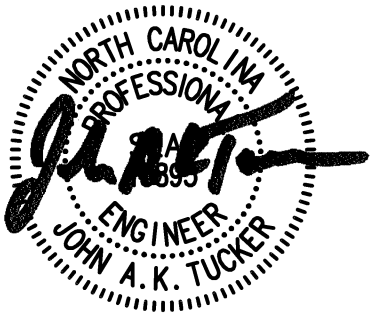
Operational Manual

Currin Bros. Inc.
LCID and Wood Recycling Faciltiy
Wake County, North Carolina
NC DENR Permit # 92N-LCID

Hours of Operation
7:00 AM - 7:00 PM
Monday - Saturday

Owner

Currin Bros. Inc.
PO Box 547
Fuquay Varina, NC 27526



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Currin Bros. Inc. Landfill No. 1
OPERATIONS MANUAL

TABLE OF CONTENTS

The following plan meets the requirements of Solid Waste Rule 15 NCAC 13B .0505 (1) - (12).

Section Page

1.0 GENERAL FACILITY OPERATIONS
1.1 Overview 1
1.2 Contact Information 1
1.3 Access Control 2
1.3.1 Physical Restraints 2
1.3.2 Security 2
1.4 Signage 2
1.5 Communications 2
1.6 Safety 2
1.7 Equipment Requirements 3
1.8 Utilities 3
1.9 Fire Prevention 3
1.10 Record Keeping Program 3

2.0 WASTE HANDLING OPERATIONS
2.1 Overview 4
2.2 Acceptable Wastes 4
2.3 Prohibited Wastes 4
2.4 Waste Screening Programs 4
2.4.1 Waste Receiving and Inspection 5
2.4.2 Hazardous Waste Contingency Plan 5
2.5 Waste Grinding and Crushing 5
2.6 Waste Disposal 6
2.6.1 Access 6
2.6.2 General Procedures 6
2.6.3 Periodic Cover 7
2.7 Height Monitoring 7

3.0 ENVIRONMENTAL MANAGEMENT
3.1 Overview 7
3.2 Erosion and Sedimentation Control 7
3.3 Landfill Gas Control 8
3.4 Vector Control 8
3.5 Odor Control 8
3.6 Dust Control 8

4.0 CONTINGENCY PLAN
4.1 Severe Weather Conditions 8
4.1.1 Ice Storms 8
4.1.2 Heavy Rains 8
4.1.3 Electrical Storms 9
4.1.4 Windy Conditions 9
4.1.5 Violent Storms 9
4.2 Fires in the facility 9
4.2.1 Minor Fires 9
4.2.2 Hot Loads 9
4.2.3 Major Fires 9

APPENDICES

1 Facility Plan Drawing

2 Waste Screening and Inspection Program - *includes Waste Screening Form*

3 Hazardous Waste Contingency Plan

4 Emergency Responders and Other Useful Contacts

5 Fire Notification Form

6 NC DENR Solid Waste Rules for LCID Facilities

SECTION 1.0
GENERAL FACILITY OPERATIONS

1.1 OVERVIEW

This Operations Manual was prepared for the Currin Bros. LCID Landfill and Wood Recycling Facility (Permit No. 92N-LCID). The information contained herein was prepared to provide landfill personnel with a clear understanding of how the Design Engineer assumed that the completed facility would be operated. While deviations from the operation plan outlined here may be acceptable, significant changes should be reviewed and approved by the Design Engineer and the NC Solid Waste Section.

1.2 CONTACT INFORMATION

For fire, medical, or police emergencies dial 911.

All correspondence and questions concerning the operation of the Currin Bros. Inc. Landfill should be directed to the appropriate Staff and Wake County personnel listed below.

1.2.1 Currin Bros. Landfill, Administrative Offices (correspondence, invoices)

Currin Bros. Inc.
Glenn Currin, Allen Currin - Operators
1610 Wolfpack Lane
Raleigh, NC 27603
Telephone (919) 876-1877
)

For After Hours Emergencies:
Phone: (919) 624-9669 (Glen Currin)

1.2.2 North Carolina Division of Waste Management

Division of Waste Management , Solid Waste Section
217 W Jones St
Raleigh, NC 27603
Main Telephone (919) 571-4700

Environmental Senior Specialist		Shawn McGee 919-707-8284
Fairview Fire Department	Emergency Non-emergency	911 919-771-5092
Wake County Emergency Management		919-856-6480
NCDENR - Raleigh Regional Office		919-791-4200

1.3 ACCESS CONTROL

Limiting access to the Currin Bros. Inc. Landfill is important for the following reasons:

- Prevention of unauthorized and illegal dumping of waste materials,
- Trespassing, and possible injury resulting therefrom, is discouraged,
- The risk of equipment theft or vandalism is greatly reduced.

Access to active areas of the landfill will be controlled by a combination offences and natural barriers, such as the creeks, and strictly enforced operating hours. A landfill attendant will be on duty at all times when the facility is open for public use to enforce access restrictions.

1.3.1 Physical Restraints – The site will be accessed only via the main entrance along Sunset Lake Road. A gate house is located for waste receiving and customer/visitor check in. The entrance gates will be securely locked during non-operating hours. Otherwise, the site is inaccessible.

1.3.2 Security – Frequent inspections of gates and fences will be performed by landfill personnel. Evidence of trespassing, vandalism, or illegal operation will be reported to the Owner.

1.4 SIGNAGE

A prominent sign containing the information required by DWM will be placed just inside the main gate. This sign will provide information on operating hours, operating procedures, and acceptable wastes. Additional signage will be provided within the landfill complex to distinctly distinguish the roadway to the LCID landfill active disposal area. Service and maintenance roads will be clearly marked and barriers (e.g., traffic cones, barrels, etc.) will be provided as required.

1.5 COMMUNICATIONS

Visual communications will be maintained between the LCID landfill and the landfill gate house. Radios or walk-talkies shall be used for communications between the gate attendant and the working face supervisor. The gate house has telephones in case of emergency and for the conduct of day-to-day business. Emergency telephone numbers are displayed in the scale house.

1.6 SAFETY

All aspects of the Currin Bros. Inc. Landfill operation were developed with the health and safety of the landfill's operating staff, customers, and neighbors in mind. A superintendent of the landfill operating staff will be designated as Site Safety Officer (SSO) and shall undergo a landfill operator's training course. The SSO, together with the facility's management, will administer a site safety and emergency response program to be consistent with Occupational Safety and Health Administration (OSHA) guidance. Safety equipment to be provided includes equipment rollover protective cabs, seat belts, audible reverse warning devices, hard hats, safety shoes, communications equipment, portable fire extinguishers and first aid kits. Staff will be encouraged

to complete the American Red Cross Basic First Aid Course.

1.7 EQUIPMENT REQUIREMENTS

The facility will maintain on-site equipment required to perform the necessary landfill activities. Periodic maintenance of all landfilling equipment, and minor and major repair work will be performed at designated maintenance zones outside of the landfill.

1.8 UTILITIES

Electrical power, water, telephone, and restrooms will be provided at the gate house located at the entrance to the landfill.

1.9 FIRE PREVENTION

Fires in LCID landfills and wood waste stockpiles have become a concern to the Solid Waste Section – not only as health and safety issues for customers, staff and the neighbors, but long-term air and quality issues arise and the effort required to fight a major facility fire is costly and disruptive to operations. The Operator shall be vigilant about preventing fires and keeping access available to fight fires. Material stockpiles shall be separated by a minimum clear distance of 25 feet on all sides to allow equipment access. Stockpiles shall be turned once per quarter to prevent composting and the associated heat build up. Within the landfill, periodic soil cover requirements shall be observed. An ample supply of soil shall be kept on-hand, observing proper measures for erosion control, and access to undeveloped portions of the footprint (additional soil resources) shall be kept free of unnecessary debris. Portable fire extinguishers shall be kept in operating order. The Wake County Fire Marshall's requirements for fuel storage shall be observed. Equipment shall be kept in good working order and facility roads shall be kept passable. A daily "ride-through" shall be conducted to look for smoke – steam does not necessarily mean a fire is present, but continual steaming should be monitored and vents should be checked periodically for signs of charring or detectable heat.

1.10 RECORD KEEPING PROGRAM

The Landfill staff shall maintain the following records related to the LCID landfill in a permanent operating record at the landfill:

A Waste inspection records;
B Daily intake records - including waste type and source;
C List of generators and haulers that have attempted to dispose of restricted wastes;
D Employee training procedures and records of training completed;
E All closure and post-closure information, where applicable, including:
    1. Testing;
    2. Certification; and
    3. Completion records.
F Cost estimates for financial assurance documentation.

The operating record shall be kept up to date by the Owner or his designee. These records shall be presented upon request to DWM for inspection. A copy of this Operations Manual shall be kept at the gate house and be available all times. ***All staff should be familiar with this manual.***

SECTION 2.0
WASTE HANDLING OPERATIONS

2.1 OVERVIEW

This section describes the waste handling operations for the landfill and the wood recycling facility.

2.2 SERVICE AREA

The facility service area includes Durham, Wake, Harnett, Orange, Granville and Chatham Counties.

2.4 ACCEPTABLE WASTES

The LCID disposal facility shall only accept the following wastes:

- Land Clearing and Inert Debris Waste (yard waste, stumps, trees, limbs, brush, grass, concrete, brick, concrete block, uncontaminated soils and rock, untreated and unpainted wood, etc.)

- Other Wastes as Approved by the NC DENR Solid Waste Section.

The Wood Recycling (T&P) facility shall only accept the following wastes:

- Naturally occurring tree debris (stumps, trees, limbs, brush) – no grass or yard waste

- Clean wood waste derived from construction only and pallets – no demolition materials, no painted or treated wood, no engineered or laminated wood products

The waste streams for the two facilities must not be co-mingled! Please note that insert debris (brick, block, recycled asphalt, etc.) may be used as "beneficial fill" at the facility for making all-weather road surfaces and as aggregate for storm water runoff measures, subject to particle-size suitability - consult the Project Engineer. While the facilty does not currently own a crusher, it is expected that a rental machine will be brought in approximately every 24 months to reduce the stockpile of material.

Certain "special" wastes (yet to be defined) may also be accepted at this facility with prior approval of the Solid Waste Section – an Operations Plan revision may be warranted. Municipal Solid Waste (MSW) shall be directed to an appropriate facility, e.g., the Wake County Landfill and never

buried at this site.

2.5 PROHIBITED WASTES

No municipal solid (MSW), hazardous (as defined by 15A NCAC ISA including hazardous waste from conditionally exempt small quantity generators), or liquid waste will be accepted at this facility. In addition, no polychlorinated biphenyl (PCB) waste will be accepted. The Owner will implement a waste screening program, described in **Appendix 2**, to control these types of waste. Asbestos wastes will not be accepted by the facility. Animal carcasses will not be accepted.

2.5 WASTE SCREENING PROGRAMS

In order to assure that prohibited wastes are not entering the facility, screening programs have been implemented. The incoming wastes receive two inspections – at the entrance gate and at the working face of the disposal area or the raw material stockpile at the T&P area. The following sections are abbreviated from the original Operations Plan and have been supplemented by **Appendices 2 and 3**.

2.5.1 Waste Receiving and Inspection – All vehicles must stop at the entrance gate. The attendant shall question each driver about the nature and source of the incoming materials and record the load. Other visitors are required to check in. The attendant(s) may visually check the load if the vehicle or diver is unfamiliar. Vehicles shall be selected for random screening at a minimum of three times per quarter (i.e. three months). Procedures and forms to be used during the waste screening activities are found in **Appendix 2**. Signs informing users of the acceptable and unacceptable types of waste are posted at the entrance. Vehicles containing non-recyclable LCID wastes are directed to the landfill. Vehicles carrying clean recyclable wood waste are directed to the raw material stockpile in the T&P area. Directional signs are used to guide traffic to the correct unloading area.

Each incoming load shall be unloaded at its designated area (either the disposal area or the raw material stockpile, depending on the material type). The gate attendant shall alert the yard operators via radio with information on the incoming load, e.g., material type, truck description. The yard operator shall be present when each vehicle is unloaded to make sure the material is acceptable, or he shall inspect the load soon after unloading (prior to the vehicle leaving the premises). Each load shall be sifted to make sure nothing unacceptable is buried within the load. If the load is deemed suitable for the designated unloading area, the vehicle shall be cleared to exit with the gate attendant.
If unacceptable materials are found, the driver and/or owner of the vehicle shall be notified and measures shall be take to correct the problem – the driver may be detained in order to compel him to remove the unacceptable materials. Ideally, unacceptable materials will be detected prior to unloading, or they will be reloaded onto the delivery vehicle and sent away (with directions to an appropriate facility). Any attempts to unload unacceptable materials at the facility, either in the disposal area of the wood recycling area, shall be documented by the operator. Repeat offenders may be banned form using the facility at the discretion of the Owner.

2.5.2 Hazardous Waste Contingency Plan – If hazardous materials are detected, the Hazardous

Waste Contingency Plan outlined in **Appendix 3** shall be followed. Hazardous materials might be identified by unusual appearances, colors, odors, fumes, or the materials may be hot or burning. In the event that identifiable hazardous waste or waste of questionable character is detected at either the landfill or the wood recycling facility, protection of personnel shall take precedence. If the materials have not been unloaded, the delivery vehicle shall be isolated and appropriate personnel called in. If the vehicle has been unloaded, the area shall be cleared until appropriate haz-mat personnel arrive.
If a "hot load" enters the facility, the vehicle will be directed to an isolated and unleaded immediately, then the vehicle and driver shall be moved to safety and the fire department shall be called. In any event where a hazardous material is detected, the Solid Waste Section shall be notified immediately (see **Section 1.2.2**), and hazardous material responders may need to be contacted. The event shall be documented by landfill staff in the Operational Record. The driver or owner of the vehicle may be held responsible for the cost of the haz-mat response and/or any required clean up.

2.6 WASTE GRINDING AND CRUSHING

Grinding may occur either on landfill working face or the wood recycling area. Within the landfill, wastes may be ground with a tub grinder to reduce airspace consumption and to lessen the likelihood of a fire. The grinder shall be operated on a 2-foot thick soil pad with perimeter soil berms that will soak up spills or leaking fluids, which shall be removed from the landfill if a spill or leak occurs. The allowed grinder location shall be construed as anywhere in the landfill, with the provision that the prescribed measures for spill control are observed. Extra care shall be taken when fueling the grinder to avoid spills. The Operator shall exercise proper judgement in enforcing the waste acceptance policy. ***CAUTION***: grinding the waste does not remove or disguise improper materials that may be encountered in the waste stream. Solid Waste Section inspectors will be vigilant about examining the ground waste for evidence of unauthorized wastes. The Operator shall be equally vigilant about avoiding the placement of unauthorized waste in the landfill. A portable container for unauthorized wastes shall be kept near the grinder. ***The allowable waste streams between the LCID disposal area and the T&P area are different, thus the operation of these areas shall be kept entirely separate.***

Concrete crushing will occur on the landfill in Phase 2, as shown on the drawings. The crusher will be used to produce materials that may be used as benfical fill for the landfill, aggregate for maintaining roads, or aggregate for sale. The crusher shall be operated on a 2-foot thick soil pad with perimeter soil berms that will soak up spills or leaking fluids, which may be removed from the landfill if a spill or leak occurs. Extra care shall be taken when fueling the crusher to avoid spills. The Operator shall exercise proper judgement in enforcing the waste acceptance policy. ***CAUTION***: crushing concrete does not remove or disguise improper materials that may be encountered in the waste stream. Solid Waste Section inspectors will be vigilant about examining the crushed material for evidence of unauthorized wastes. The Operator shall be equally vigilant about avoiding the placement of unauthorized waste in the landfill. A portable container for unauthorized wastes shall be kept near the crusher. ***The allowable waste streams between the LCID disposal area and the T&P area are different, thus the operation of these areas shall be kept entirely separate.***

2.7 WASTE DISPOSAL

2.7.1 Access – The location of access roads during waste placement will be determined by operations personnel in order to reflect waste placement strategy.

2.7.2 General Procedures – Waste transportation vehicles will arrive at the working face at random intervals. There may be a number of vehicles unloading waste at the same time, while other vehicles are waiting. In order to maintain control over the unloading of waste, a certain number of vehicles will be allowed on the working face at a time. The actual number will be determined by the "spotter," i.e., the operator on duty at the working face. This procedure will be used in order to minimize the potential of unloading unacceptable waste and to control disposal activity. Operations at the working face will be conducted in a manner which will encourage the efficient movement of transportation vehicles to and from the working face, and to expedite the unloading of waste.

The use of portable signs with directional arrows and portable traffic barricades along the access route to the working face will facilitate the unloading of wastes at proper locations. The approach to the working face will be maintained such that two or more vehicles may safely unload side by side. A vehicle turn-around area large enough to enable vehicles to arrive and turn around safely with reasonable speed will be provided adjacent to the unloading area. The vehicles will back to a vacant area near the working face to unload.

Waste unloading at the landfill will be controlled by the Operator to prevent unauthorized materials and potentially unsafe conditions. Such control will also be used to confine the working face to a minimum width, yet allow safe and efficient operations. The width and length of the working face will be maintained as small as practical in order to maintain the appearance of the site, control windblown waste, and minimize the amount of cover required each day. Upon completion of the unloading operation, the transportation vehicles will immediately leave the working face area. Personnel will direct traffic as necessary to expedite safe movement of vehicles.

Normally, only one working face will be active on any given day, with all deposited waste in other areas covered by either periodic or final cover, as appropriate. The procedures for placement and compaction of solid waste include: unloading of vehicles, spreading of waste into 2 foot lifts, and compaction on relatively flat slopes (i.e., 5H: IV max.) using a minimum number of three full passes. ***A maximum slope ratio of 3H:1V shall be observed at all times.***

2.7.3 Periodic Cover – At the completion of waste placement on a monthly basis or sooner if the working face exceeds one acre in size, a 6 inch layer of earthen material will be placed over the exposed waste. This periodic cover is intended to control vectors, fire, odors, and blowing debris.

RECYCLED WOOD PROCESSING

2.8.1 Access – The location of access roads during wood recycling placement will be determined by operations personnel in order to reflect waste placement strategy.

2.8.2 General Procedures – Wood recycling transportation vehicles will arrive at the raw material stock pile at random intervals. There may be a number of vehicles unloading wood at the same time, while other vehicles are waiting. In order to maintain control over the unloading of wood, a certain number of vehicles will be allowed at the pile. The actual number will be determined by the "spotter," i.e., the operator on duty at the pile. This procedure will be used in order to minimize the potential of unloading unacceptable waste and to control disposal activity. Operations at the raw material stock pile will be conducted in a manner which will encourage the efficient movement of transportation vehicles to and from the working area, and to expedite the unloading of waste.

The use of portable signs with directional arrows and portable traffic barricades along the access route to the working face will facilitate the unloading of wastes at proper locations. The approach to the pile will be maintained such that two or more vehicles may safely unload side by side. A vehicle turn-around area large enough to enable vehicles to arrive and turn around safely with reasonable speed will be provided adjacent to the unloading area. The vehicles will back to a vacant area near the pile to unload.

Raw material unloading at the facility will be controlled by the Operator to prevent unauthorized materials and potentially unsafe conditions. Such control will also be used to confine the raw material stock pile to a minimum width, yet allow safe and efficient operations. The width and length of the pile will be maintained as small as practical in order to maintain the appearance of the site, control windblown waste, and minimize the amount of cover required each day. Upon completion of the unloading operation, the transportation vehicles will immediately leave the working face area. Personnel will direct traffic as necessary to expedite safe movement of vehicles.. ***A maximum slope ratio of 3H:1V shall be observed at all times.***

2.8.3 Recyclable Storage

Recyclable material coming into the facility will be put in the "raw material stockpile" area. This area can store approximately 1180 cubic yards of material at 5 feet high. The operator will stop receiving "clean wood" if the pile exceeds this these dimensions. The raw material will be ground and stored in the recycled wood products stockpile areas which have a capacity of 5700 cubic yards. The operation will stop receiving raw material when the pile exceeds these dimensions.

It is estimated that four tractor trailer loads (approximately 360 cubic yards) of recycled wood material will be sold each week. Based on that projection and the operation plans no more that 720 cubic yards will be stored on the site at any time. Many factors affect the amount of material that moves through the facility. The most influential is the economy. As the economy changes, the facility will have to adapt to demand.

2.8.4 Customer List

Current customers for recycled materials include:

Soil Toppers - Fuquay Varina, North Carolina

The Rock Shop - Durham, North Carolina

Power Mulch Inc. - Raleigh, North Carolina

Daniel Supply - Fuquay Varina, North Carolina

It is anticipated that as the economy improves, the list of customers will expand, particularly in Wake County.

2.9 HEIGHT MONITORING

The landfill staff will monitor landfill top and side slope elevations on a weekly basis. This shall be accomplished by use of a surveyor's level and a grade rod. When such elevations approach the grades shown on the Final Cover Grading Plan, the final top-of-waste grades will be staked by a licensed surveyor to limit over-placement of waste. An annual survey of the landfill shall be performed to confirm that lines and grades are within the specified requirements and to facilitate a volumetric analysis of the airspace.

SECTION 3.0
ENVIRONMENTAL MANAGEMENT

3.1 OVERVIEW

This section reviews the overall environmental management tasks required for the successful operation of the LCID landfill and the Wood Recycling facility.

