

Permit No.	Scan Date	DIN
5503	August 10, 2011	14788

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APPROVED DOCUMENT
Division of Waste Management
Solid Waste Section
Date March 12, 2012 By LY Frost

REVISED OPERATIONS PLAN
LINCOLN COUNTY LANDFILL
PERMIT NO. 55-03
CROUSE, NORTH CAROLINA
S&ME Project No. 1356-11-013

Prepared for:

Lincoln County
5291 Crouse Road
Crouse, North Carolina 28033

Prepared by:



S&ME, Inc.
9751 Southern Pine Blvd
Charlotte, North Carolina 28273

Revised on August 8, 2011

Julie R. Petersen, P.G.
Project Manager/ Senior Geologist

Kenneth R. Daly, P.E.
Senior Project Engineer

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North Carolina Department of Environment and Natural Resources
Division of Waste Management
Solid Waste Section
2090 U.S. Highway 70
Swannanoa, NC 28778

Attention: Mr. Larry Frost
Regional Engineer

Reference: Request for Extension of Operating Permit
Lincoln County MSW Landfill – Phase III (55-03)
Crouse, North Carolina
S&ME Project No. 1356-11-013

Dear Mr. Frost:

S&ME, Inc. (S&ME), on behalf of Lincoln County, presents this request for an extension of the Permit to Operate for the above referenced Municipal Solid Waste (MSW) Landfill. The current Operating Permit for the facility (Permit Number 55-03) is due to lapse on September 11, 2011. Due to disposal rates less than anticipated, the MSW Landfill has sufficient capacity remaining to continue operating beyond the previously permitted 5-year period. Based on the 2011 Annual Survey, it is estimated that Phase III of the Lincoln County MSW Landfill has approximately 3 years of capacity remaining. As a result, Lincoln County requests authorization to continue operating the MSW Landfill under the existing approved plan. S&ME and Lincoln County anticipate submittal of the Permit to Construct for Phase IV in the year 2013.

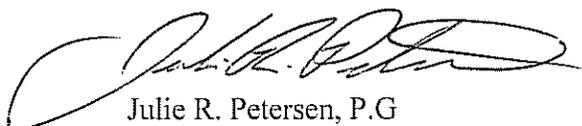
As requested by the NCDENR, S&ME has revised the Operations Plan for the Phase III MSW landfill and is submitted concurrently with this letter. The previous Operations Plan was revised on November 25, 2009, since that revision S&ME has updated the following sections for your reference:

- Section 1.5 Waste Acceptance, Disposal, and Screening Requirements – updated banned materials from the landfill;
- Section 1.7 Operations Record Keeping – updated operating record list to include EPA Greenhouse Gas Reporting;
- Section 4 Site Operations and Maintenance – added Section 4.5 Edge-of-Waste Markers; and
- Updated Appendix II with current Waste Screening Forms.

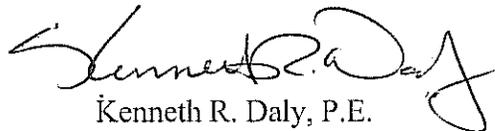
If you should have any questions or need additional information pertaining to this request, please do not hesitate to contact us at your convenience.

Sincerely,

S&ME, Inc.



Julie R. Petersen, P.G.
Project Manager/Senior Geologist



Kenneth R. Daly, P.E.
Senior Project Engineer

Senior reviewed by Jason S. Reeves, P.E., Senior Project Engineer

cc: Mark Bivins, Interim Solid Waste Manager (Lincoln County)
Burns Whittaker, Public Work Director (Lincoln County)

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APPENDICES

- Appendix I Phasing Diagrams
- Appendix II Waste Acceptance and Screening Forms

1. MSW LANDFILL OPERATIONS AND MAINTENANCE

The Lincoln County MSW Landfill is owned and operated by Lincoln County. Operation and maintenance of the landfill is the responsibility of the Solid Waste Manager of Lincoln County Landfill.

1.1 Landfilling Sequence

The development of the Lincoln County MSW Landfill has been sequenced in phases. Landfilling operations generally precede from the up-gradient end of Phases I and II towards the down-gradient end by the use of cells. To continue the existing sequencing, Phase III is “piggybacked” onto Phase II, and will be raised to an elevation of 932 feet. Each cell within Phase III will be filled to approximately 10 to 12 feet on the initial solid waste lift and the entire cell will be covered prior to beginning the initial solid waste lift of the next cell. Once the initial lift has been placed in Cells 1 through 3, the second and subsequent lifts of solid waste will be placed. This method is intended to reduce leachate generation by diverting stormwater with the daily cover.

1.2 Stormwater Collection and Removal

Outside the landfill limits, the perimeter berms with adjacent permanent drainage ditches will divert surface water run-on from entering the landfill limits. A temporary divider berm and pipes are provided within each cell to allow removal of surface water that has not contacted waste. These temporary pipes, located at the low point of each cell, pass through the divider berm and the Phase III interim berm to allow open channel flow drainage to the down gradient surface water collection and removal system. The surface water is then discharged into a channel leading to a sediment basin.

Prior to landfilling a cell, the surface water drainage pipe within the cell will be removed and replaced with backfill. The Operations Manager will observe and document the removal of the pipe to verify that the underlying liner system is not damaged. Following the pipe removal, surface water that accumulates within the active cell will either infiltrate into the operational cover or flow into the leachate header pipe located at the low point of the cell. This surface water, which has contacted waste, will then flow into the leachate collection and removal system and will be treated as leachate. In addition, the up-gradient temporary divider berm will be removed and used as daily cover. Care will be taken during removal of the divider berm so that at least 24 inches of operational cover remains above the liner system.

Since landfilling will progress from up-gradient to down-gradient, surface water will drain down-gradient of the active face and flow into the leachate collection system. Landfilled areas up-gradient of the active face will be graded so that surface water drains around the active face. Prior to development of the last cell within the phase, the divider berm will be removed and used as daily cover. In addition, the HDPE stormwater removal pipe will be grouted along the entire length of pipe and capped. It is recommended that this task be observed by the design engineer to verify that the liner penetration has been completely sealed.

1.3 Leachate Collection and Removal System

The leachate collection and removal system consists of a geonet composite with a series of collection pipe laterals. The lateral pipes are connected to an HDPE header pipe that provides gravity drainage of the leachate to sump locations within the phase. Leachate gravity drains to the lift station where it is pumped to the storage tanks. The leachate is hauled to a local wastewater treatment plant (WWTP) for treatment. If leachate strengths increase, a future aeration system or mixing system will be added, as needed.

The leachate storage tanks have a capacity of 500,000 gallons. Based on the HELP modeling used to estimate the daily average and peak leachate generation volumes, the leachate storage tanks can accommodate adequate holding time or storm surges.

The general operation required to activate a cell for waste placement will include the activation of the leachate collection and removal system within the active cell. This task is accomplished by opening the leachate header pipe located along the toe of the perimeter berm just up-gradient from the previously removed surface water drainage pipe. Opening of the leachate header pipe will involve removal of the temporary armored channel and cover geotextile over the header pipe drainage material. The opened header pipe feeds directly into the leachate collection and removal system such that precipitation water entering the cell will now enter the leachate collection and removal system. The temporary geotextile placed over the header pipe drainage material will be cut along its centerline and pulled back just prior to placing waste over the header pipe.

The Solid Waste Manager will document the activation of the leachate collection system within each cell and file the documentation in the facility operation records.

