matter. Sampling and handling requirements are discussed in following sections.

3.1 SAMPLING AND TESTING SCHEDULE

Final product sampling is conducted every six months or 20,000 tons, whichever comes first. At Wallace Farm's option, compost samples are taken monthly to comply with the STA (Seal of Testing Assurance) Certification of the US Composting Council. The following sections outline sampling types and procedures.

3.1.1 Grab Sample Definition

Grab samples are collected at one particular time, in one particular location of a certain process. Analysis of a grab sample provides results from a random part of the process stream. To achieve a more representative analysis of a given process stream, many grab samples can be collected at various times and analyzed individually or these grab samples can be combined to produce a composite sample.

3.1.2 Grab Sampling Procedure

Grab samples are collected using a plastic shovel and a clean, dry sampling jar (one-pint glass or plastic bag). The sample is collected at a point in the material approximately two feet into the storage pile from the outside of the surface and representative of the compost pile which is being sampled. Grab sample volumes should be consistent. Grab samples should be taken monthly and stored in refrigeration until needed to produce a six month (semi-annual) composite sample for analysis.

3.1.3 Composite Sample Definition

Composite samples are a mixture of grab samples collected individually at various times at the same location in a certain process, or a mixture of samples that are collected individually at various locations in a certain process. The grab samples are immediately transferred to a composite sample container for storage. Composite samples generally are more representative than grab samples.

3.1.4 Composite Sampling Procedure

Composite samples are stored in a clean, dry sampling jar (one gallon or larger) with an airtight, screw-on lid. The sampling container is appropriately marked and stored in a cool, dry place, out of direct sunlight, preferably a refrigerator. At the end of the sampling period, after the last grab sample is added to the composite jar, the composite sample is well mixed and a representative portion placed in a smaller sampling jar (one pint) for analysis. The sampling jar is airtight and stored in a refrigerator until it is delivered to the laboratory for analysis. Analysis should be performed as quickly as possible, preferably within 24 hours after collection. The sample jar is adequately labeled with sample name, date of collection, and the operator's name. Composite samples can also be taken at random from the screened material (immediately after screening or in the product storage pile) approximately two feet from the pile surface. Several grab samples can be taken from the pile and combined and thoroughly mixed to create the composite sample.

3.1.5 Pathogen Samples

Pathogen samples will be grab samples. The pile will be broken apart using a front-end loader. A shovel will be cleaned with hot soapy water and then sterilized by pouring alcohol on the shovel and lighting it on fire. The sterile shovel will then be utilized to dig approximately two feet into the open face of the pile that was broken apart. A sterile scoop is then used to obtain a sample and place it in a sterile jar. The person sampling will also be wearing sterile gloves during the sampling event. Pathogen samples will be taken at least semi-annually. Once pathogen samples have been taken, they are stored on ice and sent to the lab immediately.

3.1.6 Metals and Foreign Matter

A composite sample of the compost is analyzed after every 20,000 tons of compost produced or every six months, whichever comes first, for regulated metals and foreign matter listed in Table 3.1

Sampling equipment (including coring devices, shovels, trowels, and containers) must be made of materials that will not contaminate or react with compost constituents. Suitable sampling equipment materials include glass, stainless steel and plastic (teflon, polyethylene, polypropylene). Any steel equipment used must not be galvanized or zinc coated because it can contaminate samples. All sampling equipment must be kept clean to avoid contamination.

Sample containers for metals (and all other analytes) are to be obtained from the certified laboratory doing the analyses. For metals these containers shall be plastic or glass, the minimum sample volume sent to the laboratory is 300 mL. Samples for metals analyses are to be stored at 4 °C, and can be held up to six months prior to analysis.

Foreign matter content is determined by passing a dried, weighed sample of the compost product through a one-quarter inch screen. EPA Method 160.3 is used to dry the sample. The material remaining on the screen is visually inspected, and the foreign matter that can be clearly identified is separated and weighed. The weight of the separated foreign matter divided by the weight of the total sample is determined and multiplied by 100. The result is the percent dry weight of foreign matter content.

3.2 OPERATIONAL RECORD KEEPING PROCEDURES

Keeping accurate records is an important part of the operation of any composting facility. Proper records are necessary to monitor the performance of the facility and to make operational decisions. Of great importance is the establishment of a reliable continuing record for proof of performance, thus justifying operational decisions, expenditures, and recommendations. Daily operational records also provide information useful in process adjustments required due to climatic or seasonal changes or other recurring problems of a specific nature. Accurate records also provide the basis for planning future expansion, planning future modifications, establishing and adjusting operating budgets, and providing evidence of performance in compliance with regulations.

The NC DENR Division of Waste Management requires record keeping sufficient for determining facility efficiency and the effectiveness of treatment in meeting standards. Personnel from NC DENR Division of Waste Management will make periodic visits to the facility. During these inspections, a review of operational and other records may be requested. Records must be retained for five years.

The following sections outline data to be maintained at the facility.

3.2.1 Material Receiving and Mixing Records

The type and quantity of materials received are recorded daily. Daily records are also kept documenting feedstock mix ratios and row placement on compost pads. A sample "Pit Mix Recording Sheet" is included in Appendix C.

3.2.2 Compost Windrow Data

Compost windrow data are maintained by the operator for each windrow built at the facility. Each windrow is defined as the mix placed on the composting area that is contained in one windrow. Data will include information as to the day the pile was built, along with monitoring data.. A sample Windrow Data Sheet is attached in Appendix C. The P1, P2.. . Pl0 indicates the same relative location in a windrow. Each point is approximately 50 feet from the next. Temperatures are

measured at least one time per week until the time and temperature requirements are met. The day a pile is turned or sampled is also noted. The date pile construction began and date completed is when material is first placed in the windrow and when the last material is placed in the windrow, respectively. Windrow numbers start with 1 and increase throughout the composting pad as new windrows are constructed. Additional data is to be collected to record performance over periods greater than 30 days, as necessary. The operator also maintains a log to document the exact day and time the turner is in operation.

3.2.3 Row (Windrow) Data

Compost row data are summarized in a database for record-keeping and to evaluate the overall materials processing operation. Data should be recorded in the database as it becomes available, thus keeping records current. A sample Row Data Record Sheet is included in Appendix C.

Note that any material not meeting the time and temperature requirements, which fails pathogen or other testing, or is otherwise unmarketable, is identified in the database and appropriately segregated. Approaches for handling these materials are recomposting, land application with prior NCDENR approval, and transporting them to a Municipal Solid Waste landfill.

3.2.4 Laboratory Data

Laboratory data include bacteriological, heavy metal, and nutrient concentrations. Compost samples are taken at least every six months as outlined in Section 3.1. These samples are used to verify that the product meets the requirements listed in Table 3-1. Certified laboratories are used and testing procedures are noted on each analytical report.

Table 3-1. Semi-Annual Monitoring for Grade A Compost Requirements[1]

Parameter	Unit	Limit
Foreign Matter	%	< or = to 6
Cadmium	mg/kg dry wt.	39
Copper	mg/kg dry wt.	1500
Lead	mg/kg dry wt.	300
Nickel	mg/kg dry wt.	420
Zinc	mg/kg dry wt.	2800
Selenium	mg/kg dry wt	36
Arsenic	mg/kg dry wt	41
Mercury	mg/kg dry wt	17
Pathogens (fecal coliform)	MPN/g dry wt.	< 1000 per g
Total N	%	None
Phosphorous	%	None
Potassium	%	None

[1]NC DENR Solid Waste Compost Rules

4.0 GENERAL

Some feedstocks may contain pathogens, which composting, if carried out properly, will destroy. The following are some general recommendations for the health and safety of workers at Wallace Farm.

4.1 PERSONAL HYGIENE

The following personal hygiene recommendations should be stressed as common practices to all operators.

- Wash hands before eating, drinking, or smoking.
- If heavily contacted with feedstocks such as food processing residuals or manure, immediately take a hot shower and put on clean clothing.
- Wash, disinfect, and bandage ANY cut, no matter how small it is. Any break in the skin can become a source of infection. Change bandages frequently and wear protective clothing or equipment over the wound.
- Keep fingernails closely trimmed and clean (dirty nails can harbor pathogens).

Individuals who are highly debilitated or have severe allergies or asthma should not be employed to work at compost facilities.

4.2 PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment (PPE) must be evaluated as to the level of protection necessary for particular operating conditions and then made available to facility employees. The list below includes the PPE typically used and/or required in a compost facility workplace.

- Leather shoes with hard soles
- Noise reduction protection should be used in areas where extended exposure to continuous high decibel levels are expected
- Disposable rubber latex or chemical resistant gloves for appropriate protection
- Dust filter masks

Following use, PPEs should be disposed or adequately cleaned, dried, and readied for reuse.

4.3 MECHANICAL EQUIPMENT HAZARD PREVENTION

The loaders, bulldozer, dump trucks, grinder, screen, and windrow turner should be operated with care, taking all necessary precautions. All safety equipment such as horns and lights should be functional.

4.4 EMPLOYEE HEALTH AND SAFETY

Some general safety rules are as follows:

- Make sure that you understand the job that has to be done. Review the equipment O&M Manual prior to attempting repairs/changes.
- Use common sense when attempting a job. Use the safest way to get the work done, including using the proper equipment and tools.
- Use the buddy system in case of repair of mechanical equipment (have a co-worker stand guard).
- Keep the right attitude towards safety. Lack of awareness or a careless attitude can lead to accidents.
- Make sure you know the locations of the first aid kit and fire extinguishers. Understand how to use them.

4.4.1 Fire Extinguisher

Potential fire hazards at a compost facility are created from the build-up of fine dry dust particles on and around operational motors and control panels. These build-ups can cause overheating and potential fire if periodic equipment cleaning and maintenance are not practiced. Portable fire extinguishers should be maintained in a state of readiness at the screen locations and on each piece of moving equipment.

4.4.2 Physical Exposure

Facility personnel who may be physically exposed on-site should be kept aware of the health aspects associated with the fluids, solids, and airborne constituents found at composting facilities. Training concerning safe work practices around these potential exposures should include all equipment, and proper disposal procedures for contaminated materials.

4.4.2.1 Bioaerosols

Bioaerosols are small particles containing microorganisms, and are of concern as are any materials that may contain pathogens. Bioaerosols can be created during many facility operations, including mixing, turning, and screening of composted materials. Once airborne, bioaerosols may be inhaled or contact the eyes. Dirty hands also may result in inadvertent transmission to the mouth or eyes.

Facility employees should refer to Sections 4.1 Personal Hygiene and 4.2 Personal Protective Equipment for reminder information on Health and Safety.

4.4.2.2 Dust

Excessive dust can have an irritating effect on eyes and mucous membranes if proper PPE, such as eye protective goggles and dust filter masks, are not worn by facility personnel in affected areas. As discussed in Section 2.2, water can be placed on windows for dust suppression. Goggles and dust masks should be worn by staff regardless in “dusty” conditions.

4.5 - FACILITY EMERGENCY PHONE NUMBERS

FACILITY OWNER:	Wallace Farm, Inc. 14410 Eastfield Road Huntersville, NC 28078 Phone: (704) 875-2975 Fax: (704) 875-2394
OPERATORS:	Eric Wallace
FIRST ALTERNATE:	Eric Wallace (704) 875-2975 ext. 17 (980) 428-3185 (Mobile)
EMERGENCY MEDICAL/FIRE POLICE SERVICES:	911

5.0 CONTINGENCY PLANS

Contingency plans for unusual and adverse conditions are as follows:

5.1 EQUIPMENT BREAKDOWN

Wallace Farm conducts regular equipment maintenance. Sufficient storage of the feedstocks is provided to allow for routine maintenance problems.

If the compost turner breaks down, loaders can be used while it is under repair. Wallace Farm has a full time mechanic on staff and maintains a good relationship with its vendors and can get equipment repaired quickly. However, equipment can be rented as necessary to maintain operations.

5.2 AIR POLLUTION/ODORS

Composting is a controlled, monitored process. Steps for minimizing odors during composting and on the site are described below. Minimize means to reduce to the smallest amount, extent, or degree reasonably possible.

One important operational procedure is maintaining aerobic conditions within the compost piles through adjusting the porosity and moisture content. Oxygen levels can be monitored using an oxygen meter to assure aerobic conditions exist.

Further, ensure that moisture levels in the compost windrows are maintained in the 40 - 60% range for newly created compost windrows and compost windrows within the PFRP period. Test for moisture with a hand squeeze test when monitoring temperatures and record the results of the moisture test with the temperature results, on the same form, in parentheses. It also is important to keep temperature levels between appropriate levels, maintaining PFRP temperatures as described in Section 2.7. Temperatures must not be allowed to get too high, which can slow down the composting process and can lead to odors.

Additionally, the carbon to nitrogen (C:N) ratio of initial mixes is to be greater than 20:1 to minimize the release of nitrogen based odorous compounds such as ammonia. This ratio is achieved through use of standard mass balance calculations using analytical data for feedstocks, as described

in Section 2.6. All feedstock constituent data should be updated periodically through laboratory analyses, to assure the accuracy of these calculations. Nevertheless, mix samples should be pulled periodically for carbon and nitrogen measurements by a lab, to verify that calculations are correct.

Other steps that can be considered to minimize odors include covering odorous windrows with a layer of carbonaceous materials and placing potentially odorous materials in the center of windrows during their construction.

5.3 NON-CONFORMING MATERIALS

Incoming feedstocks will be inspected upon arrival. Any non-conforming materials are to be rejected, or are removed and disposed of following state regulations, including disposal in a permitted landfill.

5.4 SPILLS

Spills of non-composted material will be cleaned up using a front-end loader and added to active compost piles before beginning the PFRP treatment regimen.

5.5 FIRES

The local fire department will be called if buildings catch fire. If piles of material catch on fire, the local fire department will be contacted, and a bulldozer will be used to separate the unburned material from the burning material to prevent the fire from spreading. In case of fire (anywhere at the facility), the following must be contacted immediately, as follows:

The local fire department: call 911.

The Division of Waste Management: tel 919-508-8400 (main),
tel 919-508-8508 (Michael Scott),

And, after contacting the above, send emails to

- Michael Scott (michael.scott@ncdenr.gov), and

Arrangements should be made with the fire department to provide immediate fire-fighting service when needed.

5.6 PARTICULATES

Particulates are generally associated with overly dry compost piles. Potable water or water from ponds on site can be used to increase moisture content and reduce particulates, as discussed in Section 2.2.

5.7 NOISE

Equipment normally associated with farm operations and land clearing will be used on the site, and some noise is expected.

5.8 VECTORS

Vector attraction reduction takes place during composting. To meet vector attraction reduction, materials are to be treated in an aerobic process for 14 days or longer, during which time the temperature of compost shall be higher than 40 degrees Celsius (104 degrees F) and the average temperature shall be higher than 45 degrees Celsius (113 degrees F). This approach is considered very effective at controlling vectors.

Process modifications will be made, if required, to ensure these vector attraction reduction requirements are met. This may include increasing the amount of wood material and cotton material in the initial mix.

Further, Wallace Farm staff are to make visual observations for vectors.

5.9 UNUSUAL TRAFFIC CONDITIONS

Delivery schedules may be modified, as necessary, to minimize traffic impacts.

6.0 REPORTING

An annual report for the period July 1 to June 30 is submitted by August 1 of each year, using the form provided by NC DENR. In addition, all windrow and monthly data sheets and semi-annual product test data is submitted with the report. The following records will be maintained and available for inspection by Mecklenburg County and/or the Division of Waste Management:

- Type and tons of materials received at the facility (dry weight)
- Origin of the materials
- Total tons of compost produced
- Total tons of compost used or disposed from the facility
- Monthly temperature monitoring sheets
- Product test results showing compliance with the Class A compost requirements

The monitoring requirements for Class A compost are as follows:

Parameter	Unit	Limit
Foreign Matter	%	< or = to 6
Cadmium	mg/kg dry wt.	39
Copper	mg/kg dry wt.	1500
Lead	mg/kg dry wt.	300
Nickel	mg/kg dry wt.	420
Zinc	mg/kg dry wt.	2800
Selenium	mg/kg dry wt	36
Arsenic	mg/kg dry wt	41
Mercury	mg/kg dry wt	17
Pathogens (fecal coliform)	MPN/g dry wt.	< 1000 per g
Total N	%	None
Phosphorous	%	None
Potassium	%	None

In addition to the above data, daily processing data, including temperature data and quantity of material processed, will be maintained and available for inspection by the Division of Waste Management.

7.0 PRODUCT MARKETING AND DISTRIBUTION PLAN

Wallace Farm is an established composting company, operating for many years. As such, the marketing and distribution plan is to continue marketing and distributing compost products as currently done, maintaining business practices while modifying them from time to time as circumstances warrant.

REFERENCES

Epstein (1997). *The Science of Composting.* Technomic Publishing Co., Inc., Lancaster, Pennsylvania p. 340.

APPENDICES

Appendix A
- Site Plan

Appendix B
- Site Signage

Appendix C
- Row Data Record
- Windrow Data Recording Sheet
- Pit Mix Recording Sheet

Appendix D
- Compost Product Information

Appendix E
- Concrete Pit Construction Specifications

Appendix F
- New Compost Turner and New Grinder

Appendix G
- Odor Response Form

Appendix A

Site Plan

Appendix B

Site Signage

WALLACE FARM

Large, Type 3 Solid Waste Compost Facility

Permit # SWC-60-22

Approved Organic Waste Received Only.

Absolutely No Hazardous Waste or Synthetic Waste of Any Kind.

Please Report To The Office For Unloading Procedures.

OFFICE
STRAIGHT AHEAD

Appendix C

Sample Row Data Record
Sample Windrow Data Recording Sheet
Sample Pit Mix Recording Sheet

Compost Process Control Sheet
Weekly Readings

Date: Turned:
Lot:

ROW #	TEMP 1	TEMP 2	TEMP 3	H2O Content	Maturity	Rowed	Material
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
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28							
29							
30							
31							
32							
33							
34							
35							

Temperature Taking Sheet

Lot *1.1* *Date* _____

Loc	Row	Temp 1	Temp 2	Temp 3	H2O Cnt	Rowed	Material	Cmp
1	1					2/28/2005		
2	2					2/28/2005		
3	3					3/1/2005		
4	4					3/1/2005		
5	5					3/2/2005		
6	6					3/3/2005		
7	7					3/3/2005		
8	8					3/4/2005		
9	9					3/4/2005		
10	10					3/5/2005		
11	11					3/5/2005		
12	12					3/7/2005		
13	13					3/10/2005		
14	14					3/10/2005		

Lot *1.2* *Date* _____

Loc	Row	Temp 1	Temp 2	Temp 3	H2O Cnt	Rowed	Material	Cmp
1	1					3/21/2005		
2	2					3/21/2005		
3	3					3/21/2005		
4	4					3/21/2005		
5	5					3/21/2005		
6	6					3/21/2005		
7	7					3/22/2005		
8	8					3/22/2005		
9	9					3/22/2005		
10	10					3/22/2005		
11	11					3/22/2005		
12	12					3/22/2005		
13	13					3/25/2005		
14	14					3/25/2005		
15	15					3/25/2005		
16	16					3/25/2005		
17	17					3/25/2005		
18	18					3/25/2005		

MASTER - Row Data by Lot

Lot Number 1a

Row Number 1

Rowed	Material	Completed
11/10/2003	Leaves and Chicken Manure	3/22/2004

Dates Row Turned

1	2	3	4	5	6	7	8
11/21/2003	12/5/2003	12/11/2003	12/23/2003	1/5/2004	2/5/2004	2/20/2004	3/4/2004

Temperatures

Date	1	2	3	Avg Temp	Moisture
12/8/2003	135	140	123	133	
12/19/2003	145	145		145	M
12/30/2003	153	148	128	143	M
2/11/2004	105	93	86	95	
2/23/2004	88	84	88	87	

Row Number 2

Rowed	Material	Completed
11/10/2003	Leaves and Chicken Manure	3/22/2004

Dates Row Turned

1	2	3	4	5	6	7	8
11/21/2003	12/5/2003	12/11/2003	12/23/2003	1/5/2004	2/5/2004	2/20/2004	3/4/2004

Temperatures

Date	1	2	3	Avg Temp	Moisture
12/8/2003	150	154	151	152	
12/19/2003	152	146		149	D
12/30/2003	143	156	142	147	D
2/11/2004	105	112	118	112	
2/23/2004	95	98	111	101	
3/4/2004	94	88	94	92	M
3/8/2004	90	97	99	95	

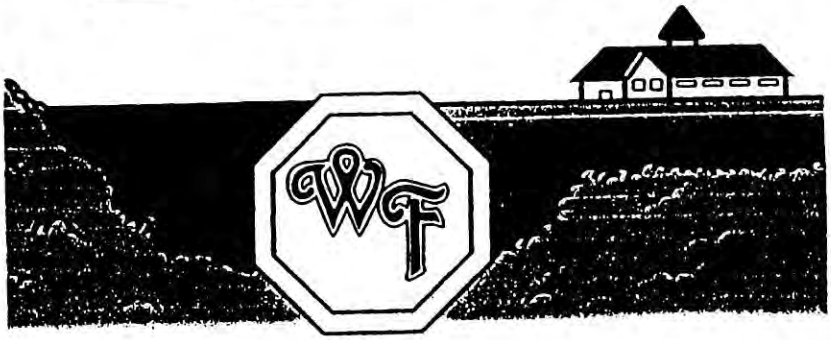
Date: _____ **Pit Mix Records - Mixing Ratios**

Materials		1	2	3	4
Equity	ticket #				
	time				
	# gallons				
Stouffer	ticket #				
	time				
	# tons				
Ice Cream	ticket #				
	time				
	# gallons				
Finetex	ticket #				
	time				
	# gallons				
Tobacco	ticket #				
	time				
	# tons				
Cargill Sludge	ticket #				
	time				
	# tons				
Cargill Clay	ticket #				
	time				
	# tons				
Coke Sludge	ticket #				
	time				
	# tons				
Coke Bev.	ticket #				
	time				
	# gallons				
Old Wood Chips	bkts				
New Wood Chips	bkts				
Sawdust	bkts				
Cargill Ash	bkts				
Cotton	bkts				
Leaves	bkts				
Screenings	bkts				
BAT Pile	bkts				
Compost	bkts				
Wood Ash	bkts				
Coal Ash	bkts				
Lot #					
Row #					

Appendix D

Compost Product Information

WALLACE FARM PRIDE



- *Superb Soil Amendment*
- *Excellent Fine Textured Mulch*
- *Great for Top Dressing*