3.2 EROSION AND SEDIMENTATION CONTROL

Diversion ditches and sediment basins that were originally installed as part of the landfill construction are still in place. These devices will be inspected prior to beginning any work on the landfill to ensure they are functional. Currin Bros Inc. will make any repairs necessary. Wake County will be contacted with respect to the land disturbing permit status.

The work area on top will be enclosed with a 2 foot diversion berm. This berm will used to direct runoff for the working area to slope drains on the west side of the landfill. These drains will discharge into and existing diversion ditch and into the existing sediment basin. The basin(s) should be inspected regularly for sediment build-up or erosion damage. The basin(s) should be cleaned out by excavating when sediments fill the lower half of the basin.

3.3 LANDFILL GAS CONTROL

The concentration of explosive gases generated by the facility shall not exceed:

(a) Twenty-five percent of the lower explosive limit for the gases in facility structures.
(b) The lower explosive limit for the gases at the property boundary.

3.4 VECTOR CONTROL

Due to the nature of the waste disposed in this landfill, vector control will not be of concern. Note that the use of periodic cover will discourage animals from nesting in the waste.

3.5 ODOR CONTROL

Due to the nature of the waste disposed in this landfill, odor control will not be of concern.

3.6 DUST CONTROL

Dust related to waste hauler traffic on the access roads will be minimized by using a water truck to limit dust on the gravel portion of the road. Dust generated by excavation of cover soil will be limited by watering the cut soil areas. Staff should avoid breathing in dust generated by the operations.

SECTION 4.0
CONTINGENCY PLAN

4.1 SEVERE WEATHER CONDITIONS

Unusual weather conditions can directly affect the operation of the facility. Some of these weather conditions and recommended operational responses are as follows.

4.1.1 Ice Storms – An ice storm can hinder access and prevent safe movement or placement of periodic cover, and, thus, may require closure of the landfill until the ice is removed or has melted.

4.1.2 Heavy Rains – Exposed soil surfaces can create a muddy situation in some portions of the facility during rainy periods. Proper drainage control and use of crushed stone on unpaved roads should provide all-weather access and protect drainage away from critical areas. In areas where the aggregate surface is washed away or otherwise damaged, aggregate should be replaced.

Intense rains can affect newly constructed drainage structures such as swales, diversions, cover soils, and vegetation. After such a rain event, inspection by staff will be initiated and corrective measures taken to repair any damage found before the next rainfall.

4.1.3 Electrical Storms – The open areas of the facility are susceptible to the hazards of an electrical storm. If necessary, facility activities will be temporarily suspended during such an event. To promote the safety of field personnel, refuge will be taken in buildings or in rubber-tire vehicles.

4.1.4 Windy Conditions – Blowing debris can constitute safety hazards and/or environmental concerns. Normally, this authorized waste stream should not be susceptible to light wind, but high

winds could blow smaller debris. Daily operations should minimize exposure to prevailing winds – operations should be sheltered by locating activities on the lee-side of slopes and other natural wind barriers. The work area may need to be temporarily shifted to a more sheltered area.

4.1.5 Violent Storms – In the event of a hurricane, tornado, or severe winter storm warning issued by the National Weather Service, facility operations should be temporarily suspended until the warning is lifted. If there is adequate time, soil cover should be placed on exposed waste (in the landfill), and buildings and equipment should be properly secured. If there is eminent danger to staff, personal safety shall take precedence over concerns regarding the waste or equipment.

4.2 FIRE IN THE FACILITY

The waste may compost under normal circumstances and attain high enough temperatures to combust. Telltale early signs of fires in stockpiles or the in-situ waste may be smoke or charring observed at "vents" (cracks in the surface). It is normal to see steam rising from the waste, especially on cold mornings – this does not necessarily indicate a fire, but areas that steam frequently should be watched closely. In the event of an actual fire, steps should be taken to safeguard site workers and the general public, including notifying the fire department and the Solid Waste Section specialist.

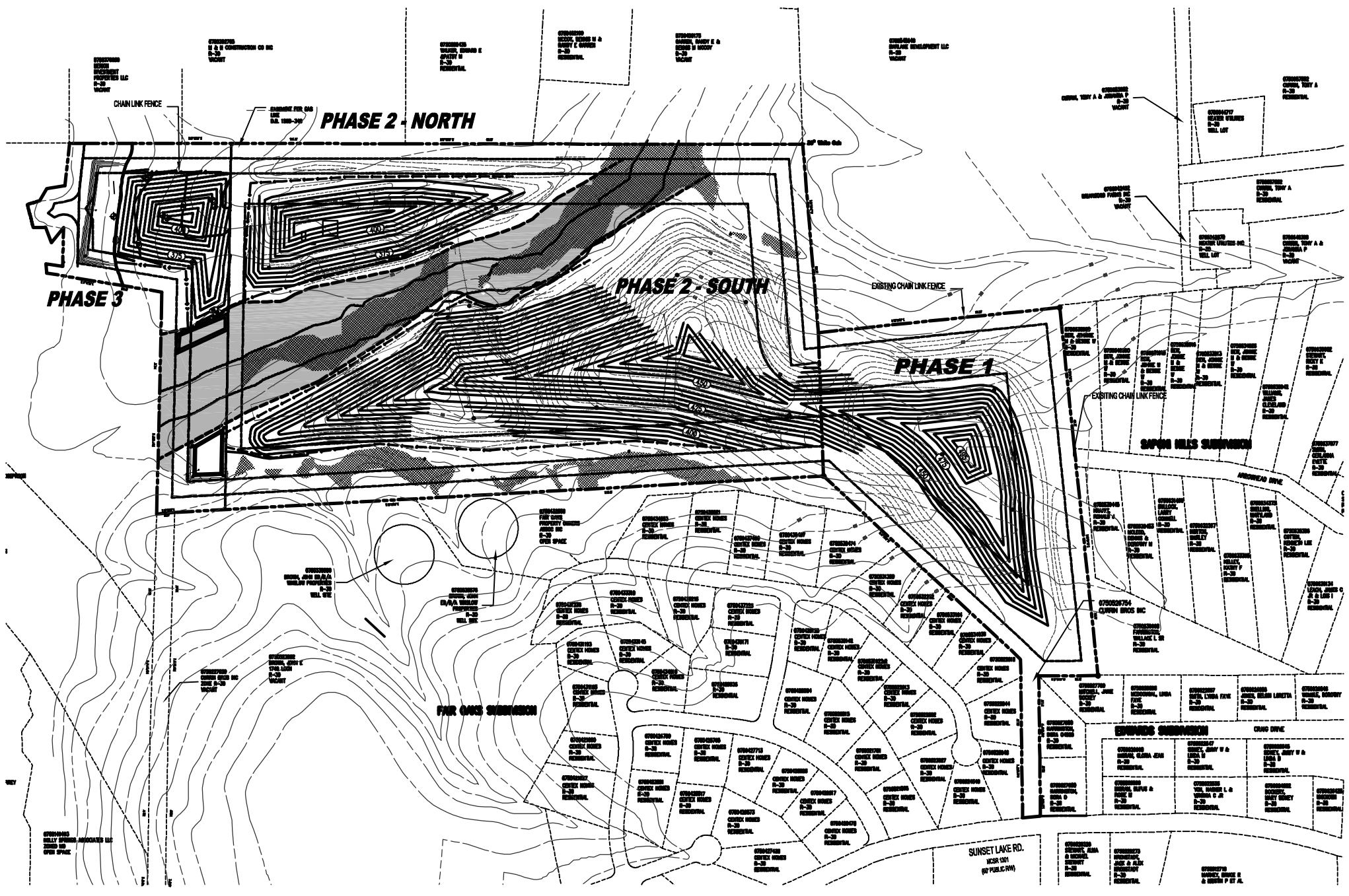
4.2.1 Minor Fires – The possibility of a brush fire or a piece of equipment must be anticipated. A combination of factory installed fire suppression systems and/or portable fire extinguishers shall be operational on all heavy pieces of equipment at all times. Spreading dirt or using water on a small surface fire is effective. For larger or more serious outbreaks, call the local fire department.

4.2.2 Hot Loads – The gate attendant shall prevent vehicles containing waste that is suspected to be hot, e.g., smoldering or smoking. If a "hot" load is detected at the entrance gate, the driver shall be directed to an isolated location away from the public (but accessible to fire fighting equipment) , and the driver shall dump the load on the ground and move the truck to a safe location – emphasis shall be placed on the driver and staff's safety first, and the then the truck if safe enough to do so. If a hot load is placed on the working face, then the load will be spread as thin as possible and cover soil will be immediately placed on the waste to extinguish the fire.

4.2.3 Major Fires – If the waste catches fire, efforts will be made to extinguish the fire by smothering it with dirt. Stockpiles of dirt should be kept on hand during the operational phases in order to combat a fire. Water is the least desirable means of fighting a large landfill fire, but placing water on a small fire is acceptable. The application of water has not proven to be an effective means of extinguishing deep fires in LCID landfills. It should be realized that water used to fight a fire will become a water quality issue. The most effective means of combating a fire in the waste is to carefully excavate the fire and smother it with dirt. All fires should be reported to the Solid Waste Inspector or Area Specialist. Notification of the Section of any fire at the facility must occur within 24 hours, either by talking to someone directly and/or leaving a voicemail if on a weekend is acceptable. (see **Appendix 5**).

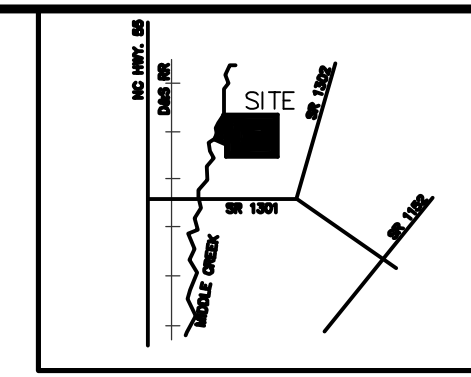
Appendix 1

LCID LANDFILL& WOOD RECYCLING
PERMIT RENEWAL
CURRIN BROS. INC.
WAKE COUNTY, NC



GRAPHIC SCALE 1"= 200'

0 200 400 600



VINCINITY MAP
(NTS)

OWNER/DEVELOPER

CURRIN BROS INC
PO BOX 547
FUQUAY VARINA NC 27526-0547

919-567-0483

919-567-3611 FAX

PROJECT ADDRESS 4525 SUNSET LAKE RD
APEX NC 27539-8782

PIN 0750534767
0750442256
0750526754
0750227659

ZONING R-30

TOTAL TRACT 81.6 AC

HOURS OR OPERATION

MON - SAT 7:30 AM - 5:30 PM

NOTES:

1. BOUNDARY INFORMATION PROVIDED BY MAULDIN-WATKINS, PA

2. TOPOGRAPHIC INFORMATION TAKEN FROM WAKE COUNTY GIS DATA (5' CONTOURS)

3. LOCATION OF FLOODWAY, HRB, ORIGINAL FINISH GRADES AND OTHER SITE IMPROVEMENTS TAKEN FROM PLANS PREPARED BY LITTLE AND LITTLE.

4. FLOOD STUDY DATED JANUARY 17, 1995 PREPARED BY BALLENTINE ASSOCIATES, PA AND
APPROVED BY WAKE COUNTY.

EXISTING IMPERVIOUS SURFACES

DRIVE 73,180 SF

TOTAL 73,180 SF

% IMPERVIOUS 2.06 %

LANDSCAPE DATA

BUFFERS PER SECTION 1-1-13,C,4

1. NO PORTION OF THE LANDFILL IS VISIBLE AT GROUND ELEVATION FROM THE STATE MAINTAINED THOROUGHFARES, RESIDENCES, OR BUILDINGS: THEREFORE NO SUPPLEMENTAL VISUAL SCREENING IS REQUIRED WITHIN THE 50' BUFFER

TRANSITIONAL BUFFERYARDS.
PER SECTION 1-1-29

1. HIGH INTENSIFY ADJACENT TO LOWER INTENSITY RESIDENTIAL: 100' BUFFER WIDTH / HIGH INTENSITY

2. SCREENING PROVIDED

NORTH PROPERTY LINE - 10' BERM WITH PINE SEEDLINGS AND 50 UNDISTURBED BUFFER

SOUTH, WEST, EAST PROPERTY LINE - 50' UNDISTURBED BUFFER

3. NO VEHICLES OR MACHINERY WILL BE STORED WITHIN BUFFER AREAS. NO ACCESSORY BUILDINGS WILL BE LOCATED WITHIN BUFFER YARDS.

N
NC GRID NORTH
NAD 83

LEGEND

VEG BERM & DIVERSION SWALE

PROPOSED CONTOUR 400

EXIST CONTOUR 400

PERMIT HISTORY

1. 1986 - ORIGINAL PERMIT ISSUED WAKE COUNTY
2. 1996 - MODIFICATIONS APPROVED BY WAKE COUNTY
3. 2003 - MODIFICATIONS APPROVED BY WAKE COUNTY
4. 2008 - PERMIT RENEWAL APPROVED BY WAKE COUNTY
5. 2008 - NC DIV OF WASTE MGMT ASSUMES AUTHORITY

SHEET INDEX

1. COVER SHEET
2. FACILITY PLAN
3. FACILITY PLAN
4. PHASE 1 SITE PLAN
5. PHASE 2 & 3 SITE PLAN
6. PHASE 1 PROFILES
7. PHASE 2 NORTH PROFILES
8. PHASE 2 SOUTH PROFILES
8-A. COLONIAL EASEMENTS
9. PHASE 3 PROFILES
10. DETAIL SHEET

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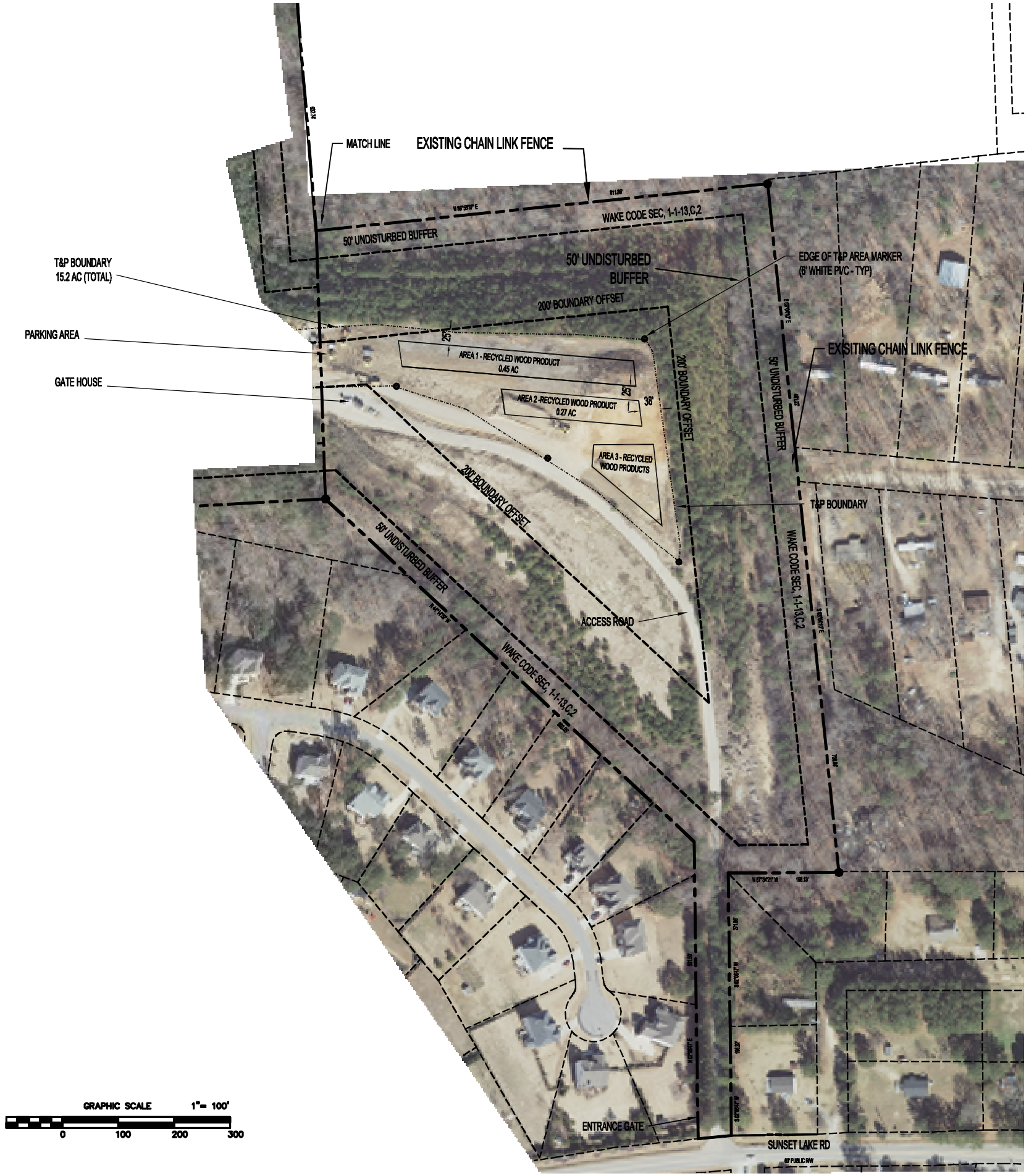
June 1, 2010

Currin Bros. Inc.

Wake County
Fuquay-Varina, NC

Sunset Road
LCID Landfill & Wood Recycling Facility
Permit # 92N-LCID
Cover Sheet

REVISIONS		
3	REVISED PER DWR COMMENTS	12/29/11



NC GRID NORTH
NAD 83

GENERAL NOTES:

1. SITE IS CURRENTLY STABLIZED WITH VEGTATION.
2. ORIGINAL EROSION CONTROL DEVICES REMAIN IN PLACE
3. SITE IS ENCLOSED WITH CHAINLINK FENCE AND GATES

BASE INFORMATION:

1. BOUNDARY INFORMATION TAKEN FROM PREVIOUS APPROVED PLANS PREPARED BY CURRIN BROS. INC. AND FIELD INFORMATION PROVIDED BY MAULDIN WATKINS LAND SURVEYING
2. AERIAL PHOTO IS JUNE 2010

NOTE: ALL SLOPES IN THE LANDFILL SHALL BE MAINTAINED AT NO GREATER THAN 3:1 WITH ADEQUATE SOIL AND VEGETATIVE COVER. SLOPES SHOULD BE FREE OF WOODY VEGETATION.

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Currin Bros. Inc.
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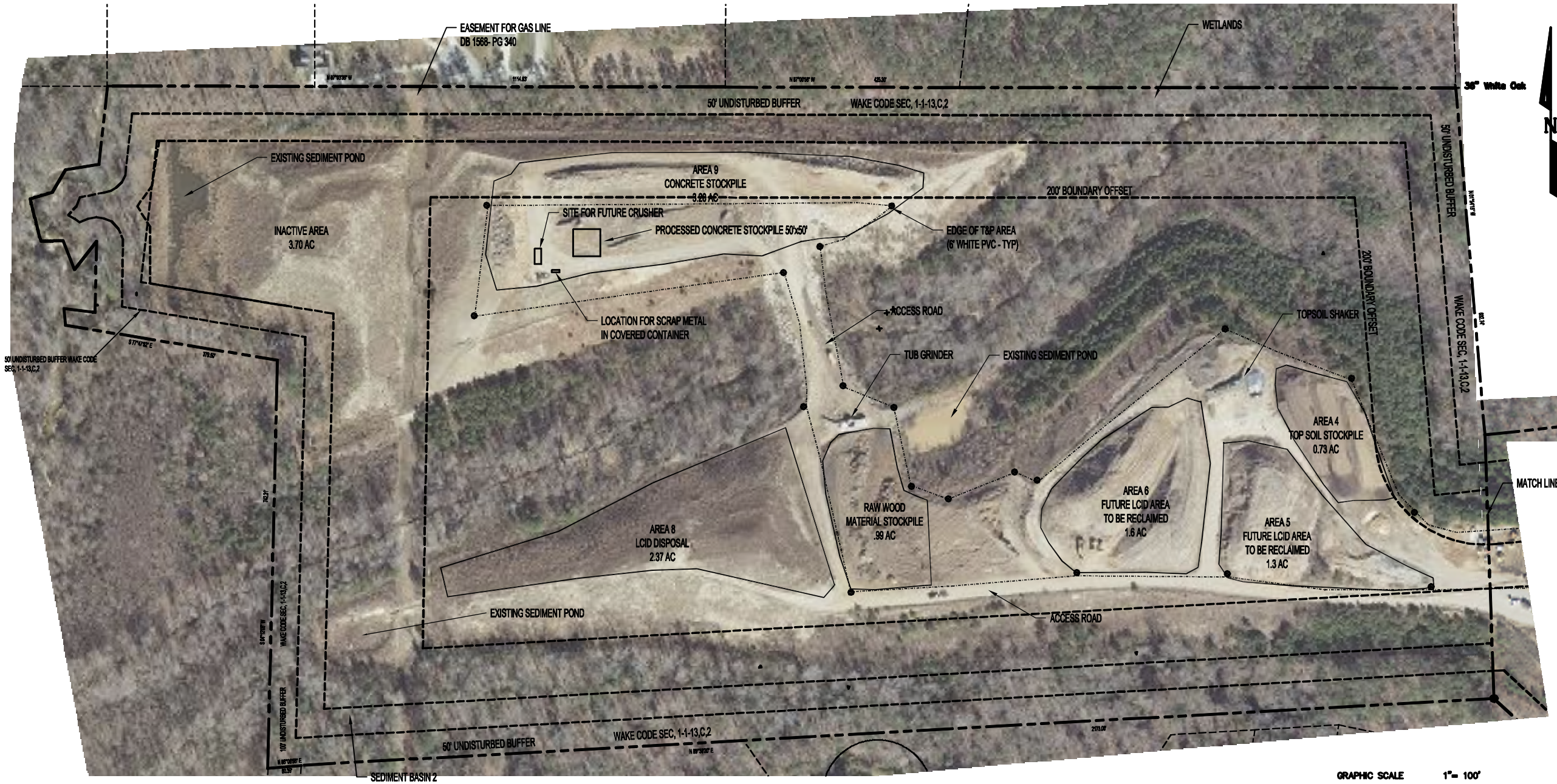
Fuquay-Varina, NC

Sunset Road
LCID & Wood Recycling Facility
Permit # 92N-LCID
T&P Facility Plan

3	REVISED PER TWM COMMENTS	12/09/11
2	REVISED PER WAKE COUNTY COMMENTS	12/05/03
1	REVISED PER WAKE COUNTY COMMENTS	09/17/03

REVISIONS



PHASE 2
SCALE 1" = 100'

GRAPHIC SCALE 1"= 100'
0 100 200 300

PHASE 3
SCALE 1" = 100'

GENERAL NOTES:

1. SITE IS CURRENTLY STABILIZED WITH VEGTATION.
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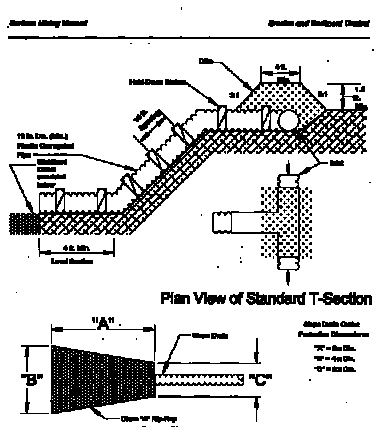
REVISIONS



Not To Scale

Figure 13-4. Temporary Slope Drain

February 1995 North Carolina Department of Environment, Health and Natural Resources 13-15

Erosion and Sediment Control Surface Mining Manual

Temporary Slope Drains

A temporary slope drain is a flexible pipe installed along a slope to convey runoff down the slope in a non-erosive manner.

