Wilson, Donna

From: Weispfenning, Aaron <WeispfenningAM@cdmsmith.com>
Sent: Wednesday, March 06, 2013 2:08 PM
To: Wilson, Donna
Cc: Brinchek, W. Michael (Mike)
Subject: Wilkes Rd Yard Waste Facility Response to Comments
Attachments: 03-06-2013 Permit Response.pdf

Donna,

Attached is a response to the comments you submitted to us regarding the Wilkes Road Yard Waste Facility. Please let Mike or I know if you have any questions or need additional information.

Thanks,
Aaron

Aaron M. Weispfenning, P.E. | Engineer | CDM Smith | 5400 Glenwood Avenue, Suite 300 Raleigh, NC 27612 | T: 919-325-3532 | F: 919-781-5730 | www.cdmsmith.com

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Raleigh, North Carolina 27612
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March 6, 2013

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

Subject: Wilkes Road Yard Waste Facility
Permit Renewal Application
Cumberland County
Response to Comments

Dear Ms. Wilson:

The purpose of this letter is to respond to comments regarding the revised application for the Wilkes Road Yard Waste Facility. Division of Waste Management requests are reiterated in italics with response immediately below the request. The following responses are provided for your review:

1. *A NPDES discharge permit is being required by DWQ. Please contact Ken Pickle regarding the permit requirements.*

Response:

Camp Dresser McKee & Smith (CDM Smith) is currently working on a NPDES discharge permit application. A copy of the submittal to DWQ will be provided under separate cover in the next couple of weeks.

2. *Application cover should also state that the facility is (will be) a Large Type 1 Composting Facility.*

Response:

The cover page has been updated and a revised copy is included in Attachment 1.

3. *Please list the acreage of the total processing and composting area in the Introduction section of the text, Section 1.1.*

Response:

The total processing and composting area of 18.5 acres has been added to Section 1.1. A copy of the revised section is included in Attachment 1.

4. *The aerial map shows the 50 foot property boundary crossing over the property line along the north side. Please address.*

Response:

The contours in the original map were based on an inaccurate processing area boundary. The boundary on the figure has been modified and the 50 foot property boundary follows the property line along the northern and southern sides. A revised copy of Figure 1-3 is located in Attachment 1.

5. *It appears that the yard waste operation, based on the aerial photo shown in the original application, is operating within 50 feet of the property line on the north and south sides. Address how this will be corrected and what measures (such as permit boundary markers) will be implemented to prevent this from happening in the future.*

Response:

In response to a recent facility inspection the County has installed silt fencing 50 feet from the property boundary along the northern and southern edges of the processing and composting area to ensure that the 50 foot buffer is maintained.

6. *Section 2.4.6.2 – The text describes that a soil evaluation was performed down to 2 feet; however, Rule .1405 (a)(4)(B) requires that a soil evaluation be performed down to 4 feet. Please address.*

Response:

It is our understanding that Rule .1405 (a)(4)(B) applies only to applications for new facilities and not existing ones such as the Wilkes Road Yard Waste Facility. Prior to submitting the original permit application in May 2011 Michael Scott of your department was contacted in reference to Rule .1404 (a)(10)(B) stating that "Portions of a 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 12 inches for a Type 1 or 2 facility and 24 inches for a Type 3 facility, unless a pad is provided." CDM Smith met the requirements of Rule .1404 (a)(10)(B) as shown in Appendix H of the original application by digging test pits per Mr. Scott's direction. We feel a soil evaluation to 4 feet will not provide any additional information given that the depth of the seasonal high water table is greater than 12 inches.

7. *Figure 1-3 – Please show the boundaries of the LCID landfill to clarify that the yard waste operation is not over the former landfill. What is the distance between the edge of waste and the pallet processing and stockpile area?*

Response:

Figure 1-3 has been revised (see Attachment 1) to show the boundaries of the LCID landfill and confirms that yard waste operations are not over the former landfill. There is approximately 50 feet between the edge of waste and the pallet processing and stockpile area.

8. *It appears that Drawing C-1 does not show enough buffer (25 feet) between the yard waste piles and the drainage swale along the northern boundary. Please address.*

Response:

At the time of the yard waste pile survey the buffer along the northern edge ranged from 15 to 20 feet. A meeting was recently held with Robert Howard of Cumberland County to discuss the buffer. The County will now maintain a 25 feet buffer between the yard waste piles and the drainage swale along the northern boundary.

9. *Section 3.4.3 – Compost piles should be a maximum of 15 feet high and 30 feet wide for Type 1. Please describe how the piles are turned to aerate. The list of equipment includes loaders – is it turned with a bucket?*

Response:

Compost piles will have a maximum height of 15 feet and a maximum width of 30 feet. The piles are currently turned using the bucket of a loader. Section 3.4.3 has been modified to include this information (see Attachment 1).

10. *What is the maximum volume of onsite storage of materials in each area and the maximum total volume of materials onsite at any time?*

Response:

Using information stated in Section 2.5.1, the facility capacity is 31,400 yd^3. Yard waste and land clearing debris has a maximum volume of approximately 25,000 yd^3 with 4,200 yd^3 for unprocessed yard waste, 9,500 yd^3 for processed yard waste storage, and 11,300 yd^3 for processed compost storage. The pallet processing and stockpile area has a maximum volume of 6,400 yd^3. A revised copy of Section 2.5.1 is located in Attachment 1.

11. *What is the anticipated process duration, including receiving, preparation, composting, curing, and distribution? Please provide a range of durations and/or approximation for the process.*

Response:

The process duration of waste at the facility from receiving material through distribution varies widely from one month up to a year and a half dependent upon the type of material and demand.

12. *The application cover sheet and each of the engineering drawings should contain the engineer's seal and signature.*

Response:

The application cover sheet and each of the engineering drawings have been stamped and signed by the engineer and are included with this submittal in Attachment 1.

On behalf of Cumberland County, we appreciate your willingness to work with us regarding this matter. If you have any questions or need additional information, please do not hesitate to contact me at (919) 787-5620 or by email to: brinchekwm@cdmsmith.com.

Very truly yours,

W. Michael Brinchek, P.E., BCEE
Senior Project Manager
Camp Dresser McKee & Smith

cc: Robert Howard, Cumberland County

Attachment 1

Wilkes Road Yard Waste Facility

Large Type 1 Composting Facility

Cumberland County

Permit Application

Originally Submitted May 2011

Revised February 2013

CDM Smith

Cumberland County
North Carolina

Wilkes Road Yard Waste Facility

Large Type 1 Composting Facility

Permit Application

Originally Submitted May 2011

Revised February 2013

NORTH CAROLINA PROFESSIONAL SEAL 028426 ENGINEER W. MICHAEL BRINCHEK

02.28.2013

Prepared by:
Camp Dresser McKee & Smith
5400 Glenwood Avenue, Suite 300
Raleigh, North Carolina 27612
NC F-0412

Section 1
Introduction

1.1 Purpose

The purpose of this report is to provide Cumberland County North Carolina (County) with a manual to serve as an operations guide for the Wilkes Road Yard Waste Facility (Facility). The facility operates as a receiving, processing, composting and hauling facility for land clearing debris, yard waste, and wooden pallets with a total processing and composting area of 18.5 acres. This plan has been prepared in accordance with Solid Waste Management Rule NCAC 13B .1400 and addresses the following:

- Facility Plan;
- Facility operations including
- Materials received and processed;
- Composting Activities; Equipment and Personnel utilized to process and handle incoming materials;
- Contingency plans; and
- Recordkeeping.

1.2 Facility Location

The Wilkes Road Yard Waste Facility is located off Wilkes Road (S.R. 1007) west of the intersection of Wilkes Road and N.C. Highway 87. The facility is sited on approximately 51 acres of Cumberland County property. Figure 1-1 shows the general location of the facility.