1.3.1 Maintenance, Record Keeping, and Sampling

Periodic maintenance checks and cleaning will be performed on the leachate storage tanks and equipment as recommended by the manufacturer. The maintenance checks will consist of checking equipment for corrosion, leakage, wear, scale build-up, improper functioning, and other improper operations. Appropriate measures will be taken when maintenance checks reveal any equipment is operating in a way other than what is specified by the manufacturer.

Clean-out pipes have been provided at the ends of the leachate header pipes in the event that the leachate collection and removal pipes become clogged. If a clogging problem exists within a pipe, the pipe can be cleaned out by the use of a clean-out snake or high pressure water flushing. To prevent clogging of the LCS, the LCS will be cleaned annually with high pressure water flushing followed by inspections made with closed circuit television (CCTV).

The County will maintain records of the amounts of leachate generated and disposed of at the wastewater treatment facility. The maintenance of the leachate management system's physical facilities (consisting of HDPE piping and manholes and lift station and tanks) and records is performed by the Solid Waste Manager for Lincoln County.

Leachate will be sampled semi-annually, concurrent with the groundwater sampling events. Leachate should be sampled for constituents listed in Section .1634 Detection Monitoring Program of the Solid Waste Management Rules which include pH, BOD, COD, TDS, phosphate, nitrate, and sulfate.

1.3.2 Contingency Plan

Under normal operation, leachate will be pumped at least twice a week. The volume of leachate stored would not be allowed to exceed 250,000 gallons without beginning removal operations. A factor of safety is available in the leachate storage capacity in the event of storm surges.

In the event of a spill or an emergency, the following steps will be taken to reduce adverse effects on the surrounding environment:

- Determine the cause or source of the spill and ensure that immediate response actions to stop the leak and control the spill have been, or are being, taken as long as they do not endanger employee health and safety.
- Leachate can be backed up into the landfill by closing the valve provided at the first manhole exiting the landfill cell. If the pipeline between the cell and storage basin requires repairs, the leachate can be pumped and hauled from one of the header cleanouts along the basin berm.
- Lincoln County personnel will document the spill by keeping a chronological log of events and communication during the spill, a description of response actions, photographs of the incident, and correspondence with regulatory agencies.
- Lincoln County personnel will notify the appropriate State authorities within 24 hours and submit a written report to the State within five days that provides the reason for the occurrence. In the event of a discharge of 15,000 gallons or more of untreated wastewater to the surface waters of the state, a notice will be published in a newspaper having general circulation in the county in which the discharge occurs. State contacts are listed below.

Name of Department

NCDENR Division of Water Quality
NCDENR Division of Water Quality – Environmental Emergency (24-hrs)
NCDENR Mooresville Regional Office

Telephone Number

919-733-7015
800-858-0368
704-663-1699

1.4 Placement of Waste and Cover Material

Prior to waste placement, stakes indicating the limits of waste placement (edge of liner), as shown on the Engineering Plan Drawings, will be located and clearly identified. Solid waste will be compacted as densely as practical using landfill compactors and dozers. Waste placement will be in lifts not less than 10 feet in vertical thickness for the initial fill placement adjacent to the lined side slopes. A minimum of five feet of waste must be placed on the cell floor before truck access or compaction with a landfill compactor is allowed. A minimum of four passes by the compactor will be required prior to placement of the next lift of waste. Based on the type of waste, additional passes may be required to achieve higher compaction rates.

Initially the waste will be placed from up-gradient to down-gradient, but as higher waste elevations are achieved, the waste may be placed from down-gradient to up-gradient on the active face slope, as long as landfill surfaces are graded to allow proper drainage. A minimum five percent slope will be graded on the landfill surface to promote surface water runoff. Solid waste will not be disposed of in water, and surface water will not be impounded over or in the solid waste. In addition, the landfill active face should be as small as possible to reduce the amount of daily cover. Phasing Diagrams for the proposed landfilling sequence are presented in *Appendix I*.

As waste is being placed directly onto the operational cover, care will be taken so that sharp objects are not placed directly on the operational cover to minimize the potential of damaging the leachate collection and liner systems. Cover material will be obtained from on-site stockpiles or borrow areas. Solid waste will be covered with a layer of compacted soil at least 6 inches thick. A demonstration and permit modification request will be submitted to the Division of Waste Management should it become desired to utilize alternative daily covers.

An intermediate cover will be placed on areas where waste placements will be inactive for 12 months or more. The intermediate cover will be placed at frequencies suitable for specific waste management operations. Areas receiving intermediate soil cover will be grassed in accordance with the Rules. The final cover system will be placed in accordance with the Closure/Post-Closure Program.

1.5 Waste Acceptance, Disposal, and Screening Requirements

The procedural requirements for waste acceptance at the Lincoln County Landfill will generally be the same as those currently in use. The landfill will accept industrial, commercial, and municipal solid wastes, and may accept special wastes upon proper approval for disposal. Special waste will be handled in accordance with local, state and federal guidelines. The landfill will only accept those solid wastes which it is permitted to receive.

The landfill owner or operator will notify the Division of Waste Management within 24 hours of attempted disposal of any waste the landfill is not permitted to receive, including waste from outside the area the landfill is permitted to serve. No hazardous, liquid, or infectious waste will be accepted or disposed of in the landfill. Wastes prohibited for disposal include those hazardous wastes defined in 15A NCAC 13A (including hazardous waste from conditionally exempt small quantity generators), polychlorinated biphenyls as defined in 40 Code of Federal Regulations (CFR) 761, septic waste, waste oil or any waste that is determined to contain "free liquids" as defined by EPA Method 9095 (Paint Filter Liquids Test), S.W. 846.

Management of asbestos will be in accordance with 40 CFR 61. Asbestos will be disposed of at the landfill on the bottom of the active landfill face apart from other wastes and immediately covered with soil.

Bulk or non-containerized liquid waste may not be disposed in the landfill unless the waste is a household waste other than septic waste or waste oil or the waste is leachate or gas condensate from the landfill. Containers holding liquid waste may not be disposed in the landfill unless the container is a small container similar in size to that normally found in household waste, the container is designed to hold liquids for use other than storage, or the waste is a household waste.

Non-regulated medical waste may be disposed with general solid waste. Sharps that are broken or unbroken will be placed in a sealed, puncture-proof container prior to disposal. Spoiled foods, animal carcasses, abattoir waste, hatchery waste, and other animal waste delivered to the disposal site should be immediately covered with soil.

The sludge from a wastewater treatment plant may be disposed with general solid waste in accordance with passing the Paint Filter Liquids Test (EPA Method 9095) and tested with a Toxicity Characteristic Leaching Procedure (TCLP). Barrels and drums will not be disposed of unless they are empty and perforated sufficiently to ensure that they do not contain liquid (except for household wastes in small containers of original packaging) or hazardous waste. Additional materials banned from the Subtitle D landfill include the following:

- used oil;
- yard trash;
- white goods;
- antifreeze (ethylene glycol);
- aluminum cans;
- whole scrap tires;
- lead-acid batteries, as provided in G.S. 130A-309.70;
- beverage containers that are required to be recycled under G.S. 18B-1006.1;
- motor vehicle oil filters;
- recyclable rigid plastic containers that are required to be labeled as provided below, that have a neck smaller than the body of the container, and that accept a screw top, snap cap, or other closure. The prohibition on disposal of recyclable rigid plastic containers in landfills does not apply to rigid plastic containers that are intended for use in the sale or distribution of motor oil or pesticides:
 - (a) for polyethylene terephthalate, the letters "PETE" and the number 1;
 - (b) for high density polyethylene, the letters "HDPE" and the number 2;
 - (c) for vinyl, the letter "V" and the number 3;
 - (d) for low density polyethylene, the letters "LDPE" and the number 4;
 - (e) for polypropylene, the letters "PP" and the number 5;
 - (f) for polystyrene, the letters "PS" and the number 6; and
 - (g) for any other, the letters "OTHER" and the number 7.
- wooden pallets;
- oyster shells;
- discarded computer equipment (includes laptops, desktops, monitors, video displays, printers, scanners, printer-scanner-fax combos, mice and keyboards);
- discarded televisions; and
- fluorescent lights and thermostats that contain mercury (in unlined landfills only).