COTTON COMPOST

1 Cu. Ft. (28.3 L)
Net Weight 38 Lbs.

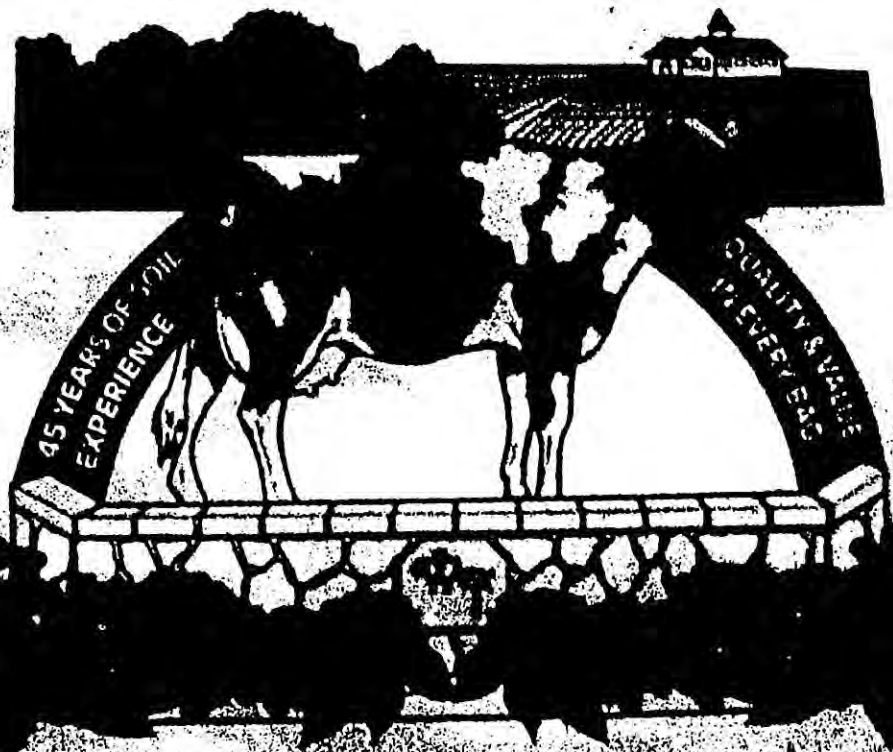
WALLACE FARM, INC.
14410 Eastfield Road
Huntersville, NC 28078
www.wallacefarmproducts.com

WALLACE FARM PRIDE COTTON COMPOST

WALLACE FARM PRIDE COTTON COMPOST

WALLACE FARM PRIDE COTTON COMPOST

WALLACE FARM



Indoor-Outdoor

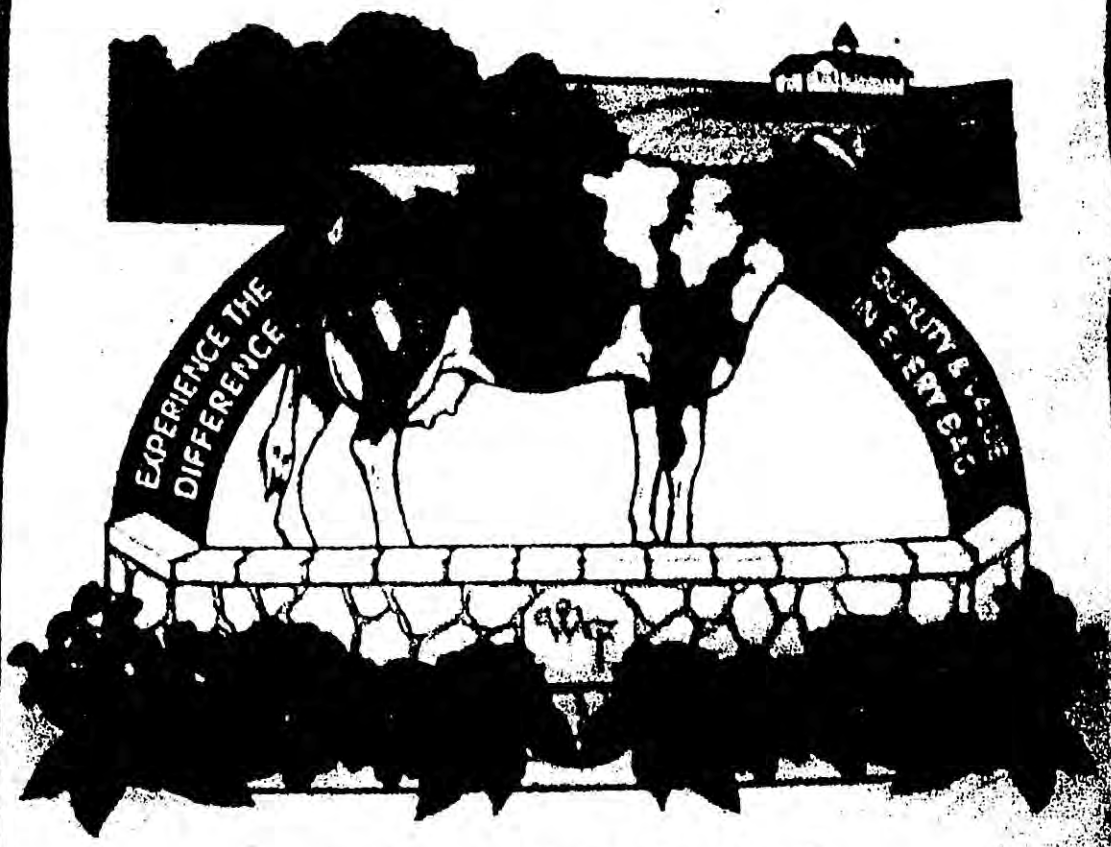
POTTING SOIL

Net Wt. 20 LB (9 Kg)

WALLACE FARM POTTING SOIL

08/03/2002

WALLACE FARM

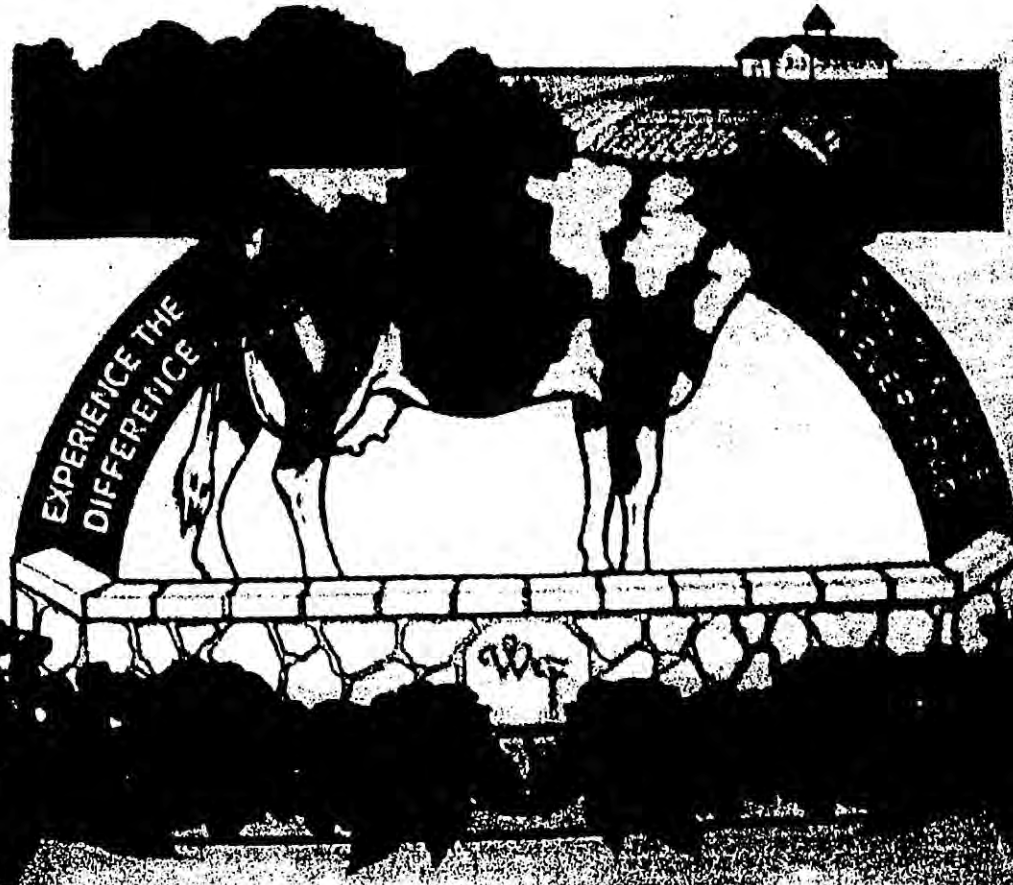


PREMIUM TOP SOIL

WALLACE FARM PREMIUM TOP SOIL

WALLACE FARM PREMIUM TOP SOIL

WALLACE FARM



composted

COW MANURE

.5-.5-.5

1 CU. FT. (28 L)

WALLACE FARM COW MANURE

WALLACE FARM COW MANURE

WALLACE FARM

Grade A

COMPOST PLUS

1 CU. FT. (28 L)

Wallace Farm, LLC
14410 Bustfield Road
Huntersville, N.C. 28078
www.wallacefarmproducts.com

WALLACE FARM COMPOST PLUS

WALLACE FARM COMPOST PLUS

08/03/2002

WALLACE FARM GARDENER'S DELIGHT

WALLACE FARM

Our Premium

GARDENER'S DELIGHT
PLANTING SOIL

- Ideal Soil Additive For In-Ground Planting
- Improves "Hard Clay" and Sandy Soils
- Promotes Vigorous Root and Plant Growth

WALLACE FARM GARDENER'S DELIGHT

1 Cubic Ft. (28L)

Wallace Farm, Inc.
14410 Eastfield Road
Huntersville, NC 28078
(www.wallacefarmproducts.com)

WALLACE FARM GARDENER'S DELIGHT

WALLACE FARM MUSHROOM COMPOST

WALLACE FARM™

Our Premium

MUSHROOM COMPOST

- Excellent for Flower and Vegetable Gardens
- Enriches the Soil
- Promotes Vigorous and Healthy Plants

WALLACE FARM MUSHROOM COMPOST

1 Cubic Ft. (28L)

Wallace Farm, Inc.
14410 Eastfield Road
Huntersville, NC 28078
(www.wallacefarmproducts.com)

WALLACE FARM MUSHROOM COMPOST

.5" Lip on Back Panel

3" Unprinted top of front and back

WALLACE FARM

SOIL CONDITIONER

- 100% Aged Bark Fines
- Intended for In-Ground Planting and Mulching
- Loosens Hard Clay and Sandy Soils

GENERAL USES
Intended to be mixed with hard, compacted soils to loosen the soil and provide a better environment for growing flowers, vegetables, trees, shrubs, and turf. Can also be used in mulching applications where finely ground, premium mulch is needed.

APPLICATION INSTRUCTIONS

FLOWER BEDS AND GARDENS
Loosen existing soil 4-6 inches deep. Apply 2-4 inches of **Wallace Farm Soil Conditioner** over planting area (2 cu. ft. per 8 sq. ft.) and incorporate into existing soil. Plant and water thoroughly.

RAISED BEDS
Construct bedding perimeter allowing for a minimum depth of 12 inches. Fill the area with a mixture of one part **Wallace Farm Soil Conditioner** and one part **Wallace Farm Premium Top Soil**. Alternate emptying soil conditioner and top soil bags, mixing as you go, until desired depth is reached.

TREES AND SHRUBS
Dig a hole one-third larger and one-third deeper than root ball of plant. Disturb root ball *only* if root-bound. Mix one part **Wallace Farm Soil Conditioner** to one part existing soil. Fill bottom of hole with mixture to allow top of root ball to sit at ground level. Finish filling hole with mixture and lightly pack to avoid air pockets. Water thoroughly.

MULCHING
Wallace Farm Soil Conditioner is ideal for mulching around all types of plants and is especially suitable for use around smaller annuals and perennials. (2 cu. ft. covers approx. 10 sq. ft.)

Other Fine Wallace Farm Products:
- Premium Top Soil
- Planting Soil
- Potting Soil
- Premium Potting Mix
- Composted Cow Manure
- Mushroom Compost
- Compost Plus
- Play Sand

Wallace Farm, Inc.
14410 Eastfield Road
Huntersville, NC 28078
www.wallacefarmproducts.com

2 Cu. Ft. (56L)
Net Weight 38 Lbs.

22x34+5
HD

TP5023 22x34+5 BACK BLACK

Report Number
04-236-2208

Midwest Laboratories, Inc.

13611 "B" Street • Omaha, Nebraska 68144-3693 • (402) 334-7770 • FAX (402) 334-9121
www.midwestlabs.com

REPORT OF ANALYSIS

For: (15314) WALLACE FARM INC
(704)875-2975

Mail to: WALLACE FARM INC
ERIC WALLACE
14410 EASTFIELD RD
HUNTERSVILLE NC 28078-

Date Reported: 08/23/04
Date Received: 08/13/04
Date Sampled: 08/10/04

COMPOST ANALYSIS

Lab number: 1001606 Sample ID: DAIRY MANURE CM

Analysis	Level Found	Units	Detection Limit	Method	Analyst-Date
Kjeldahl nitrogen	2,964	mg/kg	4	EPA 351.3	hnw-08/18
Phosphorus (total)	2,379	mg/kg	10.0	EPA 6010	xme-08/18
Potassium (total)	3,410	mg/kg	10.0	EPA 6010	xme-08/18
Sulfur (total)	1,615	mg/kg	25.0	EPA 6010	xme-08/18
Calcium (total)	9,241	mg/kg	1.0	EPA 6010	xme-08/18
Magnesium (total)	3,018	mg/kg	1.0	EPA 6010	xme-08/18
Sodium (total)	1,133	mg/kg	1.0	EPA 6010	xme-08/18
Iron (total)	28,377	mg/kg	5.00	EPA 6010	xme-08/18
Manganese (total)	788	mg/kg	1.0	EPA 6010	xme-08/18
Copper (total)	104	mg/kg	1.0	EPA 6010	xme-08/18
Zinc (total)	67.9	mg/kg	1.0	EPA 6010	xme-08/18
Ammoniacal nitrogen	828	mg/kg	2	EPA 350.2	hwn-08/17
Nitrate/Nitrite Nitrogen	828	mg/kg	20	EPA 353.2	jad-08/18
Arsenic (total)	3.74	mg/kg	0.50	EPA 6020	jsk-08/18
Barium (total)	116	mg/kg	0.50	EPA 6010	xme-08/18
Cadmium (total)	n.d.	mg/kg	0.50	EPA 6010	xme-08/18
Chromium (total)	44.2	mg/kg	1.0	EPA 6010	xme-08/18
Lead (total)	14.7	mg/kg	5.0	EPA 6010	xme-08/18
Mercury (total)	0.09	mg/kg	0.05	EPA 7471	jsk-08/18
Molybdenum (total)	1.2	mg/kg	1.0	EPA 6010	xme-08/18
Nickel (total)	12.3	mg/kg	1.0	EPA 6010	xme-08/18
Selenium (total)	0.93	mg/kg	0.50	EPA 6020	jsk-08/18
Silver (total)	n.d.	mg/kg	1.0	EPA 6010	xme-08/18

The above analytical results apply only to the sample(s) submitted.

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www.midwestlabs.com

REPORT OF ANALYSIS

Account: 15314 WALLACE FARM INC
Report Number: 04-236-2208

Analysis	Level Found	Units	Detection Limit	Method	Analyst-Date
Percent Solids	66.3	%	0.01	SM 2540G	xme-08/18
pH	6.0	S.U.		EPA 9045	dmg-08/13
Organic nitrogen	2,136	mg/Kg		CALC	cmw-08/13
Calculated Phosphate P2O5	5,448	mg/Kg		CALC	cmw-08/13
Calculated Potash K2O	4,106	mg/Kg		CALC	cmw-08/13
Carbon Nitrogen Ratio C/N	30.1			CALCULATED	jjk-08/23
Fecal Coliform	79	MPN/g	2	SM 9221E	mjh-08/14
Foreign materials	non detected	#/ 100 g		MICROSCOPIC	jjk-08/23
Total Carbon	8.92	%	0.050	CARBON ANALYZER LECO 2000	jpt-08/19

Notes:
n.d. - Not Detected.
The metals and nitrogen series are reported on a dry weight basis. The nitrogen series results on an as received basis are:
Kjeldahl Nitrogen: 1965 mg/Kg
Ammoniacal Nitrogen: 549 mg/Kg
Nitrate Nitrogen: 549 mg/Kg
No man-made materials (glass, metal, plastic) were observed

Respectfully Submitted

Heather Ramig

Heather Ramig/Sue Ann Seitz/Rob Ferris
Client Services

The above analytical results apply only to the sample(s) submitted.

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Report Number
04-219-2108

Midwest Laboratories, Inc.

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www.midwestlabs.com

REPORT OF ANALYSIS

For: (15314) WALLACE FARM INC
(704)875-2975

Mail to: WALLACE FARM INC
ERIC WALLACE
14410 EASTFIELD RD
HUNTERSVILLE NC 28078-

Date Reported: 08/06/04
Date Received: 07/28/04
Date Sampled: 07/19/04

COMPOST ANALYSIS

Lab number: 996278 Sample ID: CP Compost Plus

Analysis	Level Found	Units	Detection Limit	Method	Analyst-Date
Kjeldahl nitrogen	12,383	mg/kg	4	EPA 351.3	hnw-07/30
Phosphorus (total)	5,209	mg/kg	10.0	EPA 6010	tsw-08/03
Potassium (total)	7,725	mg/kg	10.0	EPA 6010	tsw-08/03
Sulfur (total)	2,926	mg/kg	25.0	EPA 6010	tsw-08/03
Calcium (total)	27,242	mg/kg	1.0	EPA 6010	tsw-08/03
Magnesium (total)	4,623	mg/kg	1.0	EPA 6010	tsw-08/03
Sodium (total)	1,596	mg/kg	1.0	EPA 6010	tsw-08/03
Iron (total)	19,323	mg/kg	5.00	EPA 6010	tsw-08/03
Manganese (total)	988	mg/kg	1.0	EPA 6010	tsw-08/03
Copper (total)	54.6	mg/kg	1.0	EPA 6010	tsw-08/03
Zinc (total)	138	mg/kg	1.0	EPA 6010	tsw-08/03
Ammoniacal nitrogen	766	mg/kg	2	EPA 350.2	hnw-07/30
Nitrate/Nitrite Nitrogen	180	mg/kg	2	EPA 353.2	jad-07/30
Arsenic (total)	4.08	mg/kg	0.50	EPA 6020	jsk-08/03
Barium (total)	153	mg/kg	0.50	EPA 6010	tsw-08/03
Cadmium (total)	n.d.	mg/kg	0.5	EPA 6010	tsw-08/03
Chromium (total)	31.6	mg/kg	1.0	EPA 6010	tsw-08/03
Lead (total)	14.1	mg/kg	5.0	EPA 6010	tsw-08/03
Mercury (total)	0.12	mg/kg	0.05	EPA 7471	jsk-08/03
Molybdenum (total)	1.5	mg/kg	1.0	EPA 6010	tsw-08/03
Nickel (total)	16.7	mg/kg	1.0	EPA 6010	tsw-08/03
Selenium (total)	1.40	mg/kg	0.50	EPA 6020	jsk-08/03
Silver (total)	n.d.	mg/kg	1.0	EPA 6010	tsw-08/03

The above analytical results apply only to the sample(s) submitted

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REPORT OF ANALYSIS

Account: 15314 WALLACE FARM INC
Report Number: 04-219-2108

Analysis	Level Found	Units	Detection Limit	Method	Analyst-Date
Percent Solids	67.9	%	0.01	SM 2540G	tsw-08/03
pH	7.1	S.U.		EPA 9045	dmg-07/29
Organic nitrogen	11,617	mg/Kg		CALC	cmw-07/28
Calculated Phosphate P2O5	11,929	mg/Kg		CALC	cmw-07/28
Calculated Potash K2O	9,301	mg/Kg		CALC	cmw-07/28
Carbon Nitrogen Ratio C/N	17.9			CALCULATED	jt-08/06
Foreign materials	see comments	#/ 100 g		MICROSCOPIC	jt-08/06
Total Carbon	22.2	%	0.050	CARBON ANALYZER LECO 2000	jpt-08/06

Notes:
n.d. - Not Detected.
Report faxed upon completion.
The metals and nitrogen series are reported on a dry weight basis. The nitrogen series results on an as received basis are:
Kjeldahl Nitrogen: 8408 mg/Kg
Ammoniacal Nitrogen: 520 mg/Kg
Nitrate Nitrogen: 122 mg/Kg
The sample contained no glass or metal fragments.
The only man-made materials observed were fragments of plastic bags at < 0.1%

Respectfully Submitted

Heather Ramig/Sue Ann Seitz/Rob Ferris
Client Services

The above analytical results apply only to the sample(s) submitted.

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Report Number
04-219-2110

Midwest Laboratories, Inc.

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REPORT OF ANALYSIS

For: (15314) WALLACE FARM INC
(704)875-2975

Mail to: WALLACE FARM INC
ERIC WALLACE
14410 EASTFIELD RD
HUNTERSVILLE NC 28078-

Date Reported: 08/06/04
Date Received: 07/28/04
Date Sampled: 07/19/04

COMPOST ANALYSIS

Lab number: 996279 Sample ID: MC Mushroom Compost

Analysis	Level Found	Units	Detection Limit	Method	Analyst-Date
Kjeldahl nitrogen	11,533	mg/kg	4	EPA 351.3	hnw-07/30
Phosphorus (total)	3,067	mg/kg	10.0	EPA 6010	tsw-08/03
Potassium (total)	6,703	mg/kg	10.0	EPA 6010	tsw-08/03
Sulfur (total)	2,870	mg/kg	25.0	EPA 6010	tsw-08/03
Calcium (total)	19,388	mg/kg	1.0	EPA 6010	tsw-08/03
Magnesium (total)	4,065	mg/kg	1.0	EPA 6010	tsw-08/03
Sodium (total)	1,190	mg/kg	1.0	EPA 6010	tsw-08/03
Iron (total)	21,867	mg/kg	5.00	EPA 6010	tsw-08/03
Manganese (total)	762	mg/kg	1.0	EPA 6010	tsw-08/03
Copper (total)	73.0	mg/kg	1.0	EPA 6010	tsw-08/03
Zinc (total)	104	mg/kg	1.0	EPA 6010	tsw-08/03
Ammoniacal nitrogen	1,032	mg/kg	2	EPA 350.2	hnw-07/30
Nitrate/Nitrite Nitrogen	156	mg/kg	2	EPA 353.2	jad-07/30
Arsenic (total)	4.41	mg/kg	0.50	EPA 6020	jsk-08/03
Barium (total)	141	mg/kg	0.50	EPA 6010	tsw-08/03
Cadmium (total)	n.d.	mg/kg	0.5	EPA 6010	tsw-08/03
Chromium (total)	54.0	mg/kg	1.0	EPA 6010	tsw-08/03
Lead (total)	11.5	mg/kg	5.0	EPA 6010	tsw-08/03
Mercury (total)	0.10	mg/kg	0.05	EPA 7471	jsk-08/03
Molybdenum (total)	1.4	mg/kg	1.0	EPA 6010	tsw-08/03
Nickel (total)	17.8	mg/kg	1.0	EPA 6010	tsw-08/03
Selenium (total)	1.45	mg/kg	0.50	EPA 6020	jsk-08/03
Silver (total)	n.d.	mg/kg	1.0	EPA 6010	tsw-08/03

The above analytical results apply only to the sample(s) submitted.