1.3 Facility History

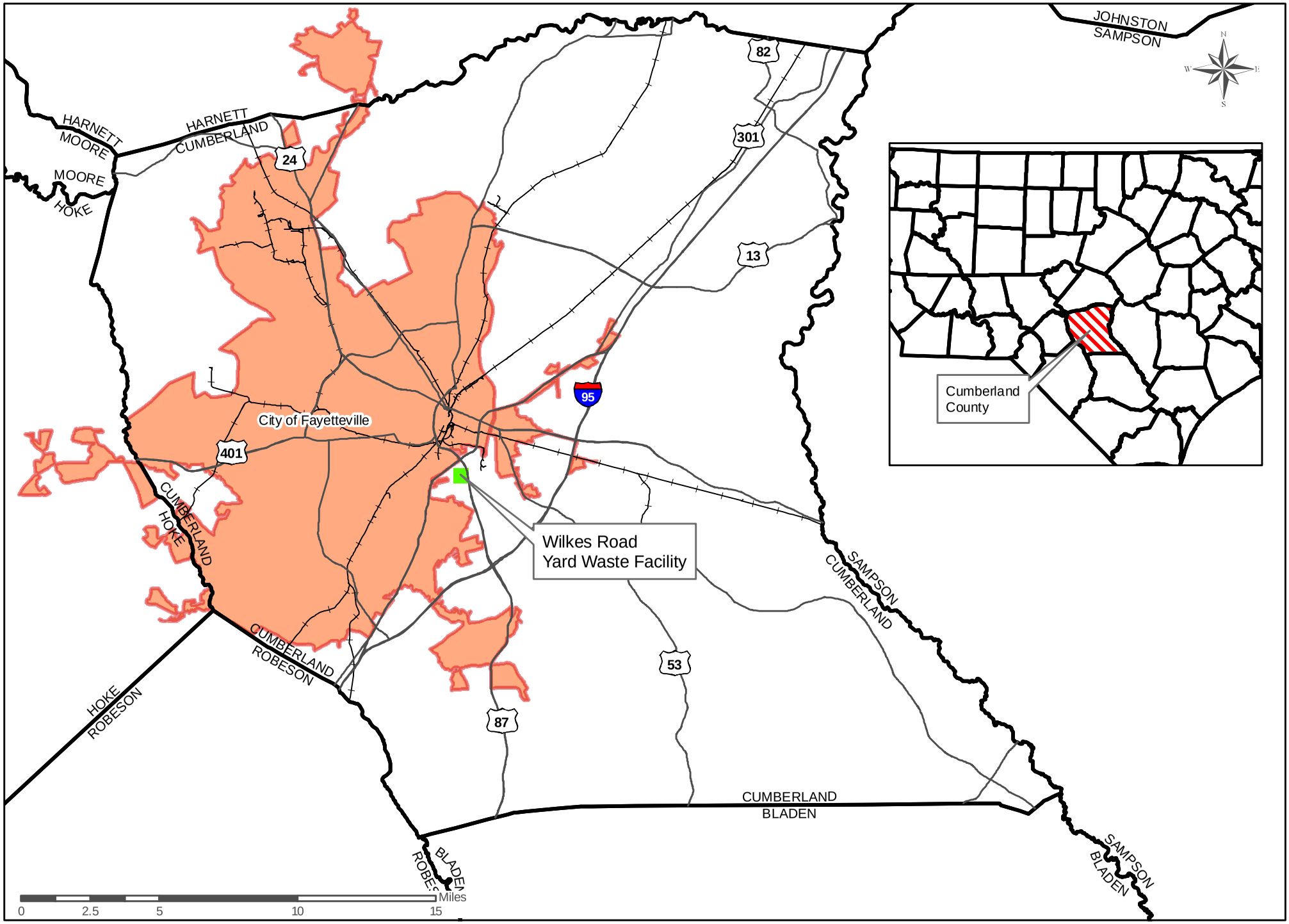
The facility was initially permitted on July 1, 1986, by the North Carolina Department of Environment and Natural Resources, Division of Waste Management, Solid Waste Section (NCDENR-SWS) under Permit No. 26-F, as a Land Clearing and Inert Debris (LCID) landfill. The 10 acre LCID Landfill was temporarily capped using a 1-foot-thick compacted soil cover in August of 1992 by the County. Camp Dresser & McKee (CDM) verified the thickness of the soil cover on July 5, 2005 at 42 locations. Following CDM's report, the County addressed the areas that did not meet the minimum 1-foot-thick. Subsequently, CDM re-verified and certified the cover thickness on September 26, 2005 as meeting the minimum 12-inch-thick cover requirement.

On September 9, 2010, CDM checked the thickness of the 12-inch soil cover and submitted the closure certification to NCDENR-SWS on September 24, 2010. The facility deeds documents were submitted on November 1, 2010, which completed the requirements for the closure of the

LCID landfill. Pertinent correspondences are provided as Appendix A. The current permit to operate (PTO) for the Wilkes Road Yard Waste Treatment and Processing facility (Permit No. 26-10) was issued on August 23, 2006 and includes a yard waste treatment and processing area, a household waste collection area and the LCID landfill. This permit amendment application covers the yard waste processing and composting operations.

1.4 Service Area

The facility currently serves all Cumberland County residents and commercial establishments. Cumberland County, approximately 658 square miles in size, includes the municipalities of Falcon, Fayetteville, Godwin, Hope Mills, Linden, Spring Lake, Stedman and Wade.



Road Railroad Wilkes Road Yard Waste Facility City of Fayetteville

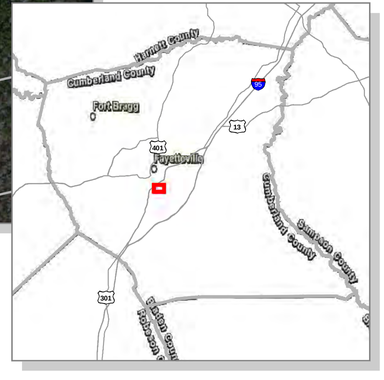
Figure No. 1-1
Location Map

FIGURE 1-3
AERIAL MAP
WILKES ROAD YARD WASTE FACILITY

CUMBERLAND COUNTY
NORTH CAROLINA

Legend

- Water Service
- Stream
- 50 Ft Composting Area Buffer
- 100 Ft Composting Area Buffer
- 200 Ft Composting Area Buffer
- Paved Road
- Expressway
- Site Road
- Property Lines
- Processing and Composting Area



1 inch = 200 feet

200 100 0 200 400 600 800 1,000 Feet

50 25 0 50 100 150 200 250 Meters

CDM Smith
5400 Glenwood Avenue, Suite 300
Raleigh, North Carolina, 27612

Section 2
Facility Plan

2.1 Introduction

This section provides the facility information required to meet the requirements of Rule 15 A NCAC 13B .1405. The information is presented in the same order as it appears in the Rules.

2.2 Aerial Photograph

An Aerial photo at a scale of 1 inch = 400 feet showing the area within ¼ mile of the proposed site boundaries is provided on the Aerial Map in Appendix B.

2.3 Zoning

requires that a letter from the unit of local government having jurisdiction over the site which states that the proposed use is allowed within the existing zoning and that any necessary approval or permit has been obtained. The Wilkes Road Yard facility is located within the Cumberland County jurisdiction. A Zoning Consistency Determination from the Cumberland County Zoning Department is provided in Appendix C.

2.4 Siting and Design Requirements

The following information is provided to comply with Paragraph 15A NCAC 13B .1404 of the North Carolina Solid Waste Management Rules.

2.4.1 Floodplain

The site is not located in a floodplain. A FEMA flood map is provided in Appendix D.

2.4.2 Siting and Design Requirements:

2.4.2.1 Residences

Paragraph .1404 (a) (3) requires a 200-foot minimum buffer between compost areas and residences and dwellings for Type 1 facilities. No residence or dwelling is located within 200 feet of the proposed composting area as shown on the Aerial Map in Appendix B.

2.4.2.2 Wells

Paragraph .1404 (a) (4) requires a 100-foot minimum buffer between compost areas and wells except for monitoring wells. No wells are located within 100 feet of the proposed composting area as shown on the Aerial Map in Appendix B.

2.4.2.3 Perennial Streams and Rivers

Paragraph .1404 (a) (5) requires a 50-foot minimum buffer between compost areas and perennial streams/rivers. No perennial stream/river is located within 100 feet of the proposed composting area as shown on the Aerial Map in Appendix B.

2.4.3 Location over Closeout Disposal Area

Composting activities will not be performed over the closed LCID landfill.

2.4.4 Location of Swales and Berms

Paragraph .1404 (a) (8) requires a 25-foot minimum distance between compost areas and swales or berms to allow for adequate access for firefighting. Sheet C-1 in Appendix E depicts the location of all swales and berms. A firefighter's certification is provided in Appendix K. The County will construct composting windrows maintaining a 25-foot minimum separation between the compost piles and the berms and swales.

2.4.5 Surface Water Requirements

2.4.5.1 Rule

Paragraph .1404 (a) (9) requires that a 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;

(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; and

(C) A site shall not cause non-point source pollution of waters of the state that violates assigned water quality standards;

2.4.5.2 Compliance

The facility has an erosion and sedimentation control permit from the North Carolina Department of Environment and Natural Resources, Division of Land Resources, Land Quality Section (NCDENR-LQS). A copy of the certificate of plan approval and the approved plans are provided in Appendix F.

On July 22, 2009, Camp Dresser & McKee (CDM) submitted a post-construction stormwater permit application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality (NCDENR-DWQ). On September 3, 2009, the NCDENR-DWQ replied stating that the site did not need a post-construction stormwater permit. A copy of the letter from NCDENR-DWQ is provided in Appendix G.

2.4.6 Groundwater Requirements

2.4.6.1 Rule

Paragraph .1404 (a) (10) requires that a site shall meet the following groundwater requirements:

(A) A site shall not contravene groundwater standards as established under 15A NCAC 2L;

(B) Portions of a 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 12 inches for a Type 1 or 2 facility and 24 inches for a Type 3 facility, unless a pad is provided;

(C) A pad shall be provided for portions of a Type 4 facility used for waste receiving and storage, active composting, and curing;

(D) A pad is not required for storage of finished product that is dried so as to pass the Paint Filter Liquids Test (EPA Method 9095), and for which the storage area is prepared in such a manner that water does not collect around the base of the stored material, and where the depth to the seasonal high water table is maintained at least 12 inches; and

(E) The linear coefficient of permeability of pads required in accordance with this Rule shall not be greater than 1 x 10(-7) centimeters per second. If natural soils are used, the liner must be at least 18 inches thick. 2.4.5.2 Compliance

2.4.6.2 Compliance

CDM performed an investigation at the site on May 24, 2011. Two test pits were dug depths of 2 feet in order to observe groundwater or indications of seasonal high groundwater. No groundwater was observed at a depth of 2 feet in either test pit, in addition, no indication of seasonal groundwater was observed within 1 foot of the surface. Based on CDM's observation, the soil texture finer than loamy sand and appeared to be indicative of the stiff clays associated with the Cape Fear Confining Unit. Field photographs are provided as Appendix H.