Diversions are generally used to direct runoff into the slope drains.

Slope drains are required when fill slopes exceed 30 feet in vertical height or when shorter slopes prove difficult to vegetate because of erosion.

(See Figure 13-6 - Temporary Slope Drains for correct installation of slope drains).

Note that the pipe inlet must be anchored to the slope to prevent displacement.

- Runoff must be directed into the pipe by installing berms or diversions. The pipe outlet must extend beyond the toe of the slope to prevent erosion of the slope.
- Pipes with outlet velocities over the allowable velocity of the receiving area must be stabilized against erosion. (See the Pipe Outlet Protection section of this chapter).

[redacted]

- Smaller diameter slope drains, greater spacing or larger drainage areas will require supporting calculations to verify the adequacy of the design.

WAKE COUNTY CONSTRUCTION SEQUENCE

1. Obtain a land-disturbing permit. Schedule a pre-construction conference with the Environmental Engineer.
2. Install gravel construction pad, temporary diversions, silt fence, sediment basins or other measures as shown on the approved plan. Clean only as necessary to install these devices. Seed temporary diversions, berms and basins immediately after construction.
3. Call Wake County for an onsite inspections by the Environmental Engineer to obtain a Certificate of Compliance.
4. Begin clearing and grubbing. Maintain devices as needed. Rough grade site.
5. Install storm sewer, if shown, and protect inlets with block and gravel inlet controls, sediment traps or other approved measures as shown on the plan. Begin construction, building, etc.
6. Stabilize site as areas are brought up to finish grade with vegetation, paving, ditch linings, etc. Seed and mulch denuded areas within fifteen (15) days of completion of any phase of construction.
7. When construction is complete and all areas are stabilized completely, call Wake County for an inspection by the Environmental Engineer.
8. If site is approved, remove temporary diversions, silt fence, sediment basins, etc., and seed cut or stabilize any resulting bare areas. All remaining permanent erosion control devices, such as velocity dissipaters, should now be installed.
9. When vegetation has established, call for a final site inspection by the Environmental Engineer. Obtain a Certificate of Completion.

Environmental Engineers Office #

Byron Brady 856-6195

SEEDING SCHEDULE

(REVISED: 1-1-86)

Shoulders, Side Ditches, Slopes (Max 3:1)

DATE	TYPE	PLANTING RATE
Aug 15 - Nov 1	Tall Fescue	300 lbs/acre
Nov 1 - Mar 1	Tall Fescue	300 lbs/acre
	& Abruzzi Rye	25 lbs/acre
Mar 1 - Apr 15	Tall Fescue	300 lbs/acre
Apr 15 - Jun 30	Hulled Common Bermudagrass	25 lbs/acre
Jul 1 - Aug 15	Tall Fescue and	120 lbs/acre
	***Browntop Millet	35 lbs/acre
	***or Sorghum-Sudan Hybrids	30 lbs/acre
	Slopes (3:1 to 2:1)	
Mar 1 - Jun 1	Sericea Lespedeza (scarified)	50 lbs/acre
	&	
(Mar 1 - Apr 15)	Add Tall Fescue	120 lbs/acre
(Mar 1 - Jun 30)	Or Add Weeping Lovegrass	10 lbs/acre
(Mar 1 - Jun 30)	Or Add Hulled Common Bermudagrass	25 lbs/acre
Jun 1 - Sep 1	***Tall Fescue and	120 lbs/acre
	***Browntop Millet	35 lbs/acre
	***or Sorghum-Sudan Hybrids	30 lbs/acre
Sep 1 - Mar 1	Sericea Lespedeza (unhulled-unscarified)	70 lbs/acre
	and Tall Fescue	120 lbs/acre
(Nov 1 - Mar 1)	Add Abruzzi Rye	25 lbs/acre

Consult Conservation Engineer or Soil Conservation Service for additional information concerning other alternatives for vegetation of denuded areas. The above vegetation rates are those which do well under local conditions; other seeding rate combinations are possible.

***Temporary - Reseed according to optimum season for desired permanent vegetation. Do not allow temporary cover to grow over 12" in height before mowing, otherwise fescue may be shaded out.

SEEDBED PREPARATION

1.) CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.

2.) RIP THE ENTIRE AREA TO 6 INCHES DEPTH.

3.) REMOVE ALL LOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM. SUPERPHOSPHATE

4.) APPLY AGRICULTURAL LIME, FERTILIZER, AND UNIFORMLY AND MIX WITH SOIL (SEE BELOW*).

5.) CONTINUE TILLAGE UNTIL A WELL-PULVERIZED, FIRM INCHES REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 DEEP.

6.) SEED ON A FRESHLY PREPARED SEEDBED AND COVER AFTER SEEDING. SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK.

7.) MULCH IMMEDIATELY AFTER SEEDING ANCHOR MULCH

8.) INSPECT ALL SEEDED AREAS AND MAKE NECESSARY RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. FOLLOWING STAND SHOULD BE OVER 60%DAMAGED, REESTABLISH ORIGINAL LIME, FERTILIZER AND SEEDING RATES.

9.) CONSULT CONVERSATION INSPECTOR ON MAINTENANCE ESTABLISHED.

TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS
* APPLY: AGRICULTURAL LIMESTONE - 2 TONS/ ACRES (3 TONS/ ACRE IN CLAY SOILS)
FERTILIZER - 1,000 lbs. / ACRE -10-10-10
SUPERPHOSPHATE- 500 lbs> / ACRE -20%ANALYSIS
MULCH -2 TONS / ACRE - SMALL GRAIN STRAW
ANOTHER - ASPHALT EMULSION @ 300 GALS./ ACRE

GRAPHIC SCALE 1"= 100'

0 100 200 300

AUGUST 28, 2002

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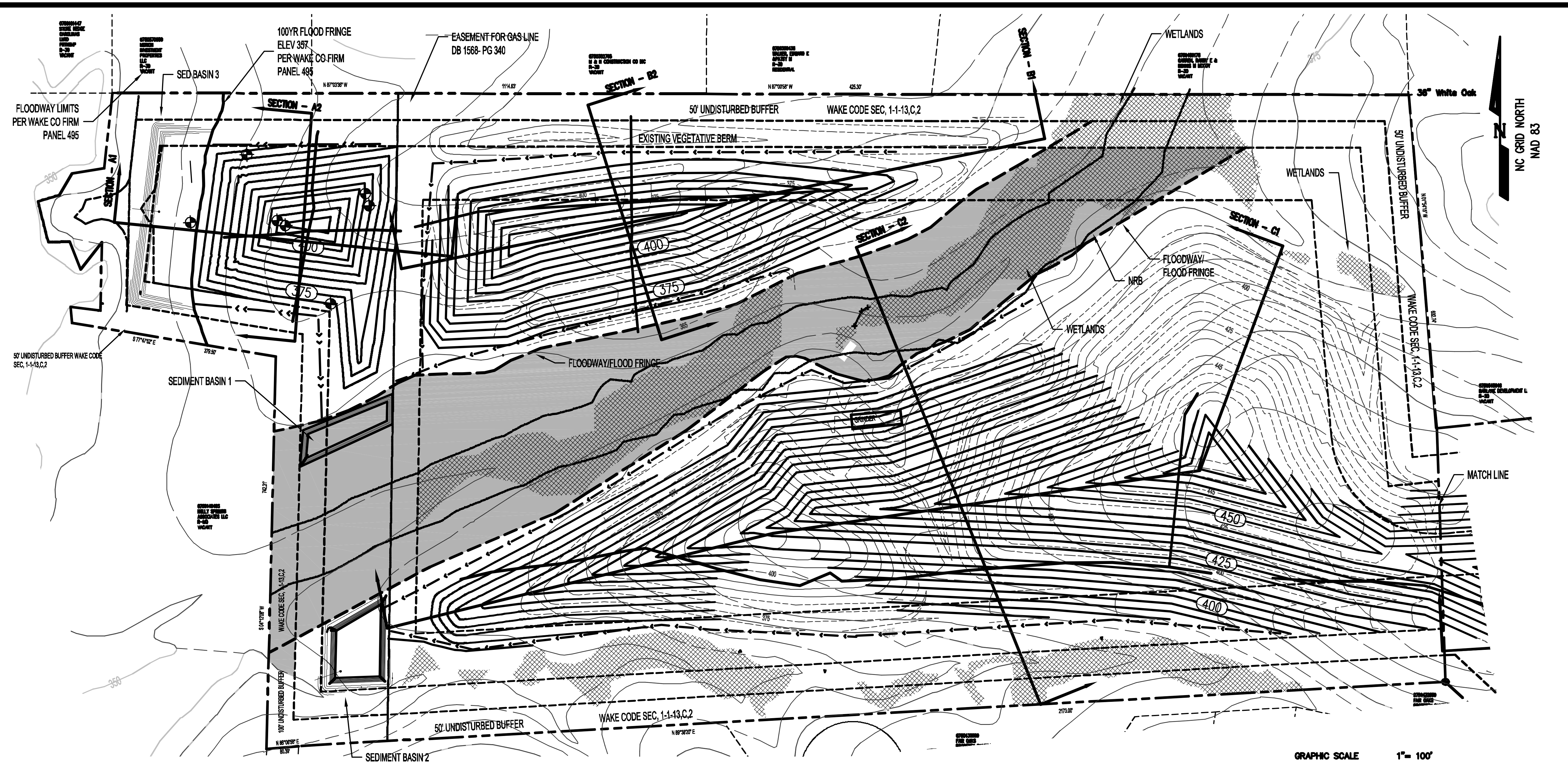
Currin Bros. Inc.

Wake County
Fuquay-Varina, NC

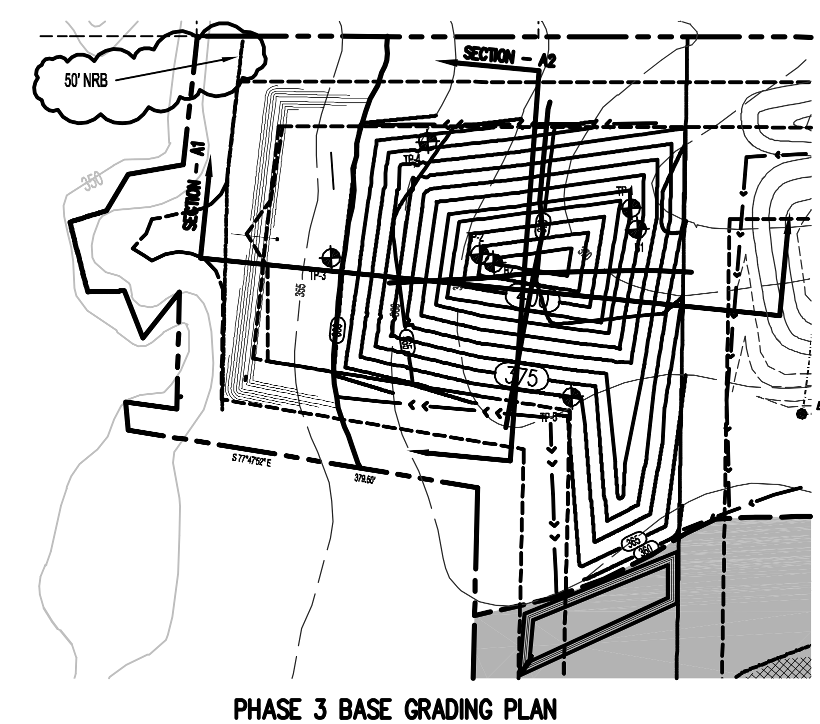
Sunset Road
LCID Landfill & Wood Recycling Facility
Permit # 92N-LCID
Grading and Drainage Plan

3	REVISED PER DWR COMMENTS	12/09/11

REVISIONS



PHASE 2 AND 3 FINAL CONTOURS SCALE 1" = 100'



PHASE 3 BASE GRADING PLAN
SCALE 1" = 100'

WAKE COUNTY CONSTRUCTION SEQUENCE

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7. When construction is complete and all areas are stabilized completely, call Wake County for an inspection by the Environmental Engineer.
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Environmental Engineers Office #

Byron Brady 856-6195

LEGEND

TP - TEST PIT

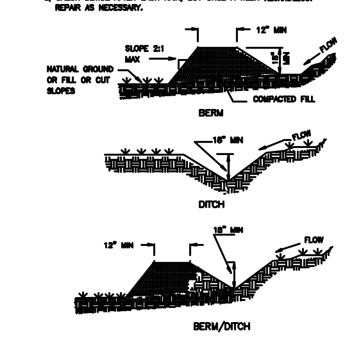
B - DRILLED BORING

a. MACHINE COMPACTION OF ALL FILL IS REQUIRED. DIVERSIONS SUFFICIENT TO DIRECT ALL SEDIMENT- LADEN STORMWATER INTO A SEDIMENT CONTROL DEVICE MUST BE INSTALLED PRIOR TO CLEARING AND GRUBBING OF THE AREA (OR IN CONJUNCTION WITHTHIS OPERATION IF SEDIMENT CONTROLS AND DIVERSIONS ARE INSTALLED IS EACH CRITICAL POINT IS REACHED).

b. DIVERSIONS SHOULD BE LOCATED TO MINIMIZE DAMAGES BY CONSTRUCTION OPERATIONS.

c. DIVERSIONS SHOULD BE SEEDED AND MULCHED IF THEY ARE TO REMAIN IN PLACED OVER 30 DAYS.

d. CHECK DEVICE AFTER EACH RAIN, BUT ONCE A WEEK REGARDLESS. REPAIR AS NECESSARY.



NOTES:
POSITIVE GRADE MUST BE PROVIDED TO ASSURE DRAINAGE. IF SLOPE EXCEEDS 2% SEED AND MULCH DIVERSION. TRY NOT TO EXCEED 5%(HIGH VELOCITIES RELUST). MAXIMUM D. A. = 5 ACRES WITHOUT SUPPORTING CALCS.. DIVERSIONS AT THE TOP OF SLOPES MUST EMPTY INTO AN APPROVED SLOPE DRAIN. BERM/DITCH IS MOST COMMONLY USED.

TEMPORARY DIVERSION BERM/DITCH
NTS

SEEDING SCHEDULE

(REVISED: 1-1-86)
Shoulders, Side Ditches, Slopes (Max 3:1)

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	***Browntop Millet	35 lbs/acre
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SUPERPHOSPHATE- 500 lbs> / ACRE -20%ANALYSIS
MULCH -2 TONS / ACRE - SMALL GRAIN STRAW
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3	REVISED PER DVM COMMENTS	12/28/11
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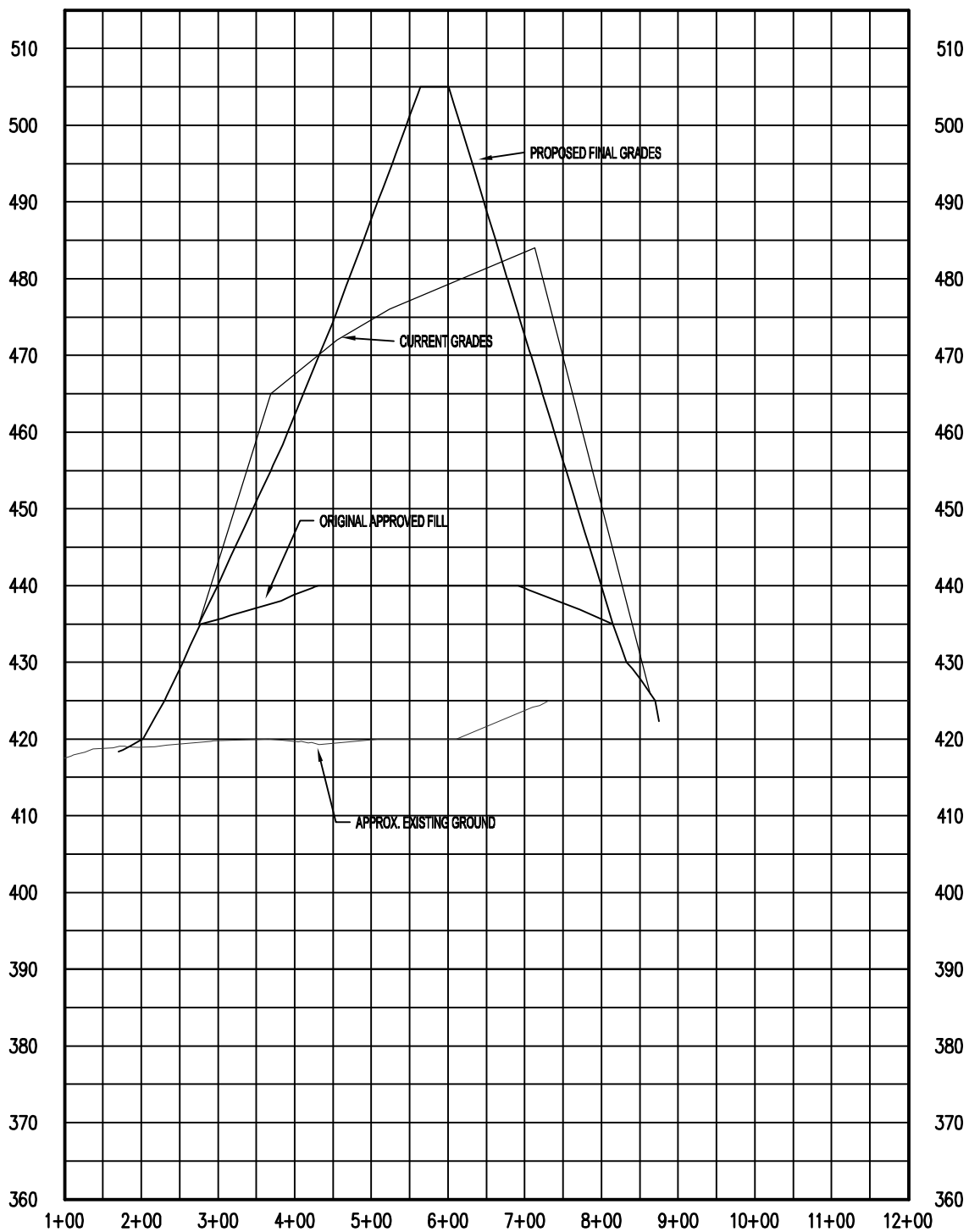
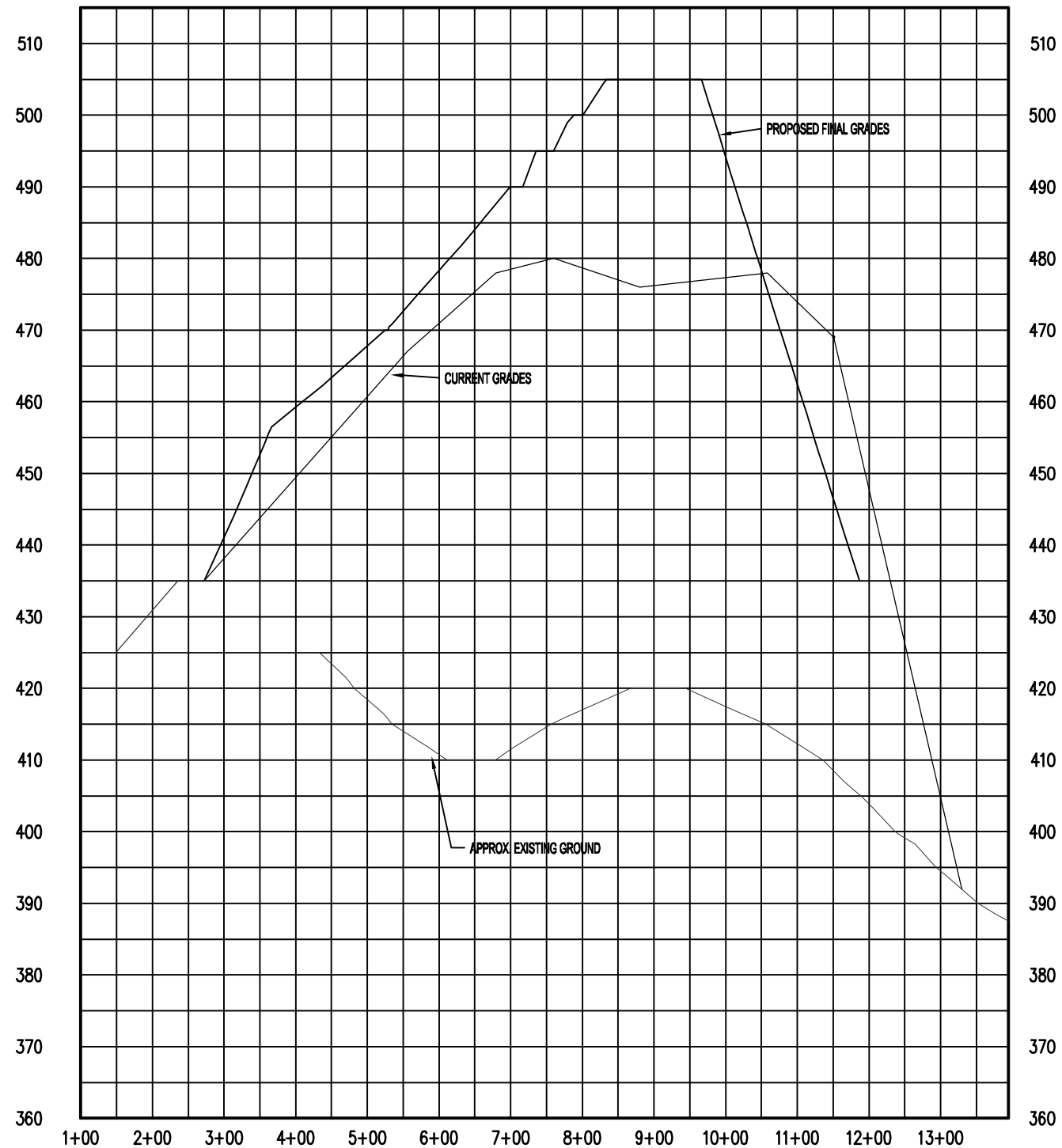