The County will conduct a screening program at the facility for detecting and preventing disposal of hazardous and liquid waste. The program will consist of random inspections of incoming loads of both MSW and C&D waste. The County will inspect a minimum of 1% of the incoming MSW and C&D waste. The selection of the vehicle that will have its load inspected will be the responsibility of the Solid Waste Manager. The selection will be made at the scales or landfill workface. The hauler will be required to sign the Pre-Acceptance Agreement (after being completed by the Screening Inspector). The Solid Waste Manager will notify the landfill facility's "Screening Inspector" (chosen by the Solid Waste Manager and adequately trained) to meet the designated hauler at an area of daily or intermediate cover away from the working face. The hauler will dump the load of waste, then the Screening Inspector will "sort" through the waste using a loader or other similar equipment for handling bulky materials and by hand with a rake or shovel. Once the waste is spread thin enough to observe the entire load, the inspector will record the information required on the Detailed Screening Report and Waste Screening Checklist. If liquid or hazardous wastes are not found in the inspected load, then the waste will be disposed of on the working face in the cell immediately after completion of the inspection.

If hazardous or liquid wastes are identified in the load, the screening inspector will immediately notify the Solid Waste Manager. If hazardous waste is identified, the hazardous materials emergency response team for Lincoln County will also be notified. If liquid waste is discovered, it will be contained with a soil berm, or with other suitable measures, temporarily until an absorbent can be placed with the liquid or until proper containers are available for filling. The saturated absorbent or containers will then be disposed of at an appropriate facility. If hazardous waste is discovered, it will be maintained in the same manner as the liquid waste and will be disposed of at a suitable facility for hazardous waste as determined by the emergency response team or a qualified environmental/hazardous waste consultant.

Records of inspections will be maintained in a "Screening Inspection" file or notebook as a permanent record at the facility office. Sample forms for the waste acceptance and screening inspections are provided in *Appendix II*. These forms include a Pre-Acceptance Agreement and Random Waste Audit Form. Facility personnel involved with the screening inspections should be trained for identification of hazardous and liquid wastes through programs offered by the State or by the Solid Waste Association of North America (SWANA). The "Screening Inspector" should also have the Occupational Safety and Health Administration (OSHA) 40-hour hazardous waste and safety training.

1.6 Training of Facility Personnel

Due to the diversity of job tasks required at Subtitle D type landfills and the critical nature of the landfill components, personnel should be adequately trained to handle the operation and maintenance of the facility. Some of the critical tasks include:

- operation and maintenance of leachate storage tanks and associated piping;
- maintaining leachate flow volumes and records;
- accurate records of waste loading (quantitative and qualitative);
- identification of hazardous and liquid wastes; and

- control of accidental fires.

The Solid Waste Manager should have a general understanding of the tasks required for site operations. He should have individuals performing the various tasks that have had training for the specific tasks they are assigned through programs offered by the State or by organizations like the Solid Waste Association of North America (SWANA).

1.7 Operations Record Keeping

Lincoln County maintains an on-site operating record in accordance with the North Carolina Solid Waste Management Rules, Section .1626 (10). The operating record includes the following:

- waste screening program and inspections;
- waste determination records;
- waste amounts received (and source);
- scrap tire hauler certification forms;
- methane gas monitoring plan, gas monitoring results, and any remediation plans;
- groundwater monitoring information which includes the following:
 - documentation of approval from the Division;
 - approved groundwater monitoring plan;
 - groundwater monitoring results;
 - notice of statistically significant changes in constituents (if any);
 - report of explanation of significant changes if not caused by the MSWLF unit;
 - notice of Appendix II constituents detected (if any);
 - report of each sampling event;
 - permit modification to document selection of corrective action (if any);
 - report justifying alternative corrective measures (if any); and
 - report documenting completion of corrective action (if any).
- closure and post-closure monitoring plan;
- closure cost estimate and financial assurance documentation;
- records required by 40 CFR 61 (asbestos rules);
- operations plan; and
- leachate management plan;
- EPA Greenhouse Gas Monitoring Plan and greenhouse gas monitoring results.

The above records will be kept in the operating record for the active life of the landfill and the post-closure care period. Information contained in the operating record must be furnished upon request to the Division or made available for inspection by the Division. Additional records kept on-site by Lincoln County include:

- facility permits:
 - solid waste facility permits;
 - EPA generator I.D./permit;
 - National Pollutant Discharge Elimination System (NPDES) stormwater discharge permit;
 - non-domestic wastewater discharge permit; and

- erosion and sediment control plan permit.
- regulatory agency inspection reports;
- employee training program and records;
- internal vehicle maintenance records;
- site drawings and specifications;
- Spill Prevention, Control and Countermeasure (SPCC) plan;
- special waste acceptance records; and
- NCDENR Acknowledgement Letter to Operate a Small Type I Composting Unit.

2. C&D LANDFILL OPERATIONS AND MAINTENANCE

The C&D Landfill is owned and operated by Lincoln County. It is located on the mid-eastern portion of the Lincoln County Landfill site. The Solid Waste Manager is responsible for the operations and maintenance of the site.

Lincoln County anticipates that the waste stream for the C&D Landfill will be generated from residential, agricultural facilities, commercial businesses, and industrial facilities within the State of North Carolina. The waste stream will typically be waste resulting from the construction, remodeling, repair or demolition operations on pavement, buildings, or other structures. No household solid waste, commercial solid waste, industrial solid waste, hazardous waste, PCB waste, liquid waste or other banned wastes that may pose a threat to the environment and public health will be disposed at this facility.

Fill materials required for construction of perimeter berms, subgrade, and cover will be obtained from excavation of the landfill.

2.1 Landfill Capacity

The C&D Landfill consists of Phases I and II. The Phase II landfill is an expansion of the C&D Phase I landfill. The development of the C&D Landfill - Phase II will be in two (2) sub-phases as a “piggy back” system up the existing Phase I slope. Phase IIA will provide the foundation base for Phase IIB. Phase IIB will “piggyback” Phase IIA and Phase I. Sub-phasing will be designated as an elevation up the slope based on tonnage rates. The sub-phasing is divided out based on two elevations that approximately represents five years of landfill capacity. The capacity is based on a yearly disposal rate of 20,000 tons/year at 5 percent increase per year at a unit weight of 1,200 lbs/cy (0.6 tons/cy).

2.2 Landfill Phasing

Waste will be initially placed in Phase II from the upgradient (west) to the downgradient (east) end of the phase. An initial approximate 10-foot lift of waste will be placed across the phase floor working from upgradient to downgradient areas. After the initial solid waste lift has been placed, the subsequent solid waste lifts will also proceed from the upgradient end toward the downgradient end. Once the lifts of waste are high enough, the waste will be “piggy-backed” onto the existing adjacent C&D Landfill - Phase I. This procedure will continue until proposed final contours for Phase II are reached.

Additional phased filling will proceed after Phase II is completed, contingent on future permitting by the State of North Carolina.