1/2

Midwest Laboratories, Inc.
13611 "B" Street • Omaha, Nebraska 68144-3693 • (402) 334-7770 • FAX (402) 334-9121
www.midwestlabs.com

REPORT OF ANALYSIS

Account: 15314 WALLACE FARM INC
Report Number: 04-219-2110

Analysis	Level Found	Units	Detection Limit	Method	Analyst-Date
Percent Solids	69.1	%	0.01	SM 2540G	tsw-08/03
pH	7.2	S.U.		EPA 9045	dmg-07/29
Organic nitrogen	10,501	mg/Kg		CALC	cmw-07/28
Calculated Phosphate P2O5	7,023	mg/Kg		CALC	cmw-07/28
Calculated Potash K2O	8,070	mg/Kg		CALC	cmw-07/28
Carbon Nitrogen Ratio C/N	17.4			CALCULATED	jt-08/06
Foreign materials	see comments	#/ 100 g		MICROSCOPIC	jt-08/06
Total Carbon	20.1	%	0.050	CARBON ANALYZER LECO 2000	jpt-08/06

Notes:

n.d. - Not Detected.
Report faxed upon completion.
The metals and nitrogen series are reported on a dry weight basis. The nitrogen series results on an as received basis are:

Kjeldahl Nitrogen: 7969 mg/Kg
Ammoniacal Nitrogen: 713 mg/Kg
Nitrate Nitrogen: 108 mg/Kg

The sample did not contain any glass or metal fragments. The only man-made material observed were fragments of plastic bags at < 0.1%.

Respectfully Submitted

Heather Ramig/Sue Ann Seitz/Rob Ferris
Client Services

The above analytical results apply only to the sample(s) submitted.

Appendix E

Concrete Pit Construction Specifications

March 17, 2004

Industrial Engineering and Testing Services, P.C.

Mr. Chuck Mayer
C. G. Mayer Construction Company
7826 Caswell Road
Stanley, NC 28164

Subject: **Structural Engineering Services**
Soil Retaining Wall Structure Design Verification
Wallace Farm, Inc. – Huntersville, NC
IETS Project Number 2004-013

Dear Mr. Mayer:

In accordance with your request, and acceptance of our proposal number Pro-2004-022, Industrial Engineering & Testing Services, P.C. (IETS) is pleased to submit this report of the structural adequacy of the retaining wall designs provided by Mr. Chuck Mayer. These walls are a portion of a new debris dumping facility being constructed at Wallace Farm, Inc. This report contains brief project background information and our findings and recommendations.

PROJECT BACKGROUND INFORMATION

On March 15, 2004, Mr. Mayer met with our Mr. Bill Griswold. During the meeting Mr. Mayer provided IETS with the proposed retaining wall design drawings. The walls are a portion of a new truck debris dumping facility that contains a recessed area approximately 60 feet wide and long. One end of the recessed area will be approximately 8 feet deep.

RESULTS OF ENGINEERING CALCULATIONS

Using assumed soil bearing and lateral pressure values, IETS engineers determined the retaining walls, wall foundations, and surrounding concrete slabs are structurally adequate for the proposed loadings and usage. One design change is required. The thickness of the 4-foot tall retaining wall needs to be reduced from 10 inches to 8 inches to meet the code requirements when using a single layer of reinforcing steel.

We appreciate the opportunity to provide our continuing professional services to you and Wallace Farm. If you have any questions please contact us.

Respectfully submitted,

INDUSTRIAL ENGINEERING AND TESTING SERVICES, P.C.

William A. Griswold, Jr., P.E.
Chief Engineer

National Society of Professional Engineers®
Signatory, NSPE Licensed Member

129 Greenwich Road, Charlotte, NC 28211 – Phone: (704) 522-1131 - Fax: (704) 522-1280

C.G.Mayer Construction Co.

7826 Caswell Rd
Address Line 2
Stanley N.C. 28164
Lincoln

Phone 704-8273793
Fax 704-8273793

February 19, 2004

Wallace Dairy Farm
Eastfield Rd.

Build compost pit

C.G.Mayer Construction Co. proposes to provide labor,material,andequipment to perform the folliowing work.

Footing 64''x12''footing with 8-#4 redars continuous and #4 barsties at36'' on O.C.app.122' LF.

Walls 10'' thick poured walls 8' high approximately 62' w #4 rebar vertically and horizontally at 12'' O.C. front and back
10'' Thick poured wall 9'4'' high approximately 62' w #4 rebars vertically and horizontally at 12;; O.C. Front and back
Brick ledge for slab to rest on 62 LF

Slabs

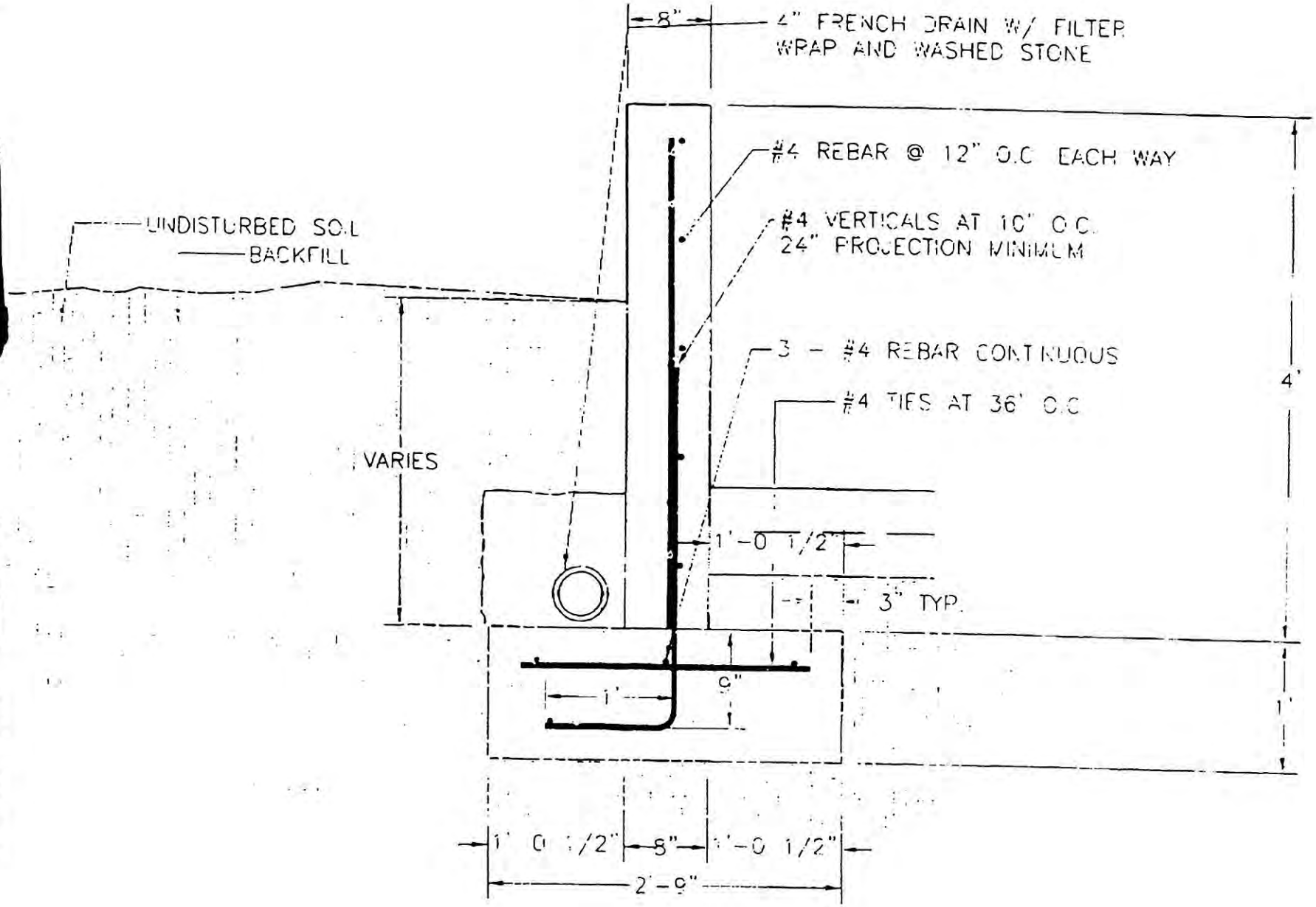
Slab for trucks to backup on 60' wide 30' deep 8''thick with 6x6 2.9/2.9 WWM. with sawed control joints and broom finish

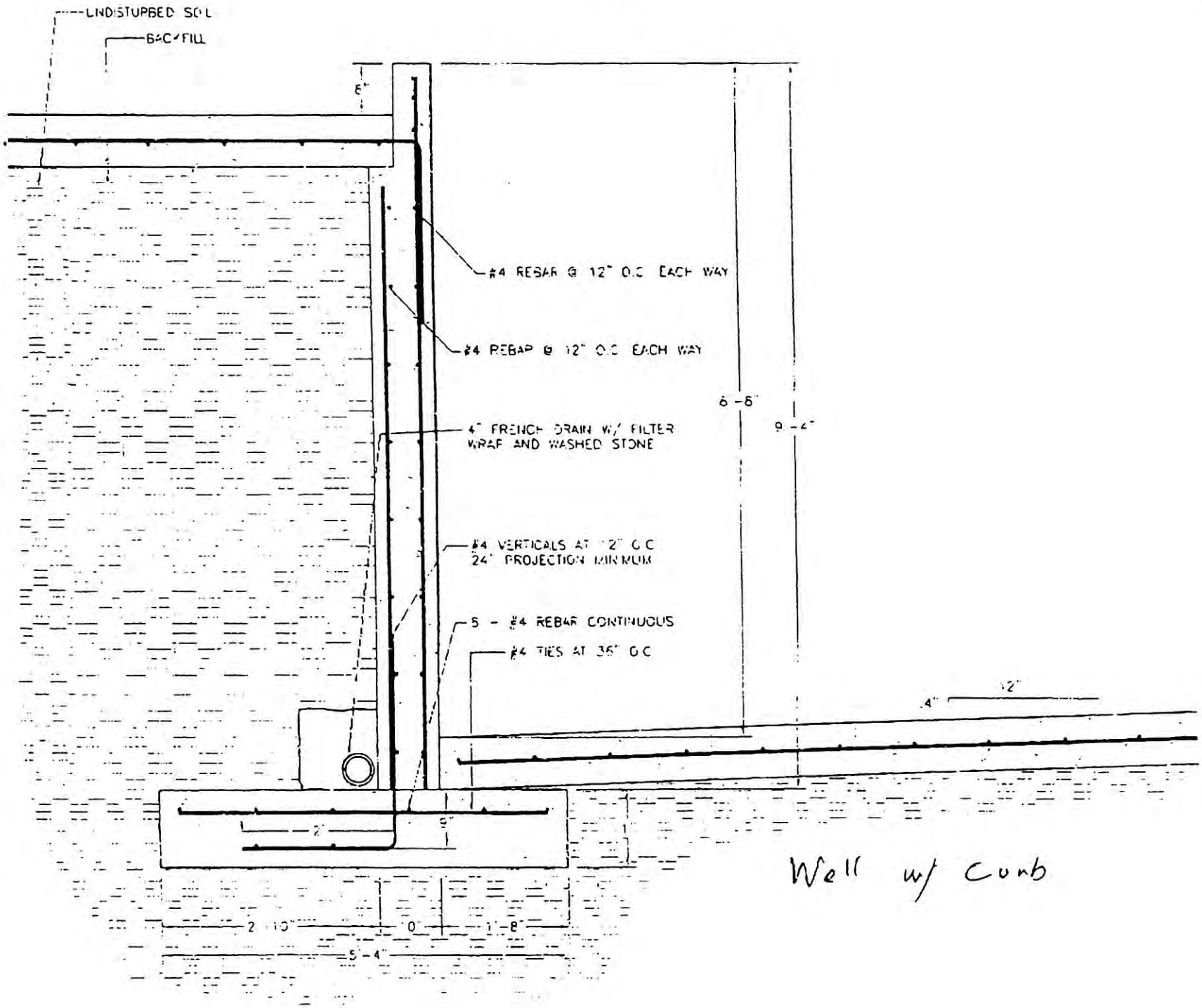
Slab forbottom of pit to be 60'x60' 8'' thick with 6x6 2.9/2.9WWM with broom finish and saw control joints also

If OWNER would rather have rebar #4 in 12''x12' grid in floor slab add 6853.00 to total price

C.G.MAYER will onltybe responsible for diging footing,and fine grading of floor slabs in this quote
All other grading by owner

Water profing as discribed in quote
All concrete to be 3000-PSI.


8"
4" FRENCH DRAIN W/ FILTER WRAP AND WASHED STONE
#4 REBAR @ 12" O.C EACH WAY
#4 VERTICALS AT 10" O.C. 24" PROJECTION MINIMUM
3 - #4 REBAR CONTINUOUS
#4 TIES AT 36" O.C
UNDISTURBED SOIL
BACKFILL
VARIES
4'
1'-0 1/2"
3" TYP.
6"
1'
1'
1' 0 1/2"
8"
1'-0 1/2"
2'-6"


UNDISTURBED SOIL
BACKFILL
6"
#4 REBAR @ 12" O.C. EACH WAY
#4 REBAR @ 12" O.C. EACH WAY
6'-6"
9'-4"
4" FRENCH DRAIN W/ FILTER WRAP AND WASHED STONE
#4 VERTICALS AT 12" O.C. 24" PROJECTION MINIMUM
5 - #4 REBAR CONTINUOUS
#4 TIES AT 36" O.C.
4"
12"
2'
9"
2'-10"
0"
1'-8"
5'-4"

Wall w/ Curb

Appendix F

New Compost Turner and New Grinder

N 40 Inc.
P.O. Box 1330
Rockwell, NC 28138
Phone: (336) 499-5881
Fax: (336) 499-5882
Web: www.n40compost.com

October 4, 2006

Mr. Eric Wallace
Wallace Farm
14410 Eastfield Road
Huntersville, NC 28078

New BACKHUS 17.50 New series

Compost Turner on Crawler Tracks for Windrows

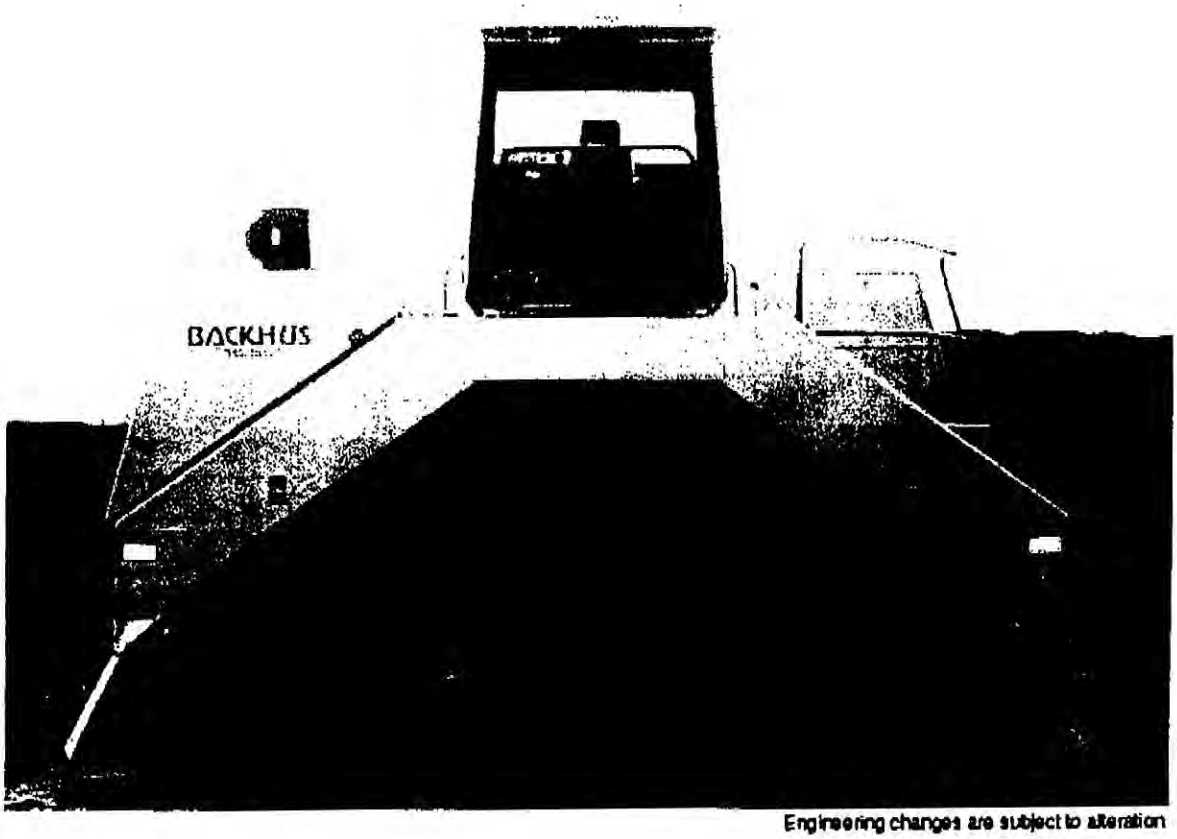
• Windrow Width up to:	16 ft
• Windrow Height up to:	7.2 ft
• Windrow Cross-Section up to:	7.4 yd² per meter (bulk, angle approx. 45°)
• Area Utilization:	1.24 yd³/yd
• Track-Clearing Width:	2 x 1 ft
• Track-Clearing Share:	1.6 % of heap cross-section
• Grain Size up to:	12"
• Speed:	0 – 160 ft/min, steplessly controllable (backwards and forwards)
• Turning Capacity:	up to 4,000 yd³/h
• Standard Engine:	6 cylinder Cummins turbo diesel
• Standard Engine:	QSC 8.3-C 280 (water-cooled) certified according to Tier III
• Nominal Capacity:	280 hp at approx. 2,200 RPM
• Maximum Capacity:	300 hp at approx. 2,000 RPM
• Standard Cubic Capacity:	8.3 Liter
• Full Load Torque:	1,000 Ft. Lbs at 1,500 RPM
• Fuel Tank:	98 Gallon
• Power Supply:	24 volt, 2x12 V batteries each 143 Ah three-phase alternator 70 A

- Standard Drum Diameter: 39"
- Number of Drum: 56
- Number of Drum Rakes: 8
- Dimensions in Working Position:

Depth:	15.7 ft
Width:	14.5 ft
Height:	14.8 ft

- Dimensions in Transporting Position:

Depth:	8.4 ft
Width:	23.5 ft
Height:	10 ft
Track width:	15.5 ft



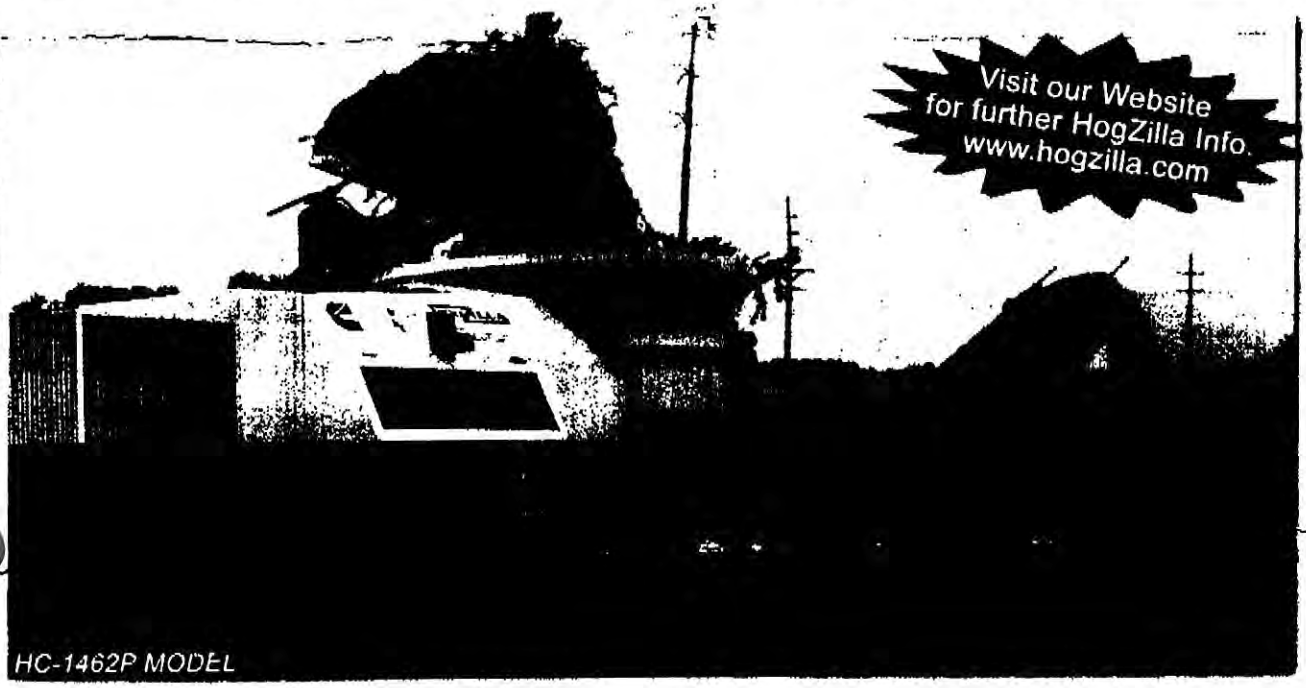
Engineering changes are subject to alteration

HOGZILLA

HC-1462P MODEL

INDUSTRIAL GRINDERS

HC SERIES



Visit our Website for further HogZilla Info. www.hogzilla.com

HC-1462P MODEL

HTC-1464T MODEL

HTC-1464T MODEL W/ OPTIONAL TIRE GRINDING PACKAGE

The HC series grinders are built to be the most reliable high capacity grinders in their class. You can expect maximum production at the end of the day, be it acres, tons, or yards of material being ground. At 750 to 1050 horsepower and 88,000lbs., they can handle your toughest jobs and last for years doing it. The power is delivered to the hammermill by a Hydraulic Coupling or an optional Torque Converter which multiplies the engine torque to the hammermill for even greater production. The HC series is available in fifth-wheel portable, self-loading, & track driven models.