2.4.7 Design Requirements

2.4.7.1 Public Access

Incoming raw waste material enters the facility through the entrance gate point located near the west corner of the facility. All waste hauling vehicles entering the facility must be weighed at the scale where a full-time attendant verifies compliance with operation requirements. Upon removal of waste, the vehicle leaves the site through the exit gate. Unauthorized vehicle access into the facility is controlled by lockable gates at the entrance and the exit gates and a chain link fencing along the facility boundary.

2.4.7.2 Sedimentation Pollution Control

The Wilkes Road yard waste facility holds an erosion and sedimentation control permit from the North Carolina Department of Environment and Natural Resources, Division of Land Resources, Land Quality Section (NCDENR-LQS). A copy of the certificate of plan approval and the approved plans are provided in Appendix F. All erosion control features are currently in place and in good working condition. Silt fence is provided along the entrance road and around the active area as shown on the plan. Diversions berm and grass-lined ditches are also employed to divert water from the operational areas to the sediment traps. All traps are provided with baffles to prevent sediment and debris from leaving the site. There is a vegetative buffer comprised of tall trees around the working area that helps prevent transport of debris by wind. The County inspects all erosion control features, as required by the erosion and sedimentation control permit, weekly or after any significant rainfall event. Needed repaired are performed immediately. In addition, all operational areas are graded to prevent ponding of surface water and allow surface water runoff in a controlled manner. Grading is also performed as required to deter ruts from occurring around stockpiles.

2.4.7.3 Air Pollution Control

The Wilkes Road yard waste facility holds an air permit (number 09655R02) from the North Carolina Department of Environment and Natural Resources, Division of Air Quality (NCDENR-DAQ). The permit was issued on March 8, 2011 and will expire on February 29, 2016. A copy of the current permit is provided as Appendix I.

2.4.7.4 Odors Management

Odor results primarily from anaerobic conditions. The County will use unusual elevated temperature as early indicator of a pile that in anaerobic conditions. When a windrow is suspected as being in anaerobic conditions, the windrow will be aerated by turning. County staff will continuously monitor the windrows for strong odors. Additionally, the County will minimize the amount of time compost stays onsite to prevent odor problems.

2.5 Facility Information

2.5.1 Waste Types, Sources and Estimated Quantities to be composted

Currently, the facility receives on average approximately 300 tons of waste per day. During the periods of high demands such as emergency events, the facility is capable of receiving 1,000 tons of waste per day. Table 2-1 shows that between the periods of October 2009 and September 2010, an average of 286 tons of waste per day was received by the facility. The daily maximum within the 12-month period was 863 tons.

Table 2-1: Daily Tonnages of Incoming Waste and Number of Vehicles.

Month	Maximum of Daily Tonnages	Average of Daily Tonnages	Average Number of Vehicles per Day
Oct-09	424	217	71
Nov-09	835	304	90
Dec-09	477	240	74
Jan-10	777	310	73
Feb-10	426	226	55
Mar-10	571	193	94
Apr-10	863	360	139
May-10	578	325	122
Jun-10	420	287	97
Jul-10	682	341	88
Aug-10	596	312	85
Sep-10	588	311	81
Overall	**863**	**286**	**89**

The facility total capacity for both processed and unprocessed residential yard waste and debris and commercial yard waste and land clearing debris is approximately 25,000 cubic yards. Assuming unprocessed yard waste material and debris has an average specific weight of 300 pounds per cubic yards (lbs/cy) and processed yard waste material and debris has an average specific weight of 500 lbs/cy, the facility capacity for yard waste material and debris will vary approximately between 3,750 tons and 6,250 tons depending upon the proportions of processed and unprocessed material.

The facility capacity for wooden pallets is approximately 6,400 cubic yards. Assuming wooden pallets have a specific weight of 185 lbs/cy the facility capacity for wooden pallets is approximately 590 tons.

In summary, the facility capacity is 31,400 yd^3. The yard waste and land clearing debris volume of approximately 25,000 yd^3 breaks down as follows: 4,200 yd^3 for unprocessed yard waste, 9,500 yd^3 for processed yard waste storage, and 11,300 yd^3 for processed compost storage.

2.5.2 Composting Pad

No pad will be used for composting

2.6 Site Plan

A Site Plan is provided as Sheet C-1 in Appendix E.

Section 3
Operations Plan

3.1 Facility Description

The Wilkes Road Yard Waste Facility (Facility) operates as a receiving, processing, and hauling facility for land clearing debris, yard waste, and wooden pallets. The facility is owned by Cumberland County, North Carolina (County) and operated by the Cumberland County Solid Waste Management Department. The facility is comprised of the following units:

- A stockpile and processing area for residential yard waste and debris and commercial yard waste and land clearing debris;
- A stockpile and processing area for wooden pallets into red mulch;
- An overflow stockpile for raw residential yard waste and debris and commercial yard waste and land clearing debris;
- A yard waste composting area; and
- An equipment storage area and household drop-off area.

3.2 Facility Operations Responsibility

The Wilkes Road yard waste facility is owned by Cumberland County and operated by the Cumberland County Solid Waste Management Department. The person responsible for facility operations is:

Name: Robert Howard, Solid Waste Director

Address: 698 Ann Street Fayetteville, NC 28301

Telephone: 910-321-6830 Fax: 910-321-6840

3.3 Operating Personnel

The Facility currently utilizes a staff composed of 4 full time personnel and one temporary worker. The operating personnel include one site supervisor, one scale house attendant and three equipment operators.

3.4 Operating Procedures

The Wilkes Road receives yard waste, land clearing debris, yard waste, and wooden pallets for processing. Wooden pallets and tree stumps are separated from yard waste and ground to produce mulch. As required by North Carolina Solid Waste Management Rules, yard waste and mixed loads are ground and composted prior to being made accessible to the public.

3.4.1 Waste Acceptance Procedures

Commercial and residential haulers transporting raw waste materials enter the Facility off Wilkes Road and are directed to the scale house. The scale house attendant determines the weight of material to be unloaded and the associated fees and checks the load to determine if it is acceptable material. Acceptable material includes and clearing debris, yard waste, and wooden pallets. Haulers carrying materials that cannot be processed at the facility (unacceptable material) are instructed to haul the material to the Ann Street Landfill for disposal. "Unacceptable material" includes large quantity of household trash, construction demolition debris, recyclable material and household hazardous waste. Haulers with a small amount of household garbage or recyclable material are directed to the household trash area to dispose the waste into the roll-off bins. This service is offered as a convenience by the County to citizens.

3.4.2 Mulching Production

Tree stumps and wood pallets are grounded separately and made available to the public as mulch. Raw product is loaded into the mobile tub grinder by County personnel. A conveyor belt carries the grinded material into the power screen. The power screen separates the grinded material into fine grinded mulch, which is collected into a truck and stockpiled in the fine mulch stockpile area and rough grounded mulch. The tub grinder has a built-in color system, which may be used for the processing of wooden pallets to generate red mulch. Red mulch processing is performed occasionally using dye product.

Under normal operating conditions wooden pallets are stockpiled until a sufficient amount of raw materials are available for processing (approximately 500 cubic yards). Wooden pallets may remain unprocessed up to 60 days. Depending on market fluctuations and demand, processed red mulch may remain on-site up to 90 days.

3.4.3 Composting Procedures

Yard waste, land clearing debris and mixed waste are composted to a temperature not less than 131 deg. F for 3 days prior to being sold to the public. After the waste to be composted is ground, County personnel build windrows with a maximum height of 15 feet and a maximum width of 30 feet. At each step of the windrow preparation process, soil and/or water is added to moist the windrow. Once the windrow is in place, County personnel monitor the pile temperature and record it on the "Compost Tracking form in Appendix J. After temperature records show evidence that the pile has reached the minimum 131 deg F for 3 consecutive days, the pile is turned using the bucket of a loader. In case of strong odors during the composting process, County personnel will turn the windrow to aerate the pile and prevent anaerobic decomposition. When evidence is established that the material has met the 131 degrees requirement for at least 3 days and the material has become earthy and black, the compost is ready and can be sold to the public.

Adjustments may be made to these steps as deemed necessary by the County to meet the minimum 131 deg F for 3 consecutive days.

3.5 Operating Equipments

The facility utilizes the following equipment on a daily basis:

- 1 Excavator
- 2 Dozers
- 1 Track Loader
- 1 Wheel Loader (6 cylinder)
- 1 Wheel Loader (3 cylinder)
- 1 5,000 Gallon Water Tanker
- 2 Tub Grinders
- 2 Power Screens

Under normal operation conditions, only one tub grinder and power screen is used. The second tub grinder serves as backup and may be used in case of mechanic failure of the first grinder or in case of an emergency situation.

3.6 Operating Hours

The facility is open from 8:00 am to 4:00 pm Monday through Saturday, except on County holidays. Materials processing is generally conducted during hours of operation. In response to an emergency event as described in Section 2.13, material processing may be extended as necessary to handle the additional materials until conditions return to normal.

3.7 Uses of Recycled Materials and Non- Recyclable Materials

The recycled materials at the facility consist of screened grinded material (fine mulch) from pallets and tree stumps, and compost from yard waste. The mulch and the compost are sold to commercial and residential haulers.

Non-recyclable materials generated by the facility including incidental trash and household wastes are disposed of in approved containers (roll-off bins) located at the household drop-off area and hauled at a minimum frequency of once every two days to the Ann Street Subtitle D Landfill for final disposal.