The C&D Landfill – Phase II will be operated with equipment owned by Lincoln County Landfill. Primarily, one waste compactor, one dozer, one excavator, one pan, one grader, and a water truck will be used for site operations and maintenance. Additional equipment will be available as necessary during operation of the C&D landfill.

2.3 Stormwater Collection and Removal

Stormwater runoff from the proposed C&D Landfill – Phase II will be directed to existing sediment basins through a system of diversion benches, downchute piping, direct runoff, and temporary channels, as needed. The sediment basins, channels, and benches will be observed on a regular basis and any necessary repairs will be made as early as practical.

2.4 Waste Placement and Cover Material

Waste placement will be in lifts of approximately 10-foot vertical thickness. As mentioned previously, each lift will begin at the upgradient (west) end of the phase and progress towards the downgradient (east) end and once the lifts of waste are high enough, the waste will be “piggy-backed” onto the existing adjacent C&D Landfill - Phase I. Waste placement will be restricted into the smallest feasible area and compacted as densely as practical.

As higher elevations are reached, the waste may be placed from downgradient to upgradient on the active face slope as long as landfill surfaces are graded to allow proper drainage. Soil berms will be constructed as necessary to divert run-on from entering the working face or allowing run off to escape active areas. Fencing and/or diking will be utilized to confine windblown wastes.

At the completion of waste placement each week, or sooner if the area of exposed waste exceeds ½ acre in size, a 6-inch layer of earthen material or other material as approved by the DWM will be placed over the exposed waste. This periodic cover is intended to control vectors, fire, odors, and blowing debris. The date and time of periodic cover placement will be recorded in the operating record.

An intermediate cover consisting of a 12-inch thick soil layer will be placed on areas where waste placements will be inactive for 3 months or more. The intermediate cover will be placed at frequencies suitable for specific waste management operations. Areas receiving intermediate soil cover will be grassed in accordance with the Rules. The final cover system will be placed in accordance with the Closure/Post-Closure Program.

2.5 Waste Acceptance and Disposal Requirements

The C&D landfill is expected to receive a waste stream of the following waste types:

- Land-clearing debris as defined in G.S. 130A-290, specifically, solid waste that is generated solely from land-clearing activities, such as stumps, trees, etc.;

- Inert Debris defined as waste that consists solely of material that is virtually inert, such as brick, concrete, rock, cut tires and clean soil;
- Asphalt in accordance with G.S. 130-294(m); and
- Construction and demolition debris defined as solid waste resulting solely from construction, remodeling, repair of demolition operations on pavement, buildings, or other structures.

The Solid Waste Manager will notify the Division within 24 hours of attempt to dispose of any other waste products. No hazardous, liquid, or infectious waste will be accepted or disposed of in the C&D Landfill. The County will inspect a minimum of 1% of the incoming waste stream.

2.6 Operations Record Keeping

Lincoln County maintains an on-site operating record in accordance with the North Carolina Solid Waste Management Rules, Section .0542 (n). The operating record includes the following:

- waste screening program;
- waste screening inspections;
- waste screening training program;
- waste determination records;
- waste amounts received (and source);
- methane gas monitoring plan, gas monitoring results, and any remediation plans;
- groundwater monitoring information:
 - documentation of approval from the Division;
 - approved groundwater monitoring plan;
 - groundwater monitoring results;
 - report of each sampling event;
 - permit modification to document selection of corrective action (if any);
 - report justifying alternative corrective measures (if any); and
 - report documenting completion of corrective action (if any).
- closure and post-closure monitoring plan;
- closure cost estimate and financial assurance documentation;
- notation of date and time of placement of cover material;
- operations plan;
- audit records;
- compliance records;
- inspection reports;
- Permit to Construct; and
- Permit to Operate.

The above records will be kept in the operating record for the active life of the landfill and the post-closure care period. Information contained in the operating record must be furnished upon request to the Division or made available for inspection by the Division.

3. YARD WASTE AND MULCHING OPERATIONS

The Small Type I Composting Unit is owned and operated by Lincoln County and will be operated in accordance with the applicable portions of NCAC 15A 13B .1400. The Composting Unit “Yard Waste Area” is located between the existing C&D Landfill and the existing Area “E” Closed Landfill, just north of the existing Area “D” Phase I Landfill. The Solid Waste Manager is responsible for the operations and maintenance of the site.

3.1 Yard Waste Generation and Acceptance

The waste stream for the Yard Waste Area is generated from residential yard maintenance and land clearing activities within Lincoln County. No items except for tree limbs, brush, grass clippings, leaves and similar vegetative material will be accepted to the Yard Waste Area.

3.2 Yard Waste Composting

Raw yard waste materials are processed in a tub grinder via a front-end loader and ground up into mulch. The mulch is then formed into parabolic windrows and aerated monthly by front-end loaders until the internal compost temperature is elevated to at least 55 degrees Celsius (°C) and maintained for 3 days. Field logs showing temperature readings will be maintained on site. Once internal temperatures are raised to 55°C and maintained for 3 days, the mulch will be stockpiled and used for the facility’s roads during wet weather work. Mulch is also delivered to schools located within Lincoln County for playground use upon request. Any excess mulch is given away to the general public by the landfill.

3.3 Stormwater Collection and Removal

Stormwater runoff from the Yard Waste Area is directed to existing Sediment Basins SB-E and SB-B through a system of channels and culverts. The sediment basins, channels, and culverts will be observed on a regular basis, and any necessary repairs will be made as early as practical.

4. SITE OPERATIONS AND MAINTENANCE

The site operations and maintenance plan is for the entire Lincoln County Landfill. It incorporates items that are needed for the MSW and C&D landfills, and Yard Waste Area. The items covered in the site operations cover topics from erosion control to methane control. Contingency items will be discussed along with controlling odor and vectors.

4.1 Erosion/Sedimentation Control Maintenance and Water Protection

Erosion/sedimentation control structures include sediment basins, sediment traps, and channels. Sediment basins will be checked after periods of significant runoff. Sediment will be removed from the basin to its original dimensions when sediment accumulates to one half of the design depth. The sediment basins, embankments, spillways and outlets will also be observed for erosion damage. Necessary repairs will be made as soon as practicable. Trash or debris within the sediment basin riser will be removed.

Channels will be observed for damage after each runoff event. Riprap-lined channels and outlet protection aprons used to prevent damage to channel vegetation will be observed for washouts. Riprap will be added to these areas as needed to maintain the integrity of the structure.

Embankment slopes will be periodically observed for erosion. The embankment slopes will be mowed at least once a year. The embankment slopes will be re-fertilized in the second year unless vegetation growth is fully adequate. The damaged areas will be reseeded, fertilized and mulched immediately. Seeding, fertilizing and mulching will be in accordance with the North Carolina Erosion and Sedimentation Control Guidelines.

Provisions for a vegetative ground cover sufficient to restrain erosion must be accomplished within 30 working days or 120 calendar days upon completion of any phase of landfill development.

The landfill operation will not cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirement of the Clean Water Act, including, but not limited to, NPDES requirements, pursuant to Section 402. The landfill will not cause the discharge of a non-point source of pollution to waters of the United States, including wetlands, that violates any requirement of an area-wide or statewide water quality management plan that has been approved under Section 208 or 319 of the Clean Water Act, as amended.

4.2 Access and Security Requirements

The site is enclosed by a fence with access controlled by means of gates. A security check station and weigh scales are located at the landfill entrance to evaluate the incoming waste for proper disposal. An attendant is on duty at the site at all times while the landfill is open for public use to ensure compliance with operational requirements. Facilities currently in place will remain operational. Access roads to the site will be of all weather construction and maintained in good condition.