PROFILE - D-1
SCALE 1" = 100' HORIZONTAL
1" = 10' VERTICAL



PROFILE - D-2
SCALE 1" = 100' HORIZONTAL
1" = 10' VERTICAL

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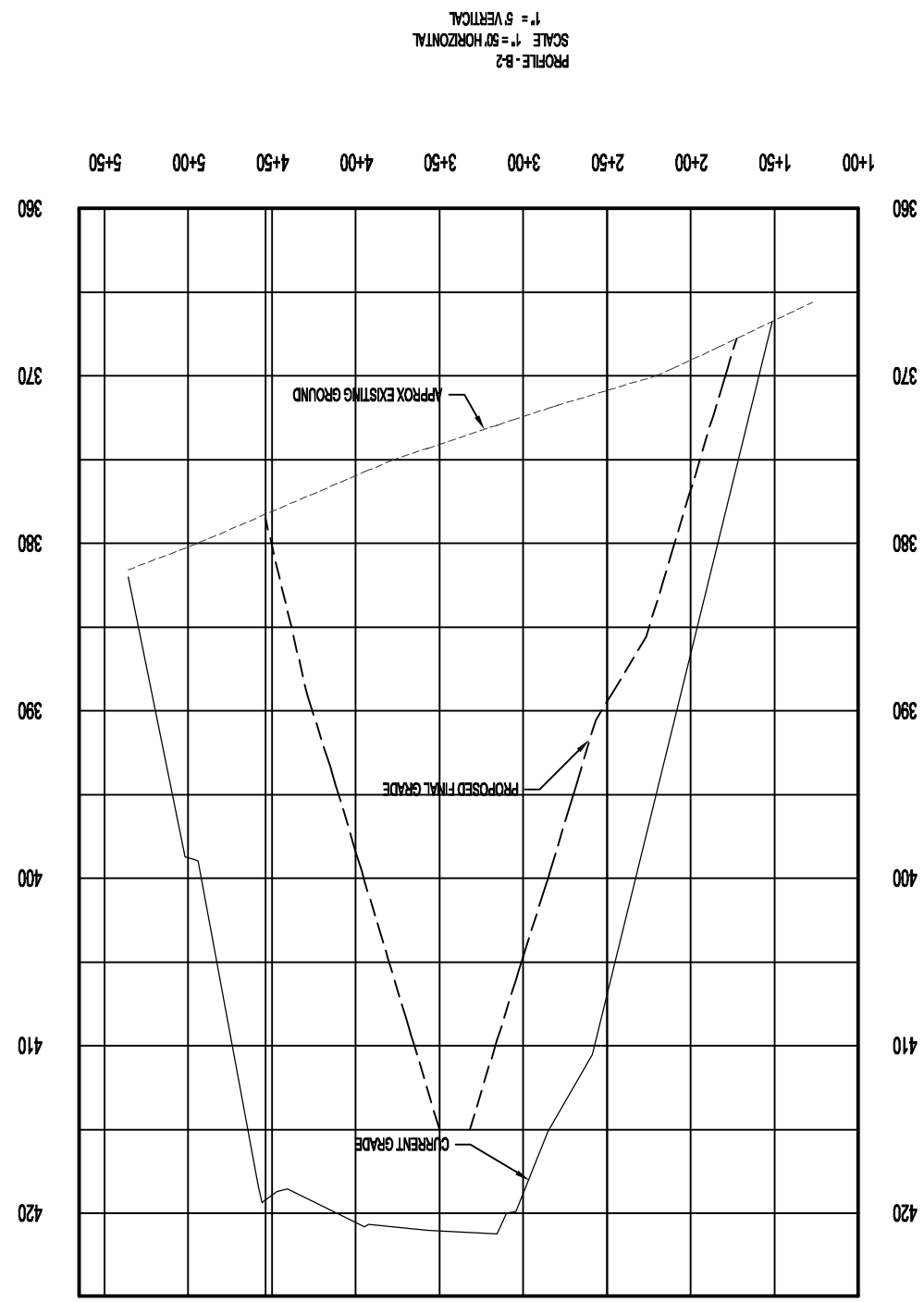

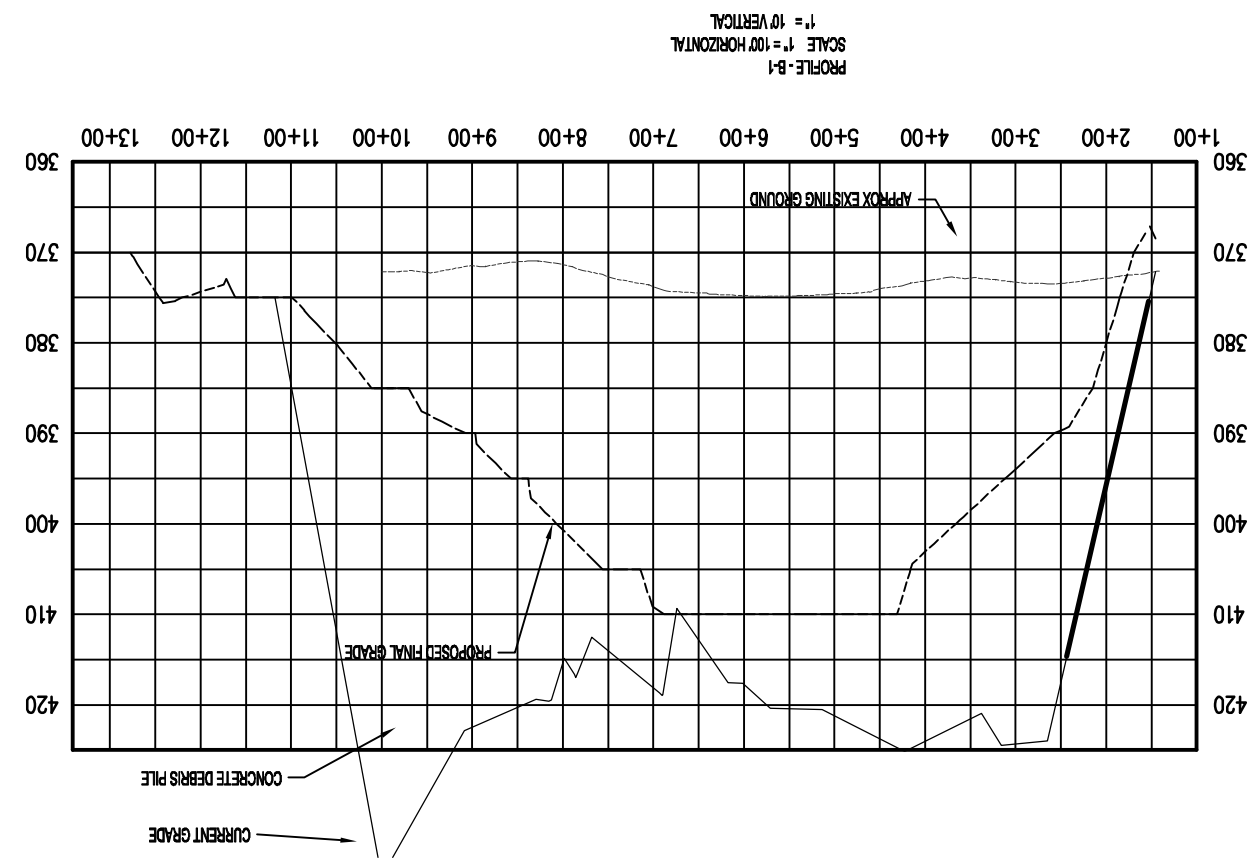

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AUGUST 28, 2002

REVISIONS

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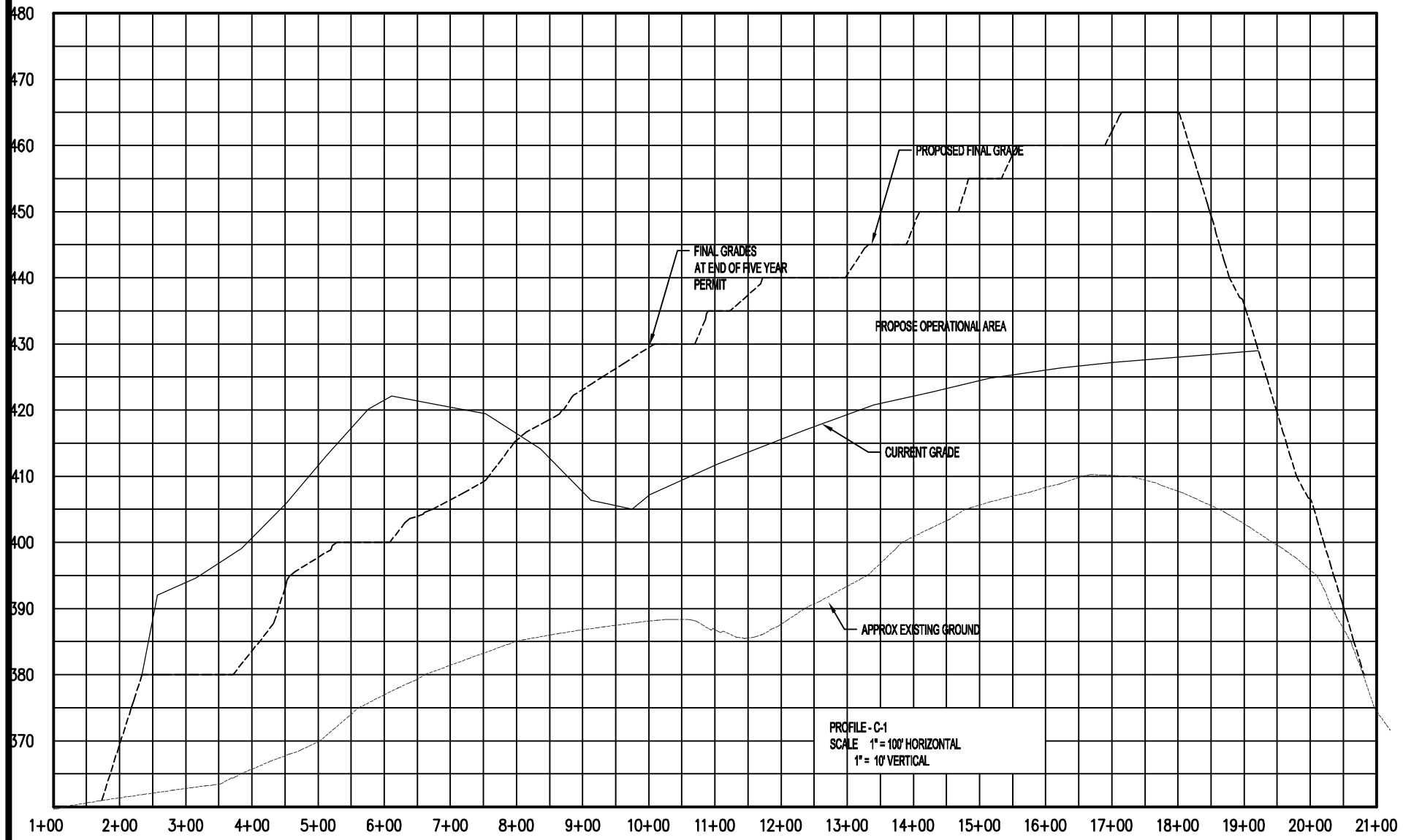

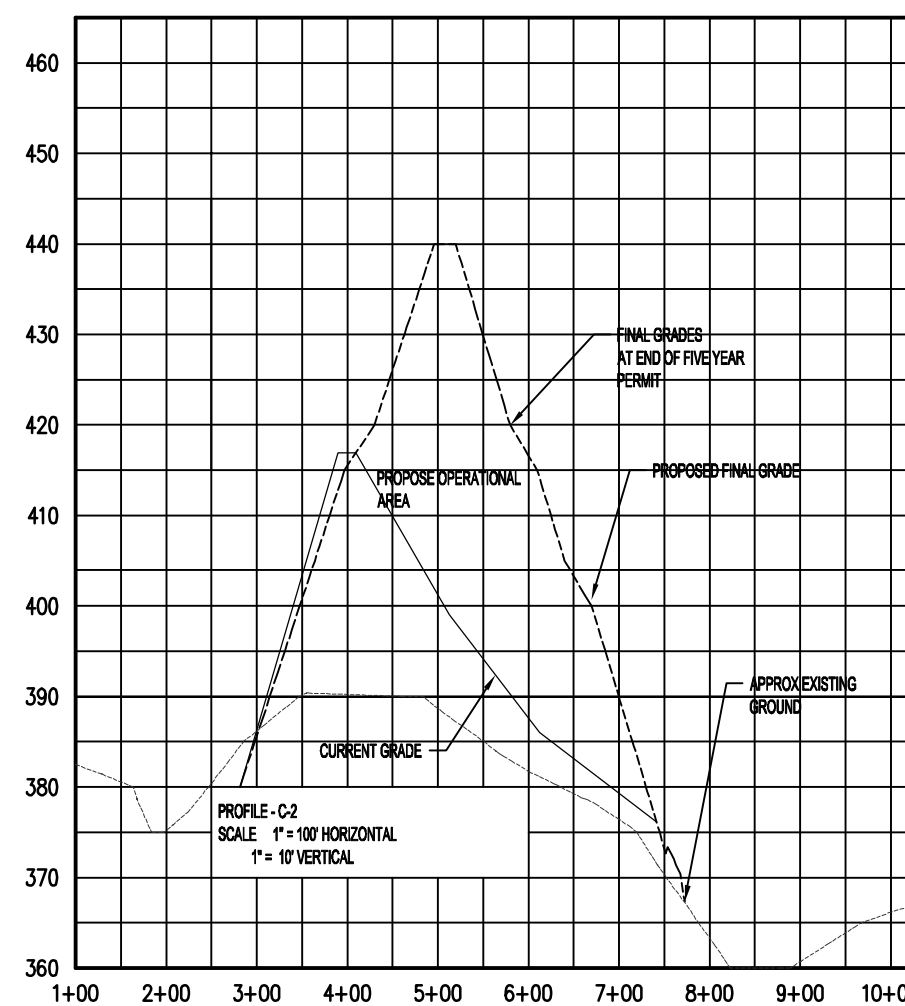

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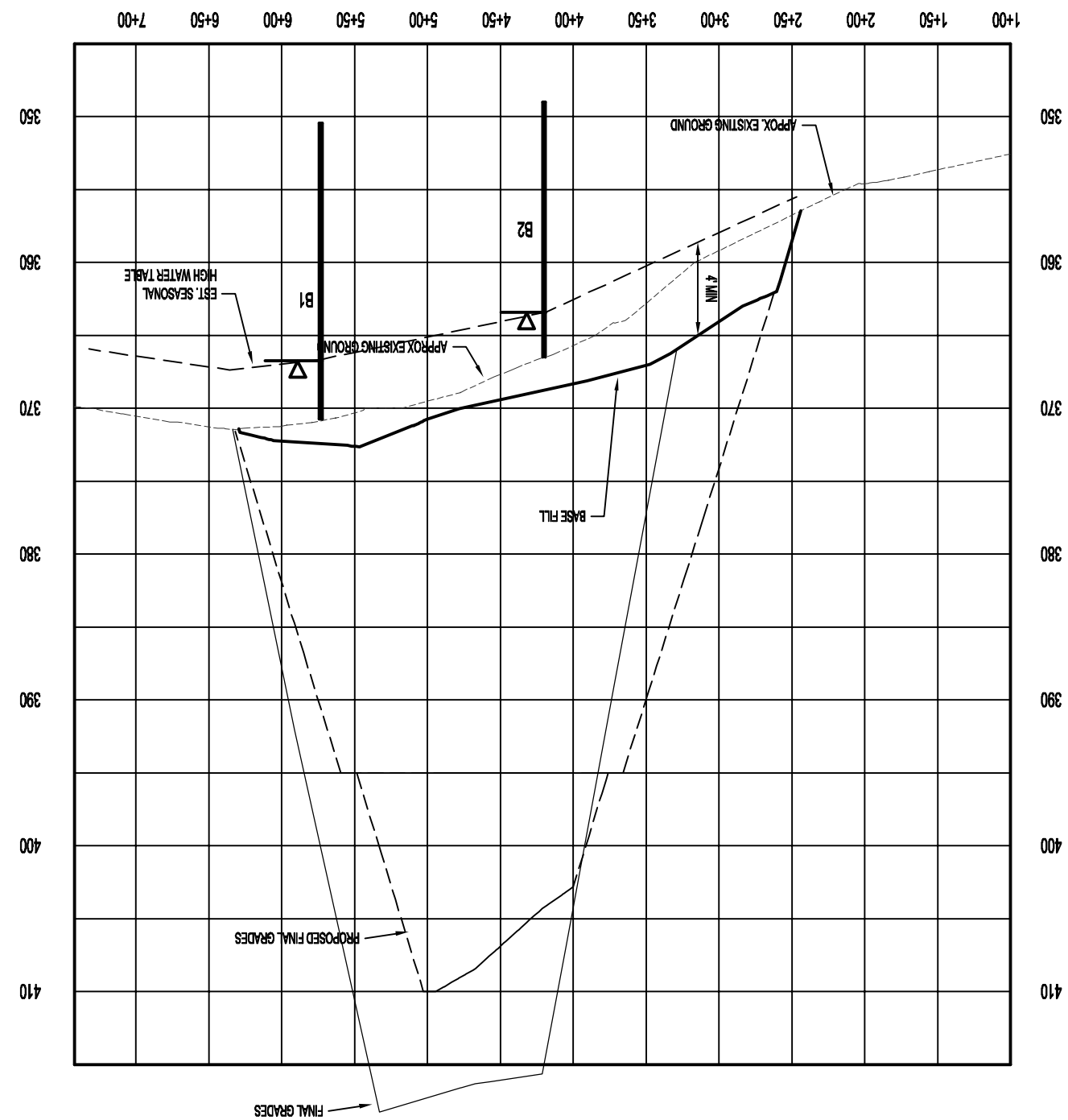