3.8 Facility Access Control

3.8.1 Access Road

The facility access road is mainly comprised of crushed stone paving roads maintained in good condition, which allows operations during wet weather conditions.

3.8.2 Signage

At the entrance gate of the facility, three signs are provided. The first sign displays the facility's name and permit number. The second sign displays the facility's operating hours. The third sign lists the days when the facility is closed (County holidays).

In addition to the signage, the scale house attendant and the other facility employees are available to provide instructions to waste haulers. As a general guidance to citizens, the County provides a handout

identifying all county-owned waste management sites and accepted wastes for each site. The County's website also provides the same information.

3.8.3 Access Gate

Incoming raw waste material enters the facility through the entrance gate point located near the west corner of the facility. All waste hauling vehicles entering the facility must be weighed at the scale where a full-time attendant verifies compliance with operation requirements. The vehicle is directed to the clearing debris and yard waste or the mulch processing area depending on the load carried. Upon removal of waste, the vehicle leaves the site through the exit gate. A traffic pattern scheme is provided on Figure 2-1. Unauthorized vehicle access into the facility is controlled by lockable gates at the entrance and the exit gates and a chain link fencing along the facility boundary.

3.9 Contingency Plans

At times when major occurrences or incidents happen outside the control of the facility personnel, an operational contingency plan is enacted. Events enabling the application of a contingency plan are equipment failures, fire events, medical emergencies, or catastrophic events. The purpose of the contingency plan is to maintain a minimal level of operational efficiency during such periods.

3.9.1 Equipment Failures

In the case of equipment failures, the County utilizes in-house maintenance personnel and local supplier representatives. If the equipment downtime is significant, then equipment from the Ann Street Subtitle D Landfill can be borrowed to minimize downtime. The County has a spare tub grinder and screen onsite to be used in case of a mechanical failure. If both grinders fail at the same time, the County stores the incoming material at the overflow stockpile area until the equipment is repaired.

3.9.2 Dye Spill

In the event of a dye spill the County will discontinue dye operations. Impacted soils will be removed and temporarily disposed into a roll-off container and carried to the Subtitle D landfill for final disposal. The impacted area will be properly stabilized in accordance with NCDENR Sedimentation and Erosion Control guidelines. Following cleanup, the cause of the spill will be determined. In the event of a spill due to equipment malfunction, the equipment will be repaired.

3.9.3 Fire Events

In the event of a fire the standard procedure is for facility personnel to immediately contact the Cumberland County Fire Department via the County's 911 calling system. Once the local fire department is contacted, facility personnel respond to the situation using the water tanker and onsite hydrant, until the fire department arrives. See Appendix K for a copy of the Fire Marshall's Certification letter.

3.9.4 Medical Emergency

When medical emergencies occur, local emergency medical personnel are contacted via the Cumberland County 911 calling system and other emergency contact numbers. The standard procedure is to notify immediately the proper agencies and authorities of medical emergencies at this facility. There are emergency supplies located in the onsite first aid kit that are used for immediate response to these types of emergencies until medical personnel arrive.

3.9.5 Catastrophic Events

The County has operation plans in place to deal with catastrophic events that affect the increase of material disposed at the facility. For natural disasters, the County can accept up to 1,000 tons of acceptable waste material per day. Material not processed is temporarily placed in the overflow stockpile and is processed once operations return to normal.

Should a catastrophic event damage the working area, the facility will remain in operation under a revised plan; A staging area shall be created to facilitate the removal of debris and impediments from the normal work area to allow the facility personnel and equipment to eventually return to that area and resume daily activities as normal as possible.

3.10 Record Keeping

Facility personnel maintain computerized records for material inflow and cash and charges received by the facility. Total annual quantities are compiled and an annual report is prepared each year, on or before August 15, summarizing yearly quantities and activities and submitted to the NCDENR.

The County monitors temperature on regular basis. Temperatures are recorded on daily basis on the form provided in Appendix J and kept on file.

CUMBERLAND COUNTY, NORTH CAROLINA

WILKES ROAD TREATMENT AND PROCESSING FACILITY

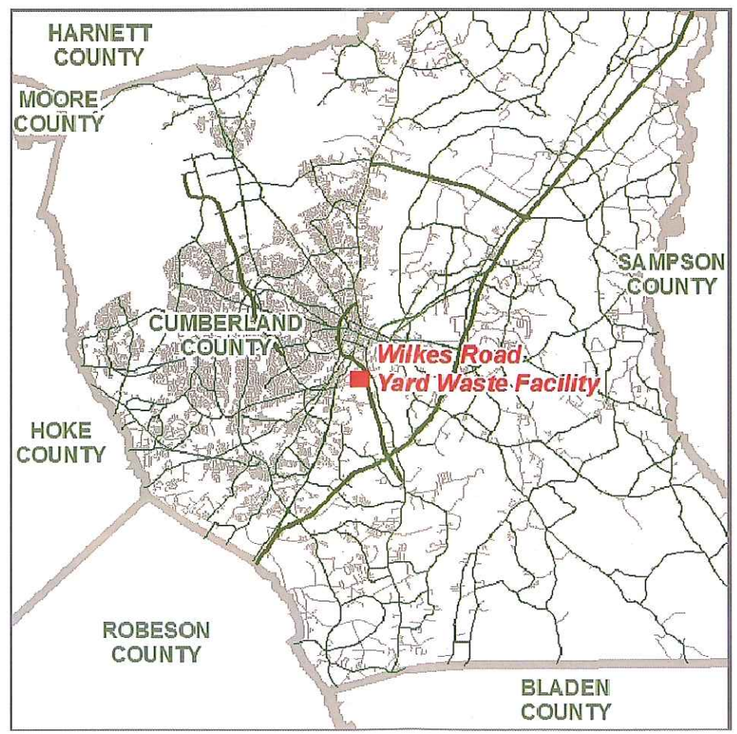
PERMIT DRAWINGS

ORIGINALLY SUBMITTED MAY 2011

REVISED FEBRUARY 2013

INDEX OF DRAWINGS

SHEET NO.	TITLE
COVER	COVER SHEET
C-1	EXISTING CONDITIONS
C-2	EROSION & SEDIMENT CONTROL PLAN
CD-1	EROSION & SEDIMENT CONTROL DETAILS (1 OF 2)
CD-2	EROSION & SEDIMENT CONTROL DETAILS (1 OF 2)



LOCATION PLAN

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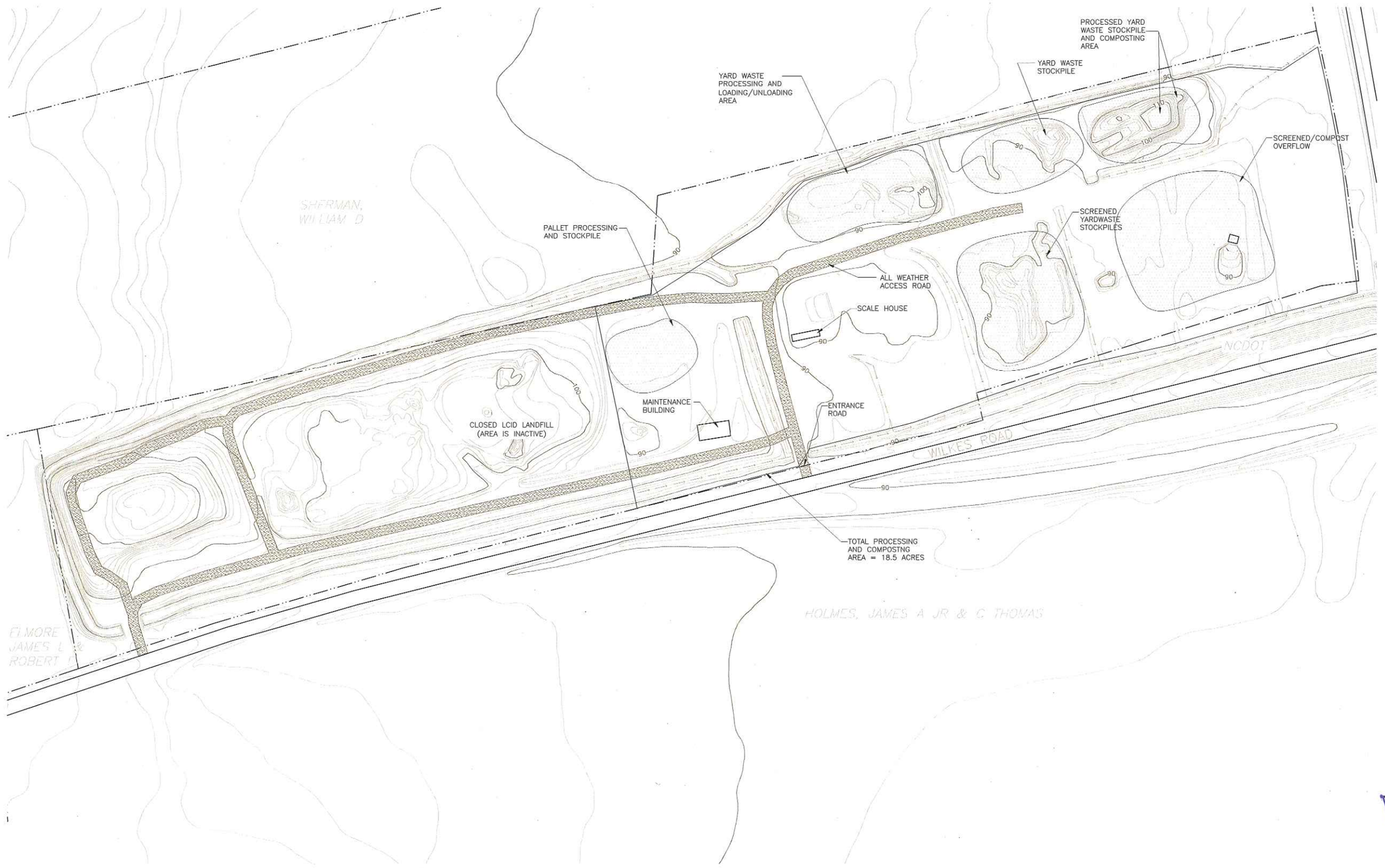
Raleigh, NC 27612 | Tel: (919) 787-5620
NC F-0412