The removal of solid waste from the landfill is prohibited unless the owner or operator approves and the removal is not performed on the working force. Barrels and drums will not be disposed of unless they are empty and perforated sufficiently to ensure that no liquid or hazardous waste is contained therein, except fiber drums containing asbestos.

4.3 Dust, Litter, Odors, and Vectors

Dust generated due to landfill activities will be controlled through the application of water by truck or other approved dust control products, if necessary. Removal of mud and dirt from the roads will also be a part of the dust control measures and will be accomplished with a motor grader. Additionally, final cover will be vegetated as soon as practical in order to minimize the blowing of dust on-site.

The potential problem of blowing litter will be minimized by limiting the active working face and using daily cover over the active fill area. Other methods, such as the utilization

of pickers and portable fencing will be employed to contain loose paper and other wind blown refuse during the landfill operations. The landfill area will be policed as required to collect airborne materials.

Odors generated due to landfill activity will be controlled through the application of daily cover. If odors continue to be a problem, masking agents and/or neutralizers will be used to alleviate this problem. If odors persist, passive and/or active venting will be used. Control of vectors, such as rodents and flies, is accomplished by denying them a food source by applying daily cover. Placement of soil cover may be necessary at more intervals that are frequent in order to control vectors, fires, blowing litter and scavenging.

4.4 Landfill Signs

Signs providing information on disposal procedures, the hours that the site is open for public use, and the permit number; also, signage stating that no hazardous or un-permitted waste can be received without written permission from the State Division of Waste Management, and other pertinent information will be posted at the site entrance. Traffic signs and markers are provided as necessary to promote an orderly traffic pattern to and from the discharge area and maintain efficient operating conditions.

4.5 Edge-of-Waste Markers

Owners and operators of active, inactive and closed C&D and MSW landfill units must install and maintain permanent edge-of-waste markers for each landfill unit. Markers will be installed such that they clearly delineate the edge-of waste for each active and inactive unit. Markers must be maintained through out the active and post-closure care period for the landfill.

4.6 Fire Control

No open burning of solid waste will be permitted at the Lincoln County Landfill. Equipment and stockpiled soil will be provided to control accidental fires. Any fire that occurs at the landfill will be reported to the Division within 24 hours and a written notification will be submitted within 15 days by the Solid Waste Manager.

If a fire occurs at the landfill, the local fire department will be notified. Hot loads that are brought in are to be immediately dumped away from the landfill and the fire department is to be called. The hot load is to be sprayed down with water until the fire or combustion is extinguished. The load is then to be reloaded for disposal in the landfill.

4.7 Methane Gas Monitoring Program

A methane gas-monitoring program has been implemented to detect possible migration of methane gas off-site from the existing landfill and future landfill development. The methane gas monitoring program is in accordance to the requirements of the North Carolina Solid Waste Management Rules, Section .1626(4)(b).

4.7.1 Methane Gas Monitoring Program

Included in this program is the permanent methane monitoring system, monitoring well locations and construction, methane monitoring procedures, sampling frequency and

reporting requirements. Gas monitoring well locations are shown on the Gas Management System Plan contained in the Engineering Plan. Details of the gas management system are also provided in the Engineering Plan Drawings.

4.7.2 Methane Monitoring Well System

The gas monitoring wells are positioned to detect methane gas that may migrate into the structures located at the landfill (landfill office and maintenance building) or beyond the landfill property boundary. The wells are located between the waste boundary and the property boundary and between the waste boundary and facility structures that are occupied or used regularly by landfill personnel. The landfill perimeter gas monitoring wells are spaced from 100 to 200 feet outside the waste boundary and at intervals of no more than 500 feet apart.

4.7.3 Methane Monitoring Well Construction

Methane monitoring wells will be constructed around the perimeter of the landfill by advancing an auger to the depth of groundwater or elevation equal to the lowest elevation at bottom of the landfill, whichever is greater. A one-inch diameter schedule 40 polyvinyl chloride (PVC) perforated pipe will be inserted into each boring hole and the annular space backfilled with pea gravel. The top of the boreholes will be sealed with a concrete bentonite mixture and the wells protected with steel lockable covers. The PVC pipe will be installed with a non-venting PVC pipe cap at each location. The well construction records for each of the methane monitoring wells and their surveyed locations will be placed in the operating record and submitted to the State.

4.7.4 Methane Monitoring Procedures and Frequency

The methane monitoring will be performed by Lincoln County Landfill personnel trained to use an explosimeter. Methane monitoring will be conducted in each of the methane monitoring wells and within the facility structures occupied by the landfill personnel using a gas meter.

Testing procedures for the wells are to be as follows:

1. Calibrate the explosimeter (if required) in accordance with the manufacturer's recommendations for methane calibration using 1.5% methane test gas in an area free from potential methane contamination.
2. Aspirate to purge the explosimeter 4 to 5 times prior to each reading in an area free from potential methane contamination.
3. Open the cover of the methane monitoring well.
4. Connect the explosimeter tube to the quick connect well cap.
5. Read the percent methane and percent LEL (lower explosive limit).
6. Record reading on a form to be included in the operating record.

Testing procedures for the facility structures are as follows:

1. Calibrate the explosimeter (if required) in accordance with the manufacturer's recommendations.
2. Aspirate to purge the explosimeter (4 to 5 times) prior to each reading in an area free from potential methane contamination.

3. For Structures with concrete slab-on-grade: Place explosimeter tube beside any penetrations through walls or floors (i.e., floor drains, electrical outlets and switches, wall mounted lights, cracks in slab, etc.) or around floorboard if plumbing and electrical fixtures are not present. Aspirate 5 to 7 times at each location. Purge explosimeter (as above) prior to moving to the next location.
4. For Structures with a crawl space: Conduct testing as described above. In addition, perform testing at the opening for the entrance to the crawl space and any vents or openings for the crawl space. Insert explosimeter 2 to 3 feet into the opening to the crawl space and aspirate 5 to 7 times. Purge explosimeter prior to moving to the next location.
5. Read and record percent methane and percent LEL on a form to be included in the operating record.

As required by the Solid Waste Management Rules, the methane monitoring will be conducted on a minimum quarterly basis.

Permanent gas monitoring equipment will also be installed in each occupied building at the facility. Permanent gas monitoring equipment should be equipped with either audible alarms or visual alarms if methane gas exceeds 25 percent of the lower explosive limit.

4.7.5 Reporting Requirements and Response Plan

The results of the measurements of the methane gas monitoring wells will be recorded for each monitoring well and within each facility structure for each sampling event and placed in the operating record. The State regulations require that explosive gases be controlled such that concentrations of gases will be less than 25 percent of the LEL (lower explosive limit) for methane in site structures and less than the LEL for methane in the subgrade at the facility property boundaries.

If methane gas levels exceeding the maximum LEL (25% LEL in site structures and LEL at facility property boundary) are detected, the Lincoln County Landfill personnel will immediately take necessary steps to protect human health and notify the Division of Solid Waste Management. The steps that should be taken include but are not limited to:

- evacuate and restrict access to facility structures or exterior areas with high methane levels;
- prohibit use of equipment and materials that may cause sparks or an open flame;
- report methane levels to the Solid Waste Manager;
- turn off electrical main switch outside of the structure where high methane levels are present; and
- the Solid Waste Manager should direct qualified and properly equipped response teams/contractors to locate the source of methane and cap or isolate it.