Appendix G

Odor Response Form

Wallace Farm

Odor Response Form

Date of complaint: _____ Time of complaint: _____

Location of complaint: Sub-Division: _____ Village: _____

Complainant Name: _____

Address: _____

Phone #: _____

Complaint received by: ☐ Wallace Farm _____ (name)

☐ County _____ (name)

☐ NCDENR _____ (name)

Date of response: _____ Time of response: _____

Who responded: ☐ Wallace Farm _____ (name)

☐ County _____ (name)

Was any type of odor detected: ☐ yes ☐ no

Was a normal compost odor noted: ☐ yes ☐ no

Was an objectionable odor noted?: ☐ yes ☐ no Rate odor: 1(mild) – 10 (extreme) ____

Does there appear to be an odor problem?: ☐ yes ☐ no

Warning issued by county inspector: ☐ yes ☐ no

N.O.V. issued by county inspector: ☐ yes ☐ no

Was a compost facility manager notified? ☐ yes ☐ no Manager name: _____

Date: _____

Time: _____

Was an objectionable odor detected at the compost facility: ☐ yes ☐ no

What is the source of the odor? ☐ windrows ☐ receiving area

☐ windrow turning ☐ water collection

☐ other: _____

Describe corrective action taken: _____

_____

Was the problem corrected? ☐ yes ☐ no

Is a weather data attached for the day and time the complaint was received? ☐ yes ☐ no

FOR AGENCY USE ONLY		
Date Received		
Year	Month	Day
Certificate of Coverage		
N C G 2 4		
Check #	Amount	
Permit Assigned to		

Division of Water Quality / Surface Water Protection

National Pollutant Discharge Elimination System

NCG240000

NOTICE OF INTENT

National Pollutant Discharge Elimination System application for coverage under General Permit NCG240000 for

STORMWATER AND PROCESS WASTEWATER DISCHARGES associated with activities classified as:

SIC Code (Standard Industrial Classification Code) 2875 Compost facilities, and like activities.

For questions, please contact the DWQ Central Office or Regional Office for your area. (See page 6)

1) Mailing address of owner/operator (official address to which all permit correspondence will be mailed): *(Please print or type all entries in this application form.)*

Legal Owner Name Wallace Farm Inc. (Eric Wallace)

(Please attach the most recent Annual Report to the NC Secretary of State showing the current legal name.)

Street Address 14410 Eastfield Rd

City Huntersville State NC ZIP Code 28078

Telephone No. 704 875-2975 Email eric@wallacefarmproducts.com

Alternate Contact Name _____ Email (if different) _____

Alternate Contact Telephone (if different) _____

2) Location of facility producing discharge:

Facility Name Wallace Farm Inc. - Davie County Site

Facility Contact Eric Wallace

Street Address Lee Jackson Dr.

City Advance State NC ZIP Code 27006

County Davie

Telephone No. 704 875-2975 Email eric@wallacefarmproducts.com

3) Physical location information:

Please provide narrative directions to the facility (use street names, state road numbers, and distance and direction from a roadway intersection). Approx 0.5 mile from intersection of Lee-Jackson Dr. and Rainbow Rd.

(A copy of a county map or USGS quad sheet with the facility clearly located on the map is a required part of this application.)

4) Latitude _____ Longitude _____ (deg, min, sec)

5) This NPDES Permit Application applies to the following (check appropriate box):

☒ New or Proposed Facility Date operation is to begin August 2014

☐ Existing Facility DWQ Permit #_____

6) Consulting Engineer's (or other qualified design staff's) application information:

Consulting Engineer: L. Bernard Garrett, PE

Consulting Firm: Garrett & Moore, Inc.

Mailing Address: 1100 Crescent Green Dr. , Suite 208

City: Cary

State: NC Zip Code: 27518

Phone: (919) 792-1902 Fax: (866) 311-7206

Email: bgarrett@garrett-moore.com

(Optional)
Staple Business Card Here:

7) Provide the 4 digit SIC Code that describes the primary industrial activity at this facility:

SIC Code: 2875 ___ ___ ___

8) Provide a brief description of the types of industrial activities and products produced at this facility, including the DWM compost facility classification:

Type 3 Compost

Receiving waters

9) Discharge points / Receiving waters:

Number of **discharge points** (ditches, pipes, channels, etc.) that convey stormwater and/or process wastewater off the property:

Stormwater only: 3 *Process wastewater only:* _____ *Both commingled:* _____

What is the name of the body or bodies of water (creek, stream, river, lake, etc.) that the stormwater and/or process wastewater discharges first enter? Sugar Creek

Receiving water classification(s), if known: None

If the site stormwater discharges to a separate storm sewer system, name the operator of the separate storm sewer system (e.g. City of Raleigh municipal storm sewer). NA

Will this facility discharge to:

Shellfishing waters (Classified SA)?	☐ Yes	☒ No
Trout waters (Classified Tr)?	☐ Yes	☒ No
High Quality Waters (Classified HQW)?	☐ Yes	☒ No
Outstanding Resource Waters (Classified ORW)?	☐ Yes	☒ No
Primary Nursery Area waters (Classified PNA)?	☐ Yes	☒ No
Nutrient Sensitive Waters (Classified NSW)?	☐ Yes	☒ No
Water Supply Watershed Waters (Classified WS I – WS V)?	☐ Yes	☒ No
'Zero-flow' streams (as described in 15A NCAC 2B .0206)?	☐ Yes	☒ No

Note: Discharge of process wastewater to receiving waters classified as public water supply WS-II to WS-V must be approved by the Public Water Supply Section of the Division of Water Resources. If DWR does not approve, coverage under NCG240000 cannot be granted. No new discharges of process wastewater are permitted in receiving waters classified as WS-I or freshwater ORW. Similarly, the Division of Environmental Health Shellfish Sanitation Program must approve process wastewater discharges to SA (shellfish) waters.

10) Does the facility use any of the following on site?

☐ Liquid, granular, or other materials added for their concentrated phosphorus compounds content?

☐ Liquid, granular, or other materials added for their concentrated nitrogen compounds content?

Process wastewater (Process wastewaters are defined in Part II Section E of the General Permit text.)

11) ***Will your facility discharge process wastewaters to surface waters?***

☒ Yes ☐ No

12) Are wastewater treatment facilities planned within the 100-year flood plain?

☐ Yes ☒ No

13) Consideration of alternatives to surface water discharge for process wastewaters

a) Land Surface or Subsurface Disposal System (e.g., spray irrigation):

i) Is a land surface or subsurface disposal *technologically* feasible (possible)?…….☐ Yes ☒ No
Why or Why not? Land surface or subsurface disposal is not practical based on the soil types on the site

ii) Is a land surface or subsurface disposal system feasible *to implement*?*……..☐ Yes ☒ No
Why or Why not? Land surface or subsurface disposal is not practical based on the soil types on the site

iii) What is the feasibility of employing a subsurface or land surface discharge as compared to a direct discharge to surface waters?* Land surface or subsurface disposal is not practical based on the soil types on the site

b) Connection to a Municipal or Regional Sewer Collection System:

i) Are there existing sewer lines within a one-mile radius? ……... ☐ Yes ☒ No

(1) If *Yes*, will the wastewater treatment plant (WWTP) accept the discharge? ……. ☐ Yes ☐ No
(a) If *No*, please attach a letter documenting that the WWTP will not accept the discharge.
(b) If *Yes*, is it feasible to connect to the WWTP? *Why or why not*?* _____

c) Closed-loop Recycle System meeting the design requirements of 15A NCAC 2T .1000:

i) Are you already proposing a closed-loop recycle system (CLRS)? …….☐ Yes ☒ No
(1) If *Yes*, contact DWQ's Aquifer Protection Section's Land Application Unit for permitting alternatives.
(2) If *No*, is this option *technologically* feasible (possible)? *Why or why not?** Process waters on the site will be recycled to the extent practical, however since all process waters all storm-event generated, the ability to discharge is necessary for larger storm events.

(3) If *No*, is it feasible to build a CLRS on your site? *Why or why not?** See #2

(4) What is the feasibility of building a CLRS compared to direct surface water discharge?* See #2

d) Direct Discharge to Surface Waters: Is discharge to surface waters the most environmentally sound alternative of all reasonably cost-effective options being considered?*……..☒ Yes ☐ No

i) If No, you may not be eligible for coverage under NCG240000; please contact DWQ's Stormwater Permitting Unit for guidance.

ii) If No, contact DWQ's Land Application Unit to determine alternative permitting requirements.

Per NC rules at 15A NCAC 2H .0105(c)(2). You may be asked to provide further information to support your answers to these questions after the initial review. Feasibility should consider initial and recurring costs.

Process wastewater treatment system performance

You are applying for coverage under NCG240000 which enforces process wastewater effluent limitations on the pollutants BOD, TSS, pH, and fecal coliform. Except as specifically provided in the General Permit text, or DWQ compliance schedule, any exceedances of the process wastewater effluent limitations are a violation of the terms and conditions of the permit, and may be the basis for DWQ enforcement action.

Also please note: NC rule 15A NCAC 2H .0139 requires that wastewater treatment system design be accomplished by a North Carolina Professional Engineer.

Stormwater

14) Does this facility employ any best management practices for *stormwater* control?

☐ No ☒ Yes

If Yes, please describe briefly: Permanent stormwater detention basins w/ forebays, diversion channels

15) Does this facility have a Stormwater Pollution Prevention Plan?

☒ No ☐ Yes

If Yes, when was it implemented? To be developed and implemented upon development of facility.

16) Are vehicle maintenance activities (VMA) occurring or planned at this facility?

☐ No ☒ Yes

Other required information; other permitting

17) A complete application must include two 24"x36" site plans drawn to scale with the following information: bar scale, north arrow, property lines, topographic contour lines, fence lines, roads, paved areas, location of the various composting activities with identifying labels, site buildings, surface water drainage features and wetlands, wells, stormwater and wastewater conveyances, process wastewater treatment facilities, stormwater BMPs, location of discharge points for both stormwater and process wastewater discharges, delineation of drainage divides between the various subdrainage areas feeding each discharge point, delineation of the 100-yr floodplain if present, and a notation of the water quality classification of the receiving water that site waters eventually discharge to.

18) A complete application must include: A general and brief narrative description of the compost manufacturing sequence at the applicant's site, the general feedstocks, the determination of whether the site's final product qualifies as 'finished compost' as referenced in the General Permit text (NCG240000) and as determined by the DWM permitting process, identification of the stormwater BMPs employed, and the general nature of the wastewater treatment system utilized to meet process wastewater discharge limits.

19) Is the facility the subject of any current NCDENR Notice of Violation, consent order, compliance schedule, or other enforcement action?

☒ No ☐ Yes

If Yes, provide a brief explanation: _____

20) Does this facility have any other NPDES permits?

☒ No ☐ Yes
If Yes, list them: _____

21) Does this facility have any Non-Discharge permits (ex: recycle permits)?

☒ No ☐ Yes
If Yes, list them: _____

22) Does this facility have a Division of Waste Management permit?

☐ No ☒ Yes Pending

If Yes, Permit number(s):_____

23) Hazardous Waste:

a) Is this facility a Hazardous Waste Treatment, Storage, or Disposal Facility?

☒ No ☐ Yes

b) Is this facility a Small Quantity Generator (less than 1000 kg. of hazardous waste generated per month) of hazardous waste?

☒ No ☐ Yes

c) Is this facility a Large Quantity Generator (1000 kg. or more of hazardous waste generated per month) of hazardous waste?

☒ No ☐ Yes

d) Type(s) of waste:
How is material stored?_____
Where is material stored? _____
How many disposal shipments per year? _____
Name of transport / disposal vendor: _____
Vendor address: _____

Final Checklist

This application will be returned as incomplete unless all of the following items have been included:

- ☒ One check for $100 made payable to NCDENR.
- ☒ One original and one copy of this completed and signed application.
- ☒ Two copies of the most recent Annual Report to the Secretary of State showing the current legal name.
- ☒ Two copies of the site plan.
- ☒ Two site location maps (county map or USGS quad sheet) with the location of the facility clearly marked.

24) Certification:

North Carolina General Statute 143-215.6 B(i) provides that:

Any person who knowingly makes any false statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under this Article or a rule implementing this Article; or who knowingly makes a false statement of a material fact in a rulemaking proceeding or contested case under this Article; or who falsifies, tampers with, or knowingly renders inaccurate any recording or monitoring device or method required to be operated or maintained under this Article or rules of the [Environmental Management] Commission implementing this Article shall be guilty of a Class 2 misdemeanor which may include a fine not to exceed ten thousand dollars ($10,000).

I hereby request coverage under the referenced General Permit. I understand that coverage under this permit will constitute the permit requirements for the discharge(s) and is enforceable in the same manner as an individual permit.

I certify that I am familiar with the information contained in this application and that to the best of my knowledge and belief such information is true, complete, and accurate.

Printed Name of Person Signing: Eric T. Wallace
Title: Vice President ***(Please note federal rule signatory requirements at 40CFR122.22)***

Eric T. Wallace — 6-30-14
(Signature of Applicant) — *(Date Signed)*

Notice of Intent must be accompanied by a check or money order for $100.00 made payable to NCDENR

Mail the entire package to:

Stormwater Permitting Unit
Division of Water Quality
1617 Mail Service Center
Raleigh, North Carolina 27699-1617

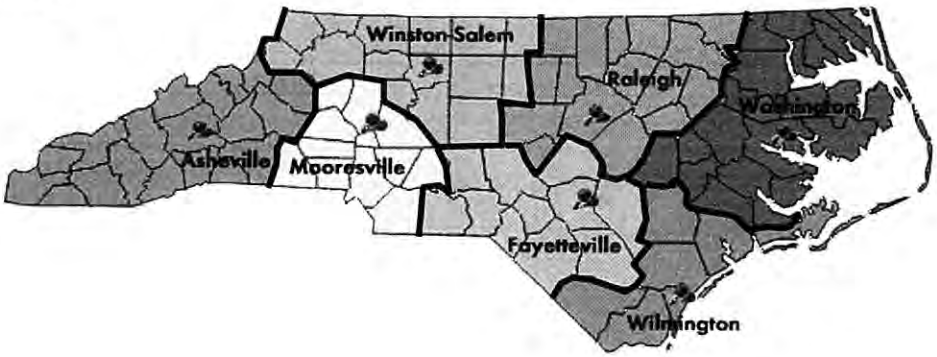
Note

The submission of this document does not guarantee the issuance of an NPDES permit.

For questions, please contact the DWQ Central Office or Regional Office for your area.

DWQ Regional Office Contact Information

Asheville	(828) 296-4500
Fayetteville	(910) 433-3300
Mooresville	(704) 663-1699
Raleigh	(919) 791-4200
Washington	(252) 946-6481
Wilmington	(910) 796-7215
Winston-Salem	(336) 771-5000
Central Office	(919) 807-6300



BUSINESS CORPORATION ANNUAL REPORT

NAME OF BUSINESS CORPORATION: Wallace Farm, Inc.

SECRETARY OF STATE ID NUMBER: 0513546 STATE OF FORMATION: NC

REPORT FOR THE FISCAL YEAR END: 12/31/2013

Filing Office Use Only

☐ Changes

SECTION A: REGISTERED AGENT'S INFORMATION

1. NAME OF REGISTERED AGENT: JOHN WOODLEY WALLACE JR

2. SIGNATURE OF THE NEW REGISTERED AGENT:

SIGNATURE CONSTITUTES CONSENT TO THE APPOINTMENT

3. REGISTERED OFFICE STREET ADDRESS **& COUNTY**

14307 Eastfield Road

Huntersville, NC 28070 Mecklenburg

4. REGISTERED OFFICE MAILING ADDRESS

14410 Eastfield Rd

Huntersville, NC 28078

SECTION B: PRINCIPAL OFFICE INFORMATION

1. DESCRIPTION OF NATURE OF BUSINESS: Soil Products & Recy

2. PRINCIPAL OFFICE PHONE NUMBER: (704) 875-2975

3. PRINCIPAL OFFICE EMAIL:

4. PRINCIPAL OFFICE STREET ADDRESS **& COUNTY**

14410 Eastfield Rd

Huntersville, NC 28078 MECKLENBURG

5. PRINCIPAL OFFICE MAILING ADDRESS

14410 Eastfield Rd

Huntersville, NC 28078

SECTION C: OFFICERS (Enter additional Officers in Section E.)

NAME: John W Wallace Jr	NAME: Eric T Wallace	NAME: Shelby T Wallace
TITLE: President	TITLE: Vice President	TITLE: Secretary
ADDRESS:	ADDRESS:	ADDRESS:
14410 Eastfield Rd	14410 Eastfield Rd	14410 Eastfield Rd
Huntersville, NC 28078	Huntersville, NC 28078	Huntersville, NC 28078

SECTION D: CERTIFICATION OF ANNUAL REPORT. Section D must be completed in its entirety by a person/business entity.

Eric T. Wallace — SIGNATURE

6/30/14 — DATE

Form must be signed by an officer listed under Section C of this form.

Eric Taylor Wallace — Print or Type Name of Officer

Vice President — TITLE

SUBMIT THIS ANNUAL REPORT WITH THE REQUIRED FILING FEE OF $25

MAIL TO: Secretary of State, Corporations Division, Post Office Box 29525, Raleigh, NC 27626-0525

EROSION and SEDIMENTATION CONTROL PLAN PRELIMINARY REVIEW CHECKLIST

The following items shall be incorporated with respect to specific site conditions, in an erosion & sedimentation control plan:

NPDES Construction Stormwater General Permit NCG010000

X Designation on the plans where the 7 or 14 day ground stabilization requirements apply per Section II.B.2 of the permit.
X Design of basins with one acre or more of drainage area for surface withdrawal as per Section II.B.4 of the permit.

LOCATION INFORMATION

X Project location & labeled vicinity map (roads, streets, landmarks)
X North arrow and scale
X Identify River Basin.
X Provide a copy of site located on applicable USGS quadrangle and NRCS Soils maps if it is in a River Basin with Riparian Buffer requirements.

GENERAL SITE FEATURES (Plan elements)

X Property lines & ownership ID for adjoining properties
X Existing contours (topographic lines)
X Proposed contours
X Limits of disturbed area (provide acreage total, delineate limits, and label). Be sure to include all access to measures, lots that will be disturbed, and utilities that may extend offsite.
X Planned and existing building locations and elevations
X Planned & existing road locations & elevations, including temporary access roads
N/A Lot and/or building numbers
X Hydrogeologic features: rock outcrops, seeps, springs, wetland and their limits, streams, lakes, ponds, dams, etc. (include all required local or state buffer zones and any DWQ Riparian Buffer determinations)
N/A Easements and drainageways, particularly required for offsite affected areas. Include copies of any recorded easements and/or agreements with adjoining property owners.
X Profiles of streets, utilities, ditch lines, etc.
X Stockpiled topsoil or subsoil locations
X If the same person conducts the land-disturbing activity & any related borrow or waste activity, the related borrow or waste activity shall constitute part of the land-disturbing activity unless the borrow or waste activity is regulated under the Mining Act of 1971, or is a landfill regulated by the Division of Waste Management. If the land-disturbing activity and any related borrow or waste activity are not conducted by the same person, they shall be considered separate land-disturbing activities and must be permitted either through the Sedimentation Pollution Control Act as a one-use borrow site or through the Mining Act.
N/A Location and details associated with any onsite stone crushing or other processing of material excavated. If the affected area associated with excavation, processing, stockpiles and transport of such materials will comprise 1 or more acres, and materials will be leaving the development tract, a mining permit will be required.
N/A Required Army Corps 404 permit and Water Quality 401 certification (e.g. stream disturbances over 150 linear feet)

EROSION & SEDIMENT CONTROL MEASURES (on plan)

X Legend (provide appropriate symbols for all measures and reference them to the construction details)
X Location of temporary measures
X Location of permanent measures
X Construction drawings and details for temporary and permanent measures. Show measures to scale on plan and include proposed contours where necessary. Ensure design storage requirements are maintained through all phases of construction.
X Maintenance requirements for measures
X Contact person responsible for maintenance

SITE DRAINAGE FEATURES

X Existing and planned drainage patterns (include off-site areas that drain through project and address temporary and permanent conveyance of stormwater over graded slopes)
X Method used to determine acreage of land being disturbed and drainage areas to all proposed measures (e.g. delineation map)
X Size, pipe material and location of culverts and sewers
X Soil information: type, special characteristics
X Soil information below culvert storm outlets
X Name and classification of receiving water course or name of municipal operator (only where stormwater discharges are to occur)

STORMWATER CALCULATIONS

X Pre-construction runoff calculations for each outlet from the site (at peak discharge points). Be sure to provide all supporting data for the computation methods used (rainfall data for required storm events, time of concentration/storm duration, and runoff coefficients).
X Design calculations for peak discharges of runoff (including the construction phase & the final runoff coefficients for the site)
X Design calcs for culverts and storm sewers (include HW, TW and outlet velocities)
X Discharge and velocity calculations for open channel and ditch flows (easement & rights-of-way)
X Design calcs for cross sections and method of stabilization for existing and planned channels (include temporary linings). Include appropriate permissible velocity and/or shear stress data.
X Design calcs and construction details for energy dissipaters below culvert and storm sewer outlets (include stone/material specs & apron dimensions). Avoid discharges on fill slopes.
X Design calcs and dimension of sediment basins (note current surface area and dewatering standards as well as diversion of runoff to the basins). Be sure that all surface drains, including ditches and berms, will have positive drainage to the basins.

VEGETATIVE STABILIZATION

X Area & acreage to be stabilized with vegetation
X Method of soil preparation
X Seed type & rates (temporary & permanent)
X Fertilizer type and rates
X Mulch type and rates (include mulch anchoring methods to be used)

NOTE: Plan should include provisions for groundcover in accordance with NPDES Construction Stormwater General Permit NCG010000 and permanent groundcover for all disturbed areas within 15 working days or 90 calendar days (whichever is shorter) following completion of construction or development.

FINANCIAL RESPONSIBILITY/OWNERSHIP FORM

X Completed, signed & notarized FR/O Form
X Accurate application fee payable to NCDENR ($65.00 per acre rounded up the next acre with no ceiling amount)
X Certificate of assumed name, if the owner is a partnership
X Name of Registered Agent (if applicable)
X Copy of the most current Deed for the site. Please make sure the deed(s) and ownership information are consistent between the plan sheets, local records and this form.
X Provide latitude & longitude (in decimal degrees) at the project entrance.

NOTE: For the Express Permitting Option, inquire at the local Regional Office for availability.

NARRATIVE AND CONSTRUCTION SEQUENCE

X Narrative describing the nature & purpose of the construction activity
X Construction sequence related to erosion and sediment control (including installation of critical measures prior to the initiation of the land-disturbing activity & removal of measures after areas they serve are permanently stabilized). Address all phases of construction and necessary practices associated with temporary stream bypasses and/or crossings.
X Bid specifications related only to erosion control

FINANCIAL RESPONSIBILITY/OWNERSHIP FORM
SEDIMENTATION POLLUTION CONTROL ACT

No person may initiate any land-disturbing activity on one or more acres as covered by the Act before this form and an acceptable erosion and sedimentation control plan have been completed and approved by the Land Quality Section, N.C. Department of Environment and Natural Resources. (Please type or print and, if the question is not applicable or the e-mail and/or fax information unavailable, place N/A in the blank.)