NORTH CAROLINA PROFESSIONAL SEAL 028426 ENGINEER MICHAEL BRINCHEK

02.28.2013

02/19/13 9:08:17 AM P:\CUMBERLAND COUNTY 2724\WILKES ROAD YARD WASTE FACILITY\PERMIT RESPONSES\DWG - WILES ROAD\DWG - WILKES\REVISED COVER (11X17).DWG



LEGEND

- EXISTING DRAINAGE SWALE
- LIMITS OF PROCESSING AND COMPOSTING
- PROPERTY LINE

NOTE:

1. TOPOGRAPHIC INFORMATOIN WAS TAKEN FROM CUMBERLAND COUNTY GIS DATABASE AND MAY NOT REPRESENT CURRENT FIELD CONDITIONS. PRIOR TO BEGINNING ANY WORK, FIELD CONDITIONS SHOULD BE VERIFIED.

NORTH CAROLINA PROFESSIONAL SEAL 028426 ENGINEER W. MICHAEL BRINCHEK

02-28-2013

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: P. STOUT
DRAWN BY: P. STOUT
SHEET CHK'D BY: M. BRINCHEK
CROSS CHK'D BY: A. WEISPFENNING
APPROVED BY: M. BRINCHEK
DATE: FEB 2013

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NC F-0412

CUMBERLAND COUNTY, NORTH CAROLINA

WILKES ROAD YARD WASTE FACILITY

EXISTING CONDITIONS PLAN

PROJECT NO. 2724-92988
FILE NAME: C-1.DWG
SHEET NO.
C-1

PERMITTING

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LEGEND

- PERMANENT DIVERSION – PRACTICE 6.21
- GC3 GRASS CHANNEL – PRACTICE 6.30
- FB–1 FILTER BASIN
- SEDIMENT FENCE – PRACTICE 6.62
- LOD LIMITS OF DISTURBANCE
- PROPERTY LINE
- BUFFER ZONE
- PS PERMANENT SEEDING – PRACTICE 6.11
- UTILITY POLE

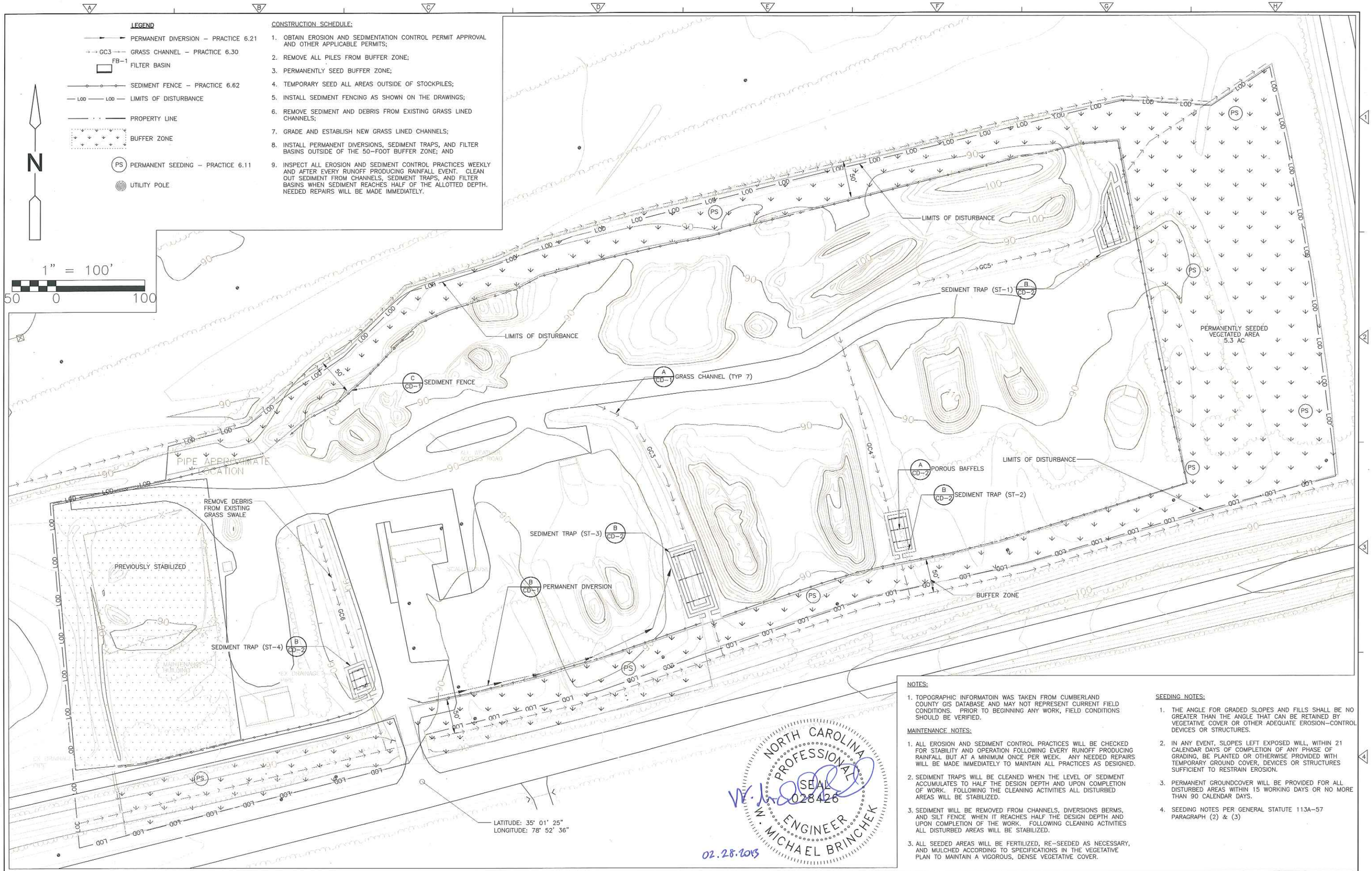
CONSTRUCTION SCHEDULE:

1. OBTAIN EROSION AND SEDIMENTATION CONTROL PERMIT APPROVAL AND OTHER APPLICABLE PERMITS;
2. REMOVE ALL PILES FROM BUFFER ZONE;
3. PERMANENTLY SEED BUFFER ZONE;
4. TEMPORARY SEED ALL AREAS OUTSIDE OF STOCKPILES;
5. INSTALL SEDIMENT FENCING AS SHOWN ON THE DRAWINGS;
6. REMOVE SEDIMENT AND DEBRIS FROM EXISTING GRASS LINED CHANNELS;
7. GRADE AND ESTABLISH NEW GRASS LINED CHANNELS;
8. INSTALL PERMANENT DIVERSIONS, SEDIMENT TRAPS, AND FILTER BASINS OUTSIDE OF THE 50–FOOT BUFFER ZONE; AND
9. INSPECT ALL EROSION AND SEDIMENT CONTROL PRACTICES WEEKLY AND AFTER EVERY RUNOFF PRODUCING RAINFALL EVENT. CLEAN OUT SEDIMENT FROM CHANNELS, SEDIMENT TRAPS, AND FILTER BASINS WHEN SEDIMENT REACHES HALF OF THE ALLOTTED DEPTH. NEEDED REPAIRS WILL BE MADE IMMEDIATELY.

N

1" = 100'

50 0 100



NOTES:

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MAINTENANCE NOTES:

1. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF PRODUCING RAINFALL BUT AT A MINIMUM ONCE PER WEEK. ANY NEEDED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
2. SEDIMENT TRAPS WILL BE CLEANED WHEN THE LEVEL OF SEDIMENT ACCUMULATES TO HALF THE DESIGN DEPTH AND UPON COMPLETION OF WORK. FOLLOWING THE CLEANING ACTIVITIES ALL DISTURBED AREAS WILL BE STABILIZED.
3. SEDIMENT WILL BE REMOVED FROM CHANNELS, DIVERSIONS BERMS, AND SILT FENCE WHEN IT REACHES HALF THE DESIGN DEPTH AND UPON COMPLETION OF THE WORK. FOLLOWING CLEANING ACTIVITIES ALL DISTURBED AREAS WILL BE STABILIZED.
3. ALL SEEDED AREAS WILL BE FERTILIZED, RE–SEEDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.