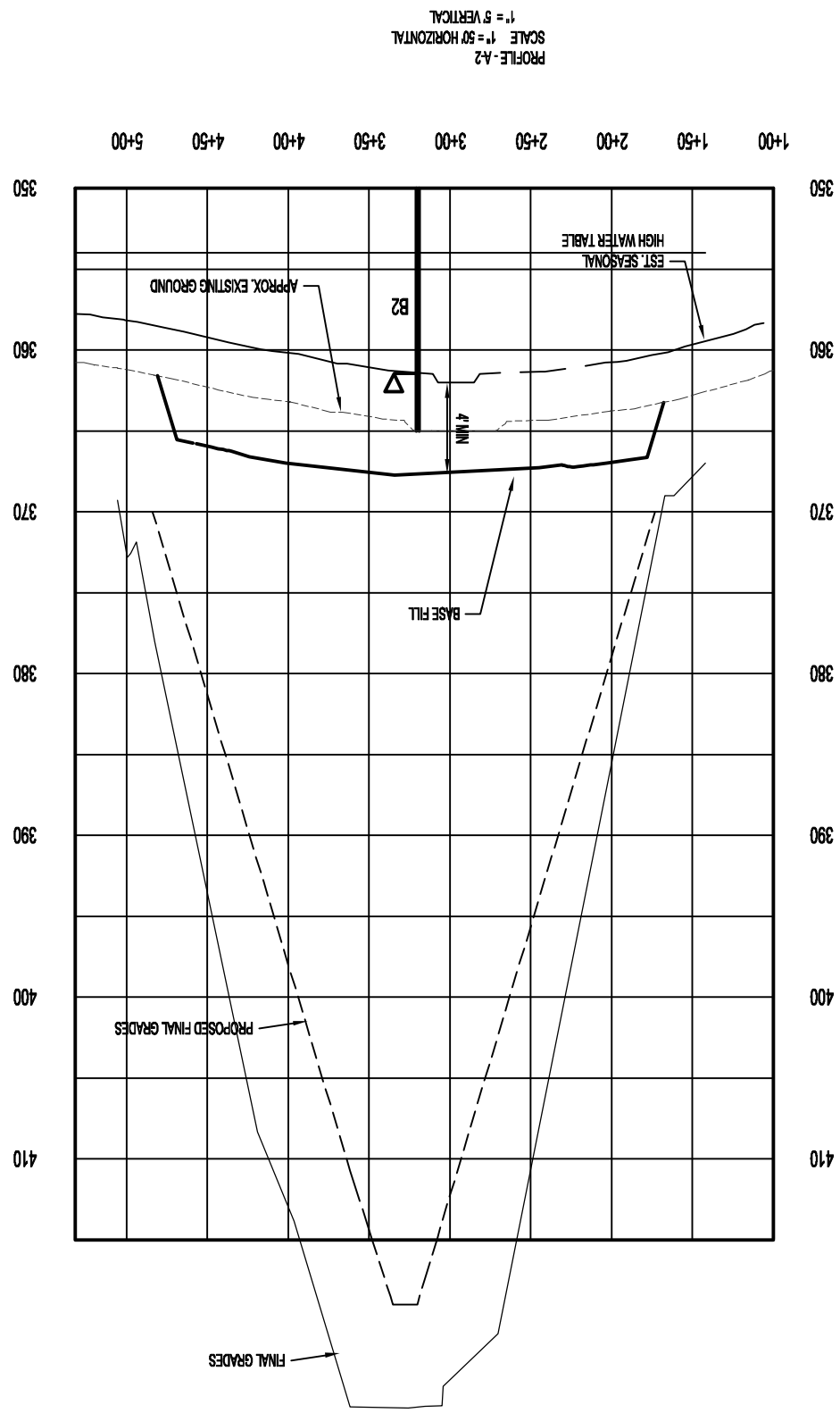

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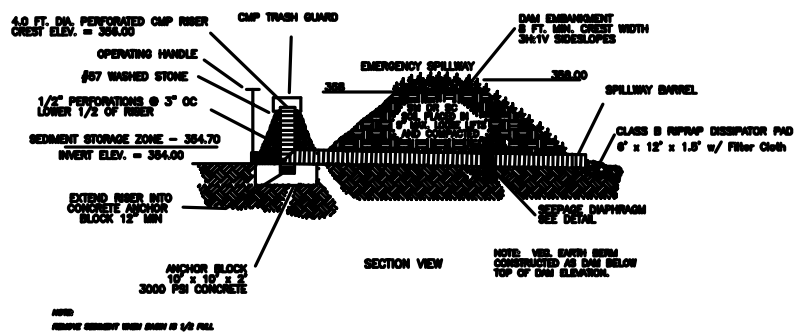

SED BASIN 1 –SECTION THROUGH EMBANKMENT
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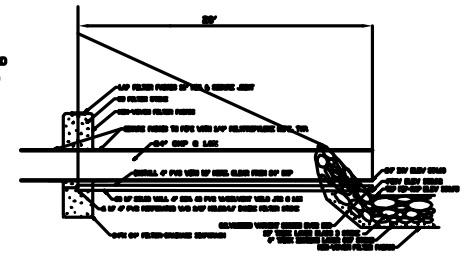

SED BASIN 1 – PRINCIPAL SPILLWAY OUTLET
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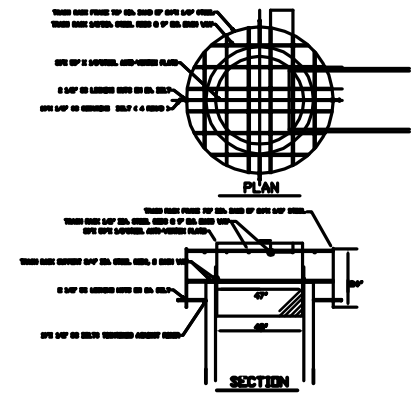

SED BASIN 1 – TRASH RACK DETAILS
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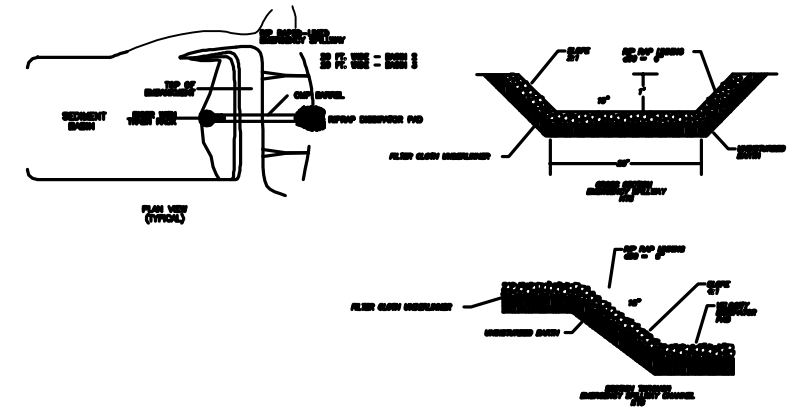

SED BASIN 1 &2 – EMERGENCY SPILLWAY DETAIL
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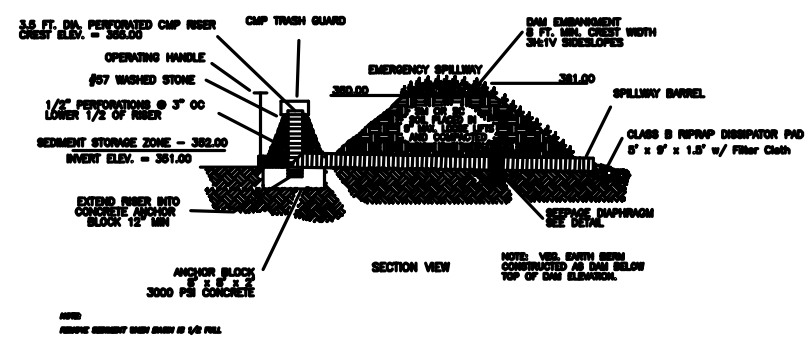
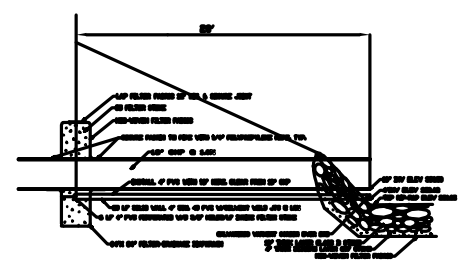
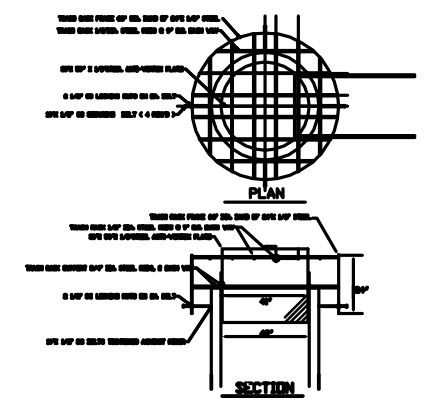


SED BASIN 2 –SECTION THROUGH EMBANKMENT
N.T.S.



SED BASIN 2 – PRINCIPAL SPILLWAY OUTLET
N.T.S.



SED BASIN 2 – TRASH RACK DETAILS
N.T.S.

CONSTRUCTION REQUIREMENTS

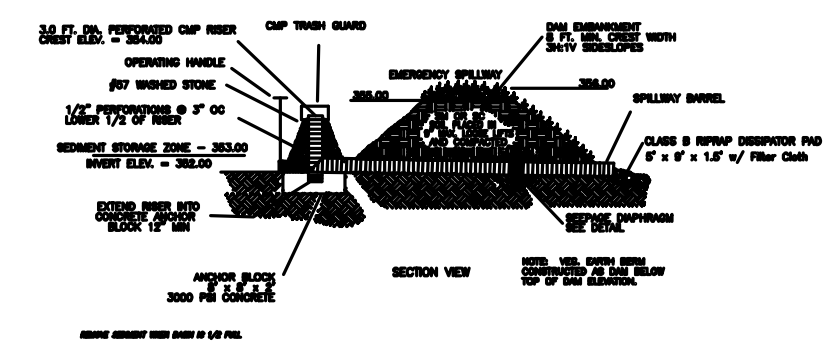
SITE PREPARATION
CLEAR, GRUB, AND STRIP TOPSOIL FROM THE ENTIRE AREA WHERE THE EMBANKMENT WILL BE PLACED AND REMOVE ALL VEGETATION AND ORGANIC MATERIALS. REMOVE THE UPPER LAYERS OF LOOSE SANDY MATERIALS TO EXPOSE THE FIRM SANDY CLAY MATERIALS. SCARIFY THE SURFACE OF THE EXPOSED SUBGRADE MATERIALS PRIOR TO PLACING FILL.

CORE TRENCH EXCAVATION
EXCAVATE THE CORE TRENCH ALONG THE CENTERLINE OF THE EMBANKMENT. EXCAVATE TO A MINIMUM DEPTH OF 5' INTO THE FIRM SANDY CLAY MATERIALS. MAINTAIN TRENCH SIDE SLOPES NO STEEPER THAN 1:1. SCARIFY THE SURFACE OF THE EXPOSED SUBGRADE MATERIALS PRIOR TO PLACING THE CORE TRENCH FILL MATERIALS.

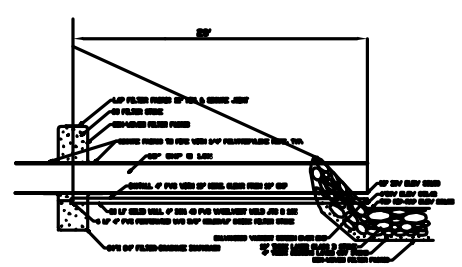
CORE TRENCH BACKFILL
THE CORE MATERIALS FROM THE DESIGNATED AREAS SHALL BE USED FOR THE CORE TRENCH BACKFILL. PLACE THE MATERIALS IN UNIFORM 8" LIFTS AND COMPACT WITH A SHEEPSFOOT ROLLER TO A MINIMUM DENSITY OF 95% STD. PROCTOR. PLACE THE CORE MATERIALS CONTINUOUSLY TO AN ELEVATION 1' ABOVE THE ADJOINING AREA. MAINTAIN THIS CORE FILL HEIGHT DURING CONSTRUCTION.

EMBANKMENT FILL
THE EMBANKMENT MATERIALS SHALL BE CLEAN MINERAL SOILS FREE OF ORGANIC MATERIALS. FROM THE APPROVED BORROW AREAS. PLACE THE MATERIALS IN UNIFORM 8" LIFTS AND COMPACT WITH A SHEEPSFOOT ROLLER TO A MINIMUM DENSITY OF 95% STD. PROCTOR.

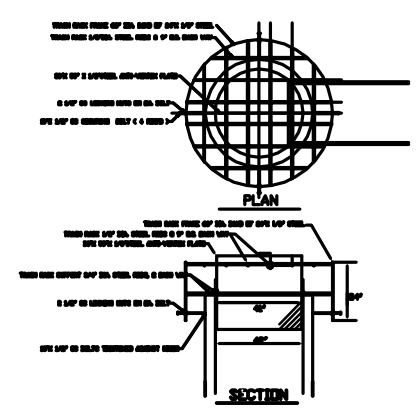
SPILLWAY RISER AND FOUNDATION
EXCAVATE THE SUBGRADE SOILS FOR THE RISER BARREL FOUNDATION TO THE GRADES AS SHOWN OR TO THE DEPTH OF FIRM IMPERVIOUS SUBSOILS AS DETERMINED BY THE SOILS ENGINEER. BACKFILL THE RISER SUBGRADE AS REQUIRED FOR CORE TRENCH AND CAREFULLY GRADE THE FOOTING AREA . SECURE THE RISER AND THE FOOTING REBAR AT THE REQUIRED GRADE SUPPORTED ON SOLID CONCRETE M.H. BLOCKS AND CAREFULLY PLACE THE FOUNDATION CONCRETE IN UNIFORM LIFTS AS SHOWN. VERIFY PROPER LINE AND GRADE OF THE RISER AFTER THE CONCRETE PLACEMENT AND ADJUST RISER AS NECESSARY IMMEDIATELY. INSTALL 18" DIP SPILLWAY PIPE AND 8" SHEAR GATE AT REQUIRED LINE AND GRADE AND CAREFULLY GROUT OPENINGS WITH PORTLAND CEMENT MORTAR. PROVIDE PORTLAND CEMENT MORTAR GROUT BED FOR SETTING RISER SECTIONS AND INSURE THAT THE RISER SECTIONS ARE SECURED WITH WATERTIGHT JOINTS. MONITOR THE INSTALLATION DURING BACKFILLING AND MAINTAIN PROPER ALIGNMENT AND SECURE JOINTS.



SED BASIN 3 –SECTION THROUGH EMBANKMENT
N.T.S.



SED BASIN 3 – PRINCIPAL SPILLWAY OUTLET
N.T.S.



SED BASIN 3 – TRASH RACK DETAILS
N.T.S.

SPILLWAY PIPE AND TRENCH
THE SPILLWAY PIPE TRENCH SUBGRADE SOILS SHALL BE EXCAVATED TO THE GRADES AS SHOWN OR TO THE DEPTH OF THE FIRM FIRM IMPERVIOUS SANDY CLAY SUBSOILS AS DETERMINED BY THE SOILS ENGINEER. THE WIDTH OF THE TRENCH EXCAVATION SHALL BE 10' MINIMUM. THE TRENCH SUBGRADE SHALL THEN BE BACKFILLED AS REQUIRED FOR CORE TRENCH TO THE REQUIRED PIPE GRADE LINE. CAREFULLY SHAPE THE PIPE BEDDING TO CONFORM TO THE PIPE AND BELLS. BACKFILL THE PIPE TRENCH WITH THE CORE MATERIALS IN UNIFORM 4" LAYERS AND COMPACTED TO 95% STD. PROCTOR USING HAND PLACEMENT TO AVOID PIPE DISPLACEMENT AND INSURE THAT NO VOIDS EXIST ALONG THE PIPE. PLACE A MINIMUM OF 2' OF COMPACTED FILL ABOVE THE PIPE BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.

FINAL GRADING
CAREFULLY MAINTAIN THE REQUIRED SIDE SLOPES DURING CONSTRUCTION AND VERIFY THE FINAL GRADING CONFORMS TO THE DESIGN ELEVATIONS. INSURE THAT THE EMERGENCY SPILLWAY IS CONSTRUCTED AS SHOWN.

PERMANENT SEEDING
VERIFY THE FINAL GRADES PRIOR TO APPLYING PERMANENT VEGETATIVE COVER. APPLY PERMANENT SEEDING IN ACCORDANCE WITH THE SEEDING SCHEDULE. MONITOR THE VEGETATIVE GROWTH AND RESTORE AND RESEED ANY DEFICIENT AREAS.

MATERIAL SPECIFICATIONS

SPILLWAY RISER SHALL BE PRECAST CONCRETE MANHOLE CONFORMING TO ASTM C-478 AND ASTM C-443AS FURNISHED BY N.C. PRODUCTS .

SPILLWAY PIPE SHALL BE DUCTILE IRON PIPE WITH PUSH-ON JOINTS CONFORMING TO ASTM A 746 – 77 WITH WALL THICKNESS CLASS 52. OUTSIDE COATING AND INSIDE LINING SHALL BE BITUMINOUS MATERIAL, MIN. 1 MIL THICK CONFORMING TO ANSI A21.4.

SHEAR GATE SHALL BE CAST IRON BODY WITH BRONZE SEAT AND DISC RINGS WITH SPIGOT FRAME EQUAL TO MUELLER A-2520-11.

TRASH RACK SHALL BE FABRICATED FROM MILD STEEL AS SHOWN ON THE DETAILS. INSERT BARS THROUGH ANTI-VORTEX PLATE AND CONTINUOUSLY WELD TO PLATE. ALL BAR ENDS SHALL BE CONTINUOUSLY WELDED TO THE FRAME AND ALL BARS WELDED TOGETHER AT EACH BAR CROSSING. CLEAN ASSEMBLY AFTER FABRICATION BY BRUSH BLASTING TO SPCC 6 AND APPLY TWO 5 MIL MIN. COATS OF COAL TAR EPOXY.

FILTER FABRIC FOR DAM CONSTRUCTION SHALL BE NON-WOVEN TYPE WITH BURST STRENGTH OF 150 PSI MIN. AND EQ. OPENING SIZE NO. 100 SIEVE MIN. AND NO. 50 MAX. CONFORMING TO N.C.D.O.T. 956-1 FOR SHOULDER DRAIN FILTER FABRIC.

AUGUST 28, 2002

John A. K. Tucker, P.E.
Consulting Engineer
P.O. Box 297 Fuquay-Varina, North Carolina 27526
(919) 567-0483 fax (919) 567-3611
Email: johnak@johntuckerpe.com

Currin Bros. Inc.
Wake County
Fuquay-Varina, NC

Sunset Road
LCID Landfill & Wood Recycling Facility
Permit # 92N-LCID
Detail Sheet

3	REVISED PER TVM COMMENTS	12/20/11
2	REVISED PER WAKE COUNTY COMMENTS	12/05/03
1	REVISED PER WAKE COUNTY COMMENTS	09/17/03

REVISIONS

Appendix 2

WASTE SCREENING AND INSPECTION PROGRAM

1.0 INTRODUCTION

This prohibited waste exclusion program is designed to prevent prohibited wastes from entering the facility and designated landfill. Prohibited wastes include regulated hazardous wastes, regulated PCB wastes, and other wastes prohibited by state or local regulations or permit conditions***. The Facility is NOT permitted to accept asbestos wastes.***

For the purposes of this section, regulated hazardous waste means a solid waste that is a hazardous waste as defined in 40 CFR 261.3, that is not excluded from regulation as a hazardous waste under 40 CFR 261.4 (b) or was not generated by a conditionally exempt generator.

Personnel shall be trained in recognition of hazardous and otherwise prohibited wastes, and procedures for accepting or rejecting wastes shall be implemented.

2.0 PROHIBITED WASTES

This facility is allowed to receive wastes classified as Land Clearing Inert Debris.

The facility shall not accept the following:

- Construction and demolition debris — except clean wood waste*
- Municipal/commercial solid wastes and household waste -
Regulated hazardous wastes
- Special wastes — except as permitted by the Solid Waste Section
\ - PCB wastes
- Other prohibited wastes

*For recycling into boiler fuel only — not disposal

2.1 REGULATED HAZARDOUS WASTE

Regulated hazardous waste must be disposed of or treated at a permitted hazardous waste disposal/treatment facility. **Any material contaminated by a hazardous waste is also deemed to be a hazardous waste**. RCRA permits are required to store, transport, and treat hazardous waste. The USEPA has given exemptions from storage, transport, and disposal requirements to certain generators based on source and quantities. All hazardous waste generated by households during their normal course of activities is exempt from regulation. Regulated generators must notify the EPA that they generate hazardous waste and receive an identification number from EPA or an authorized state agency.

2.2 PCB WASTES

No PCB wastes shall be accepted at the facility.

2.3 EXAMPLES OF OTHER PROHIBITED WASTES

WASTE	BASIS OF PROHIBITION
Radioactive Wastes	Nuclear Regulatory Commission regulations
Bulk Liquids	RCRA Subtitle D (40 CFR 258.28)
Medical Wastes (infectious)	State Solid Waste Regulations
Whole Tires	State Solid Waste Regulations

3.0 LOAD INSPECTION PROGRAM

The purpose of the load inspection program is to detect prohibited wastes and discourage attempts to handle them at the facility.