Within seven days of detecting levels exceeding the maximum LEL, the methane gas levels will be placed in the operating record with a description of the steps taken to protect human health. Within 60 days of detecting gas levels exceeding the maximum LEL, a remediation plan for the methane gas releases will be implemented. The plan will be placed in the operating record, and the Division will be notified that the plan has been

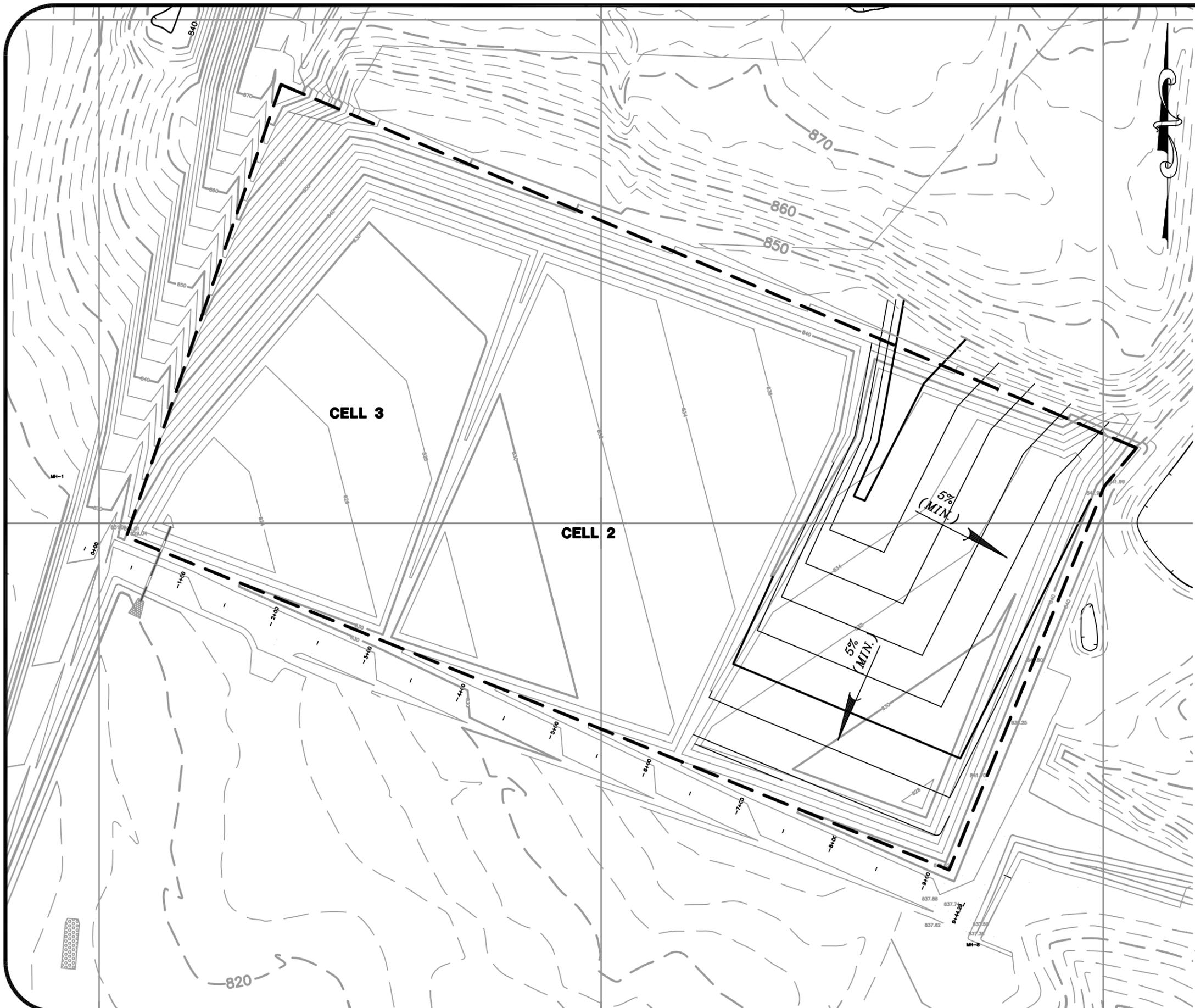
implemented. An extension to the schedules noted above may be granted by the Division if a need for an extension is demonstrated by Lincoln County.

4.7.6 C&D Methane Gas Monitoring Program

Gas monitoring will be performed quarterly in the groundwater monitoring wells and within on-site manned structures. If methane gas is encountered, surface probing will be performed to determine the extent of gas migration for use in design and installation of a permanent gas monitoring system for on-site facility structures and property boundaries. If the permanent gas monitoring system detects methane above acceptable limits, a remediation plan will be prepared and implemented.

Explosive gases will be controlled such that concentrations of gases will be less than 25 percent of the lower explosive limit (LEL) in site structures and below the LEL of gases in the subgrade at the property boundary.

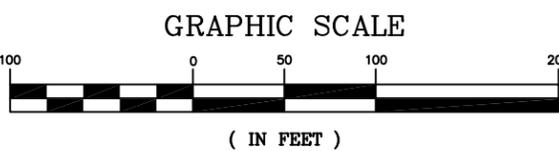
APPENDIX I
(Phasing Diagrams)