SEEDING NOTES:

1. THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION–CONTROL DEVICES OR STRUCTURES.
2. IN ANY EVENT, SLOPES LEFT EXPOSED WILL, WITHIN 21 CALENDAR DAYS OF COMPLETION OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY GROUND COVER, DEVICES OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION.
3. PERMANENT GROUNDCOVER WILL BE PROVIDED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR NO MORE THAN 90 CALENDAR DAYS.
4. SEEDING NOTES PER GENERAL STATUTE 113A–57 PARAGRAPH (2) & (3)

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: P. STOUT
DRAWN BY: P. STOUT
SHEET CHK'D BY: M. BRINCHEK
CROSS CHK'D BY: A. WEISPFENNING
APPROVED BY: M. BRINCHEK
DATE: FEB 2013

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CUMBERLAND COUNTY, NORTH CAROLINA

WILKES ROAD YARD WASTE FACILITY

EROSION & SEDIMENT CONTROL PLAN

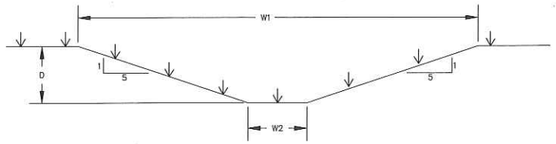
PROJECT NO. 2724–92988
FILE NAME: C–2.DWG

SHEET NO.
C-2

PERMITTING

NOTES:

1. CHANNELS ARE TO BE LINED WITH NORTH AMERICAN GREEN MATTING (SEE CHANNEL SCHEDULE) OR APPROVED EQUIVALENT.
2. NETTING AND MATTING PRODUCTS SHOULD BE INSTALLED ACCORDING TO MANUFACTURER'S GUIDELINES.



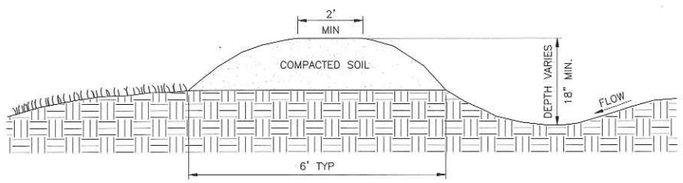
CHANNEL SCHEDULE				
CHANNEL ID	PROTECTION TYPE	W1 (FT)	W2 (FT)	D (FT)
GC3	DS-75	13.5	3	1.75
GC4	DS-75	15	6	1.5
GC5	DS-75	12	3	1.5
GC6	DS-75	12	3	1.5

SECTION

GRASS CHANNEL

DETAIL A C-2

NTS

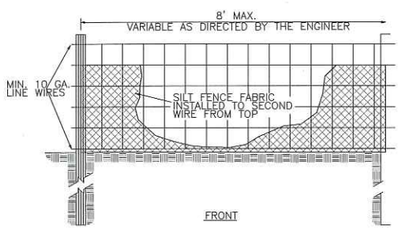


SECTION

PERMANENT DIVERSION

DETAIL B C-2

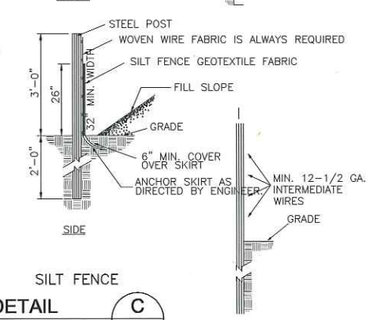
NTS



FRONT

NOTES:

1. END OF SILT FENCE SHOULD BE TURNED UPHILL SEE N.C. STATE DENR PRACTICE STANDARDS & SPECIFICATIONS SEDIMENT FENCE SET FOR CONDITIONS WHERE PRACTICE APPLIES; PLANNING CONSIDERATIONS & DESIGN CRITERIA. (HOWEVER FLOW SHALL NOT RUN PARALLEL WITH THE TOE OF THE FENCE).
2. FOR REPAIR OF SILT FENCE FAILURES, USE No. 57 WASHED STONE. IN EACH CASE THE SILT FENCE IS TO BE PROPERLY ENTRENCHED & THE STONE SHALL BE AT A MINIMUM OF 16" ABOVE GRADE AT THE DIRECTION OF FLOW & BETWEEN 60 – 45 DEGREES.



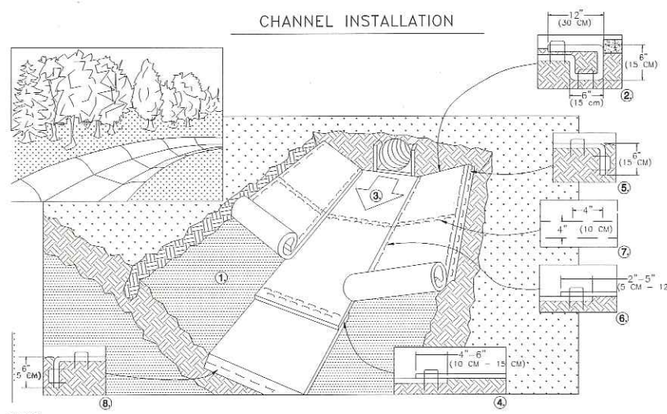
SIDE

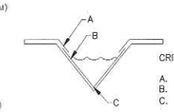
SILT FENCE

DETAIL C C-2

NTS

CHANNEL INSTALLATION



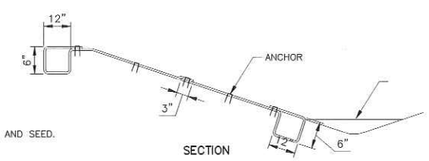


CRITICAL POINTS:

A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES.

NOTE:
* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE RECP's.



SECTION

NOTES:

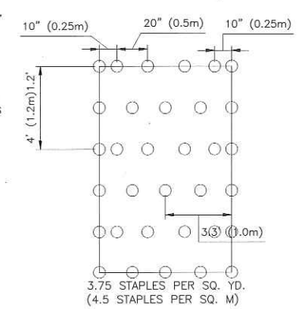
1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING APPLICATION OF LIME, FERTILIZER, AND SEED.
2. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION OF NATURAL FIBER MATTING BASED ON CHANNEL SLOPE.
3. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE RECP's IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH.. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) ACROSS THE WIDTH OF THE RECP's.
4. ROLL CENTER RECP's IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM (TM), STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
5. PLACE CONSECUTIVE RECP's END OVER END (SHINGLE STYLE) WITH A 4' – 6" (10 CM – 15 CM) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER TO SECURE RECP's.
6. FULL LENGTH EDGE OF RECP's AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" 30 CM) APART IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
7. ADJACENT RECP's MUST BE OVERLAPPED APPROXIMATELY 2" – 5" (5 CM – 12.5 CM) (DEPENDING ON RECP's TYPE) AND STAPLED.
8. IN HIGH FLOW CHANNEL APPLICATIONS A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9 M – 12 M) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER OVER THE ENTIRE WIDTH OF THE CHANNEL.
9. THE TERMINAL END OF THE RECP'S MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

NOTE: * IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTH GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE RECP's.

NATURAL FIBER MATTING

DETAIL D –

NTS



3.75 STAPLES PER SQ. YD.
(4.5 STAPLES PER SQ. M)

PLAN

NORTH CAROLINA PROFESSIONAL SEAL 028426 ENGINEER W. MICHAEL BRINCHEK
02.28.2013

REV. NO.	DATE	DRWN	CHKD	REMARKS
1	06/01/09	WPS	WMB	REVISIONS PER NCDENR ESC COMMENTS SUBMITTED 05-18-09

DESIGNED BY: P. STOUT
DRAWN BY: P. STOUT
SHEET CHK'D BY: M. BRINCHEK
CROSS CHK'D BY: A. WEISPFENNING
APPROVED BY: M. BRINCHEK
DATE: FEB 2013

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CUMBERLAND COUNTY, NORTH CAROLINA

WILKES ROAD YARD WASTE FACILITY

EROSION & SEDIMENT CONTROL DETAILS

PROJECT NO. 2724-92988
FILE NAME: CD-1.DWG
SHEET NO.
CD-1

PERMITTING

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DEFINITION:

> TEMPORARY SEEDING: PLANTING RAPID–GROWING ANNUAL GRASSES, SMALL GRAINS, OR LEGUMES TO PROVIDE INITIAL, TEMPORARY COVER FOR EROSION CONTROL ON DISTURBED AREAS.

> PERMANENT SEEDING: CONTROLLING RUNOFF AND EROSION ON DISTURBED AREAS BY ESTABLISHING PERENNIAL VEGETATIVE COVER WITH SEED.

PURPOSE:

> TEMPORARY SEEDING: TO TEMPORARILY STABILIZE DENUDED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A PERIOD OF MORE THAN 21 WORKING DAYS. TEMPORARY SEEDING CONTROLS RUNOFF AND EROSION UNTIL PERMANENT VEGETATION CAN BE ESTABLISHED.
> PERMANENT SEEDING: TO REDUCE EROSION AND DECREASE SEDIMENT YIELD FROM DISTURBED AREAS, AND TO PERMANENTLY STABILIZE SUCH AREAS IN A MANNER THAT IS ECONOMICAL, ADAPTS TO SITE CONDITIONS, AND ALLOWS SELECTION OF THE MOST APPROPRIATE PLANT MATERIALS.