3.1 INITIAL PROCEDURES ON THE TIPPING AREA

The initial step in the inspection program is to review incoming loads in the tipping area. The operator will observe incoming loads for any indication of the presence of prohibited wastes. Should the operator encounter suspicious-looking loads, they will summon appropriate personnel for further evaluation of the load. If prohibited wastes are identified during inspection of a load, the prohibited load will be reloaded, rejected and sent back to the generator.

3.2 WASTE SCREENING SCHEDULE AND DOCUMENTATION

A waste screening form follows this text (Appendix 2A); this (or a similar form) shall be used for random load inspections and for documentation of rejected waste loads. The inspections are to be conducted on a random basis, at a minimum of twice per day, including (but not limited to) any suspicious load (e.g., that which might contain prohibited or unauthorized wastes).

3.3 LOAD INSPECTION PROCEDURES

The major elements of load inspections are:

- spread, break up, and visually examine wastes
- flag suspicious wastes
- maintain proper records

The origin of all loads is identified prior to proceeding onto the scales and tipping

floor. All load inspections are performed at the tipping floor. The Facility Manager will train facility operations employees in waste identification procedures.

4.0 PROHIBITED OR UNAUTHORIZEDWASTES

4.1 IDENTIFYING PROHIBITED WASTES

- Questioning the driver about the source of the load and the nature of generators.
- Examining product labels, especially warning labels.
- Rejecting bulk liquids in containers and sludges.
- Separating powders, granular material or materials with unusual colors for evaluation and possible rejection.
- Inspecting containers to ensure that they are empty or do not contain prohibited wastes.
- Inspecting for "hot loads" (smoldering or burning materials) emitting fumes or vapors.
- Evaluating the load for odors that are not characteristic of C&D waste.
- Inspectors should never inhale vapors from suspicious materials or containers because this may lead to injury or death.
- Searching for special items that have a high probability of containing prohibited waste:
  - transformers
  - batteries
  - filters
  - compressors (freon)
  - mechanical equipment (capacitors)
  - red bags (medical waste)
  - bags that may contain asbestos (without prior notification to the operator)
  - obvious prohibited wastes such as tires, etc.

4.2 MANAGING PROHIBITED WASTES

The results of the load inspection will identify wastes as:

- Acceptable
- Prohibited

Acceptable waste can be moved from the tipping area to the LCID disposal area or the wood waste raw material stockpile, depending on the material type. Keep in mind that the LCID materials and clean wood wastes for recycling shall always be kept separate. The inspection area should be cleaned to the extent that materials from this inspection do not impact the next load to be inspected.

Prohibited wastes detected during the inspection shall be prevented from being unloaded (if possible) and/or reloaded onto the delivery vehicle (if safe to do so) — in such cases the driver shall be advised of the hazardous waste contingency plan (see below). A contingency plan for removal/clean-up of hazardous, liquid or other unacceptable waste follows.

Refer to the HAZARDOUS WASTE CONTINGENCY PLAN (Appendix 3).

5.0 TRAINING

The management staff, equipment operators, and scale house staff will be trained in the contents of this plan. Training will address the following topics:

- Inspection of tipping area and load inspection procedures.
- Identification of hazardous wastes, PCB wastes and other prohibited wastes.
- Waste handling procedures (acceptable and prohibited wastes). • Health and safety.
- Record keeping.

6.0 RECORD KEEPING

Records of all incoming waste should be kept by the facility — at a minimum, the date, tonnage, material type and hauler should be recorded.

Random waste screening forms and hazardous waste records, if any, shall be kept in a file at the facility office — i.e., the Operating Record — and these records shall be available for inspection at any time by Solid Waste Section compliance inspectors.

If prohibited wastes are detected requiring notification of haulers and/or regulatory agencies, records of time of notification, the agency and individuals contacted with phone numbers, and the information that was reported.

Records documenting the successful completion of training will be maintained on-site.

WASTE SCREENING FORM

Facility I.D. _____
Permit No. _____

Day / Date: _____ Time Weighed in: _____
Truck Owner: _____ Driver Name: _____
Truck Type: _____ Vehicle ID/Tag No: _____
Weight: _____ Tare: _____

Waste Generator / Source: _____

Inspection Location: _____

Reason Load Inspected: Random Inspection _____ Staff Initials _____
Detained at Scales _____ Staff Initials _____
Detained by Field Staff _____ Staff Initials _____

Description of Load: _____

_____

Approved Waste Determination Form Present? (Check one) Yes_____ No _____ N/A____

Load Accepted (signature) _____ Date _____

Load Not Accepted (signature) _____ Date _____

Reason Load Not Accepted (complete below only if load not accepted) _____

Description of Suspicious Contents: Color _____ Haz. Waste Markings _____
Texture _____ Odor/Fumes_____
Drums Present _____ Other _____
(describe)_____
Est. Cu. Yds. Present in Load _____
Est. Tons Present in Load _____

Identified Hazardous Materials Present:_____

County Emergency Management Authority Contacted? Yes_____ No _____

Generator Authority Contacted? _____

Hauler Notified (check if waste not accepted)? ____ Phone _____ Time Contacted _____

Final Disposition of Load _____

Signed _____ Date _____
Solid Waste Director

Attach related correspondence to this form. File completed form in Operating Record.

Appendix 3

HAZARDOUS WASTE CONTINGENCY PLAN

1.0 HOT LOADS CONTINGENCY PLAN

In the event of a "hot" load attempting to enter the facility, the scale house staff will turn away all trucks containing waste that is suspected to be hot, unless there is imminent danger to the driver, in which case the situation will be treated as a fire — the vehicle will be isolated away from structures and other traffic and the fire department will be called. The vehicle driver will be instructed unload — if safe to do so — and to move the vehicle to a safe location. Other traffic will be redirected to another portion of the tipping area (away from the fire), or other waste deliveries may be suspended until the fire is out. Facility staff may assist the fire department (at the scene manager's direction) by smothering the fire with dirt from an on-site stockpile. If the fire cannot be controlled, the fire department will be notified and the area cleared of nonessential personnel. Once the fire is out the waste shall be inspected in accordance to the Waste Screening Plan (Appendix 2) and, if the material is deemed acceptable under the waste acceptance criteria, it will be loaded into transport vehicles. If the material is not acceptable, it will be loaded back onto the delivery vehicle and sent to an appropriate landfill.

2.0 HAZARDOUS WASTE EMERGENCIES CONTINGENCY PLAN

In the event that an obvious hazardous waste is detected at the scales or on the tipping pad, appropriate steps shall be implemented to safeguard the staff and public. Hazardous waste identification may be based on (but not limited to) the detection of strong odors, fumes or vapors, unusual colors or appearance (e.g., liquids), smoke, flame, or excess dust. All waste receipts shall be suspended and non-essential personnel cleared from the facility. The fire department will be called immediately in the event a hazardous material is detected. The waste will not be allowed to unload if hazardous waste is detected in advance of unloading.

If unloaded waste is deemed to be hazardous, an attempt will be made to isolate the wastes in a designated area where runoff is controlled, and/or personnel will be cleared from the vicinity of the waste. Staff will act prudently to protect personnel, but no attempt will be made to remove the material until trained emergency personnel (fire department or haz-mat team) arrive. A partial listing of regional **Hazardous Waste Responders** and disposal firms is found in **Appendix 3A.** These firms have the training and equipment to deal with hazardous materials, as needed. The Division of Waste Management's list of "**Useful Agencies and Contacts" is presented in Appendix 3B.**

The Operator will notify the Division of Waste Management regional specialist that an attempt was made to dispose of hazardous waste at the facility. If the vehicle attempting disposal of such waste is known, attempts will be made to prevent that vehicle from leaving the site until it is identified (license tag, truck number driver and/or company information) or, if the vehicle leaves the site, immediate notice will be served on the owner of the vehicle that hazardous waste, for which they have responsibility, has been disposed of at the facility. The cost of the removal and

disposing of the hazardous waste may be charged to the owner of the vehicle involved. Any vehicle owner or operator who knowingly dumps hazardous waste in the landfill may be barred from using the facility and/or reported to law enforcement authorities.

3.0 NON-EMERGENCY HAZARDOUS WASTE CONTINGENCY PLAN

Some wastes that are considered as hazardous or otherwise prohibited from the facility — even those that do not constitute an emergency — may require special handling by licensed contractors. Such materials shall be prohibited from being unloaded, if possible, and the driver of the delivery vehicle made aware of options for legal disposal (addressed below). Some hazardous materials may be inadvertently unloaded at the facility and require the services of licensed contractors, who will be sought to dispose of the prohibited materials.

Appendices 3A and 3B, found immediately following this section, provide a list of specialty waste haulers (licensed contractors) and/or disposal sites, furnished on the NC DENR Division of Waste Management web site. These firms may be contacted to dispose of hazardous materials in non-emergency situations. If the materials are not unloaded from the delivery vehicle, the driver will be furnished with the list of Hazardous Waste Responders or "Useful Contacts", and the owner of the vehicle will be responsible for appropriately disposing of the materials — this might involve isolating the vehicle on the premises until a licensed contractor can arrive, in which case steps shall be taken to prevent access by non-authorized personnel.

Should such materials be detected at the facility after unloading, the materials will be located to a holding area away from personnel and away from drainage ways, isolated to prevent contact with water or runoff (e.g., covering with tarps, surrounding the materials with absorbent booms or soil berms, as appropriate), and the appropriate licensed contractor contacted immediately. In either case (still loaded or unloaded), arrangements shall be made for the isolated materials to be removed as soon as possible.

4.0 RECORD KEEPING

State or EPA notification is required whenever a hazardous or PCB waste is detected. Records of these notifications will be kept and will include the date and time of notification, agency and individual contacted with phone numbers, and the information that was reported.

Any hazardous waste found at the facility that requires mitigation under this plan shall be documented by staff using the **Waste Screening Form** provided in **Appendix 2A.** Records of information gathered as part of the waste screening programs will be maintained throughout the operational life of the facility.

SPECIAL NOTE: The Operator of this facility is encouraged to keep a current list of Hazardous Waste Responders handy, as the firms and/or contact numbers may change over time.

Appendix 4

HAZARDOUS WASTE CONTACTS

The following contacts were taken from the NC DENR Division of Waste Management web site in early 2007; the availability and local phone numbers should be verified before a emergency, or modify this list as needed. For more information see http://www.wastenot.org/hwhome.

EMERGENCY RESPONSE

Clean Harbours	Reidsville, NC	336-342-6106
GARCO, Inc.	Asheboro, NC	336-683-0911
Safety-Kleen	Reidsville, NC	800-334-5953

TRANSPORTERS

ECOFLO	Greensboro, NC	336-855-7925
GARCO, Inc.	Asheboro, NC	336-683-0911
Zebra Environmental Services	High Point, NC	336-841-5276

DISPOSAL AND LANDFILLS

ECOFLO	Greensboro, NC	336-855-7925
Safety-Kleen	Reidsville, NC	800-334-5953
Zebra Environmental Services	High Point, NC	336-841-5276

USED OIL AND ANTIFREEZE

3RC Resource Recovery	Winston-Salem, NC	336-784-4300
Carolina Environmental Associates	Burlington, NC	336-299-0058
Environmental Recycling Alternatives	High Point, NC	336-869-8785

FLUORESCENT HANDLERS

3RC Resource Recovery	Winston-Salem, NC	336-784-4300
Carolina Environmental Associates	Burlington, NC	336-299-0058
ECOFLO	Greensboro, NC	336-855-7925
GARCO, Inc.	Asheboro, NC	336-683-0911
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PCB DISPOSAL

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PCB DISPOSAL

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GARCO, Inc.	Asheboro, NC	336-683-0911
Zebra Environmental Services	High Point, NC	336-841-5276

USEFUL AGENCIES and CONTACTS

Air Permits NC Div. of Air Quality 919-733-3340	Indoor **Air Quality**, US EPA Info Hotline 1-800-438-4318	**Asbestos** Environmental Epidemiology Mary Giguere 919-707-5950	**Customer Call Center** DENR 1-877-623-6748
Drinking Water Environmental Health Jessica Miles 919-715-3232	Safe **Drinking Water** US EPA 1-800-426-4791	Emergencies 24 hours **Emergency Management** 919-733-3300 919-733-9070 1-800-858-0368	**Energy Division Hotline** NC Commerce Dept. 1-800-662-7131
Environmental Education Office of Env. Education 1-800-482-8724	**Environmental Education** NC Cooperative Ext. Service NCSU 919-515-2770	**Federal Register** RCRA/Superfund/UST 1-800-424-9346	**Fluorescent Lights** Green lights Hotline 202-775-6650 EPA Energy Star 1-888-782-7937
Freon US EPA Region 4 Pam McIlvane 404-562-9197	**Groundwater** Division of Water Quality None Dedicated Soil Disposal Ted Bush 919-733-3221	**Hazardous Waste** Hazardous Waste Section 919-508-8400	**Household Hazardous Waste** Solid Waste Section Bill Patrakis 336-771-5091
Lab Certification Water Quality Jim Meyer 919-733-3908 ext. 207	**Land Farm** Division of Water Quality David Goodrich 919-715-6162	**Landfills** Solid Waste Section Division of Waste Management 919-508-8400	**Lead Abatement** Division of Public Health Jeff Dellinger 919-733-0668
Childhood **Lead Poisoning** Environmental Health Ed Norman 919-715-3293	National **Lead Info. Center** 1-800-LEAD-FYI 1-800-532-3394	**Medical Waste** Solid Waste Section Bill Patrakis 919-508-8512	**Oil Pollution** Aquifer Protection Section Debra Watts 919-715-6699
OSHA-Health Consultations NC Dept of Labor Roedreick Wilce 919-852-4379	**OSHA Training & Outreach** NC Dept. of Labor Joe Bailey 919-807-2891	Stratosphere **Ozone** US EPA Information Hot Line 1-800-296-1996	**PCBs** TSCA, EPA Region 4 Craig Brown 404-562-8980 TSCA Assistance Info. 202-554-1404
Pesticides Disposal Assistance Program NC Dept. of Agriculture Hazardous Waste Royce Batts 919-715-9023	**Pesticide Info. Hotline** 1-800-858-7378	**Petroleum Product** Soil Disposal, UST Scott Ryals 919-733-8486	**Pollution Prevention** & Environmental Assistance 919-715-6500 1-800-763-0136

Public Affairs, DENR Diana Kees Acting Director 919-715-4112	Public Right to Know Employee Right to Know OSHA, Dept. of Labor Anthony Bonapart 919-807-2846	Radiation Materials Radiation Protection Beverley Hall 919-571-4141	Recycling Markets Directory What Can I do with it? 919-715-6500
Toxic Release Reporting Emergency Planning SARA Title III Richard Berman 919-733-1361 1-800-451-1403 (24 hours)	Run Off Water Quality 919-733-5083	Safety Hotline NC Dept. Of Labor 1-800-LABOR-NC 919-807-2796	Septic Tanks, On-site Treatment System Environmental Health Steven Berkowitz 919-733-2895
Sewer Discharges Pre-Treatment Public Owned Treatment (POTW) 919-733-5083	Small Business Ombudsman US EPA 1-800-368-5888	Spill Reporting 1-800-858-0368	State Operator 919-733-1110
Stormwater, Permits Unit Water Quality 919-733-5083 1-800-858-0368	Superfund Federal Sites Dave Lown 919-508-8464 State Inactive Sites Charlotte Jesneck 919-508-8460	Toxicology Env. Epidemiology Occupational Surveillance 919-707-5900	Transport Hazardous Waste Division of Motor Vehicle (NC DOT) Sgt. T.R. Askew 919-715-8683
US DOT Regulations Office of Motor Carriers Chris Hartley 919-856-4378	Underground Storage Tanks Grover Nicholson 919-733-1300	Waste Minimization Pollution Prevention & Environmental Assistance 919-715-6500 1-800-763-0136	Wetlands Info Hotline US EPA 1-800-832-7828
North Carolina Division of Waste Management - 1646 Mail Service Center, Raleigh, NC 27699-1646 - (919) 508-8400			

Appendix 5

SOLID WASTE MANAGEMENT FACILITY
FIRE OCCURRENCE NOTIFICATION
NC DENR Division of Waste Management
Solid Waste Section

Notify the Section verbally within 24 hours and submit written notification within 15 days of the occurrence.
(If additional space is needed, use back of this form.)

NAME OF FACILITY: _____ PERMIT # _____

DATE AND TIME OF FIRE: _____ @ _____

HOW WAS THE FIRE REPORTED AND BY WHOM:

LIST ACTIONS TAKEN:

WHAT WAS THE CAUSE OF THE FIRE:

DESCRIBE AREA, TYPE, AND AMOUNT OF WASTE INVOLVED:

WHAT COULD HAVE BEEN DONE TO PREVENT THIS FIRE:

DESCRIBE PLAN OF ACTIONS TO PREVENT FUTURE INCIDENTS:

NAME: _____ TITLE: _____ DATE: _____

****

THIS SECTION TO BE COMPLETED BY SOLID WASTE SECTION REGIONAL STAFF

DATE RECEIVED _____

List any factors not listed that might have contributed to the fire or that might prevent occurrence of future fires:

FOLLOW-UP REQUIRED:

☐ NO ☐ PHONE CALL ☐ SUBMITTAL ☐ MEETING ☐ RETURN VISIT BY:_____ (DATE)

ACTIONS TAKEN OR REQUIRED:

Revised 6/8/09

Appendix 6

15A NCAC 13B .0560 LAND CLEARING AND INERT DEBRIS (LCID) LANDFILLS

Rules .0560 - .0566 of Title 15A Subchapter 13B of the North Carolina Administrative Code (T15A.13B .0560 - .0566); have been adopted covering the siting, design, and permitting of land clearing and inert debris landfills, effective January 4, 1993.

History Note: Authority G.S. 130A-294;
Eff. January 4, 1993.

15A NCAC 13B .0561 RESERVED FOR FUTURE CODIFICATION

15A NCAC 13B .0562 BENEFICIAL FILL

A permit is not required for beneficial fill activity that meets all of the following conditions:

(1) The fill material consists only of inert debris strictly limited to concrete, brick, concrete block, uncontaminated soil, rock, and gravel.

(2) The fill activity involves no excavation.

(3) The purpose of the fill activity is to improve land use potential or other approved beneficial reuses.

(4) The fill activity is not exempt from, and must comply with, all other applicable Federal, State, and Local laws, ordinances, rules, and regulations, including but not limited to zoning restrictions, flood plain restrictions, wetland restrictions, mining regulations, sedimentation and erosion control regulations. Fill activity shall not contravene groundwater standards.

History Note: *Authority G.S. 130A-294;*
Eff. January 4, 1993.

15A NCAC 13B .0563 APPLICABILITY REQ. FOR LAND CLEARING/INERT DEBRIS (LCID) LANDFILLS

Management of land clearing and inert debris shall be in accordance with the State hierarchy for managing solid waste as provided for under G.S. 130A-309.04(a). Disposal in a landfill is considered to be the least desirable method of managing land clearing and inert debris. Where landfilling is necessary, the requirements of this Rule apply.

(1) An individual permit from the Division of Solid Waste Management is not required for Land Clearing and Inert Debris (LCID) landfills that meet all of the following conditions:
   (a) The facility is to be operated for the disposal of land clearing waste, inert debris, untreated wood, and yard trash. Operations must be consistent and in compliance with the local government solid waste management plan as approved by the Division of Solid Waste Management.
   (b) The total disposal area is under two acres in size.
   (c) The facility and practices comply with the siting criteria under Rule .0564, and operational requirements under Rule .0566.
   (d) The fill activity is not exempt from, and must comply with all other Federal, State, or Local laws, ordinances, Rules, regulations, or orders, including but not limited to zoning restrictions, flood plain restrictions, wetland restrictions, sedimentation and erosion control requirements, and mining regulations.

(2) Where an individual permit is not required, the following applies:
   (a) The owner of the land where the landfill is located must notify the Division on a prescribed form, duly signed, notarized, and recorded as per Sub-item (2)(b) of this Rule. The operator of the landfill, if different from the land owner, shall also sign the notification form.
   (b) The owner must file the prescribed notification form for recordation in the Register of Deeds' Office. The Register of Deeds shall index the notification in the grantor index under the name of the owner of the land in the county or counties in which the land is located. A copy of the recorded notification, affixed with the Register's seal and the date, book and page number of recording shall be sent to the Division of Solid Waste Management.
   (c) When the land on which the Land Clearing and Inert Debris Landfill is sold, leased, conveyed, or transferred in any manner, the deed or other instrument of transfer shall contain in the description section in no smaller type than that used in the body of the deed or instrument a statement that the property has been used as a Land Clearing and Inert Debris Landfill and a reference by book and page to the recordation of the notification.

(3) An individual permit is required, except for landfills subject to Item (5) of this Rule, for the construction and operation of a Land Clearing and Inert Debris (LCID) landfill when:
   (a) The facility is to be operated for the disposal of land clearing waste, inert debris, untreated wood, and yard trash. Operations must be consistent and in compliance with the local government solid waste management plan as approved by the Division of Solid Waste Management, and
   (b) The total disposal area is greater than two acres in size.