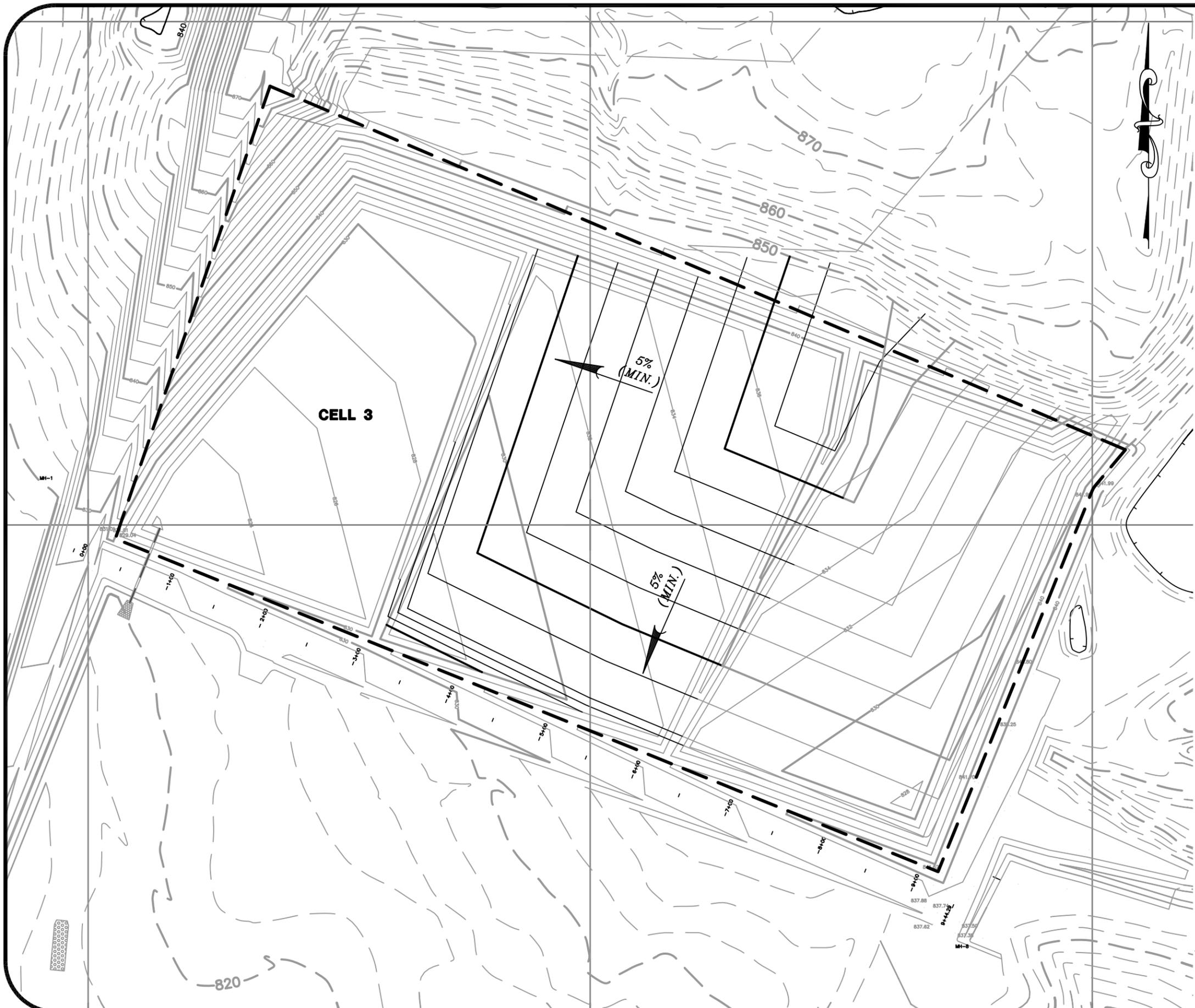
LEGEND

-  EXISTING GRADE CONTOUR
-  PROPOSED GRADE CONTOUR
-  PROPOSED PHASE III OPERATIONS GRADE CONTOUR

REFERENCE:
 BASE TOPOGRAPHICAL AND PLANIMETRIC MAP
 FROM AERIAL PHOTOGRAPH SURVEY PERFORMED
 APRIL 1, 2003; PROVIDED BY SUTTLES
 SURVEYING, P.A.



DATE: 07-25-11	DRAWN BY: JRP	CHECKED BY:	
SCALE: AS SHOWN	PROJECT NO. 1356-11-013		
			
CELL 1 PHASING DIAGRAM PHASE III OPERATIONS PLAN LINCOLN COUNTY LANDFILL - PHASE III CROUSE, NORTH CAROLINA			
FIGURE NO.		OP-1	



LEGEND

-  EXISTING GRADE CONTOUR
-  PROPOSED GRADE CONTOUR
-  PROPOSED PHASE III OPERATIONS GRADE CONTOUR

REFERENCE:
 BASE TOPOGRAPHICAL AND PLANIMETRIC MAP
 FROM AERIAL PHOTOGRAPH SURVEY PERFORMED
 APRIL 1, 2003; PROVIDED BY SUTTLES
 SURVEYING, P.A.

DATE: 07-25-11
 DRAWN BY: JRP
 CHECKED BY:

SCALE: AS SHOWN
 PROJECT NO. 1356-11-013



**CELL 2 PHASING DIAGRAM
 PHASE III OPERATIONS PLAN**
 LINCOLN COUNTY LANDFILL - PHASE III
 CROUSE, NORTH CAROLINA

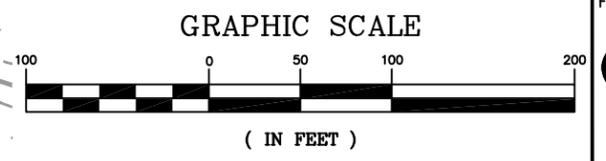
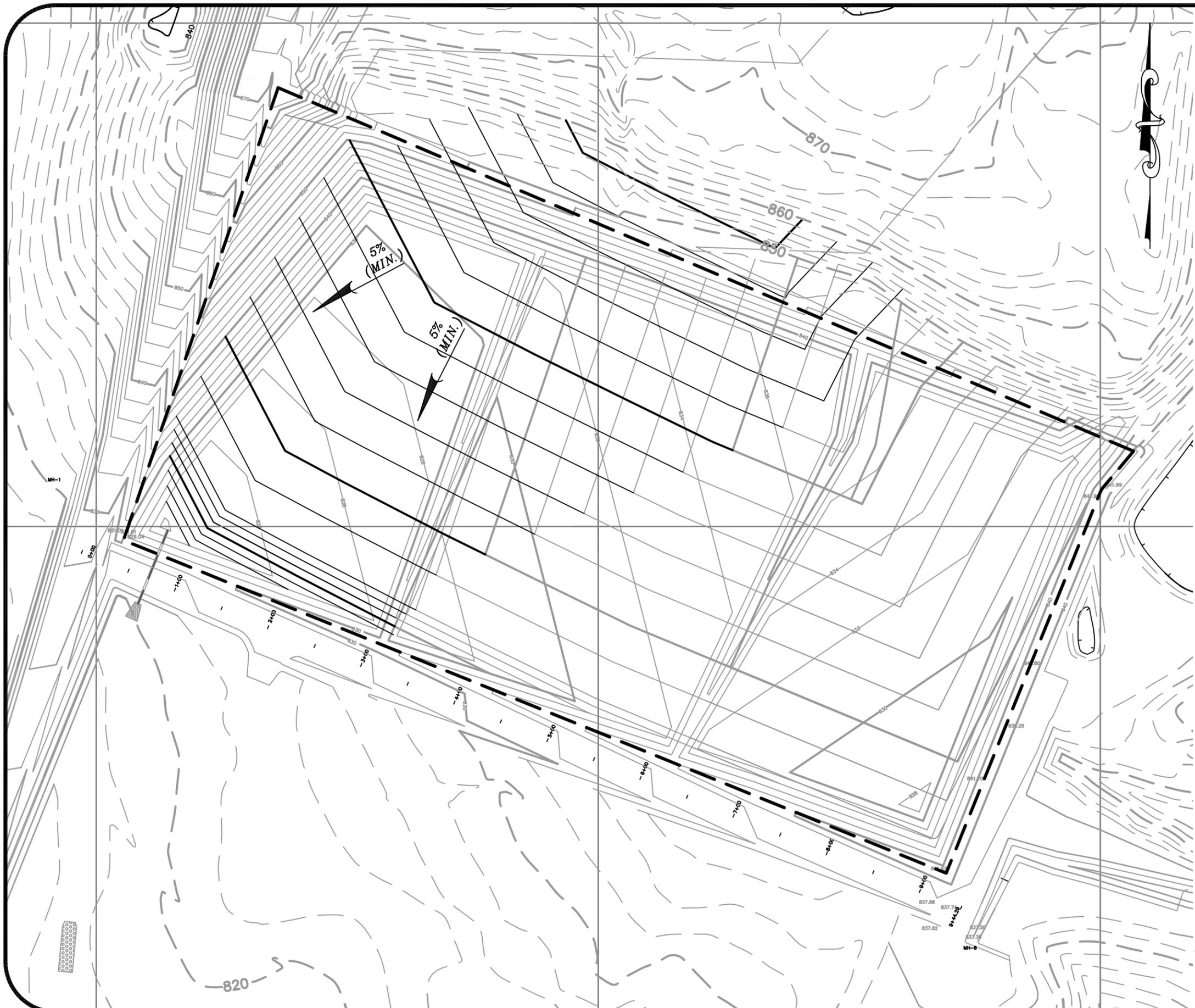