CONDITIONS WHERE PRACTICE APPLIES:

> TEMPORARY SEEDING: ON ANY CLEARED, UNVEGETATED, OR SPARSELY VEGETATED SOIL SURFACE WHERE VEGETATION COVER IS NEEDED FOR LESS THAN 1 YEAR. APPLICATIONS OF THIS PRACTICE INCLUDE DIVERSIONS, DAMS, TEMPORARY SEDIMENT BASINS, TEMPORARY ROAD BANKS, AND TOPSOIL STOCKPILES.
> PERMANENT SEEDING:

> FINE–GRADED AREAS ON WHICH PERMANENT, LONG–LIVED VEGETATIVE COVER IS THE MOST PRACTICAL OR OR MOST EFFECTIVE METHOD OF STABILIZING THE SOIL. PERMANENT SEEDING MAY ALSO BE USED ON ROUGH–GRADED AREAS TAHT WILL NOT BE BROUGHT TO FINAL GRADE FOR A YEAR OR MORE.
> AREAS TO BE STABILIZED WITH PERMANENT VEGETATION MUST BE SEEDED OR PLANTED WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS AFTER FINAL GRADE IS REACHED, UNLESS TEMPORARY STABILIZATION IS APPLIED.

SPECIFICATIONS:

> SEEDBED REQUIREMENTS:

ESTABLISHMENT OF VEGETATION SHOULD NOT BE ATTEMPTED ON SITES THAT ARE UNSUITABLE DUE TO INAPPROPRIATE SOIL TEXTURE, POOR DRAINAGE, CONCENTRATED OVERLAND FLOW, OR STEEPNESS OF SLOPE UNTIL MEASURES HAVE BEEN TAKEN TO CORRECT THESE PROBLEMS.

TO MAINTAIN A GOOD STAND OF VEGETATION, THE SOIL MUST MEET CERTAIN MINIMUM REQUIREMENTS AS A GROWTH MEDIUM. THE EXISTING SOIL SHOULD HAVE THESE CRITERIA:

> ENOUGH FINE–GRAINED (SILT AND CLAY) MATERIAL TO MAINTAIN ADEQUATE MOISTURE AND NUTRIENT SUPPLY (AVAILABLE WATER CAPACITY OF AT LEAST .05 INCHES WATER TO 1 INCH OF SOIL).
> SUFFICIENT PORE SPACE TO PERMIT ROOT PENETRATION.
> SUFFICIENT DEPTH OF SOIL TO PROVIDE AN ADEQUATE ROOT ZONE. THE DEPTH TO ROCK OR IMPERMEABLE LAYERS SUCH AS HARDPANS SHOULD BE 12 INCHES OR MORE, EXCEPT ON SLOPES STEEPER THAN 2:1 WHERE THE ADDITION OF SOIL IS NOT FEASIBLE.
> A FAVORABLE PH RANGE FOR PLANT GROWTH, USUALLY 6.0 TO 6.5.
> FREE FROM LARGE ROOTS, BRANCHES, STONES, LARGE CLODS OF EARTH, OR TRASH OF ANY KIND. CLODS AND STONES MAY BE LEFT ON SLOPES STEEPER THAN 3:1 IF THEY ARE TO BE HYDROSEEDED.

IF ANY OF THE ABOVE CRITERIA ARE NOT MET (I.E., IF EXISTING SOIL IS TOO COARSE, DENSE, SHALLOW OR ACIDIC TO FOSTER VEGETATION), SPECIAL AMENDMENTS ARE REQUIRED. THE SOIL CONDITIONERS DESCRIBED BELOW MAY BE BENEFICIAL OR, PREFERABLY, TOPSOIL MAY BE APPLIED.

> SEEDBED PREPARATION:

INSTALL NECESSARY MECHANICAL EROSION AND SEDIMENTATION CONTROL PRACTICES BEFORE SEEDING, AND COMPLETE GRADING ACCORDING TO THE APPROVED PLAN.

LIME AND FERTILIZER NEEDS SHOULD BE DETERMINED BY SOIL TESTS. SOIL TESTING IS PERFORMED FREE OF CHARGE BY THE NORTH CAROLINA DEPARTMENT OF AGRICULTURE SOIL TESTING LABORATORY.

WHEN SOIL TESTS ARE NOT AVAILABLE, FOLLOW RATES SUGGESTED IN THE SEEDING SPECIFICATIONS SHOWN BELOW:

> GROUND AGRICULTURAL LIMESTONE:
LIGHT–TEXTURED, SANDY SOILS: 1 TO 1½ TONS/ACRE
HEAVY–TEXTURED, CLAYEY SOILS: 2 TO 3 TONS/ACRE
> FERTILIZER:
GRASSES: 800 TO 1200 LB/ACRE OF 10–10–10 OR EQUIVALENT
GRASS–LEGUME MIXTURES: 800 TO 1200 LB/ACRE OF 5–10–10 OR EQUIVALENT

APPLY LIME AND FERTILIZER EVENLY AND INCORPORATE INTO THE TOP 4 TO 6 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. OPERATE MACHINERY ON THE CONTOUR. WHEN USING A HYDROSEEDER, APPLY LIME AND FERTILIZER TO A ROUGH, LOOSE SURFACE.

ROUGHEN SURFACES PRIOR TO SEEDING.

COMPLETE SEEDBED PREPARATION BY BREAKING UP LARGE CLODS AND RAKING INTO A SMOOTH, UNIFORM SURFACE (SLOPES LESS THAN 3:1). FILL IN OR LEVEL DEPRESSIONS THAT CAN COLLECT WATER. BROADCAST SEED INTO A FRESHLY LOOSENED SEEDBED THAT HAS NOT BEEN SEALED BY RAINFALL.

> SEEDING:

SEEDING DATES GIVEN IN THE SEEDING MIXTURE SPECIFICATIONS ARE DESIGNATED AS "BEST" OR "POSSIBLE". SEEDINGS PROPERLY CARRIED OUT WITHIN THE "BEST" DATES HAVE A HIGH PROBABILITY OF SUCCESS. IT IS ALSO POSSIBLE TO HAVE SATISFACTORY ESTABLISHMENT WHEN SEEDING OUTSIDE THESE DATES. HOWEVER, AS YOU DEVIATE FROM THEM, THE PROBABILITY OF FAILURE INCREASES RAPIDLY. SEEDING ON THE LAST DATE SHOWN UNDER "POSSIBLE" MAY REDUCE CHANGES OF SUCCESS BY 30 TO 50 PERCENT. ALWAYS TAKE THIS INTO ACCOUNT IN SCHEDULING LAND–DISTURBING ACTIVITIES.

USE CERTIFIED SEED FOR PERMANENT SEEDING WHENEVER POSSIBLE. CERTIFIED SEED IS INSPECTED BY THE NORTH CAROLINA CROP IMPROVEMENT ASSOCIATION. IT MEETS PUBLISHED NORTH CAROLINA STANDARDS AND SHOULD BEAR AN OFFICIAL "CERTIFIED SEED" LABEL.

LABELING OF NON–CERTIFIED SEED IS ALSO REQUIRED BY LAW. LABELS CONTAIN IMPORTANT INFORMATION ON SEED PURITY, GERMINATION, AND PRESENCE OF WOOD SEEDS. SEEDS MUST MEET STATE STANDARDS FOR CONTENT OF NOXIOUS WEEDS. DO NO ACCEPT SEED CONTAINING "PROHIBITED" NOXIOUS WEED SEED.

INOCULATE LEGUME SEED WITH THE RHIZOBIUM BACTERIA APPROPRIATE TO THE SPECIES OF LEGUME.

APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DROP–TYPE SPREADER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRIABLE SEEDBED.

WHEN USING A DRILL OR CULTIPACKER SEEDER, PLANT SMALL GRAINS NO MORE THAN 1 INCH DEEP, GRASSES AND LEGUMES NO MORE THAN 1/2 INCH. EQUIPMENT SHOULD BE CALIBRATED IN THE FIELD FOR THE DESIRED SEEDING RATE.

WHEN USING BROADCAST–SEEDING METHODS, SUBDIVIDE THE AREA INTO WORKABLE SECTIONS AND DETERMINE THE AMOUNT OF SEED NEEDED FOR EACH SECTION. APPLY ONE–HALF THE SEED WHILE MOVING BACK AND FORTH ACROSS THE AREA, MAKING A UNIFORM PATTERN; THEN APPLY THE SECOND HALF IN THE SAME WAY, BUT MOVING AT RIGHT ANGLES TO THE FIRST PASS.

MULCH ALL PLANTINGS IMMEDIATELY AFTER SEEDING.

> HYDROSEEDING:

SURFACE ROUGHENING IS PARTICULARLY IMPORTANT WHEN HYDROSEEDING, AS A ROUGHENED SLOPE WILL PROVIDE SOME NATURAL COVERAGE FOR LIME, FERTILIZER, AND SEED. THE SURFACE SHOULD NOT BE COMPACTED OR SMOOTH. FINE SEEDBED PREPARATION IS NOT NECESSARY FOR HYDROSEEDING OPERATIONS: LARGE CLODS, STONES, AND IRREGULARITIES PROVIDE CAVITIES IN WHICH SEEDS CAN LODGE.

RATE OF WOOD FIBER (CELLULOSE) APPLICATION SHOULD BE AT LEAST 2–3 TONS 4000 TO 6000 LB/ACRE.

APPLY LEGUME INOCULANTS AT FOUR TIMES THE RECOMMENDED RATE WHEN ADDING INOCULANT TO A HYDROSEEDER SLURRY.

IF A MACHINERY BREAKDOWN OF ½ TO 2 HOURS OCCURS, ADD 50 PERCENT MORE SEED TO THE TANK, BASED ON THE PROPORTION OF THE SLURRY REMAINING. THIS SHOULD COMPENSATE FOR DAMAGE TO SEED. BEYOND 2 HOURS, A FULL RATE OF NEW SEED MAY BE NECESSARY.