Part A.

1. Project Name Wallace Farms, Inc. Type 3 Compost Facility, Davie County

2. Location of land-disturbing activity: County Davie City or Township _____

   Highway/Street _____ Latitude 35.97 Longitude -80.50

3. Approximate date land-disturbing activity will commence: August 1, 2014

4. Purpose of development (residential, commercial, industrial, institutional, etc.): Commercial

5. Total acreage disturbed or uncovered (including off-site borrow and waste areas): 17 acres

6. Amount of fee enclosed: $ 1,105.00. The application fee of $65.00 per acre (rounded up to the next acre) is assessed without a ceiling amount (Example: a 9-acre application fee is $585).

7. Has an erosion and sediment control plan been filed? Yes _____ No _____ Enclosed X

8. Person to contact should erosion and sediment control issues arise during land-disturbing activity:

   Name Bernie Garrett E-mail Address bgarrett@garrett-moore.com

   Telephone 919-792-1900 Cell # 919-210-2844 Fax # _____

9. Landowner(s) of Record (attach accompanied page to list additional owners): NOTE: Sale Pending

Eric Wallace	(704) 875-2975	
Name	Telephone	Fax Number
14410 Eastfield Road	Same	
Current Mailing Address	Current Street Address	
Huntersville, NC 28078		
City State Zip	City State Zip	

10. Deed Book No. Pending Page No. Pending Provide a copy of the most current deed.

Part B.

1. Person(s) or firm(s) who are financially responsible for the land-disturbing activity (Provide a comprehensive list of all responsible parties on an attached sheet):

Eric Wallace	eric@wallacefarmproducts.com
Name	E-mail Address
14410 Eastfield Road	Same
Current Mailing Address	Current Street Address
Huntersville, NC 28078	
City State Zip	City State Zip
Telephone (704) 875-2975	Fax Number _____

2. (a) If the Financially Responsible Party is not a resident of North Carolina, give name and street address of the designated North Carolina Agent:

N/A
Name

E-mail Address

Current Mailing Address

Current Street Address

City State Zip

City State Zip

Telephone

Fax Number

(b) If the Financially Responsible Party is a Partnership or other person engaging in business under an assumed name, **attach a copy of the Certificate of Assumed Name.** If the Financially Responsible Party is a Corporation, give name and street address of the Registered Agent:

Name of Registered Agent

E-mail Address

Current Mailing Address

Current Street Address

City State Zip

City State Zip

Telephone

Fax Number

The above information is true and correct to the best of my knowledge and belief and was provided by me under oath (This form must be signed by the Financially Responsible Person if an individual or his attorney-in-fact, or if not an individual, by an officer, director, partner, or registered agent with the authority to execute instruments for the Financially Responsible Person). I agree to provide corrected information should there be any change in the information provided herein.

Eric Wallace
Type or print name

Vice President
Title or Authority

Eric T. Wallace
Signature

6-18-14
Date

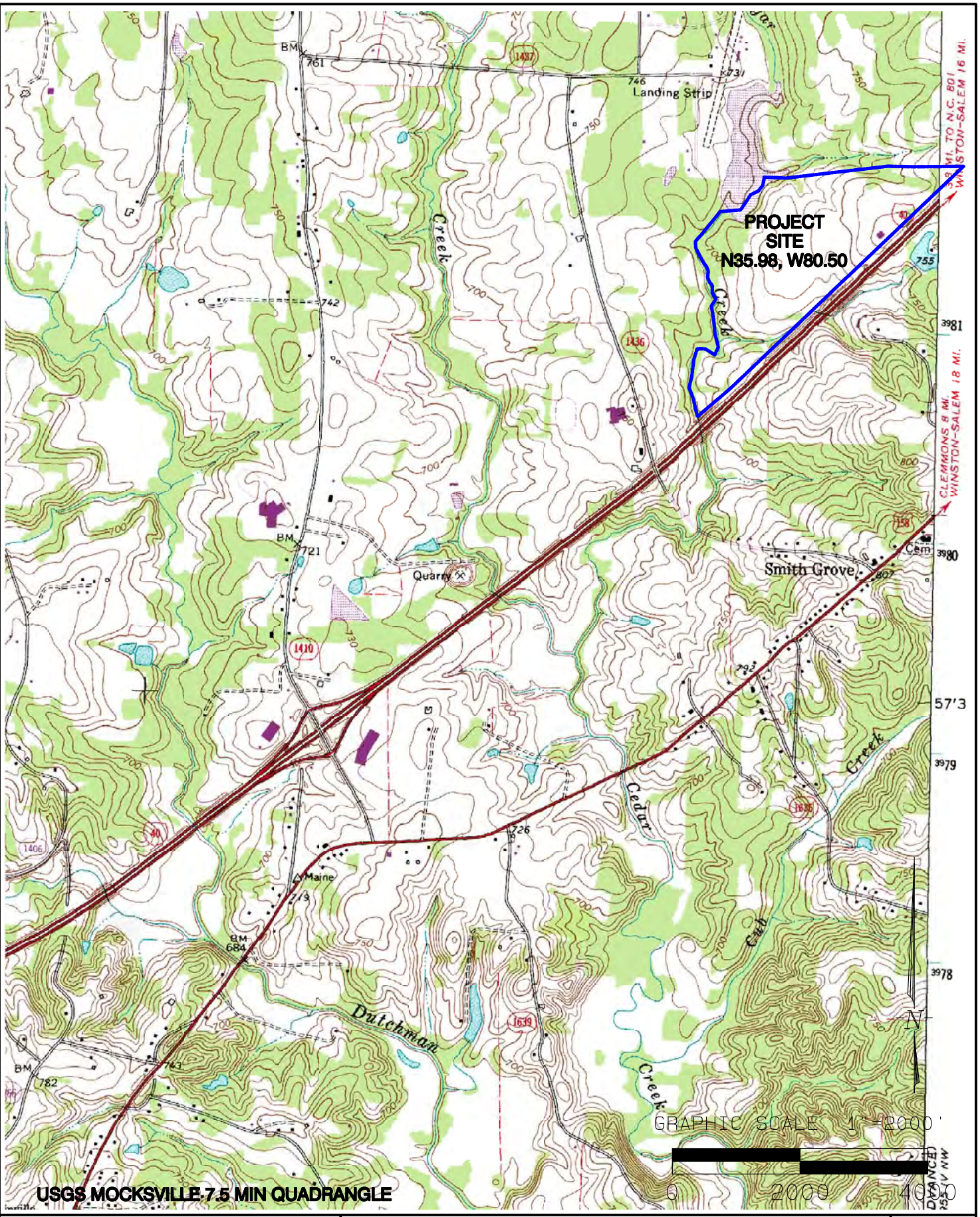
I, Michael V Sabella, a Notary Public of the County of Mecklenburg State of North Carolina, hereby certify that Eric T. Wallace appeared personally before me this day and being duly sworn acknowledged that the above form was executed by him.

Witness my hand and notarial seal, this 18 day of June, 2014

MICHAEL V. SABELLA NOTARY PUBLIC MECKLENBURG COUNTY, NC Seal

Michael V. Sabella
Notary

My commission expires 01/06/2016



V:\Wallace Farm\Davie Co\Site Plan\USGS QUAD FIGURE.pro Wed Jul 9, 2014 3:01:54PM

GARRETT & MOORE
Engineering for the Power and Waste Industries

WALLACE FARMS, INC.
TYPE 3 COMPOST FACILITY
DAVIE COUNTY, NC

JOB

FIG
1

PROJECT	Wallace Farms Davie County Site		
SUBJECT	Stormwater Pond Design Demonstration		
COMPUTED BY	C. Fortner	**CHECKED BY**	LBG
DATE	7/9/2014		

Stormwater ponds are designed as Sediment Basins, NCDENR Standard Practice 6.61. Demonstration of compliance with applicable standards is presented below.

Stormwater Pond No. 1

Summary	**Requirement**	**Design**
Primary Spillway	Riser/barrel pipe	48" Riser, 24" Barrel
Maximum Drainage Area	100 acres	50 acres
Minimum Sediment Storage Volume	1,800 cf/disturbed acre	2,738 cf/ac
Minimum Surface Area	435 sf/cfs of Q10 inflow	602 sf/cfs
Minimum L/W Ratio	2:1	4:1
Maximum L/W Ratio	6:1	4:1
Minimum Depth	2 ft	5 ft permanent pool
Dewatering Mechanism	Skimmer or flashboard riser	6" Faircloth Skimmer
Minimum Dewatering Time	48 hours	63 hours
Baffles Required	3 baffles	6 baffles provided

Minimum Sediment Storage Volume

A =	50	ac disturbed
	1,800	cf/ac
Vmin =	90,000	cf

From StormNet model, sediment storage is below Elev. 709.

Vdesign =	136,902	cf
	2,738	cf/ac

Minimum Surface Area

Q10 =	245.38	cfs, peak inflow. From StormNet model
	435	sf/cfs
Amin =	106,740	sf
Adesign =	147,771	sf
	602	sf/cfs

Minimum Dewatering Time

V =	136,902	cf
Q =	0.6	cfs, drawdown rate for 6" skimmer
T =	228,170	seconds
T =	63	hours

PROJECT	Wallace Farms Davie County Site		
SUBJECT	Stormwater Pond Design Demonstration		
COMPUTED BY	C. Fortner	**CHECKED BY**	LBG
DATE	7/9/2014		

Stormwater ponds are designed as Sediment Basins, NCDENR Standard Practice 6.61. Demonstration of compliance with applicable standards is presented below.

Stormwater Pond No. 2

Summary	**Requirement**	**Design**
Primary Spillway	Riser/barrel pipe	48" Riser, 24" Barrel
Maximum Drainage Area	100 acres	9.1 acres
Minimum Sediment Storage Volume	1,800 cf/disturbed acre	2,327 cf/ac
Minimum Surface Area	435 sf/cfs of Q10 inflow	744 sf/cfs
Minimum L/W Ratio	2:1	2.7:1
Maximum L/W Ratio	6:1	2.7:1
Minimum Depth	2 ft	5 ft
Dewatering Mechanism	Skimmer or flashboard riser	5" Faircloth Skimmer
Minimum Dewatering Time	48 hours	58 hours
Baffles Required	3 baffles	6 baffles provided

Minimum Sediment Storage Volume

A =	9.1	ac disturbed
	1,800	cf/ac
Vmin =	16,380	cf

From StormNet model, sediment storage is below Elev. 741.

Vdesign =	21,175	cf
	2,327	cf/ac

Minimum Surface Area

Q10 =	35	cfs, peak inflow. From StormNet model
	435	sf/cfs
Amin =	15,225	sf
Adesign =	26,039	sf
	744	sf/cfs

Minimum Dewatering Time

V =	80,000	cf
Q =	0.38	cfs, drawdown rate for 5" skimmer
T =	210,526	seconds
T =	58	hours

PROJECT	Wallace Farms Davie County Site		
SUBJECT	Stormwater Pond Design Demonstration		
COMPUTED BY	C. Fortner	**CHECKED BY**	LBG
DATE	7/9/2014		

Stormwater ponds are designed as Sediment Basins, NCDENR Standard Practice 6.61. Demonstration of compliance with applicable standards is presented below.

Stormwater Pond No. 3

Summary	**Requirement**	**Design**
Primary Spillway	Riser/barrel pipe	48" Riser, 24" Barrel
Maximum Drainage Area	100 acres	30 acres
Minimum Sediment Storage Volume	1,800 cf/disturbed acre	2,077 cf/ac
Minimum Surface Area	435 sf/cfs of Q10 inflow	438 sf/cfs
Minimum L/W Ratio	2:1	6:1
Maximum L/W Ratio	6:1	6:1
Minimum Depth	2 ft	8 ft
Dewatering Mechanism	Skimmer or flashboard riser	8" Faircloth Skimmer
Minimum Dewatering Time	48 hours	111 hours
Baffles Required	3 baffles	6 baffles provided

Minimum Sediment Storage Volume

A =	30	ac disturbed
	1,800	cf/ac
Vmin =	54,000	cf

From StormNet model, sediment storage is below Elev. 741.

Vdesign =	62,308	cf
	2,077	cf/ac

Minimum Surface Area

Q10 =	150	cfs, peak inflow. From StormNet model
	435	sf/cfs
Amin =	65,250	sf
Adesign =	115,100	sf
	767	sf/cfs

Minimum Dewatering Time

V =	450,000	cf
Q =	1.13	cfs, drawdown rate for 8" skimmer
T =	398,230	seconds
T =	111	hours

SN	Element ID	Description	Rainfall Distribution
1	Gage-1	2-year cumulative storm for Davie County, North Carolina, with a total rainfall amount of 3.50 in using a SCS Type II 24-hr storm distribution.	SCS Type II 24-hr

SN	Element ID	Description	Area	Weighted Curve Number	Average Slope	Equivalent Width	Time of Concentration	Rain Gage ID	Total Precipitation	Total Runoff	Peak Runoff
			(acres)		(%)	(ft)	(days hh:mm:ss)		(inches)	(inches)	(cfs)
1	Sub-1	Pond 1 Sheet Flow	14.75	85.18	0.5000	1570.00	0 00:06:09	Gage-1	3.50	2.03	45.91
2	Sub-10	Pond 1, South Ditch Section D	4.40	78.40	0.5000	500.00	0 00:05:51	Gage-1	3.50	1.53	10.33
3	Sub-11	Pond 1, South Ditch Section E	1.64	78.40	0.5000	500.00	0 00:02:44	Gage-1	3.50	1.53	3.97
4	Sub-12	Pond 2 Sheet Flow	9.11	78.40	0.5000	500.00	0 00:10:15	Gage-1	3.50	1.53	19.11
5	Sub-13	Pond 3 Sheet Flow	19.83	78.40	0.5000	1500.00	0 00:08:01	Gage-1	3.50	1.53	43.71
6	Sub-14	Pond 3, West Ditch A	6.32	78.40	0.5000	500.00	0 00:07:44	Gage-1	3.50	1.53	14.03
7	Sub-15	Pond 3, North Ditch A	6.88	78.40	0.5000	500.00	0 00:08:16	Gage-1	3.50	1.53	15.08
8	Sub-16	Pond 3, North Ditch B	3.02	78.40	0.5000	500.00	0 00:04:23	Gage-1	3.50	1.53	7.27
9	Sub-17	Pond 3, North Ditch C	2.65	78.40	0.5000	500.00	0 00:03:58	Gage-1	3.50	1.53	6.39
10	Sub-2	Pond 1, North Ditch Section A	5.37	78.40	4.6000	800.00	0 00:02:01	Gage-1	3.50	1.53	12.95
11	Sub-3	Pond 1, North Ditch Section B	5.79	78.40	3.3300	780.00	0 00:02:28	Gage-1	3.50	1.53	13.96
12	Sub-4	Pond 1, North Ditch Section C	1.76	78.40	2.8000	1500.00	0 00:00:38	Gage-1	3.50	1.53	4.25
13	Sub-5	Pond 1, Culvert Ditch West	4.67	78.40	0.5000	700.00	0 00:04:44	Gage-1	3.50	1.53	11.26
14	Sub-6	Pond 1, Culvert Ditch East	1.36	78.40	0.5000	500.00	0 00:02:22	Gage-1	3.50	1.53	3.27
15	Sub-7	Pond 1, South Ditch Section A	3.35	78.40	0.5000	500.00	0 00:04:44	Gage-1	3.50	1.53	8.07
16	Sub-8	Pond 1, South Ditch Section B	4.67	78.40	0.5000	700.00	0 00:04:44	Gage-1	3.50	1.53	11.27
17	Sub-9	Pond 1, South Ditch Section C	3.65	78.40	0.5000	500.00	0 00:05:04	Gage-1	3.50	1.53	8.79

SN	Element ID	From (Inlet) Node	To (Outlet) Node	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (inches)	Pipe Width (inches)	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Lengthening Factor	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Max Flow Velocity (ft/sec)	Design Flow Capacity (cfs)	Max Flow / Design Flow Ratio	Max Flow Depth / Total Depth Ratio	Total Time Surcharged (min)	Max Flow Depth (ft)
1	Con-16	Jun-15	Pond-1	419.31	704.00	-8.00	701.00	-8.00	0.7155	Dummy	0.000	0.00	0.0150	0.5000	0.5000	1.00	48.55	0 12:06	0.00		0.02	0.12	0.00	0.37
2	Con-17	Jun-17	Jun-18	50.00	740.00	0.00	739.50	739.50	1.0000	Circular	24.000	0.00	0.0150	0.5000	0.5000	1.00	1.27	0 11:37	7.40	19.61	0.06	0.17	0.00	0.34
3	Con-18	Jun-18	Out-2	9.93	0.00	0.00	0.00	0.00	0.0000	Dummy	0.000	0.00	0.0150	0.5000	0.5000	1.00	1.27	0 11:37	0.00		0.06	0.17	0.00	0.34
4	Con-19	Jun-19	Out-1	15.92	700.00	700.00	699.00	-1.00	6.2814	Dummy	0.000	0.00	0.0150	0.5000	0.5000	1.00	1.36	0 10:21	0.00		0.06	0.17	0.00	0.34
5	Con-20	Jun-20	Jun-21	50.00	724.00	0.00	723.30	0.00	1.4000	Circular	36.000	0.00	0.0150	0.5000	0.5000	1.00	2.16	0 16:49	8.01	68.40	0.03	0.12	0.00	0.36
6	Con-21	Jun-21	Out-3	44.08	0.00	-723.30	0.00	0.00	0.0000	Dummy	0.000	0.00	0.0150	0.5000	0.5000	1.00	2.16	0 16:49	0.00		0.03	0.12	0.00	0.36
7	Con-23	Jun-23	Pond-3	431.61	736.00	0.00	736.00	12.00	0.0000	Dummy	0.000	0.00	0.0150	0.5000	0.5000	1.00	13.51	0 12:06	0.00		0.11	0.35	0.00	1.04
8	Con-28	Jun-24	Pond-3	337.91	746.70	0.00	736.00	12.00	3.1665	Dummy	0.000	0.00	0.0150	0.5000	0.5000	1.00	27.36	0 12:05	0.00		0.11	0.35	0.00	1.04
9	Con-3	Jun-1	Pond-1	424.52	706.00	-5.50	701.00	-8.00	1.1778	Dummy	0.000	0.00	0.0150	0.5000	0.5000	1.00	29.35	0 12:02	0.00		0.11	0.35	0.00	1.04
10	Con-4	Jun-4	Jun-19	70.00	709.00	8.00	698.00	698.00	15.7143	Circular	24.000	0.00	0.0150	0.5000	0.5000	1.00	1.36	0 10:21	20.29	77.72	0.02	0.09	0.00	0.17
11	Con-7	Jun-8	Jun-12	390.40	730.00	0.00	723.00	-0.13	1.7930	Circular	36.000	0.00	0.0150	0.5000	0.5000	1.00	13.19	0 12:07	8.14	76.68	0.17	0.27	0.00	0.82

SN	Element ID	Description	From (Inlet) Node	To (Outlet) Node	Length (ft)	Inlet Invert Elevation (ft)	Outlet Invert Elevation (ft)	Average Slope (%)	Channel Type	Channel Manning's Roughness	Entrance Losses	Exit/Bend Losses	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Max Flow Velocity (ft/sec)	Design Flow Capacity (cfs)	Max Flow / Design Flow Ratio	Max Flow Depth / Total Depth Ratio	Total Time Surcharged (min)	Max Flow Depth (ft)
1	Con-1	Pond 1, North Ditch Section A	Jun-2	Jun-1	470.00	719.00	711.50	1.5957	Trapezoidal	0.0320	0.5000	0.5000	29.35	0 12:02	4.89	220.68	0.13	0.37	0.00	1.12
2	Con-10	Pond 1, South Ditch Section C	Jun-7	Jun-12	430.00	731.29	723.13	1.8977	Trapezoidal	0.0320	0.5000	0.5000	13.46	0 12:03	4.20	240.66	0.06	0.24	0.00	0.72
3	Con-11	Pond 1, South Ditch Section B	Jun-12	Jun-11	390.00	723.13	720.03	0.7949	Trapezoidal	0.0320	0.5000	0.5000	25.70	0 12:07	3.68	155.75	0.17	0.42	0.00	1.27
4	Con-12	Pond 1, South Ditch Section B	Jun-11	Jun-10	108.00	720.03	718.77	1.1667	Trapezoidal	0.0320	0.5000	0.5000	32.66	0 12:05	4.44	188.70	0.17	0.44	0.00	1.31
5	Con-13	Pond 1, South Ditch Section A	Jun-10	Jun-9	142.00	718.77	715.39	2.3803	Trapezoidal	0.0320	0.5000	0.5000	42.23	0 12:05	6.18	269.53	0.16	0.42	0.00	1.25
6	Con-14	Pond 1, South Ditch Section A	Jun-9	Jun-15	665.00	715.39	712.00	0.5098	Trapezoidal	0.0320	0.5000	0.5000	48.55	0 12:06	3.80	124.73	0.39	0.64	0.00	1.93
7	Con-15	Pond 1, Culvert Ditch East	Jun-16	Jun-8	531.38	735.40	730.00	1.0162	Trapezoidal	0.0320	0.5000	0.5000	3.03	0 12:03	2.32	176.11	0.02	0.12	0.00	0.37
8	Con-2	Pond 1, North Ditch Section B	Jun-3	Jun-2	277.00	723.40	719.00	1.5884	Trapezoidal	0.0320	0.5000	0.5000	17.24	0 12:02	4.18	220.18	0.08	0.28	0.00	0.85
9	Con-22	Pond 3, West Ditch A	Jun-22	Jun-23	402.00	738.00	736.00	0.4975	Trapezoidal	0.0320	0.5000	0.5000	13.51	0 12:06	2.65	123.22	0.11	0.35	0.00	1.04
10	Con-24	Pond 3, North Ditch C	Jun-27	Jun-26	432.00	778.00	769.34	2.0046	Trapezoidal	0.0320	0.5000	0.5000	6.12	0 12:02	3.41	247.35	0.02	0.15	0.00	0.46
11	Con-25	Pond 3, North Ditch B	Jun-26	Jun-25	362.00	796.34	762.10	9.4586	Trapezoidal	0.0320	0.5000	0.5000	13.02	0 12:02	7.21	537.28	0.02	0.15	0.00	0.45
12	Con-26	Pond 3, North Ditch A	Jun-25	Jun-28	375.10	762.10	754.60	1.9995	Trapezoidal	0.0320	0.5000	0.5000	12.93	0 12:03	4.18	247.03	0.05	0.23	0.00	0.69
13	Con-27	Pond 3, North Ditch A	Jun-28	Jun-24	393.91	754.60	746.70	2.0055	Trapezoidal	0.0320	0.5000	0.5000	27.36	0 12:05	5.20	247.40	0.11	0.35	0.00	1.04
14	Con-5	Pond 1, Culvert Ditch West	Jun-5	Jun-8	1260.57	740.30	730.00	0.8171	Trapezoidal	0.0320	0.5000	0.5000	10.27	0 12:07	3.61	157.92	0.07	0.26	0.00	0.77
15	Con-6	Pond 1, North Ditch Section C	Jun-6	Jun-3	582.00	739.30	723.40	2.7320	Trapezoidal	0.0320	0.5000	0.5000	4.01	0 12:02	3.39	288.75	0.01	0.11	0.00	0.33
16	Con-8	Pond 1, South Ditch Section E	Jun-14	Jun-13	406.00	744.88	735.94	2.2020	Trapezoidal	0.0320	0.5000	0.5000	3.80	0 12:02	3.03	259.24	0.01	0.11	0.00	0.34
17	Con-9	Pond 1, South Ditch Section D	Jun-13	Jun-7	132.00	735.94	731.29	3.5227	Trapezoidal	0.0320	0.5000	0.5000	3.79	0 12:02	3.47	327.89	0.01	0.10	0.00	0.29