(4) Individual permits for land clearing and inert debris landfills shall be issued for not more than five years.

(5) Landfilling of land clearing and inert debris generated solely from, and within the right of way of, North Carolina Department of Transportation projects shall be subject to the following:
   (a) Only waste types as described in Sub-item (1)(a) of this Rule may be disposed of within the Department of Transportation right of way.
   (b) Waste is landfilled within the project right of way from which it was generated.
   (c) The disposal area shall not exceed two contiguous acres in size.
   (d) Disposal sites shall comply with the siting requirements of Rule .0564 of this Section except for Item (10).
   (e) Disposal sites are not subject to the requirements of Item (2) of this Rule and Rule .0204 of this Subchapter.

(6) Landfills that are currently permitted as demolition landfills are required to comply with the following:

(a) Only waste types as described in Sub-item (3)(a) of this Rule may be accepted for disposal, as of the effective date of this Rule unless otherwise specified in the existing permit.

(b) Operations must be in compliance with Rule .0566 of this Section as of the effective date of this Rule.

(c) Existing demolition landfills must comply with the siting criteria requirements of these Rules as of January 1, 1998 or cease operations and close in accordance with these Rules.

History Note: *Authority G.S. 130A-294; 130A-301;*
Eff. January 4, 1993.

15A NCAC 13B .0564 SITING CRITERIA FOR LAND CLEARING AND INERT DEBRIS (LCID) LANDFILLS

The following siting criteria shall apply for Land Clearing and Inert Debris (LCID) landfills:

(1) Facilities or practices, shall not be located in the 100-year floodplain.

(2) Facilities or practices shall not cause or contribute to the taking of any endangered or threatened species of plants, fish, or wildlife.

(3) Facilities or practices shall not result in the destruction or adverse modification of the critical habitat of endangered or threatened species as identified in 50 CFR Part 17 which is hereby incorporated by reference including any subsequent amendments and editions. This material is available for inspection at the Department of Environment, Health, and Natural Resources, Division of Solid Waste Management, 401 Oberlin Road, Raleigh, North Carolina 27605 where copies can be obtained at no cost.

(4) Facilities or practices shall not damage or destroy an archaeological or historical site.

(5) Facilities or practices shall not cause an adverse impact on a state park, recreation or scenic area, or any other lands included in the state nature and historic preserve.

(6) Facilities shall not be located in any wetland as defined in the Clean Water Act, Section 404(b).

(7) It must be shown that adequate suitable soils are available for cover, either from on or off site.

(8) Land Clearing and Inert Debris landfills shall meet the following surface and ground water requirements:

(a) Facilities or practices 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, as amended.

(b) Facilities or practices shall not cause a discharge of dredged materials or fill material into waters of the state that is in violation of the requirements under Section 404 of the Clean Water Act, as amended.

(c) Facilities or practices shall not cause non-point source pollution of waters of the state that violates assigned water quality standards.

(d) Waste in landfills with a disposal area greater than two acres shall be placed a minimum of four feet above the seasonal high water table, except where an alternative separation is approved by the Division.

(e) Waste in landfills with a disposal area less than two acres shall be placed above the seasonal high water table.

(9) The facility shall meet the following minimum buffer requirements:

(a) 50 feet from the waste boundary to all surface waters of the state as defined in G.S. 143-212.

(b) 100 feet from the disposal area to property lines, residential dwellings, commercial or public buildings, and wells.

(c) Buffer requirements may be adjusted as necessary to insure adequate protection of public health and the environment.

(10) The facility shall meet all requirements of any applicable zoning ordinance.

History Note: *Authority G.S. 130A-294;*
Eff. January 4, 1993.

15A NCAC 13B .0565 APPLICATION REQUIREMENTS FOR LAND CLEARING/INERT DEBRIS (LCID) LANDFILLS

Five sets of plans, maps, and reports shall be required with each application. The seal of a professional engineer is required when submitting plans for a Land Clearing and Inert Debris (LCID) landfill.

(1) The following information is required in order to review and approve the siting of a Land Clearing and Inert Debris (LCID) landfill:
- (a) An approval letter from the unit of local government having zoning authority over the area where the facility is to be located stating that the site meets all of the requirements of the local zoning ordinance, or that the site is not zoned.
- (b) Location on a county road map.
- (c) Information showing that the bottom elevation of the waste shall be four feet above the seasonal high water table. Seasonal high water table elevations shall be obtained from on site test borings, test pits, or from other geological or water table investigations, studies, or reports from the immediate area of the proposed facility.
- (d) A written report indicating that the facility shall comply with all the requirements set forth under Rule .0564 of this Section.
- (e) A copy of the deed or other legal description of the site that would be sufficient as a description in an instrument of conveyance, showing property owner's name.
- (f) Any other information pertinent to the suitability of the proposed facility.

(2) The following shall be provided on a map or aerial photograph with a scale of at least one inch equals four hundred feet showing the area within one-fourth mile of the site:
- (a) Entire property or portion thereof owned or leased by the person providing the disposal site.
- (b) Location of all homes, buildings, public or private utilities, roads, wells, watercourses, water or other impoundments, and any other applicable features or details.
- (c) 100-year flood plain boundaries, if any.
- (d) Wetland boundaries, if any.
- (e) Historical or archaeological sites, if any.
- (f) Park, scenic, or recreation area boundaries, if any.

(3) Development and design plans and details, at a scale of at least one inch equals one hundred feet with one inch equals forty feet preferred, and specifications containing the following information shall be submitted with the application for a proposed Land Clearing and Inert Debris (LCID) landfill:
- (a) Property or site boundary, fully dimensioned with bearings and distances, tied to North Carolina grid coordinates where reasonably feasible.
- (b) Easements and right-of-ways.
- (c) Existing pertinent on site and adjacent structures such as houses, buildings, wells, roads and bridges, water and sewer utilities, septic fields, and storm drainage features.
- (d) Proposed and existing roads, points of ingress and egress along with access control such as gates, fences, or berms.
- (e) Buffer and set back lines along with the buffered boundary or feature.
- (f) Springs, streams, creeks, rivers, ponds, and other waters and impoundments.
- (g) Wetlands, if any.
- (h) Boundary of the proposed waste area.
- (i) Existing topography with contours at a minimum of five foot intervals. Where necessary, a smaller interval shall be utilized to clarify existing topographic conditions.
- (j) Proposed excavation, grading, and final contours at a minimum of five foot intervals. Where necessary, a smaller interval shall be utilized to clarify proposed grading. Excavation, grading, and fill material side slopes shall not exceed three to one (3:1).
- (k) Where on site borrow for operational and final cover is proposed, indicate the borrow excavation and grading plan with contours at a minimum of five foot intervals. Where necessary, a smaller interval shall be utilized to clarify proposed grading.
- (l) Proposed surface water control features and devices such as slope drains, storm water pipes, inlets, culverts, and channels.
- (m) Information showing that the project meets the requirements of 15A NCAC 4, Sedimentation Control Rules.

(n) Location of test borings or test pits, if used to determine the seasonal high water table elevation, shall be shown on the plans.

(o) A minimum of two cross-sections, one each along each major axis, per operational area showing:

(i) Original elevations.

(ii) Proposed excavation.

(iii) Proposed final elevations.

(4) An operational plan addressing the requirements under Rule .0566 of this Section and containing the following information shall be submitted with the application for a proposed Land Clearing and Inert Debris (LCID) landfill:

(a) Name, address, and phone number of individual responsible for operation and maintenance of the facility.

(b) Projected use of the land after completion.

(c) Description of systematic usage of disposal area, operation, orderly development and closure of the landfill.

(d) Type, source, and quantity of waste to be accepted.

(e) An emergency contingency plan, including fire fighting procedures.

History Note: *Authority G.S. 130A-294;*
Eff. January 4, 1993.

15A NCAC 13B .0566 OPERATIONAL REQ. FOR LAND CLEARING/INERT DEBRIS (LCID) LANDFILLS

Land Clearing and Inert Debris (LCID) landfills shall meet the following operational requirements:

(1) Operational plans shall be approved and followed as specified for the facility.

(2) The facility shall only accept those solid wastes which it is permitted to receive.

(3) Solid waste shall be restricted to the smallest area feasible and compacted as densely as practical into cells.

(4) Adequate soil cover shall be applied monthly, or when the active area reaches one acre in size, whichever occurs first.

(5) 120 calendar days after completion of any phase of disposal operations, or upon revocation of a permit, the disposal area shall be covered with a minimum of one foot of suitable soil cover sloped to allow surface water runoff in a controlled manner. The Division may require further action in order to correct any condition which is or may become injurious to the public health, or a nuisance to the community.

(6) Adequate erosion control measures, structures, or devices shall be utilized to prevent silt from leaving the site and to prevent excessive on site erosion.

(7) Provisions for a 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.

(8) The facility shall be adequately secured by means of gates, chains, berms, fences, etc. to prevent unauthorized access except when an operator is on duty. An attendant shall be on duty at all times while the landfill is open for public use to assure compliance with operational requirements and to prevent acceptance of unauthorized wastes.

(9) Access roads shall be of all-weather construction and properly maintained.

(10) Surface water shall be diverted from the working face and shall not be impounded over waste.

(11) Solid waste shall not be disposed of in water.

(12) Open burning of solid waste is prohibited.

(13) The concentration of explosive gases generated by the facility shall not exceed:

(a) Twenty-five percent of the lower explosive limit for the gases in facility structures.

(b) The lower explosive limit for the gases at the property boundary.

(14) Leachate shall be properly managed on site through the use of current best management practices.

(15) Should the Division deem it necessary, ground water or surface water monitoring, or both, may be required as provided for under Rules .0601 and .0602 of this Subchapter.

(16) A sign shall be posted at the facility entrance showing the contact name and number in case of an emergency and the permit number. The permit number requirement is not applicable for facilities not requiring an individual permit.

History Note: *Authority G.S. 130A-294;*
Eff. January 4, 1993.

John A.K. Tucker, P.E.
Consulting Engineer

March 5, 2012

Brian Wootton
Hydrogeologist
Solid Waste Section
NC Dept. of Environment and Natural Resources
1646 Mail Service Center
Raleigh, NC 27699-1646

Subject: Currin Brothers LCID Landfill
Permit 92-N
Doc ID 16409

Dear Mr. Wootton:

Thank you for your letter of February 6, 2012. I have verified the airspace volumes previously submitted in 2010. Since the operators have not landfilled any material, other than a minor amount of concrete, remaining airspace remains unchanged. Listed below is the additional information you requested:

Volume Tabluation	Phase 1	Phase 2	Phase 3	Total
Used Airspace (cyds)	324,614	467,671	65,038	631,193
Unused Airspace (cyds)	306,579	459,382	0	927, 053
Total Capacity (cyds)				1,558,246
Existing Acreage	7.92	58.98	3.83	83.65
Proposed Acreage – 5 years	0	5	0	5
Mulch Volume (cyds) 2006-2011				165,000
Concrete Crushing (tons) 2006-2011				0.00

I hope you find this information helpful.

Regards,

John A.K. Tucker, P.E.

P.O. Box 297 *Fuquay-Varina* *North Carolina*
Voice (919) 567-0483 *Fax (919) 567-3611* *johnak@johntuckerpe.com*

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September 4, 2012

Mr. Brian Wootton
Hydrogeologist
NCDENR Division of Waste Management
217 West Jones Street
Raleigh, North Carolina 27603

RE: Landfill Gas Monitoring Evaluation
Currin Brothers LCID Landfill
NC Solid Waste Permit No. 92N (Wake County Permit No. 86-001 & NC Solid Waste Permit No. 92S)

Dear Brian:

Smith Gardner, Inc. (S+G) is pleased to submit this evaluation and summary response regarding the potential of landfill gas at the above referenced facility. As you are aware, the Currin Brothers facility (landfill) was one of many facilities whereby Wake County released jurisdiction to NCDENR. Based on our review of the available records, the most recent solid waste permit (attached) executed by the County appears to be dated November 10, 2004 with subsequent expiration on November 10, 2009.

Background

The Currin Brothers received Notice[1] on March 3, 2010 that the facility permit had expired and that application shall be made for permit renewal. Subsequent application was made on or about June 2, 2010 by Mr. John A. K. Tucker, P.E., on behalf of the Currin Brothers. To date, correspondence between NCDENR and Mr. Tucker leads to one (1) remaining issue surrounding the potential of landfill gas at the facility. The most recent request was made on July 2, 2012 to comply with a request to submit a Landfill Gas Monitoring Plan. Since that request, S+G has been engaged by the Currin Brothers to review this concern by the Division.

Waste Composition

The landfill began operation in 1986 as a Demolition Landscape Landfill under the jurisdiction of Wake County. A copy of the original permit is attached. The "Demolition Landscape" landfill designation specified the disposal of demolition and land clearing debris specifically noting that no paper or garbage may be disposed in the facility. Throughout all the records reviewed by S+G including the special use approval[2] by Wake County, the only materials approved were: *"land clearing waste, inert debris, untreated wood, and yard trash"*. The Currin Brothers have attested that only land clearing and inert debris have been placed in this facility. Additionally, Mr. Johnny Beal of Wake County, through both historical inspection reports and an interview by S+G, attested that this facility was limited to these types of materials.

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[1] Letter from Mr. Zinith Barbee, NCDENR to Mr. Allen Currin, Currin Brothers, Inc. regarding expired permit (92-N) dated March 3, 2010.
[2] Wake County Resolution R-95-75.

Site Development

The landfill has been proposed[3] in three (3) phases depicted in Figure 1 (attached) as follows:

> Phase 1 – Oldest and original landfill area located on southeast portion of the property bordered by stream features to the North and South and a residential area to the east (Arrowhead Drive);
> Phase 2a – (Areas 1 – 3) located centrally on the site between and bordered by stream features to the North and South;
> Phase 2b – (Area 4) located on the northern portion of the site which has been mined and processed. Currently, this area only includes inert debris (concrete, brick and block) and process topsoil materials, from previous mining efforts. This area is bordered to the south by stream features and the north by residential areas (Merion Station Drive);
> Phase 3 – (Area 5) located on the northwest corner of the site just across the Colonial Pipeline easement and bordered to the north, south, and west by stream features and to the east by Colonial Pipeline. This area has also been mined and processed and currently includes processed topsoil materials.

The site was originally developed in 1986 in the Phase 1 area proceeding to the Phase 2a, Area 1 on or about 1995. In the Phase 1 area, the proposed base grades included excavations up to approximately 15 feet in some areas. However, the Currin Brothers have stated that through these areas, only topsoil was stripped ; during this time period, the site was used for Currin Brothers' projects exclusively. Although excavation was not performed, a 48" diameter concrete culvert was installed below this area to bridge over a stream feature at the time. The concrete culvert still exists and is functional today and is shown on Figure 1.

Furthermore, due to the age of the site, the solid waste buffers vary from the original 50 foot under the 1986 development, in the Phase 1 area, and increasing to 100 feet under the January 1, 1998 solid waste rule amendments over the remainder of the property development (Phases 2 and 3)

Site Geology

The original surficial site soils consisted of NRCS (SCS) Appling and Cecil series soils. The soils under the original Phase 1 area were predominantly the Appling series and the soils under the Phase 2a area were predominantly the Cecil series. Both of these soil types are considered under the loam category and are considered as moderately permeable. The soil type changes along the stream feature to Worsham series categorized as alluvial and poorly draining, consistent with low lying areas and streams in the area.

Based on the 1985 Geologic Map of NC from the USGS, the underlying rock type is Metavolcanic-Epiclastic Rock (Cambrian/Late Proterozoic). The site is located in the Raleigh Belt immediately east of the Triassic Basin. The bedrock beneath the site consists of metamorphosed argillite, mudstone, volcanic sandstone, conglomerate, and volcanic rock. This formation covers a small area of this portion of the County with the Jonesboro Fault and Triassic Basin located west of the site and the Middendorf Formation consisting of sandstone and mudstone located further to the east.

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[3] LCID Permit Renewal for Currin Brothers, Inc., Sunset Road LCID Landfill prepared by John A.K. Tucker, P.E. dated June 1, 2010.

In 1996, Geotechnologies, Inc. performed drilling on the site to establish temporary piezometers for the purpose of seasonal groundwater level characterization. However, no specific deeper soil descriptions were logged at the time.

Site Topography

The original topography[4] for the site area consisted of a central ridge sloping to the north and south from a central elevation, dropping approximately 25 feet to stream tributaries of Middle Creek along the western end of the property. The original topography (prior to development in 1986) slopes from the east to the west from about elevation 430 to an elevation of approximately 360 near the floodplains of Middle Creek.

Areas of Concern

In the design of a landfill gas management plan, factors such as topography, geology, and waste characteristics are key in identifying areas of concern. As described above, the landfill site is predominantly surrounded by wet features that essentially create a barrier for any potential gas migration. In the case of Phase 2b and Phase 3, the areas have been mined, processed, and include only inert materials. Therefore, the remainder of this study focuses on Phase 1 and more particularly along the western boundary of this area nearest Arrowhead Drive.

Regulations

As you are aware, 15A NCAC 13B .0566 (13) states that a facility operation must comply with the following:

"The concentration of explosive gases generated by the facility shall not exceed:
(a) Twenty-five percent of the lower explosive limit for the gases in the facility structures,
(b) The lower explosive limit for the gases at the property boundary."

Furthermore, the Division has issued guidance[5] for landfill gas monitoring for all solid waste disposal facilities. In basis, each operator must establish a plan to manage or monitor the potential for explosive gas at a landfill facility.

Landfill Gas Generation

As mentioned in the guidance document and widely known, waste composition is a significant variable in the generation of gas from landfills. The particular gas of concern is methane (CH_4), which is explosive in air between a concentration of 5% (the Lower Explosive Limit) and 15% (the Upper Explosive Limit). A first order decay model[6] is typically used to determine the potential for gas over time. Recent work by Barlaz and De La Cruz[7] has provided waste composition and characteristic data to be used in the analysis of a more limited subset of materials such as the LCID encountered at the

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[4] Drawings entitled "Currin Landfill", Currin Brothers, Inc. dated November 4, 1995 and "Expansion of Existing LCID Landfill Facility" dated June 23, 1995 prepared by Little and Little

[5] North Carolina Department of Environment and Natural Resources, Division of Waste Management, Solid Waste Section, Landfill Gas Monitoring Guidance dated November 2010.

[6] EPA Landfill Gas Emissions Model (LandGEM) v. 3.02 dated May 2005.

[7] Landfill Gas Modeling: Estimation of Landfill Gas Decay Rate Constants and Yields for Individual Waste Components, Morton A. Barlaz and Florentino De La Cruz, North Carolina State University, 2010.

Currin Brothers facility. Within LCID, the only materials that have the potential for generating gas are the woody and leafy materials in comparison to the soils, brick, block, and concrete which remain inert. Furthermore, woody materials have been shown to possess the potential to release gas during decay, although very slowly in comparison to that of municipal waste. S+G assumed a greater percentage of branches and woody materials (typical of LCID) over other leaves and grasses (typical of yardwaste facilities), as well as, approximately 50% soil in the model based on our review of historical documents and site reconnaissance. S+G utilized the LandGEM model and characteristic data for both LCID waste materials and compared it with that of typical municipal solid waste to project approximately 10 CFM of methane in 2012 from the Phase 1 area (approximately 20% of that typical of municipal solid waste landfills). The supporting landfill gas generation calculations are provided as Attachment A.

Site Evaluation

S+G performed a site evaluation of the Currin Brothers site on August 9, 2012. The site evaluation included a variety of landfill gas sampling and monitoring techniques as follows:

- Excavated Test Pits;
- Push Probe Samples within the Waste;
- Soil Vapor Probes Outside the Waste Limits;
- Ambient Gas Sampling; and
- Visual Evaluation of Surface and Buffer Conditions.

Each of these techniques are described below.

Excavated Test Pits

Two (2) pits were advanced in the Phase 1 area and identified as TP-1 and TP-2 on Figure 1 to randomly review and document materials within the facility. Photographs of both locations are provided in Attachment B which show soil and large fraction woody debris materials with some inert materials. The landfill gas generation estimate above was based on this cross-section of waste. Test pits were only advanced in the Phase 1 area it is the only area of concern at this time. At each location, an ambient air sample was obtained using the Landtec GEM2000 landfill gas analyzer. The GEM-2000 monitors for the following constituents:

- Methane (CH_4) in units of %
- Oxygen (O_2) in units of %
- Carbon Dioxide (CO_2) in units of %
- Balance Gas in units of %

The GEM-2000 unit was calibrated by the manufacturer on June 15, 2012. Additionally, a field calibration was performed on the unit prior to the day's sampling using 15% CH_4, 15% CO_2, and 4% O_2. Results of the ambient air using a long sample tube within the excavation revealed no methane present. This monitoring technique is consistent with that of typical worker safety monitoring.