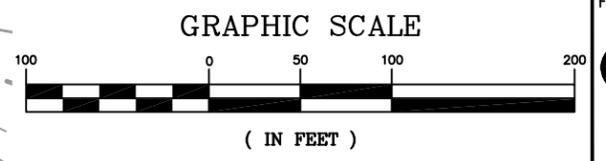
FIGURE NO.
OP-2



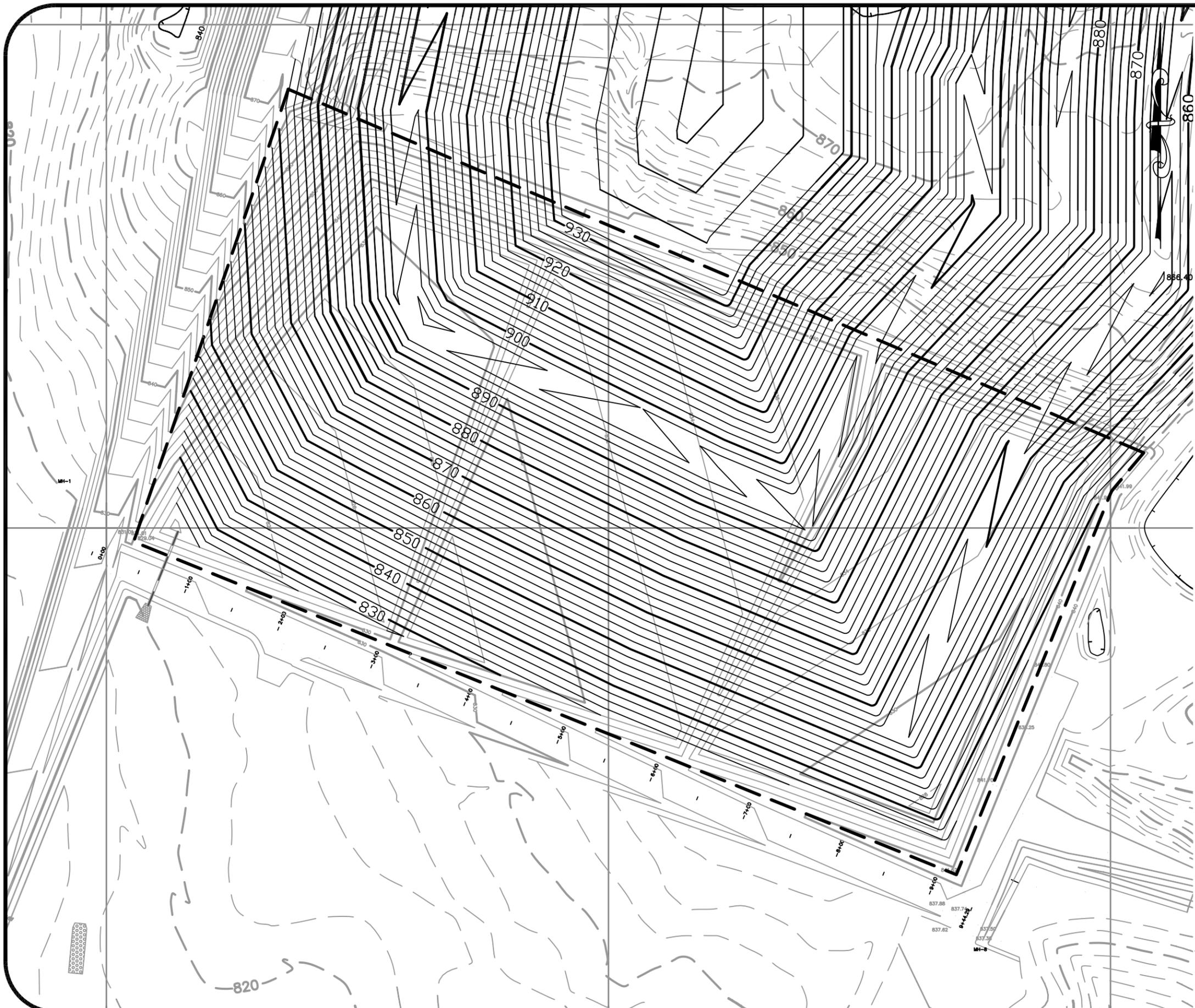
LEGEND

- EXISTING GRADE CONTOUR
- PROPOSED GRADE CONTOUR
- PROPOSED PHASE III OPERATIONS GRADE CONTOUR

REFERENCE:
 BASE TOPOGRAPHICAL AND PLANIMETRIC MAP
 FROM AERIAL PHOTOGRAPH SURVEY PERFORMED
 APRIL 1, 2003; PROVIDED BY SUTTLES
 SURVEYING, P.A.



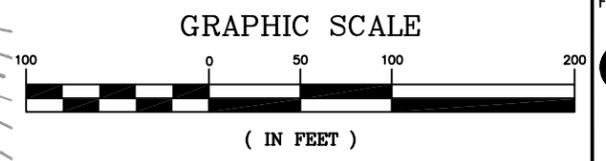
DATE: 07-25-11	DRAWN BY: JRP	SCALE: AS SHOWN	CHECKED BY:
PROJECT NO. 1356-11-013			
			
CELL 3 PHASING DIAGRAM PHASE III OPERATIONS PLAN LINCOLN COUNTY LANDFILL - PHASE III CROUSE, NORTH CAROLINA			
FIGURE NO.			OP-3



LEGEND

- EXISTING GRADE CONTOUR
- PROPOSED GRADE CONTOUR
- - - PROPOSED PHASE III OPERATIONS GRADE CONTOUR

REFERENCE:
 BASE TOPOGRAPHICAL AND PLANIMETRIC MAP
 FROM AERIAL PHOTOGRAPH SURVEY PERFORMED
 APRIL 1, 2003; PROVIDED BY SUTTLES
 SURVEYING, P.A.



<p>PHASING DIAGRAM AT CLOSURE PHASE III OPERATIONS PLAN LINCOLN COUNTY LANDFILL - PHASE III CROUSE, NORTH CAROLINA</p>	<p>DATE: 07-25-11 DRAWN BY: JRP CHECKED BY:</p>
<p>SCALE: AS SHOWN PROJECT NO. 1356-11-013</p>	<p>FIGURE NO. OP-4</p>



APPENDIX II
(Waste Acceptance and Screening Forms)

**LINCOLN COUNTY INSPECTION REPORT
RANDOM WASTE AUDIT
MSW OR C&D LANDFILL**

Date/Time: _____

Inspected By: _____

Size of Load (Volume & Weight): _____

Name of Trash Hauler: _____

Type of Waste (Household, Business, Industrial, C&D): _____

Check appropriate column (yes or no):

EXCLUDED WASTE	YES	NO	If yes, <u>HOW</u> was waste handled?
Toxic Hazardous Waste			
Used Motor Oil			
Liquids			
Tires			
Aluminum			
Metal			
Yard Waste			
Batteries			
White Goods			
Pallets			
Plastics (#1 - #7)			
Oil Filters			
Comments:			

**LINCOLN COUNTY LANDFILL
PRE-ACCEPTANCE AGREEMENT**

DATE: _____ TIME: _____ WEIGH BILL _____

CLERK OR RECEIVING AGENT: _____

CUSTOMER NAME/NUMBER OR IDENTIFICATION: _____

VEHICLE LICENSE: _____ STATE: _____

WASTE DESCRIPTION (check **ALL** that apply)

RESIDENTIAL _____ COMMERCIAL _____ INDUSTRIAL _____

INSTITUTIONAL _____ YARD WASTE _____ SPECIAL _____

SPECIAL DESCRIPTION: _____

TOTAL WEIGHT _____

WEIGHT OF VEHICLE (TARE WEIGHT) _____

WEIGHT OF WASTE DELIVERED _____

Hauler agrees and warrants that he/she is delivering solid waste only for this load and any subsequent loads to this facility. Hauler does hereby indemnify the facility operator for damages caused by the delivery of any hazardous/toxic or otherwise unacceptable material.

Signature

Print Name