SN	Element ID	X Coordinate	Y Coordinate	Description	Invert Elevation (ft)	Boundary Type	Flap Gate	Fixed Water Elevation (ft)	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)
1	Out-1	1552850.07	813571.40		700.00	NORMAL	NO		1.36	0.00
2	Out-2	1554642.39	813919.83		0.00	NORMAL	NO		1.27	0.00
3	Out-3	1554001.06	815284.67		0.00	NORMAL	NO		2.16	0.00

SN	Element ID	Invert Elevation (ft)	Max (Rim) Elevation (ft)	Max (Rim) Offset (ft)	Initial Water Elevation (ft)	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Peak Outflow (cfs)	Peak Exfiltration Flow Rate (cfm)	Maximum HGL Elevation Attained (ft)	Maximum HGL Depth Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Maximum HGL Occurrence (days hh:mm)
1	Pond-1	709.00	713.00	4.00	709.00	115.04	44.93	1.13	0.00	710.80	1.80	710.14	1.14	1 00:11
2	Pond-2	740.00	745.00	5.00	740.00	19.10	19.10	1.13	0.00	741.09	1.09	740.16	0.16	0 13:35
3	Pond-3	724.00	732.00	8.00	724.00	83.07	42.59	2.16	0.00	729.06	5.06	727.31	3.31	0 16:49

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Maximum HGL Elevation Attained (ft)	Maximum HGL Depth Attained (ft)	Maximum Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)
1	Jun-1	711.50	0.00	29.35	0.00	712.65	1.15	0.00	1.85	711.55	0.05
2	Jun-10	718.77	0.00	42.31	11.15	720.08	1.31	0.00	1.69	718.83	0.06
3	Jun-11	720.03	0.00	32.74	8.68	721.34	1.31	0.00	1.69	720.09	0.06
4	Jun-12	723.13	0.00	25.72	0.00	724.41	1.28	0.00	1.72	723.19	0.06
5	Jun-13	735.94	0.00	3.80	0.00	736.29	0.35	0.00	2.65	735.95	0.01
6	Jun-14	744.88	0.00	3.94	3.94	745.23	0.35	0.00	2.65	744.89	0.01
7	Jun-15	712.00	0.00	48.55	0.00	713.94	1.94	0.00	1.06	712.10	0.10
8	Jun-16	735.40	0.00	3.24	3.24	735.80	0.40	0.00	2.60	735.42	0.02
9	Jun-17	740.00	745.00	1.13	0.00	740.33	0.33	0.00	7.07	740.09	0.09
10	Jun-18	0.00	0.00	1.27	0.00	739.84	739.84	0.00	1.66	739.59	739.59
11	Jun-19	0.00	0.00	1.36	0.00	700.00	700.00	0.00	0.00	700.00	700.00
12	Jun-2	719.00	0.00	29.60	12.84	720.15	1.15	0.00	1.85	719.05	0.05
13	Jun-20	724.00	732.00	2.16	0.00	724.36	0.36	0.00	10.64	724.22	0.22
14	Jun-21	723.30	732.00	2.16	0.00	723.66	0.36	0.00	9.14	723.52	0.22
15	Jun-22	738.00	0.00	13.57	13.57	739.04	1.04	0.00	1.96	738.05	0.05
16	Jun-23	736.00	0.00	13.51	0.00	737.04	1.04	0.00	1.96	736.05	0.05
17	Jun-24	746.70	0.00	27.36	0.00	747.74	1.04	0.00	1.96	746.75	0.05
18	Jun-25	762.10	0.00	13.02	0.00	762.81	0.71	0.00	2.29	762.13	0.03
19	Jun-26	769.34	0.00	13.05	7.22	796.80	27.46	0.00	2.54	796.36	27.02
20	Jun-27	778.00	0.00	6.33	6.33	778.48	0.48	0.00	2.52	778.02	0.02
21	Jun-28	754.60	0.00	27.35	14.78	755.64	1.04	0.00	1.96	754.65	0.05
22	Jun-3	723.40	0.00	17.32	13.83	724.27	0.87	0.00	2.13	723.44	0.04
23	Jun-4	701.00	707.00	1.13	0.00	709.17	8.17	0.00	1.83	709.13	8.13
24	Jun-5	740.30	0.00	11.13	11.13	741.13	0.83	0.00	2.17	740.33	0.03
25	Jun-6	739.30	0.00	4.21	4.21	739.65	0.35	0.00	2.65	739.31	0.01
26	Jun-7	731.29	0.00	13.55	10.06	732.02	0.73	0.00	2.27	731.32	0.03
27	Jun-8	730.00	736.00	13.23	0.00	730.84	0.84	0.00	5.16	730.05	0.05
28	Jun-9	715.39	0.00	49.19	8.02	717.35	1.96	0.00	1.04	715.49	0.10

SN	Element ID	Description	From (Inlet) Node	To (Outlet) Node	From (Inlet) Node Invert Elevation (ft)	To (Outlet) Node Invert Elevation (ft)	Type	Flap Gate	Crest Elevation (ft)	Crest Offset (ft)	Length (ft)	Total Height (ft)	Discharge Coefficient	Peak Flow (cfs)
1	Weir-1		Pond-1	Jun-19	709.00	0.00	TRAPEZOIDAL	NO	712.00	3.00	30.00	1.00	3.37	0.00
2	Weir-2		Pond-2	Jun-18	740.00	0.00	TRAPEZOIDAL	NO	744.00	4.00	20.00	1.00	3.37	0.00
3	Weir-3		Pond-3	Jun-21	724.00	723.30	TRAPEZOIDAL	NO	731.50	7.50	20.00	2.00	3.37	0.00

SN	Element ID	Description	From (Inlet) Node	To (Outlet) Node	From (Inlet) Node Invert Elevation (ft)	To (Outlet) Node Invert Elevation (ft)	Crest Elevation (ft)	Crest Height (ft)	Outlet Type	Flap Gate	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)
1	Skimmer-1		Pond-1	Jun-4	709.00	701.00	709.00	0.00	Head vs Discharge	NO	1.13	0 09:44
2	Skimmer-2		Pond-2	Jun-17	740.00	740.00	740.00	0.00	Head vs Discharge	NO	1.13	0 11:29
3	Skimmer-3		Pond-3	Jun-20	724.00	724.00	724.00	0.00	Head vs Discharge	NO	1.13	0 10:42

SN	Element ID	From (Inlet) Node	To (Outlet) Node	From (Inlet) Node Invert Elevation (ft)	To (Outlet) Node Invert Elevation (ft)	Orifice Type	Orifice Shape	Flap Gate	Circular Orifice Diameter (inches)	Orifice Invert Elevation (ft)	Orifice Invert Offset (ft)	Orifice Coefficient	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)
1	Reg-1	Pond-1	Jun-4	709.00	701.00	BOTTOM	CIRCULAR	NO	48.00	711.00	2.00	0.6140	0.00	0 00:00
2	Reg-2	Pond-2	Jun-17	740.00	740.00	BOTTOM	CIRCULAR	NO	48.00	743.40	3.40	0.6140	0.00	0 00:00
3	Reg-3	Pond-3	Jun-20	724.00	724.00	BOTTOM	CIRCULAR	NO	72.00	729.00	5.00	0.6140	1.03	0 16:49

SN	Element ID	Description	Rainfall Distribution
1	Gage-1	10-year cumulative storm for Davie County, North Carolina, with a total rainfall amount of 5.00 in using a SCS Type II 24-hr storm distribution.	SCS Type II 24-hr

SN	Element ID	Description	Area	Weighted Curve Number	Average Slope	Equivalent Width	Time of Concentration	Rain Gage ID	Total Precipitation	Total Runoff	Peak Runoff
			(acres)		(%)	(ft)	(days hh:mm:ss)		(inches)	(inches)	(cfs)
1	Sub-1	Pond 1 Sheet Flow	14.75	85.18	0.5000	1570.00	0 00:06:09	Gage-1	5.00	3.39	75.49
2	Sub-10	Pond 1, South Ditch Section D	4.40	78.40	0.5000	500.00	0 00:05:51	Gage-1	5.00	2.75	18.72
3	Sub-11	Pond 1, South Ditch Section E	1.64	78.40	0.5000	500.00	0 00:02:44	Gage-1	5.00	2.75	7.18
4	Sub-12	Pond 2 Sheet Flow	9.11	78.40	0.5000	500.00	0 00:10:15	Gage-1	5.00	2.75	34.48
5	Sub-13	Pond 3 Sheet Flow	19.83	78.40	0.5000	1500.00	0 00:08:01	Gage-1	5.00	2.75	79.24
6	Sub-14	Pond 3, West Ditch A	6.32	78.40	0.5000	500.00	0 00:07:44	Gage-1	5.00	2.75	25.45
7	Sub-15	Pond 3, North Ditch A	6.88	78.40	0.5000	500.00	0 00:08:16	Gage-1	5.00	2.75	27.32
8	Sub-16	Pond 3, North Ditch B	3.02	78.40	0.5000	500.00	0 00:04:23	Gage-1	5.00	2.75	13.16
9	Sub-17	Pond 3, North Ditch C	2.65	78.40	0.5000	500.00	0 00:03:58	Gage-1	5.00	2.75	11.57
10	Sub-2	Pond 1, North Ditch Section A	5.37	78.40	4.6000	800.00	0 00:02:01	Gage-1	5.00	2.75	23.45
11	Sub-3	Pond 1, North Ditch Section B	5.79	78.40	3.3300	780.00	0 00:02:28	Gage-1	5.00	2.75	25.26
12	Sub-4	Pond 1, North Ditch Section C	1.76	78.40	2.8000	1500.00	0 00:00:38	Gage-1	5.00	2.75	7.69
13	Sub-5	Pond 1, Culvert Ditch West	4.67	78.40	0.5000	700.00	0 00:04:44	Gage-1	5.00	2.75	20.37
14	Sub-6	Pond 1, Culvert Ditch East	1.36	78.40	0.5000	500.00	0 00:02:22	Gage-1	5.00	2.75	5.92
15	Sub-7	Pond 1, South Ditch Section A	3.35	78.40	0.5000	500.00	0 00:04:44	Gage-1	5.00	2.75	14.62
16	Sub-8	Pond 1, South Ditch Section B	4.67	78.40	0.5000	700.00	0 00:04:44	Gage-1	5.00	2.75	20.40
17	Sub-9	Pond 1, South Ditch Section C	3.65	78.40	0.5000	500.00	0 00:05:04	Gage-1	5.00	2.75	15.90

SN	Element ID	From (Inlet) Node	To (Outlet) Node	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (inches)	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Max Flow Velocity (ft/sec)	Design Flow Capacity (cfs)	Max Flow / Design Flow Ratio	Max Flow Depth / Total Depth Ratio	Max Flow Depth (ft)
1	Con-16	Jun-15	Pond-1	419.31	704.00	-8.00	0.7155	Dummy	0.000	0.0150	0.5000	0.5000	89.91	0 12:06	0.00		0.03	0.17	0.52
2	Con-17	Jun-17	Jun-18	50.00	740.00	0.00	1.0000	Circular	24.000	0.0150	0.5000	0.5000	1.27	0 11:10	7.64	19.61	0.06	0.17	0.34
3	Con-18	Jun-18	Out-2	9.93	0.00	0.00	0.0000	Dummy	0.000	0.0150	0.5000	0.5000	1.27	0 11:10	0.00		0.06	0.17	0.34
4	Con-19	Jun-19	Out-1	15.92	700.00	700.00	6.2814	Dummy	0.000	0.0150	0.5000	0.5000	9.85	0 13:48	0.00		0.06	0.17	0.34
5	Con-20	Jun-20	Jun-21	50.00	724.00	0.00	1.4000	Circular	36.000	0.0150	0.5000	0.5000	27.37	0 12:21	9.14	68.40	0.40	0.44	1.32
6	Con-21	Jun-21	Out-3	44.08	0.00	-723.30	0.0000	Dummy	0.000	0.0150	0.5000	0.5000	27.37	0 12:21	0.00		0.40	0.44	1.32
7	Con-23	Jun-23	Pond-3	431.61	736.00	0.00	0.0000	Dummy	0.000	0.0150	0.5000	0.5000	24.27	0 12:05	0.00		0.20	0.46	1.39
8	Con-28	Jun-24	Pond-3	337.91	746.70	0.00	3.1665	Dummy	0.000	0.0150	0.5000	0.5000	49.11	0 12:04	0.00		0.20	0.47	1.40
9	Con-3	Jun-1	Pond-1	424.52	706.00	-5.50	1.1778	Dummy	0.000	0.0150	0.5000	0.5000	53.66	0 12:02	0.00		0.20	0.47	1.40
10	Con-4	Jun-4	Jun-19	70.00	709.00	8.00	15.7143	Circular	24.000	0.0150	0.5000	0.5000	9.85	0 13:48	20.29	77.72	0.13	0.24	0.48
11	Con-7	Jun-8	Jun-12	390.40	730.00	0.00	1.7930	Circular	36.000	0.0150	0.5000	0.5000	23.80	0 12:06	9.60	76.68	0.31	0.38	1.14

SN	Element ID	Description	From (Inlet) Node	To (Outlet) Node	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Average Slope (%)	Channel Type	Channel Manning's Roughness	Entrance Losses	Exit/Bend Losses	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Max Flow Velocity (ft/sec)	Design Flow Capacity (cfs)	Max Flow / Design Flow Ratio	Max Flow Depth / Total Depth Ratio	Max Flow Depth (ft)
1	Con-1	Pond 1, North Ditch Section A	Jun-2	Jun-1	470.00	719.00	0.00	711.50	1.5957	Trapezoidal	0.0320	0.5000	0.5000	53.66	0 12:02	5.71	220.68	0.24	0.50	1.50
2	Con-10	Pond 1, South Ditch Section C	Jun-7	Jun-12	430.00	731.29	0.00	723.13	1.8977	Trapezoidal	0.0320	0.5000	0.5000	24.55	0 12:02	4.93	240.66	0.10	0.32	0.97
3	Con-11	Pond 1, South Ditch Section B	Jun-12	Jun-11	390.00	723.13	0.00	720.03	0.7949	Trapezoidal	0.0320	0.5000	0.5000	46.96	0 12:05	4.29	155.75	0.30	0.57	1.72
4	Con-12	Pond 1, South Ditch Section B	Jun-11	Jun-10	108.00	720.03	0.00	718.77	1.1667	Trapezoidal	0.0320	0.5000	0.5000	60.32	0 12:04	5.22	188.70	0.32	0.59	1.77
5	Con-13	Pond 1, South Ditch Section A	Jun-10	Jun-9	142.00	718.77	0.00	715.39	2.3803	Trapezoidal	0.0320	0.5000	0.5000	77.68	0 12:04	7.25	269.53	0.29	0.56	1.68
6	Con-14	Pond 1, South Ditch Section A	Jun-9	Jun-15	665.00	715.39	0.00	712.00	0.5098	Trapezoidal	0.0320	0.5000	0.5000	89.91	0 12:06	4.40	124.73	0.72	0.86	2.58
7	Con-15	Pond 1, Culvert Ditch East	Jun-16	Jun-8	531.38	735.40	0.00	730.00	1.0162	Trapezoidal	0.0320	0.5000	0.5000	5.55	0 12:02	2.71	176.11	0.03	0.17	0.52
8	Con-2	Pond 1, North Ditch Section B	Jun-3	Jun-2	277.00	723.40	0.00	719.00	1.5884	Trapezoidal	0.0320	0.5000	0.5000	31.53	0 12:01	4.93	220.18	0.14	0.39	1.17
9	Con-22	Pond 3, West Ditch A	Jun-22	Jun-23	402.00	738.00	0.00	736.00	0.4975	Trapezoidal	0.0320	0.5000	0.5000	24.27	0 12:05	3.09	123.22	0.20	0.46	1.39
10	Con-24	Pond 3, North Ditch C	Jun-27	Jun-26	432.00	778.00	0.00	769.34	2.0046	Trapezoidal	0.0320	0.5000	0.5000	11.18	0 12:01	4.03	247.35	0.05	0.21	0.64
11	Con-25	Pond 3, North Ditch B	Jun-26	Jun-25	362.00	796.34	27.00	762.10	9.4586	Trapezoidal	0.0320	0.5000	0.5000	23.77	0 12:01	8.64	537.28	0.04	0.21	0.63
12	Con-26	Pond 3, North Ditch A	Jun-25	Jun-28	375.10	762.10	0.00	754.60	1.9995	Trapezoidal	0.0320	0.5000	0.5000	23.60	0 12:02	4.97	247.03	0.10	0.31	0.93
13	Con-27	Pond 3, North Ditch A	Jun-28	Jun-24	393.91	754.60	0.00	746.70	2.0055	Trapezoidal	0.0320	0.5000	0.5000	49.11	0 12:04	6.08	247.40	0.20	0.47	1.40
14	Con-5	Pond 1, Culvert Ditch West	Jun-5	Jun-8	1260.57	740.30	0.00	730.00	0.8171	Trapezoidal	0.0320	0.5000	0.5000	18.58	0 12:06	4.19	157.92	0.12	0.35	1.05
15	Con-6	Pond 1, North Ditch Section C	Jun-6	Jun-3	582.00	739.30	0.00	723.40	2.7320	Trapezoidal	0.0320	0.5000	0.5000	7.34	0 12:02	4.02	288.75	0.03	0.15	0.46
16	Con-8	Pond 1, South Ditch Section E	Jun-14	Jun-13	406.00	744.88	0.00	735.94	2.2020	Trapezoidal	0.0320	0.5000	0.5000	6.93	0 12:01	3.61	259.24	0.03	0.16	0.48
17	Con-9	Pond 1, South Ditch Section D	Jun-13	Jun-7	132.00	735.94	0.00	731.29	3.5227	Trapezoidal	0.0320	0.5000	0.5000	6.92	0 12:02	4.21	327.89	0.02	0.14	0.41

SN	Element ID	X Coordinate	Y Coordinate	Description	Invert Elevation (ft)	Boundary Type	Flap Gate	Fixed Water Elevation (ft)	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)
1	Pond 1 Outfall	1552850.07	813571.40		700.00	NORMAL	NO		9.85	0.00
2	Pond 2 Outfall	1554642.39	813919.83		0.00	NORMAL	NO		1.27	0.00
3	Pond 3 Outfall	1554001.06	815284.67		0.00	NORMAL	NO		27.37	0.00

SN	Element ID	Invert Elevation (ft)	Max (Rim) Elevation (ft)	Max (Rim) Offset (ft)	Initial Water Elevation (ft)	Ponded Area (ft^2)	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Peak Outflow (cfs)	Maximum HGL Elevation Attained (ft)	Maximum HGL Depth Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Maximum HGL Occurrence (days hh:mm)
1	Pond-1	709.00	713.00	4.00	709.00	170000.00	205.03	74.36	9.85	711.35	2.35	710.43	1.43	0 13:48
2	Pond-2	740.00	745.00	5.00	740.00	25606.00	34.43	34.43	1.13	742.25	2.25	740.65	0.65	0 15:12
3	Pond-3	724.00	732.00	8.00	724.00	98400.00	148.47	75.64	27.36	729.56	5.56	727.40	3.40	0 12:21

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Maximum HGL Elevation Attained (ft)	Maximum HGL Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Maximum HGL Occurrence (days hh:mm)
1	Jun-1	711.50	0.00	0.00	53.66	0.00	713.05	1.55	1.45	711.57	0.07	0 12:02
2	Jun-10	718.77	0.00	0.00	77.72	20.31	720.54	1.77	1.23	718.86	0.09	0 12:04
3	Jun-11	720.03	0.00	0.00	60.35	15.84	721.80	1.77	1.23	720.12	0.09	0 12:04
4	Jun-12	723.13	0.00	0.00	47.13	0.00	724.85	1.72	1.28	723.22	0.09	0 12:04
5	Jun-13	735.94	0.00	0.00	6.93	0.00	736.43	0.49	2.51	735.96	0.02	0 12:01
6	Jun-14	744.88	0.00	0.00	7.16	7.16	745.38	0.50	2.50	744.90	0.02	0 12:00
7	Jun-15	712.00	0.00	0.00	89.91	0.00	714.59	2.59	0.41	712.14	0.14	0 12:06
8	Jun-16	735.40	0.00	0.00	5.90	5.90	735.95	0.55	2.45	735.42	0.02	0 12:00
9	Jun-17	740.00	745.00	740.00	1.13	0.00	740.33	0.33	7.07	740.15	0.15	0 10:41
10	Jun-18	0.00	0.00	0.00	1.27	0.00	739.84	739.84	1.66	739.66	739.66	0 11:10
11	Jun-19	0.00	0.00	0.00	9.85	0.00	700.00	700.00	0.00	700.00	700.00	0 00:00
12	Jun-2	719.00	0.00	0.00	54.11	23.37	720.56	1.56	1.44	719.07	0.07	0 12:01
13	Jun-20	724.00	732.00	724.00	27.36	0.00	725.32	1.32	9.68	724.29	0.29	0 12:21
14	Jun-21	723.30	732.00	724.00	27.37	0.00	724.62	1.32	8.18	723.58	0.28	0 12:21
15	Jun-22	738.00	0.00	0.00	24.11	24.11	739.39	1.39	1.61	738.07	0.07	0 12:05
16	Jun-23	736.00	0.00	0.00	24.27	0.00	737.40	1.40	1.60	736.07	0.07	0 12:05
17	Jun-24	746.70	0.00	0.00	49.11	0.00	748.10	1.40	1.60	746.77	0.07	0 12:04
18	Jun-25	762.10	0.00	0.00	23.77	0.00	763.07	0.97	2.03	762.14	0.04	0 12:01
19	Jun-26	769.34	0.00	0.00	23.81	13.12	796.98	27.64	2.36	796.37	27.03	0 12:01
20	Jun-27	778.00	0.00	0.00	11.53	11.53	778.66	0.66	2.34	778.03	0.03	0 12:00
21	Jun-28	754.60	0.00	0.00	49.19	26.38	756.00	1.40	1.60	754.67	0.07	0 12:03
22	Jun-3	723.40	0.00	0.00	31.72	25.18	724.59	1.19	1.81	723.45	0.05	0 12:00
23	Jun-4	701.00	707.00	701.00	9.85	0.00	709.48	8.48	1.52	709.19	8.19	0 13:48
24	Jun-5	740.30	0.00	0.00	20.28	20.28	741.43	1.13	1.87	740.35	0.05	0 12:00
25	Jun-6	739.30	0.00	0.00	7.65	7.65	739.79	0.49	2.51	739.32	0.02	0 12:00
26	Jun-7	731.29	0.00	0.00	24.72	18.38	732.30	1.01	1.99	731.34	0.05	0 12:01
27	Jun-8	730.00	736.00	0.00	23.85	0.00	731.15	1.15	4.85	730.07	0.07	0 12:06
28	Jun-9	715.39	0.00	0.00	90.28	14.55	717.98	2.59	0.41	715.53	0.14	0 12:04