LIME IS NOT NORMALLY APPLIED WITH A HYDRAULIC SEEDER BECAUSE IT IS ABRASIVE. IT CAN BE BLOWN ONTO STEEP SLOPES IN DRY FORM.

WHEN APPLYING HYDROSEED THE TOWER OR TANK METHOD SHALL BE USED. BELOW ARE THE SEQUENCE OF APPLICATION FOR BOTH METHODS:

WHEN USING THE TANK METHOD THE FIRST APPLICATION SHOULD BE WITH ⅔ MULCH, ALL SEED AND FERTILIZER AND THE SECOND APPLICATION SHOULD BE WITH ⅓ MULCH ONLY.

WHEN USING THE TOWER METHOD THE SECOND APPLICATION SHOULD BE WITH ⅓ MULCH ONLY IN ONE DIRECTION AND THE FIRST APPLICATION SHOULD BE WITH ⅔ MULCH, ALL SEED AND FERTILIZER IN ONE DIRECTION.

> MAINTENANCE:

GENERALLY, A STAND OF VEGETATION CANNOT BE DETERMINED TO BE FULLY ESTABLISHED UNTIL SOIL COVER HAS BEEN MAINTAINED FOR ONE FULL YEAR FROM PLANTING, INSPECT SEEDED AREAS FOR FAILURE AND MAKE NECESSARY REPAIRS AND RESEEDINGS WITHIN THE SAME SEASON, IF POSSIBLE.

RESEEDING: IF A STAND HAS INADEQUATE COVER, REEVALUATE CHOICE OF PLANT MATERIALS AND QUANTITIES OF LIME AND FERTILIZER. REESTABLISH THE STAND AFTER SEEDBED PREPARATION OR OVERSEED THE STAND. CONSIDER SEEDING TEMPORARY, ANNUAL SPECIES IF THE TIME OF YEAR IS NOT APPROPRIATE FOR PERMANENT SEEDING.

IF VEGETATION FAILS TO GROW, SOIL MUST BE TESTED TO DETERMINE IF ACIDITY OR NUTRIENT IMBALANCE IS RESPONSIBLE.

FERTILIZATION: ON THE TYPICAL DISTURBED SITE, FULL ESTABLISHMENT USUALLY REQUIRES REFERTILIZATION IN THE SECOND GROWING SEASON. FINE TURF REQUIRES ANNUAL MAINTENANCE FERTILIZATION. USE SOIL TESTS IF POSSIBLE OR FOLLOW THE GUIDELINES GIVEN FOR THE SPECIFIC SEEDING MIXTURE.

> TEMPORARY SEEDING SPECIFICATIONS*:

> SEEDING MIXTURES AND DATES:

FALL (AUG. 15 TO DEC. 30)	RATE (LB/ACRE)
RYE (GRAIN)	120

LATE WINTER TO EARLY SPRING (JAN. 1 TO MAY 1)	RATE (LB/ACRE)
RYE (GRAIN)	120
KOBE LESPEDEZA	50

NOTE: OMIT ANNUAL LESPEDEZA WHEN DURATION OF TEMPORARY COVER IS NOT TO EXTEND BEYOND JULY.

SUMMER (MAY 1 TO AUG. 15)	RATE (LB/ACRE)
GERMAN MILLET	40

> SOIL AMENDMENTS:

1. FOLLOW RECOMMENDATIONS OF SOIL TESTS; OR
2. APPLY 2000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10–10–10 FERTILIZER.

> MULCH:

APPLY 4,000 LB/ACRE STRAW. ANCHOR MULCH BY TACKING WITH ASPHALT, ROVING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

> MAINTENANCE:

REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

* REF: 6.10 A, B & C, NC EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, 2006

> PERMANENT SEEDING SPECIFICATIONS*:

> SEEDING MIXTURES:

	RATE (LB/ACRE)
TALL FESCUE	80
SERICEA LESPEDEZA	20
KOBE LESPEDEZA	10

NURSE PLANTS:
1. FROM MAY 1 AND AUG. 15, ADD 10 LB/ACRE GERMAN MILLET OR 15 LB/ACRE SUDANGRASS.
2. PRIOR TO MAY 1 OR AFTER AUG. 15, ADD 40 LB/ACRE RYE (GRAIN).

> SEEDING DATES

	BEST	POSSIBLE
FALL	AUG. 25 TO SEPT. 15	AUG. 20 TO OCT. 25
LATE WINTER	FEB. 15 TO MAR. 21	FEB. 1 TO APR. 15

NOTE: FALL IS BEST FOR TALL FESCUE AND LATE WINTER IS BEST FOR LESPEZEDA. OVERSEEDING OF KOBE LESPEZEDA OVER FALL–SEEDED TALL FESCUE IS VERY EFFECTIVE.

> SOIL AMENDMENTS:

1. FOLLOW RECOMMENDATIONS OF SOIL TESTS; OR
2. APPLY 4000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 1000 LB/ACRE 10–10–10 FERTILIZER.

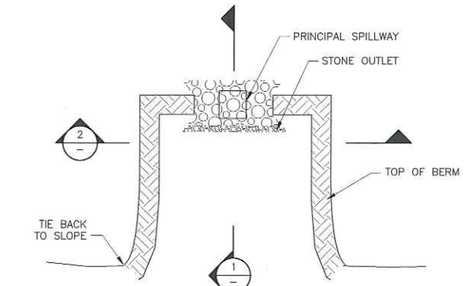
> MULCH:

APPLY 4000 LB/ACRE GRAIN STRAW OR EQUIVALENT COVER OF ANOTHER SUITABLE MULCHING MATERIAL. ANCHOR MULCH BY TACKING WITH ASPHALT, ROVING OR NETTING. NETTING IS THE PREFERRED ANCHORING METHOD ON STEEP SLOPES.

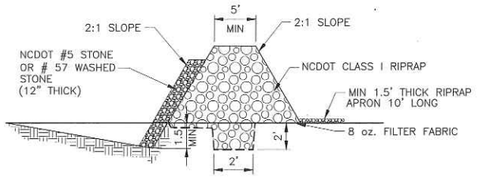
> MAINTENANCE:

REFERTILIZE IN THE SECOND YEAR UNLESS GROWTH IS ADEQUATE. MAY BE MOWED ONCE OR TWICE A YEAR, BUT MOWING IS NOT NECESSARY. RESEED, REFERTILIZE, AND REMULCH DAMAGED AREAS IMMEDIATELY.

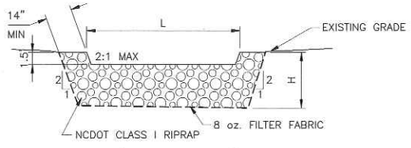
* REF: 6.11L, NC EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, 2006



PLAN



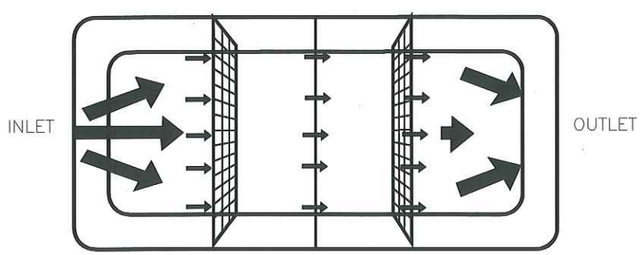
SECTION 1
NTS

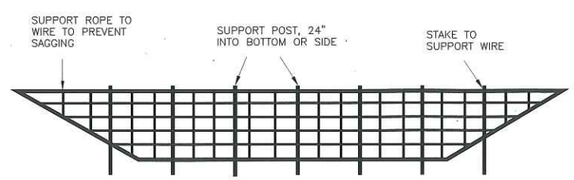


SECTION 2
NTS

TEMPORARY SEDIMENT TRAPS

SED TRAP NO.	MAX DRAINAGE AREA (AC)	L x W (APPROX. DIM. REFER TO C–2 FOR SED. TRAP GRADING)	MINIMUM STORAGE VOLUME (FT^3)	SURFACE AREA (FT^2)	WEIR WIDTH (FT)	EMBANKMENT HEIGHT (FT)	NO POROUS BAFFLES
ST–1	5	80' x 40'	4,320	2,473	6.0	4.0	3
ST–2	5	60' x 30'	4,320	1,636	6.0	4.0	3
ST–3	5	80' x 40'	12,240	3,609	8.0	6.0	3
ST–4	5	40' x 30'	2,250	1,186	4.0	4.0	3





POROUS BAFFLE IN SEDIMENT TRAP
DETAIL A
NTS

TEMPORARY SEDIMENT TRAP
DETAIL B
NTS

NORTH CAROLINA PROFESSIONAL SEAL 028426 ENGINEER W. MICHAEL BRINCHEK
02.28.2013

REV. NO.	DATE	DRWN	CHKD	REMARKS
2	06/05/09	WPS	WMB	REVISIONS PER NCDENR ESC COMMENTS RECEIVED ON 06–04–09
1	05/01/09	WPS	WMB	REVISIONS PER NCDENR ESC COMMENTS RECEIVED ON 05–18–09

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CUMBERLAND COUNTY, NORTH CAROLINA

WILKES ROAD YARD WASTE FACILITY

EROSION & SEDIMENT CONTROL DETAILS

PROJECT NO. 2724–92988
FILE NAME: CD–2.DWG
SHEET NO. CD-2

PERMITTING

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