SN	Element ID	Description	From (Inlet) Node	To (Outlet) Node	From (Inlet) Node Invert Elevation (ft)	To (Outlet) Node Invert Elevation (ft)	Type	Flap Gate	Crest Elevation (ft)	Crest Offset (ft)	Length (ft)	Total Height (ft)	Discharge Coefficient	Peak Flow (cfs)
1	Weir-1	Pond 1 Emergency Spillway	Pond-1	Jun-19	709.00	0.00	TRAPEZOIDAL	NO	712.00	3.00	30.00	1.00	3.37	0.00
2	Weir-2	Pond 2 Emergency Spillway	Pond-2	Jun-18	740.00	0.00	TRAPEZOIDAL	NO	744.00	4.00	20.00	1.00	3.37	0.00
3	Weir-3	Pond 3 Emergency Spillway	Pond-3	Jun-21	724.00	723.30	TRAPEZOIDAL	NO	731.50	7.50	20.00	2.00	3.37	0.00

SN	Element ID	Description	From (Inlet) Node	To (Outlet) Node	From (Inlet) Node Invert Elevation (ft)	To (Outlet) Node Invert Elevation (ft)	Crest Elevation (ft)	Crest Height (ft)	Outlet Type	Flap Gate	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)
1	Skimmer-1		Pond-1	Jun-4	709.00	701.00	709.00	0.00	Head vs Discharge	NO	1.13	0 08:05
2	Skimmer-2		Pond-2	Jun-17	740.00	740.00	740.00	0.00	Head vs Discharge	NO	1.13	0 10:41
3	Skimmer-3		Pond-3	Jun-20	724.00	724.00	724.00	0.00	Head vs Discharge	NO	1.13	0 09:08

SN	Element ID	Description	From (Inlet) Node	To (Outlet) Node	From (Inlet) Node Invert Elevation (ft)	To (Outlet) Node Invert Elevation (ft)	Orifice Type	Orifice Shape	Flap Gate	Circular Orifice Diameter (inches)	Rectangular Orifice Height (ft)	Rectangular Orifice Width (ft)	Orifice Invert Elevation (ft)	Orifice Invert Offset (ft)	Orifice Coefficient	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)
1	Reg-1	Pond 1 Riser	Pond-1	Jun-4	709.00	701.00	BOTTOM	CIRCULAR	NO	48.00			711.00	2.00	0.6140	8.72	0 13:48
2	Reg-2	Pond 2 Riser	Pond-2	Jun-17	740.00	740.00	BOTTOM	CIRCULAR	NO	48.00			743.40	3.40	0.6140	0.00	0 00:00
3	Reg-3	Pond 3 Riser	Pond-3	Jun-20	724.00	724.00	BOTTOM	CIRCULAR	NO	72.00			729.00	5.00	0.6140	26.23	0 12:21

SN	Element ID	Description	Rainfall Distribution
1	Gage-1	25-year cumulative storm for Davie County, North Carolina, with a total rainfall amount of 5.70 in using a SCS Type II 24-hr storm distribution.	SCS Type II 24-hr

SN	Element ID	Description	Area	Weighted Curve Number	Average Slope	Equivalent Width	Time of Concentration	Rain Gage ID	Total Precipitation	Total Runoff	Peak Runoff
			(acres)		(%)	(ft)	(days hh:mm:ss)		(inches)	(inches)	(cfs)
1	Sub-1	Pond 1 Sheet Flow	14.75	85.18	0.5000	1570.00	0 00:06:09	Gage-1	5.70	4.04	89.42
2	Sub-10	Pond 1, South Ditch Section D	4.40	78.40	0.5000	500.00	0 00:05:51	Gage-1	5.70	3.35	22.82
3	Sub-11	Pond 1, South Ditch Section E	1.64	78.40	0.5000	500.00	0 00:02:44	Gage-1	5.70	3.35	8.74
4	Sub-12	Pond 2 Sheet Flow	9.11	78.40	0.5000	500.00	0 00:10:15	Gage-1	5.70	3.35	41.98
5	Sub-13	Pond 3 Sheet Flow	19.83	78.40	0.5000	1500.00	0 00:08:01	Gage-1	5.70	3.35	96.56
6	Sub-14	Pond 3, West Ditch A	6.32	78.40	0.5000	500.00	0 00:07:44	Gage-1	5.70	3.35	31.01
7	Sub-15	Pond 3, North Ditch A	6.88	78.40	0.5000	500.00	0 00:08:16	Gage-1	5.70	3.35	33.29
8	Sub-16	Pond 3, North Ditch B	3.02	78.40	0.5000	500.00	0 00:04:23	Gage-1	5.70	3.35	16.03
9	Sub-17	Pond 3, North Ditch C	2.65	78.40	0.5000	500.00	0 00:03:58	Gage-1	5.70	3.35	14.09
10	Sub-2	Pond 1, North Ditch Section A	5.37	78.40	4.6000	800.00	0 00:02:01	Gage-1	5.70	3.35	28.55
11	Sub-3	Pond 1, North Ditch Section B	5.79	78.40	3.3300	780.00	0 00:02:28	Gage-1	5.70	3.35	30.76
12	Sub-4	Pond 1, North Ditch Section C	1.76	78.40	2.8000	1500.00	0 00:00:38	Gage-1	5.70	3.35	9.36
13	Sub-5	Pond 1, Culvert Ditch West	4.67	78.40	0.5000	700.00	0 00:04:44	Gage-1	5.70	3.35	24.80
14	Sub-6	Pond 1, Culvert Ditch East	1.36	78.40	0.5000	500.00	0 00:02:22	Gage-1	5.70	3.35	7.21
15	Sub-7	Pond 1, South Ditch Section A	3.35	78.40	0.5000	500.00	0 00:04:44	Gage-1	5.70	3.35	17.80
16	Sub-8	Pond 1, South Ditch Section B	4.67	78.40	0.5000	700.00	0 00:04:44	Gage-1	5.70	3.35	24.84
17	Sub-9	Pond 1, South Ditch Section C	3.65	78.40	0.5000	500.00	0 00:05:04	Gage-1	5.70	3.35	19.35

SN	Element ID	From (Inlet) Node	To (Outlet) Node	Length (ft)	Inlet Invert Elevation (ft)	Outlet Invert Elevation (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (inches)	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Max Flow Velocity (ft/sec)	Design Flow Capacity (cfs)	Max Flow / Design Flow Ratio	Max Flow Depth / Total Depth Ratio	Max Flow Depth (ft)
1	Con-16	Jun-15	Pond-1	419.31	704.00	701.00	0.7155	Dummy	0.000	0.0150	0.5000	0.5000	109.93	0 12:05	0.00		0.04	0.19	0.58
2	Con-17	Jun-17	Jun-18	50.00	740.00	739.50	1.0000	Circular	24.000	0.0150	0.5000	0.5000	1.27	0 10:50	7.46	19.61	0.06	0.17	0.34
3	Con-18	Jun-18	Out-2	9.93	0.00	0.00	0.0000	Dummy	0.000	0.0150	0.5000	0.5000	1.27	0 10:50	0.00		0.06	0.17	0.34
4	Con-19	Jun-19	Out-1	15.92	700.00	699.00	6.2814	Dummy	0.000	0.0150	0.5000	0.5000	19.71	0 12:54	0.00		0.06	0.17	0.34
5	Con-20	Jun-20	Jun-21	50.00	724.00	723.30	1.4000	Circular	36.000	0.0150	0.5000	0.5000	56.83	0 12:15	10.82	68.40	0.83	0.70	2.09
6	Con-21	Jun-21	Out-3	44.08	0.00	0.00	0.0000	Dummy	0.000	0.0150	0.5000	0.5000	56.83	0 12:15	0.00		0.83	0.70	2.09
7	Con-23	Jun-23	Pond-3	431.61	736.00	736.00	0.0000	Dummy	0.000	0.0150	0.5000	0.5000	29.42	0 12:05	0.00		0.24	0.51	1.53
8	Con-28	Jun-24	Pond-3	337.91	746.70	736.00	3.1665	Dummy	0.000	0.0150	0.5000	0.5000	59.79	0 12:03	0.00		0.24	0.51	1.53
9	Con-3	Jun-1	Pond-1	424.52	706.00	701.00	1.1778	Dummy	0.000	0.0150	0.5000	0.5000	65.44	0 12:02	0.00		0.24	0.51	1.53
10	Con-4	Jun-4	Jun-19	70.00	709.00	698.00	15.7143	Circular	24.000	0.0150	0.5000	0.5000	19.71	0 12:54	20.65	77.72	0.25	0.34	0.69
11	Con-7	Jun-8	Jun-12	390.40	730.00	723.00	1.7930	Circular	36.000	0.0150	0.5000	0.5000	28.91	0 12:06	10.11	76.68	0.38	0.42	1.27

SN	Element ID	Description	From (Inlet) Node	To (Outlet) Node	Length (ft)	Inlet Invert Elevation (ft)	Outlet Invert Elevation (ft)	Average Slope (%)	Channel Type	Channel Manning's Roughness	Entrance Losses	Exit/Bend Losses	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Max Flow Velocity (ft/sec)	Design Flow Capacity (cfs)	Max Flow / Design Flow Ratio	Max Flow Depth / Total Depth Ratio	Max Flow Depth (ft)
1	Con-1	Pond 1, North Ditch Section A	Jun-2	Jun-1	470.00	719.00	711.50	1.5957	Trapezoidal	0.0320	0.5000	0.5000	65.44	0 12:02	6.02	220.68	0.30	0.55	1.66
2	Con-10	Pond 1, South Ditch Section C	Jun-7	Jun-12	430.00	731.29	723.13	1.8977	Trapezoidal	0.0320	0.5000	0.5000	30.04	0 12:02	5.21	240.66	0.12	0.36	1.08
3	Con-11	Pond 1, South Ditch Section B	Jun-12	Jun-11	390.00	723.13	720.03	0.7949	Trapezoidal	0.0320	0.5000	0.5000	57.49	0 12:04	4.51	155.75	0.37	0.63	1.89
4	Con-12	Pond 1, South Ditch Section B	Jun-11	Jun-10	108.00	720.03	718.77	1.1667	Trapezoidal	0.0320	0.5000	0.5000	73.84	0 12:04	5.50	188.70	0.39	0.65	1.94
5	Con-13	Pond 1, South Ditch Section A	Jun-10	Jun-9	142.00	718.77	715.39	2.3803	Trapezoidal	0.0320	0.5000	0.5000	95.11	0 12:04	7.64	269.53	0.35	0.62	1.85
6	Con-14	Pond 1, South Ditch Section A	Jun-9	Jun-15	665.00	715.39	712.00	0.5098	Trapezoidal	0.0320	0.5000	0.5000	109.93	0 12:05	4.62	124.73	0.88	0.94	2.83
7	Con-15	Pond 1, Culvert Ditch East	Jun-16	Jun-8	531.38	735.40	730.00	1.0162	Trapezoidal	0.0320	0.5000	0.5000	6.80	0 12:02	2.87	176.11	0.04	0.19	0.58
8	Con-2	Pond 1, North Ditch Section B	Jun-3	Jun-2	277.00	723.40	719.00	1.5884	Trapezoidal	0.0320	0.5000	0.5000	38.49	0 12:01	5.21	220.18	0.17	0.43	1.30
9	Con-22	Pond 3, West Ditch A	Jun-22	Jun-23	402.00	738.00	736.00	0.4975	Trapezoidal	0.0320	0.5000	0.5000	29.42	0 12:05	3.25	123.22	0.24	0.51	1.53
10	Con-24	Pond 3, North Ditch C	Jun-27	Jun-26	432.00	778.00	769.34	2.0046	Trapezoidal	0.0320	0.5000	0.5000	13.63	0 12:01	4.27	247.35	0.06	0.24	0.72
11	Con-25	Pond 3, North Ditch B	Jun-26	Jun-25	362.00	796.34	762.10	9.4586	Trapezoidal	0.0320	0.5000	0.5000	28.96	0 12:01	9.16	537.28	0.05	0.23	0.70
12	Con-26	Pond 3, North Ditch A	Jun-25	Jun-28	375.10	762.10	754.60	1.9995	Trapezoidal	0.0320	0.5000	0.5000	28.77	0 12:02	5.25	247.03	0.12	0.34	1.02
13	Con-27	Pond 3, North Ditch A	Jun-28	Jun-24	393.91	754.60	746.70	2.0055	Trapezoidal	0.0320	0.5000	0.5000	59.79	0 12:03	6.40	247.40	0.24	0.51	1.53
14	Con-5	Pond 1, Culvert Ditch West	Jun-5	Jun-8	1260.57	740.30	730.00	0.8171	Trapezoidal	0.0320	0.5000	0.5000	22.58	0 12:06	4.38	157.92	0.14	0.38	1.15
15	Con-6	Pond 1, North Ditch Section C	Jun-6	Jun-3	582.00	739.30	723.40	2.7320	Trapezoidal	0.0320	0.5000	0.5000	8.95	0 12:02	4.25	288.75	0.03	0.17	0.52
16	Con-8	Pond 1, South Ditch Section E	Jun-14	Jun-13	406.00	744.88	735.94	2.2020	Trapezoidal	0.0320	0.5000	0.5000	8.45	0 12:01	3.84	259.24	0.03	0.18	0.54
17	Con-9	Pond 1, South Ditch Section D	Jun-13	Jun-7	132.00	735.94	731.29	3.5227	Trapezoidal	0.0320	0.5000	0.5000	8.44	0 12:01	4.48	327.89	0.03	0.15	0.45

SN	Element ID	X Coordinate	Y Coordinate	Description	Invert Elevation	Boundary Type	Flap Gate	Fixed Water Elevation	Peak Inflow	Peak Lateral Inflow
					(ft)			(ft)	(cfs)	(cfs)
1	Pond 1 Outlet	1552850.07	813571.40		700.00	NORMAL	NO		19.71	0.00
2	Pond 2 Outlet	1554642.39	813919.83		0.00	NORMAL	NO		1.27	0.00
3	Pond 3 Outlet	1554001.06	815284.67		0.00	NORMAL	NO		56.83	0.00

SN	Element ID	X Coordinate	Y Coordinate	Description	Invert Elevation (ft)	Max (Rim) Elevation (ft)	Max (Rim) Offset (ft)	Initial Water Elevation (ft)	Ponded Area (ft^2)	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Peak Outflow (cfs)	Maximum HGL Elevation Attained (ft)	Maximum HGL Depth Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)
1	Pond-1	1552988.77	813596.75		709.00	713.00	4.00	709.00	170000.00	248.83	88.53	19.71	711.58	2.58	710.46	1.46
2	Pond-2	1554707.31	813969.41		740.00	745.00	5.00	740.00	25606.00	41.83	41.83	1.13	742.83	2.83	741.00	1.00
3	Pond-3	1554160.50	815142.66		724.00	732.00	8.00	724.00	98400.00	179.88	91.59	56.86	729.93	5.93	727.44	3.44

SN	Element ID	Invert Elevation (ft)	Initial Water Elevation (ft)	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Maximum HGL Elevation Attained (ft)	Maximum HGL Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Maximum HGL Occurrence (days hh:mm)
1	Jun-1	711.50	0.00	65.44	0.00	713.21	1.71	1.29	711.58	0.08	0 12:02
2	Jun-10	718.77	0.00	95.11	24.76	720.72	1.95	1.05	718.87	0.10	0 12:04
3	Jun-11	720.03	0.00	73.87	19.29	721.98	1.95	1.05	720.13	0.10	0 12:04
4	Jun-12	723.13	0.00	57.73	0.00	725.03	1.90	1.10	723.23	0.10	0 12:03
5	Jun-13	735.94	0.00	8.45	0.00	736.48	0.54	2.46	735.96	0.02	0 12:01
6	Jun-14	744.88	0.00	8.72	8.72	745.43	0.55	2.45	744.90	0.02	0 12:00
7	Jun-15	712.00	0.00	109.93	0.00	714.83	2.83	0.17	712.16	0.16	0 12:05
8	Jun-16	735.40	0.00	7.20	7.20	736.02	0.62	2.38	735.43	0.03	0 12:00
9	Jun-17	740.00	740.00	1.13	0.00	740.33	0.33	7.07	740.19	0.19	0 10:19
10	Jun-18	0.00	0.00	1.27	0.00	739.84	739.84	1.66	739.69	739.69	0 10:50
11	Jun-19	0.00	0.00	19.71	0.00	700.00	700.00	0.00	700.00	700.00	0 00:00
12	Jun-2	719.00	0.00	66.00	28.46	720.71	1.71	1.29	719.08	0.08	0 12:00
13	Jun-20	724.00	724.00	56.86	0.00	726.09	2.09	8.91	724.31	0.31	0 12:15
14	Jun-21	723.30	724.00	56.83	0.00	725.39	2.09	7.41	723.61	0.31	0 12:15
15	Jun-22	738.00	0.00	29.17	29.17	739.53	1.53	1.47	738.08	0.08	0 12:05
16	Jun-23	736.00	0.00	29.42	0.00	737.54	1.54	1.46	736.08	0.08	0 12:05
17	Jun-24	746.70	0.00	59.79	0.00	748.25	1.55	1.45	746.78	0.08	0 12:03
18	Jun-25	762.10	0.00	28.96	0.00	763.18	1.08	1.92	762.15	0.05	0 12:01
19	Jun-26	769.34	0.00	29.03	15.96	797.06	27.72	2.28	796.37	27.03	0 12:00
20	Jun-27	778.00	0.00	14.05	14.05	778.74	0.74	2.26	778.03	0.03	0 12:00
21	Jun-28	754.60	0.00	59.90	31.94	756.15	1.55	1.45	754.68	0.08	0 12:02
22	Jun-3	723.40	0.00	38.69	30.66	724.72	1.32	1.68	723.46	0.06	0 12:00
23	Jun-4	701.00	701.00	19.71	0.00	709.69	8.69	1.31	709.21	8.21	0 12:54
24	Jun-5	740.30	0.00	24.73	24.73	741.55	1.25	1.75	740.36	0.06	0 12:00
25	Jun-6	739.30	0.00	9.33	9.33	739.84	0.54	2.46	739.32	0.02	0 12:00
26	Jun-7	731.29	0.00	30.23	22.50	732.40	1.11	1.89	731.34	0.05	0 12:01
27	Jun-8	730.00	0.00	28.95	0.00	731.28	1.28	4.72	730.08	0.08	0 12:05
28	Jun-9	715.39	0.00	110.52	17.74	718.23	2.84	0.16	715.55	0.16	0 12:03

SN	Element ID	Description	From (Inlet) Node	To (Outlet) Node	From (Inlet) Node Invert Elevation (ft)	To (Outlet) Node Invert Elevation (ft)	Type	Flap Gate	Crest Elevation (ft)	Crest Offset (ft)	Length (ft)	Total Height (ft)	Discharge Coefficient	Peak Flow (cfs)
1	Weir-1	Pond 1 Emergency Spillway	Pond-1	Jun-19	709.00	0.00	TRAPEZOIDAL	NO	712.00	3.00	30.00	1.00	3.37	0.00
2	Weir-2	Pond 2 Emergency Spillway	Pond-2	Jun-18	740.00	0.00	TRAPEZOIDAL	NO	744.00	4.00	20.00	1.00	3.37	0.00
3	Weir-3	Pond 3 Emergency Spillway	Pond-3	Jun-21	724.00	723.30	TRAPEZOIDAL	NO	731.50	7.50	20.00	2.00	3.37	0.00

SN	Element ID	Description	From (Inlet) Node	To (Outlet) Node	From (Inlet) Node Invert Elevation (ft)	To (Outlet) Node Invert Elevation (ft)	Crest Elevation (ft)	Crest Height (ft)	Outlet Type	Flap Gate	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)
1	Skimmer-1		Pond-1	Jun-4	709.00	701.00	709.00	0.00	Head vs Discharge	NO	1.13	0 07:17
2	Skimmer-2		Pond-2	Jun-17	740.00	740.00	740.00	0.00	Head vs Discharge	NO	1.13	0 10:19
3	Skimmer-3		Pond-3	Jun-20	724.00	724.00	724.00	0.00	Head vs Discharge	NO	1.13	0 08:34

SN	Element ID	Description	From (Inlet) Node	To (Outlet) Node	From (Inlet) Node Invert Elevation (ft)	To (Outlet) Node Invert Elevation (ft)	Orifice Type	Orifice Shape	Flap Gate	Circular Orifice Diameter (inches)	Orifice Invert Elevation (ft)	Orifice Invert Offset (ft)	Orifice Coefficient	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)
1	Reg-1	Pond 1 Riser	Pond-1	Jun-4	709.00	701.00	BOTTOM	CIRCULAR	NO	48.00	711.00	2.00	0.6140	18.58	0 12:54
2	Reg-2	Pond 2 Riser	Pond-2	Jun-17	740.00	740.00	BOTTOM	CIRCULAR	NO	48.00	743.40	3.40	0.6140	0.00	0 00:00
3	Reg-3	Pond 3 Riser	Pond-3	Jun-20	724.00	724.00	BOTTOM	CIRCULAR	NO	72.00	729.00	5.00	0.6140	55.73	0 12:15

SN	Element ID	Description	Rainfall Distribution
1	Gage-1	100-year cumulative storm for Davie County, North Carolina, with a total rainfall amount of 7.20 in using a SCS Type II 24-hr storm distribution.	SCS Type II 24-hr

SN	Element ID	Description	Area	Weighted Curve Number	Average Slope	Equivalent Width	Time of Concentration	Rain Gage ID	Total Precipitation	Total Runoff	Peak Runoff
			(acres)		(%)	(ft)	(days hh:mm:ss)		(inches)	(inches)	(cfs)
1	Sub-1	Pond 1 Sheet Flow	14.75	85.18	0.5000	1570.00	0 00:06:09	Gage-1	7.20	5.46	119.29
2	Sub-10	Pond 1, South Ditch Section D	4.40	78.40	0.5000	500.00	0 00:05:51	Gage-1	7.20	4.70	31.69
3	Sub-11	Pond 1, South Ditch Section E	1.64	78.40	0.5000	500.00	0 00:02:44	Gage-1	7.20	4.70	12.14
4	Sub-12	Pond 2 Sheet Flow	9.11	78.40	0.5000	500.00	0 00:10:15	Gage-1	7.20	4.70	58.33
5	Sub-13	Pond 3 Sheet Flow	19.83	78.40	0.5000	1500.00	0 00:08:01	Gage-1	7.20	4.70	134.25
6	Sub-14	Pond 3, West Ditch A	6.32	78.40	0.5000	500.00	0 00:07:44	Gage-1	7.20	4.70	43.15
7	Sub-15	Pond 3, North Ditch A	6.88	78.40	0.5000	500.00	0 00:08:16	Gage-1	7.20	4.70	46.32
8	Sub-16	Pond 3, North Ditch B	3.02	78.40	0.5000	500.00	0 00:04:23	Gage-1	7.20	4.70	22.25
9	Sub-17	Pond 3, North Ditch C	2.65	78.40	0.5000	500.00	0 00:03:58	Gage-1	7.20	4.70	19.56
10	Sub-2	Pond 1, North Ditch Section A	5.37	78.40	4.6000	800.00	0 00:02:01	Gage-1	7.20	4.70	39.63
11	Sub-3	Pond 1, North Ditch Section B	5.79	78.40	3.3300	780.00	0 00:02:28	Gage-1	7.20	4.70	42.70
12	Sub-4	Pond 1, North Ditch Section C	1.76	78.40	2.8000	1500.00	0 00:00:38	Gage-1	7.20	4.70	12.99
13	Sub-5	Pond 1, Culvert Ditch West	4.67	78.40	0.5000	700.00	0 00:04:44	Gage-1	7.20	4.70	34.44
14	Sub-6	Pond 1, Culvert Ditch East	1.36	78.40	0.5000	500.00	0 00:02:22	Gage-1	7.20	4.70	10.01
15	Sub-7	Pond 1, South Ditch Section A	3.35	78.40	0.5000	500.00	0 00:04:44	Gage-1	7.20	4.70	24.71
16	Sub-8	Pond 1, South Ditch Section B	4.67	78.40	0.5000	700.00	0 00:04:44	Gage-1	7.20	4.70	34.48
17	Sub-9	Pond 1, South Ditch Section C	3.65	78.40	0.5000	500.00	0 00:05:04	Gage-1	7.20	4.70	26.87

SN	Element ID	From (Inlet) Node	To (Outlet) Node	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Average Slope (%)	Pipe Diameter or Height (inches)	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Max Flow Velocity (ft/sec)	Design Flow Capacity (cfs)	Max Flow / Design Flow Ratio	Max Flow Depth / Total Depth Ratio	Total Time Surcharged (min)	Max Flow Depth (ft)
1	Con-16	Jun-15	Pond-1	419.31	704.00	-8.00	0.7155	0.000	0.0150	0.5000	0.5000	124.73	0 12:00	0.00		0.05	0.23	0.00	0.70
2	Con-17	Jun-17	Jun-18	50.00	740.00	0.00	1.0000	24.000	0.0150	0.5000	0.5000	3.70	0 13:10	7.71	19.61	0.19	0.29	0.00	0.59
3	Con-18	Jun-18	Out-2	9.93	0.00	0.00	0.0000	0.000	0.0150	0.5000	0.5000	3.70	0 13:10	0.00		0.19	0.29	0.00	0.59
4	Con-19	Jun-19	Out-1	15.92	700.00	700.00	6.2814	0.000	0.0150	0.5000	0.5000	60.80	0 12:22	0.00		0.19	0.29	0.00	0.59
5	Con-20	Jun-20	Jun-21	50.00	724.00	0.00	1.4000	36.000	0.0150	0.5000	0.5000	68.40	0 12:04	11.28	68.40	1.00	1.00	57.00	3.00
6	Con-21	Jun-21	Out-3	44.08	0.00	-723.30	0.0000	0.000	0.0150	0.5000	0.5000	68.40	0 12:04	0.00		1.00	1.00	57.00	3.00
7	Con-23	Jun-23	Pond-3	431.61	736.00	0.00	0.0000	0.000	0.0150	0.5000	0.5000	40.61	0 12:05	0.00		0.33	0.60	0.00	1.79
8	Con-28	Jun-24	Pond-3	337.91	746.70	0.00	3.1665	0.000	0.0150	0.5000	0.5000	83.02	0 12:03	0.00		0.34	0.60	0.00	1.79
9	Con-3	Jun-1	Pond-1	424.52	706.00	-5.50	1.1778	0.000	0.0150	0.5000	0.5000	91.35	0 12:01	0.00		0.34	0.60	0.00	1.79
10	Con-4	Jun-4	Jun-19	70.00	709.00	8.00	15.7143	24.000	0.0150	0.5000	0.5000	53.81	0 12:22	26.69	77.72	0.69	0.61	0.00	1.22
11	Con-7	Jun-8	Jun-12	390.40	730.00	0.00	1.7930	36.000	0.0150	0.5000	0.5000	40.31	0 12:04	10.99	76.68	0.53	0.51	0.00	1.54

SN	Element ID	Description	From (Inlet) Node	To (Outlet) Node	Length (ft)	Inlet Invert Elevation (ft)	Outlet Invert Elevation (ft)	Average Slope (%)	Channel Type	Channel Manning's Roughness	Entrance Losses	Exit/Bend Losses	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Max Flow Velocity (ft/sec)	Design Flow Capacity (cfs)	Max Flow / Design Flow Ratio	Max Flow Depth / Total Depth Ratio	Total Time Surcharged (min)	Max Flow Depth (ft)
1	Con-1	Pond 1, North Ditch Section A	Jun-2	Jun-1	470.00	719.00	711.50	1.5957	Trapezoidal	0.0320	0.5000	0.5000	91.35	0 12:01	6.56	220.68	0.41	0.65	0.00	1.96
2	Con-10	Pond 1, South Ditch Section C	Jun-7	Jun-12	430.00	731.29	723.13	1.8977	Trapezoidal	0.0320	0.5000	0.5000	41.90	0 12:01	5.70	240.66	0.17	0.43	0.00	1.29
3	Con-11	Pond 1, South Ditch Section B	Jun-12	Jun-11	390.00	723.13	720.03	0.7949	Trapezoidal	0.0320	0.5000	0.5000	80.54	0 12:04	4.90	155.75	0.52	0.74	0.00	2.21
4	Con-12	Pond 1, South Ditch Section B	Jun-11	Jun-10	108.00	720.03	718.77	1.1667	Trapezoidal	0.0320	0.5000	0.5000	103.50	0 12:04	6.00	188.70	0.55	0.76	0.00	2.27
5	Con-13	Pond 1, South Ditch Section A	Jun-10	Jun-9	142.00	718.77	715.39	2.3803	Trapezoidal	0.0320	0.5000	0.5000	133.38	0 12:03	8.34	269.53	0.49	0.72	0.00	2.15
6	Con-14	Pond 1, South Ditch Section A	Jun-9	Jun-15	665.00	715.39	712.00	0.5098	Trapezoidal	0.0320	0.5000	0.5000	124.73	0 12:00	4.90	124.73	1.00	1.00	8.00	3.00
7	Con-15	Pond 1, Culvert Ditch East	Jun-16	Jun-8	531.38	735.40	730.00	1.0162	Trapezoidal	0.0320	0.5000	0.5000	9.49	0 12:02	3.12	176.11	0.05	0.23	0.00	0.70
8	Con-2	Pond 1, North Ditch Section B	Jun-3	Jun-2	277.00	723.40	719.00	1.5884	Trapezoidal	0.0320	0.5000	0.5000	53.74	0 12:01	5.69	220.18	0.24	0.51	0.00	1.54
9	Con-22	Pond 3, West Ditch A	Jun-22	Jun-23	402.00	738.00	736.00	0.4975	Trapezoidal	0.0320	0.5000	0.5000	40.61	0 12:05	3.53	123.22	0.33	0.60	0.00	1.79
10	Con-24	Pond 3, North Ditch C	Jun-27	Jun-26	432.00	778.00	769.34	2.0046	Trapezoidal	0.0320	0.5000	0.5000	18.99	0 12:01	4.69	247.35	0.08	0.28	0.00	0.85
11	Con-25	Pond 3, North Ditch B	Jun-26	Jun-25	362.00	796.34	762.10	9.4586	Trapezoidal	0.0320	0.5000	0.5000	40.41	0 12:01	10.07	537.28	0.08	0.28	0.00	0.84
12	Con-26	Pond 3, North Ditch A	Jun-25	Jun-28	375.10	762.10	754.60	1.9995	Trapezoidal	0.0320	0.5000	0.5000	40.15	0 12:02	5.74	247.03	0.16	0.41	0.00	1.22
13	Con-27	Pond 3, North Ditch A	Jun-28	Jun-24	393.91	754.60	746.70	2.0055	Trapezoidal	0.0320	0.5000	0.5000	83.02	0 12:03	6.96	247.40	0.34	0.60	0.00	1.79
14	Con-5	Pond 1, Culvert Ditch West	Jun-5	Jun-8	1260.57	740.30	730.00	0.8171	Trapezoidal	0.0320	0.5000	0.5000	31.26	0 12:05	4.72	157.92	0.20	0.45	0.00	1.36
15	Con-6	Pond 1, North Ditch Section C	Jun-6	Jun-3	582.00	739.30	723.40	2.7320	Trapezoidal	0.0320	0.5000	0.5000	12.51	0 12:01	4.66	288.75	0.04	0.21	0.00	0.63
16	Con-8	Pond 1, South Ditch Section E	Jun-14	Jun-13	406.00	744.88	735.94	2.2020	Trapezoidal	0.0320	0.5000	0.5000	11.79	0 12:01	4.23	259.24	0.05	0.22	0.00	0.65
17	Con-9	Pond 1, South Ditch Section D	Jun-13	Jun-7	132.00	735.94	731.29	3.5227	Trapezoidal	0.0320	0.5000	0.5000	11.79	0 12:01	4.95	327.89	0.04	0.18	0.00	0.55

SN	Element ID	Description	Invert Elevation	Boundary Type	Flap Gate	Fixed Water Elevation	Peak Inflow	Peak Lateral Inflow
			(ft)			(ft)	(cfs)	(cfs)
1	Out-1	Pond 1 Outfall	700.00	NORMAL	NO		60.80	0.00
2	Out-2	Pond 2 Outfall	0.00	NORMAL	NO		3.70	0.00
3	Out-3	Pond 3 Outfall	0.00	NORMAL	NO		68.40	0.00

SN	Element ID	Description	Invert Elevation (ft)	Max (Rim) Elevation (ft)	Max (Rim) Offset (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Ponded Area (ft^2)	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Peak Outflow (cfs)	Maximum HGL Elevation Attained (ft)	Maximum HGL Depth Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Maximum HGL Occurrence (days hh:mm)
1	Pond-1		709.00	713.00	4.00	709.00	0.00	170000.00	329.83	118.20	60.80	712.17	3.17	710.51	1.51	0 12:22
2	Pond-2		740.00	745.00	5.00	740.00	0.00	25606.00	58.01	58.01	3.70	743.56	3.56	741.48	1.48	0 13:10
3	Pond-3		724.00	732.00	8.00	724.00	0.00	98400.00	249.26	126.09	130.08	730.62	6.62	727.52	3.52	0 12:12

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Ponded Area (ft²)	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Maximum HGL Elevation Attained (ft)	Maximum HGL Depth Attained (ft)	Maximum Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Maximum HGL Occurrence (days hh:mm)
1	Jun-1	711.50	0.00	0.00	0.00	91.35	0.00	713.50	2.00	0.00	1.00	711.60	0.10	0 12:01
2	Jun-10	718.77	0.00	0.00	0.00	133.35	34.43	721.05	2.28	0.00	0.72	718.90	0.13	0 12:04
3	Jun-11	720.03	0.00	0.00	0.00	103.59	26.83	722.31	2.28	0.00	0.72	720.16	0.13	0 12:03
4	Jun-12	723.13	0.00	0.00	0.00	80.90	0.00	725.36	2.23	0.00	0.77	723.25	0.12	0 12:03
5	Jun-13	735.94	0.00	0.00	0.00	11.79	0.00	736.59	0.65	0.00	2.35	735.97	0.03	0 12:01
6	Jun-14	744.88	0.00	0.00	0.00	12.13	12.13	745.54	0.66	0.00	2.34	744.91	0.03	0 12:00
7	Jun-15	712.00	0.00	0.00	0.00	124.73	0.00	715.00	3.00	0.00	0.00	712.20	0.20	0 12:00
8	Jun-16	735.40	0.00	0.00	0.00	10.01	10.01	736.14	0.74	0.00	2.26	735.43	0.03	0 12:00
9	Jun-17	740.00	745.00	740.00	0.00	3.70	0.00	740.59	0.59	0.00	6.81	740.24	0.24	0 13:10
10	Jun-18	0.00	0.00	0.00	0.00	3.70	0.00	740.09	740.09	0.00	1.41	739.74	739.74	0 13:10
11	Jun-19	0.00	0.00	0.00	0.00	60.80	0.00	700.00	700.00	0.00	0.00	700.00	700.00	0 00:00
12	Jun-2	719.00	0.00	0.00	0.00	92.16	39.57	721.01	2.01	0.00	0.99	719.10	0.10	0 12:00
13	Jun-20	724.00	732.00	724.00	98000.00	130.08	0.00	735.52	11.52	0.52	0.00	724.53	0.53	0 12:29
14	Jun-21	723.30	732.00	724.00	0.00	68.40	0.00	726.30	3.00	0.00	6.50	723.66	0.36	0 12:04
15	Jun-22	738.00	0.00	0.00	0.00	40.64	40.64	739.80	1.80	0.00	1.20	738.09	0.09	0 12:00
16	Jun-23	736.00	0.00	0.00	0.00	40.61	0.00	737.80	1.80	0.00	1.20	736.10	0.10	0 12:05
17	Jun-24	746.70	0.00	0.00	0.00	83.02	0.00	748.51	1.81	0.00	1.19	746.79	0.09	0 12:03
18	Jun-25	762.10	0.00	0.00	0.00	40.41	0.00	763.37	1.27	0.00	1.73	762.16	0.06	0 12:01
19	Jun-26	769.34	0.00	0.00	0.00	40.51	22.23	797.20	27.86	0.00	2.14	796.38	27.04	0 12:00
20	Jun-27	778.00	0.00	0.00	0.00	19.52	19.52	778.88	0.88	0.00	2.12	778.04	0.04	0 12:00
21	Jun-28	754.60	0.00	0.00	0.00	83.14	44.07	756.41	1.81	0.00	1.19	754.69	0.09	0 12:02
22	Jun-3	723.40	0.00	0.00	0.00	54.01	42.63	724.96	1.56	0.00	1.44	723.48	0.08	0 12:00
23	Jun-4	701.00	707.00	701.00	0.00	53.81	0.00	710.22	9.22	0.00	0.78	709.24	8.24	0 12:22
24	Jun-5	740.30	0.00	0.00	0.00	34.38	34.38	741.77	1.47	0.00	1.53	740.37	0.07	0 12:00
25	Jun-6	739.30	0.00	0.00	0.00	12.97	12.97	739.95	0.65	0.00	2.35	739.33	0.03	0 12:00
26	Jun-7	731.29	0.00	0.00	0.00	42.14	31.36	732.61	1.32	0.00	1.68	731.35	0.06	0 12:01
27	Jun-8	730.00	736.00	0.00	10.00	40.35	0.00	731.55	1.55	0.00	4.45	730.09	0.09	0 12:03
28	Jun-9	715.39	0.00	0.00	0.00	154.95	24.69	718.39	3.00	0.00	0.00	715.59	0.20	0 11:59

SN	Element ID	Description	From (Inlet) Node	To (Outlet) Node	From (Inlet) Node Invert Elevation (ft)	To (Outlet) Node Invert Elevation (ft)	Type	Flap Gate	Crest Elevation (ft)	Crest Offset (ft)	Length (ft)	Total Height (ft)	Discharge Coefficient	Peak Flow (cfs)
1	Weir-1	Pond 1 Emergency Spillway	Pond-1	Jun-19	709.00	0.00	TRAPEZOIDAL	NO	712.00	3.00	30.00	1.00	3.37	6.99
2	Weir-2	Pond 2 Emergency Spillway	Pond-2	Jun-18	740.00	0.00	TRAPEZOIDAL	NO	744.00	4.00	20.00	1.00	3.37	0.00
3	Weir-3	Pond 3 Emergency Spillway	Pond-3	Jun-21	724.00	723.30	TRAPEZOIDAL	NO	731.50	7.50	20.00	2.00	3.37	0.00

SN	Element ID	Description	From (Inlet) Node	To (Outlet) Node	From (Inlet) Node Invert Elevation (ft)	To (Outlet) Node Invert Elevation (ft)	Crest Elevation (ft)	Crest Height (ft)	Outlet Type	Flap Gate	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)
1	Skimmer-1		Pond-1	Jun-4	709.00	701.00	709.00	0.00	Head vs Discharge	NO	1.13	0 06:00
2	Skimmer-2		Pond-2	Jun-17	740.00	740.00	740.00	0.00	Head vs Discharge	NO	1.13	0 09:21
3	Skimmer-3		Pond-3	Jun-20	724.00	724.00	724.00	0.00	Head vs Discharge	NO	1.13	0 07:22

SN	Element ID	Description	From (Inlet) Node	To (Outlet) Node	From (Inlet) Node Invert Elevation (ft)	To (Outlet) Node Invert Elevation (ft)	Orifice Type	Orifice Shape	Flap Gate	Circular Orifice Diameter (inches)	Orifice Invert Elevation (ft)	Orifice Invert Offset (ft)	Orifice Coefficient	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)
1	Reg-1	Pond 1 Riser	Pond-1	Jun-4	709.00	701.00	BOTTOM	CIRCULAR	NO	48.00	711.00	2.00	0.6140	52.68	0 12:22
2	Reg-2	Pond 2 Riser	Pond-2	Jun-17	740.00	740.00	BOTTOM	CIRCULAR	NO	48.00	743.40	3.40	0.6140	2.57	0 13:10
3	Reg-3	Pond 3 Riser	Pond-3	Jun-20	724.00	724.00	BOTTOM	CIRCULAR	NO	72.00	729.00	5.00	0.6140	128.95	0 12:12

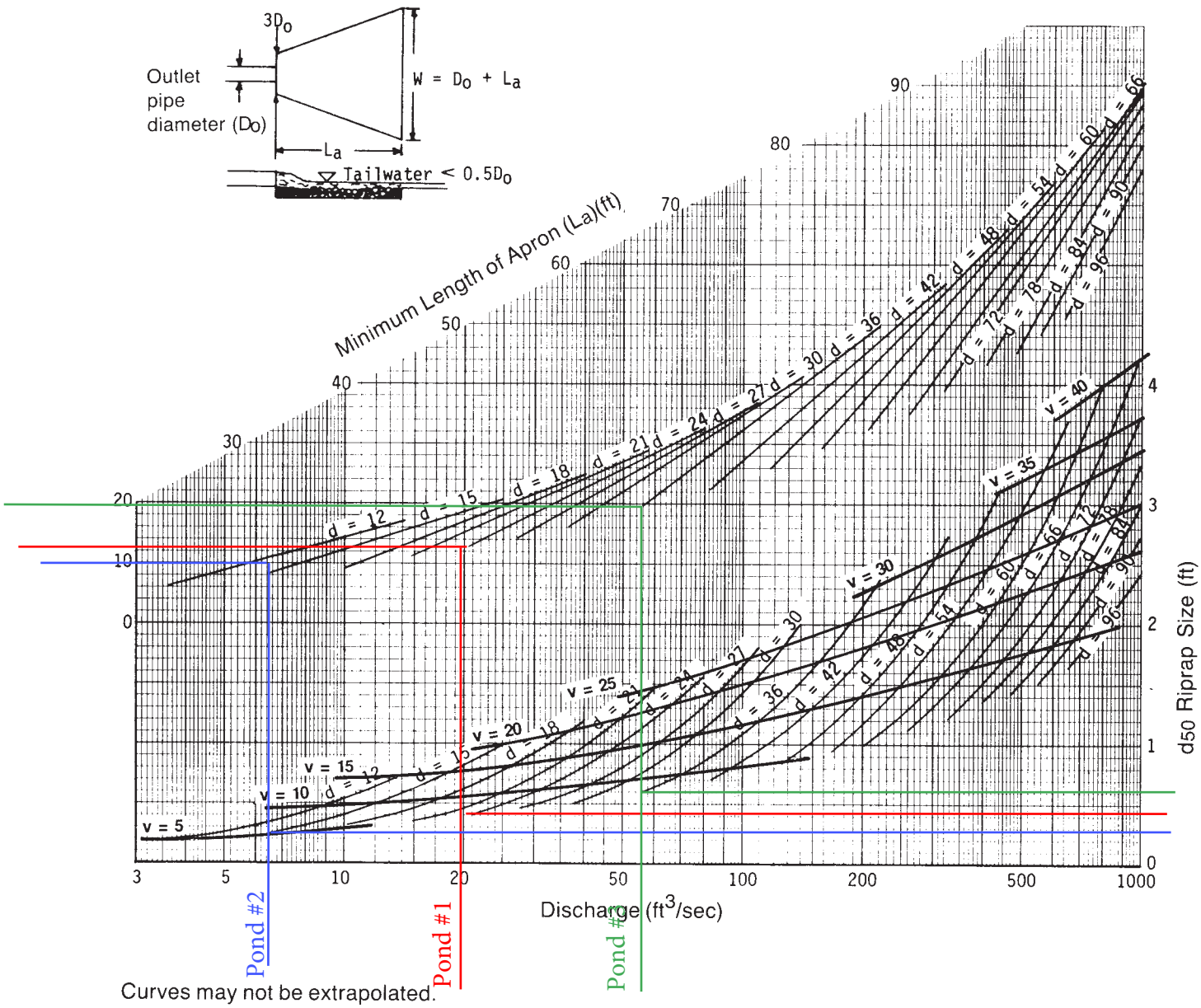


Figure 8.06a Design of outlet protection protection from a round pipe flowing full, minimum tailwater condition (T_w < 0.5 diameter).

Pond #1	Pond #2	Pond #3
Q25 = 19.71 cfs	Q25 = 1.27 cfs	Q25 = 56.83 cfs
d50 = 6 in.	d50 = 3 in.	d50 = 7 in.
La = 12 ft	La = 10 ft	La = 20 ft
W = 18 ft	W = 16 ft	W = 29 ft
Class 1 Riprap	Class A Riprap	Class 1 Riprap