Push Probe Samples within the Waste

Seven (7) push probes were installed through the landfill cover at various locations across Phases 1 and 2a. The push probes were constructed of Schedule 80 stainless steel 1 ½ inches in diameter, with an overall length of seven (7) feet. Perforations were located in the bottom third of the probe. A

threaded sample port is located near the top of the probe, and a 6-inch crossbar is welded at the top to facilitate probe installation and removal. Probes were installed using a pilot probe procedure by driving a rod with a smaller diameter than the sample probe into the sample location. The rod was then removed, and the sample probe installed. A trackhoe was used as the driver to install and remove the pilot and sample probes. The GEM-2000 was used to conduct field monitoring, and to purge probes prior to sampling at each location as shown in Figure 1. Photographs demonstrating this technique are provided as Attachment B. Results of the sampling revealed the following:

Location	Methane (%)	Oxygen (%)	Carbon Dioxide (%)	Balance (%)	Notes
P-1	2.4	2.3	18.3	76.3	
P-2	0.7	7.9	12.0	78.4	
P-3	0	13.5	5.3	81.1	
P-4	0	12.8	5.9	81.1	
P-5	0	4.6	14.2	80.8	
P-6	0	11.6	7.4	80.8	
P-7	0	17.0	2.2	80.0	

The focus of this portion of the study was to determine actual gas concentration within the waste mass. As demonstrated above, the gas concentration over a cross-section of the entire landfill exhibited conditions well below the Lower Explosive Limit actually within the waste. This method is commonly used in Air Quality permitting under CAA NSPS Tier 2 protocols to assess the concentration of NMOC's on an area basis. S+G has found this method very consistent in projecting actual emissions from various size municipal solid waste facilities. In this case, methane was only determined present in two locations with concentrations well below any action thresholds. No permanent monitoring probes were installed during this investigation.

Soil Vapor Probes Outside the Waste Limits

Three (3) soil vapor probes were advanced along the eastern buffer of Phase 1 of the facility as shown in Figure 1. This system utilizes 1/2-inch diameter metal rods that are driven into the subsurface either by a slide hammer, or by electric hammer drill. In all instances, approximately 6 to 9 feet of probe rod were driven into the subsurface prior to measuring methane concentrations. At the end of the probe there is a retractable tip that allows for LFG testing through a tube that is placed in the probe rod. A GEM 2000 was utilized to measure methane concentrations at each location. Photographs demonstrating this technique are provided as Attachment B. Results of the sampling revealed the following:

Location	Methane (%)	Oxygen (%)	Carbon Dioxide (%)	Balance (%)	Notes
VP-1	0	18.9	1.3	77.3	
VP-2	0	18.5	2.1	79.4	
VP-3	0	15.2	4.7	77.6	

The focus of this portion of the study was to determine if any gas migration was occurring. Typically we find, that with older facilities, the projected landfill generation maybe low, but over time, the migration of gas can occur and be trapped within the soil voids. The gas is considered a relic gas and is very indicative of any historical problems or potential future gas migration potential. As you are aware, gas

may migrate through pressure gradients or concentration gradients. As shown above, no gas was determined to be present and with the results of the push probes within the landfill, the concentrations were minimal to none which dismisses any concerns of concentration gradients to the perimeter of the site. **Therefore, the results of these samples concluded that explosive gases are not present.** No permanent monitoring probes were installed during this investigation.

Ambient Gas Sampling

A GEM-2000 was utilized to measure methane concentrations at each end of the 48" culvert that passes directly underneath Phase 1 of the facility as identified on **Figure 1**. Each sample was taken with a sample tube inserted inside each pipe end. Results of this sample was as follows:

Location	Methane (%)	Oxygen (%)	Carbon Dioxide (%)	Balance (%)	Notes
GS-1 (West End)	0	20.1	0.0	79.9	
GS-2 (East End)	0	20.0	0.0	80.0	

In each case, no methane was present as this area would be very indicative of any downward or lateral movement of landfill gas just above this saturated surface (placed in old stream/drainage feature).

Visual Evaluation of Surface and Buffer Conditions

One of the last overall landfill gas evaluation method is through the simple observation of the general site and buffer conditions. As you are aware, the facility has been operated as more of a processing operation, wherein very little disposal has occurred. In some areas, mining of the site has occurred to generate additional woody materials for grinding. Throughout the site investigation, S+G reviewed the condition of the intermediate cover system and vegetation across the site. In general, the site has very healthy and established vegetation. **The buffer areas also appeared to remain healthy in tree population without presence of cracking, seeps, and/or other indicators regarding methane emissions.** The monitoring of the site, cover system, and operations should continue to be monitored on a routine basis.

Summary and Conclusions

The regulations cited above focus on structures and compliance at the property line. No permanent structures are present on the site; the guard house is temporary and placed on skids. Therefore, the compliance point is considered the property line and the only area of concern remains along the eastern boundary of Phase 1. The remainder of the site is separated by wet features which prevent any downward or lateral migration of landfill gas. Based on all of the information presented above the following conclusions are offered:

1. The landfill gas generation potential of the waste material is minimal.
2. The presence of landfill gas within the waste mass is minimal.
3. The waste materials have remained consistent through its development.
4. The presence of landfill gas along the compliance boundary does not exist.

As a final recommendation, S+G proposes that monitoring for the presence of landfill gas remain on a visual basis, focusing on the secondary sign of distressed vegetation and maintenance of cover system integrity to prevent the potential to add additional moisture to the facility.

We appreciate the opportunity to provide this evaluation and to address concerns regarding this issue. Please feel free to contact us with any questions or concerns at (919) 828-0577 or by email below.

Sincerely,
SMITH GARDNER, INC.

NORTH CAROLINA PROFESSIONAL SEAL 023002 ENGINEER STACEY A. SMITH

9-4-12

Stacey A. Smith, P.E.
Project Manager, ext. 127
staceys@smithgardnerinc.com

Don M. Misenheimer
Project Scientist, ext. 224
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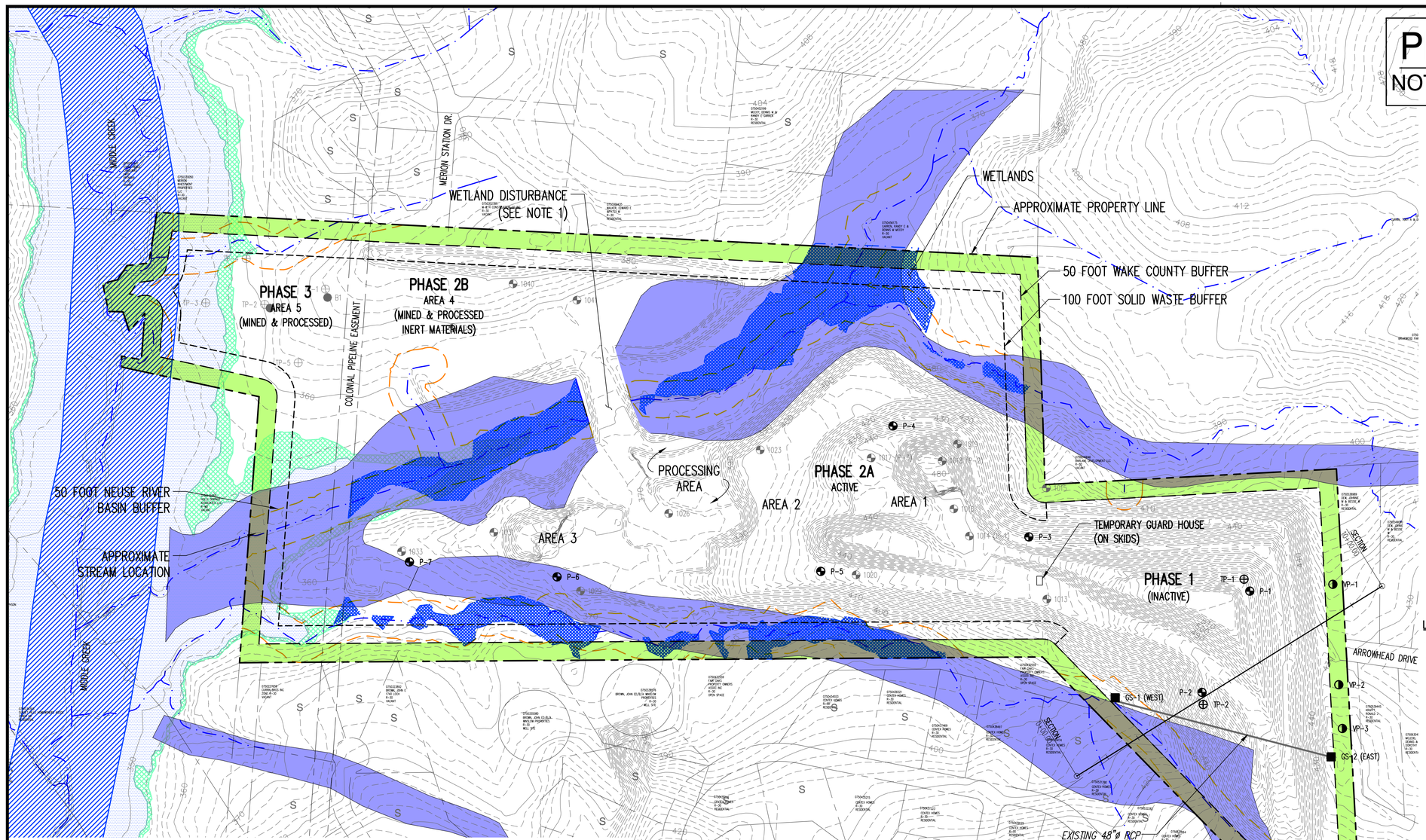
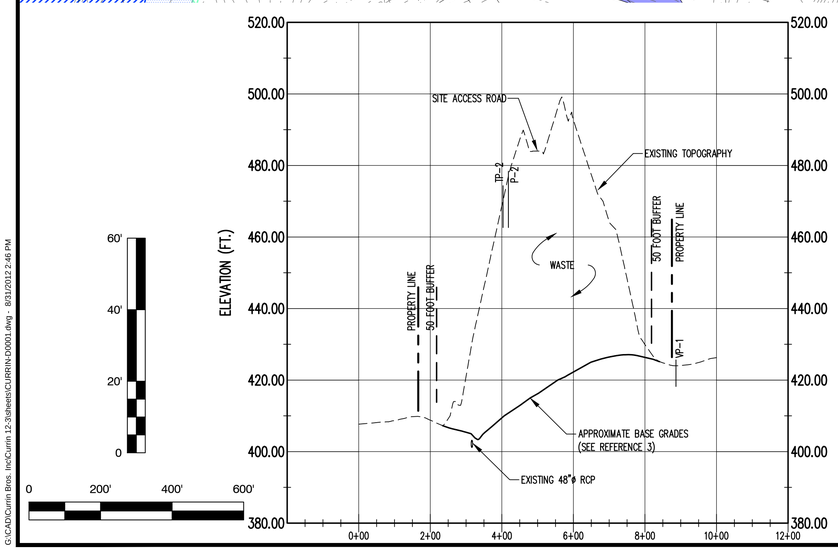
sas/dmm
Att.
Cc: Mr. Ed Mussler III, P.E., NCDENR
Mr. Mark Poindexter, NCDENR
Mr. Allen Currin, Currin Brothers, Inc.
Mr. Glenn Currin, Currin Brothers, Inc.
Ms. Shawn McKee, NCDENR
File

PERMIT ISSUE
NOT FOR CONSTRUCTION





LEGEND

- PROPERTY LINE
- 50 FOOT PROPERTY UNDISTURBED BUFFER
- WAKE COUNTY UNDISTURBED BUFFER
- 100 FOOT PROPERTY BUFFER
- COLONIAL PIPELINE EASEMENT (DEED BOOK 1568 PG 340)
- STREAM/WETLAND (SEE REFERENCE 4)
- WETLAND (SEE REFERENCE 4)
- STREAM BUFFER (SEE REFERENCE 4)
- 1020 EXISTING WELL
- B1 EXISTING BORING
- TP-3 EXISTING TEST PIT
- TP-1 PROPOSED TEST PIT
- P-1 PROPOSED PUSH PROBE
- VP-1 PROPOSED SOIL VAPOR PROBE
- GS-2 (EAST) PROPOSED AMBIENT GAS SAMPLE
- W EXISTING WELL ON PROPERTY (SEE REFERENCE 4)
- S EXISTING SEWER OR SEPTIC ON PROPERTY (SEE REFERENCE 4)
- FLOOD PRONE SOILS (SEE REFERENCE 4)
- FEMA FLOOD BOUNDARY (0.2% OR 1% (FUTURE))
- FEMA FLOOD BOUNDARY (1% CHANCE ANNUAL FLOOD)
- FEMA FLOOD BOUNDARY (FLOODWAY-NO ENCROACHMENT)

NOTES

1. NATIONWIDE PERMITS #14 AND #26 HAVE BEEN OBTAINED FROM ARMY CORPS OF ENGINEERS FOR DISTURBANCE OF 0.79 ACRES DATED JULY 14, 1995 UNDER ACTION ID 199404122.

REFERENCES

1. TOPOGRAPHY OBTAINED FROM WAKE COUNTY GIS DEPARTMENT, DATED 1999.
2. SITE FEATURES INCLUDING PROPERTY LINE, WETLANDS, STREAMS, CELL AREAS AND PIPING FROM DIGITAL DRAWING FILES PROVIDED BY JOHN TUCKER.
3. EXISTING 48 INCH RCP PIPE LOCATION AND BASE GRADES FROM DRAWING "LANDFILL RECLAMATION" BY LITTLE AND LITTLE, DATED OCTOBER 14, 1985
4. WETLAND, STREAM, SEWER AND POTABLE WELL LOCATIONS FROM WAKE COUNTY GIS DEPARTMENT, IMAPS.
5. FEMA FLOOD BOUNDARIES FROM FEMA FIRM DATA, PANEL NUMBER 0750.

0 150' 300' 450'

PREPARED FOR:

CURRIN BROTHERS, INC.
P.O. BOX 547
FUQUAY-VARINA, NC 27526

PREPARED BY:

NC LIC. NO. C-0828 (ENGINEERING)
SMITH+ GARDNER
ENGINEERS
14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577

SEAL

SEAL

REV.	DATE	DESCRIPTION

PROJECT TITLE:

CURRIN BROTHERS LANDFILL
SUNSET LAKE ROAD
LCID LANDFILL &
RECYCLING FACILITY

DRAWING TITLE:

EXISTING CONDITIONS

DESIGNED: SAS	PROJECT NO: CURRIN 12-3
DRAWN: JAL	SCALE: AS SHOWN
APPROVED:	DATE: AUGUST 2012
FILENAME: CURRIN-D0001	
SHEET NUMBER:	DRAWING NUMBER: FIG. 1

G:\CAD\Currin Bros. Inc\Currin 12-3\sheets\CURRIN-D0001.dwg - 8/31/2012 2:46 PM

Hold: George Harvey

BOOK 3670 PAGE 825

PRESENTED
FOR
REGISTRATION

MAR 4 3 28 PM '86

KENNETH C. WILKINS
REGISTER OF DEEDS
WAKE COUNTY, NC

Permit No. 86-001
Date Issued March 4, 1986

Wake County
Community Development Services
Engineering Division
P. O. Box 550 Raleigh, N.C. 27602

SOLID WASTE DISPOSAL PERMIT

Currin Brothers, Inc. is hereby issued a permit to operate a demolition landscape landfill located on S.R. 1301, in accordance with Article 13B of the General Statutes of North CArolina and all rules promulgated thereunder. The facility is located on the below described property.

Being 18.68 acres lying in White Oak Township as described by a map entitled "Recombination Map Property Survey for Glenn Currin" recorded in Book of Maps 1986, Page 368 in the Wake County Registry.

This permit is issued subject to the attached conditions and is not valid until the conditions set forth in items 1 and 2 are satisfied.

Robert E. Tucker

Robert E. Tucker, P.E., Sanitary Engineer
Wake County Community Development Services

Permit No. 86-001
Date Issued March 4, 1986

Solid Waste Management Permit

Conditions:

1. That this permit be recorded in the Office of the Register of Deeds of Wake County and a certified copy of the recorded permit be returned to the office of the Sanitary Engineer prior to initiating activity on the site.

2. That the site preparation be performed in accordance with the approved plans prepared by Little and Little dated November 4, 1985 and site inspection be performed by the Sanitary Engineer of Community Development Services for compliance prior to disposal of wastes.

3. That the landfill be open for the exclusive use of Currin Bros., Inc.

4. That access to the site be barricaded or manned when not in use.

5. That the operation be performed in compliance with the approved plan and all applicable rules set forth by the Solid Waste Management rules of the State of North Carolina and the Wake County Code of Ordinances.

6. That materials to be disposed of in the landfill be limited to demolition and land clearing debris (i.e. no paper or other garbage).

BOOK 3670 PAGE 827

COUNTY OF WAKE

RALEIGH, NORTH CAROLINA

COMMUNITY DEVELOPMENT SERVICES
TELEPHONE (919) 755-6838
March 4, 1986

Certified Copy of Solid Waste Management Permit

I do hereby certify the attached Permit is an exact and true copy of Permit NO. 86-001.

Robert E. Tucker

Robert E. Tucker, P.E. Sanitary Engineer
Wake County Community Development Services

Sworn and subscribed before me this 4th day of March, 1986.

J. Michael Hull
Notary Public

My Commission Expires: 7-24-90 (SEAL)

NOTARY PUBLIC WAKE COUNTY, N.C.

Post Office Box 550, Raleigh, North Carolina 27602

BK011102PG01045

Mail: Currin Bros. Inc.
P.O. Box 547
Fuquay Varina NC 27526

WAKE COUNTY, NC 650
LAURA M RIDDICK
REGISTER OF DEEDS
PRESENTED & RECORDED ON
11/15/2004 AT 15:48:13

BOOK:011102 PAGE:01045 - 01047

DEHNR Permit # 92-S
Wake County Permit # 86-001
Date Issued: November 10, 2004

SOLID WASTE PERMIT

Currin Brothers Land Clearing and Inert Debris Landfill

Is hereby issued a

PERMIT TO OPERATE

LAND CLEARING AND INERT DEBRIS LANDFILL

Wake County, North Carolina in accordance with Article 9, Chapter 130A of the General Statutes of North Carolina and all rules promulgated thereunder and subject to the conditions set forth in this permit. The facility is located and described by the legal description in the permit application and the site drawings.

Johnny C. Beal

Johnny C. Beal
Solid Waste Facilities Manager
Wake County Solid Waste Management Division

BK011102PG01046

CERTIFIED COPY OF SOLID WASTE PERMIT

I so hereby certify that the attached permit is an exact and true copy of DEHNR Permit # 92-S, Wake County Permit Number #86-001.

Johnny C. Beal
Solid Waste Facilities Manager
Wake County Solid Waste
Management Division

North Carolina

Wake County

I, Mary M. Mangum, a Notary Public for said County and State, do hereby certify that Johnny Beal, Solid Waste Facilities Manager, Solid Waste Management Division, appeared before me this day and acknowledged the due execution of the foregoing instrument.

Witness my hand and seal, this the 10th day of November, 2004

MARY M. MANGUM NOTARY PUBLIC WAKE COUNTY, N.C.

Mary M. Mangum Notary Public

My commission expires April 23, 2007.

BOOK:011102 PAGE:01045 - 01047

Yellow probate sheet is a vital part of your recorded document.
Please retain with original document and submit for rerecording.

WAKE COUNTY NORTH CAROLINA

Wake County Register of Deeds
Laura M. Riddick
Register of Deeds

North Carolina – Wake County

The foregoing certificate___ of Mary M. Mangum

_____ Notary(ies) Public is (are) certified to be correct. This instrument and this certificate are duly registered at the date and time and in the book and page shown on the first page hereof.

Laura M. Riddick, Register of Deeds
By: P. Anne Redd
Assistant/~~Deputy~~ Register of Deeds

This Customer Group
_____ # of Time Stamps Needed

This Document
_____ New Time Stamp
3 # of Pages

22.004–7/11/03

Attachment A

SMITH+GARDNER

ADDRESS
14 N. Boylan Avenue, Raleigh, NC 27603

TEL
919.828.0577

WEB
www.smithgardnerinc.com

PROJECT Currin Bros. LCID Landfill | SHEET 1 OF | DATE 8/23/2012

COMPUTED BY M. Lamb

SUBJECT Methane Generation from LCID Waste | JOB # CURRIN-12-1 | CHECKED BY S. Smith

OBJECTIVE: To estimate methane generation from a land clearing/inert debris (LCID) landfill in Phase 1 of the landfill

REFERENCES:

1. Landfill Gas Modeling: Estimation of Landfill Gas Decay Rate Constants and Yields for Individual Waste Components Morton A. Barlaz and Florentino dela Cruz, North Carolina State University, 2010
2. EPA Landfill Gas Emissions Model (LandGEM), v. 3.02, May 2005

ASSUMPTIONS:

Phase 1 landfill waste volume estimated from historic and current topographic information (**Attached**)

Waste density is assumed to equal 0.4 tons per cubic yard)
Landfill operational dates are estimated to be from 1986 to 2000

Waste acceptance rates are assumed to be equal during each year operation, until Phase 1 is full

Waste composition and characteristics (**Ref. 1**) is estimated to be composed of the following:
50% dirt (inert)
45% branches/wood (k=0.015, Lo=62.6)
2.5% Grass (k=0.3, Lo=144.4)
2.5% leaves (k=0.17, Lo=30.6

ANALYSIS:

Composite waste characteristics are determined by multiplying k and Lo values separately by the percentage of each waste type, and summing the results to obtain composite k and Lo values. These values were then entered into LandGEM (**Ref. 2**), along with annual waste acceptance rate data. Inputs are given below:

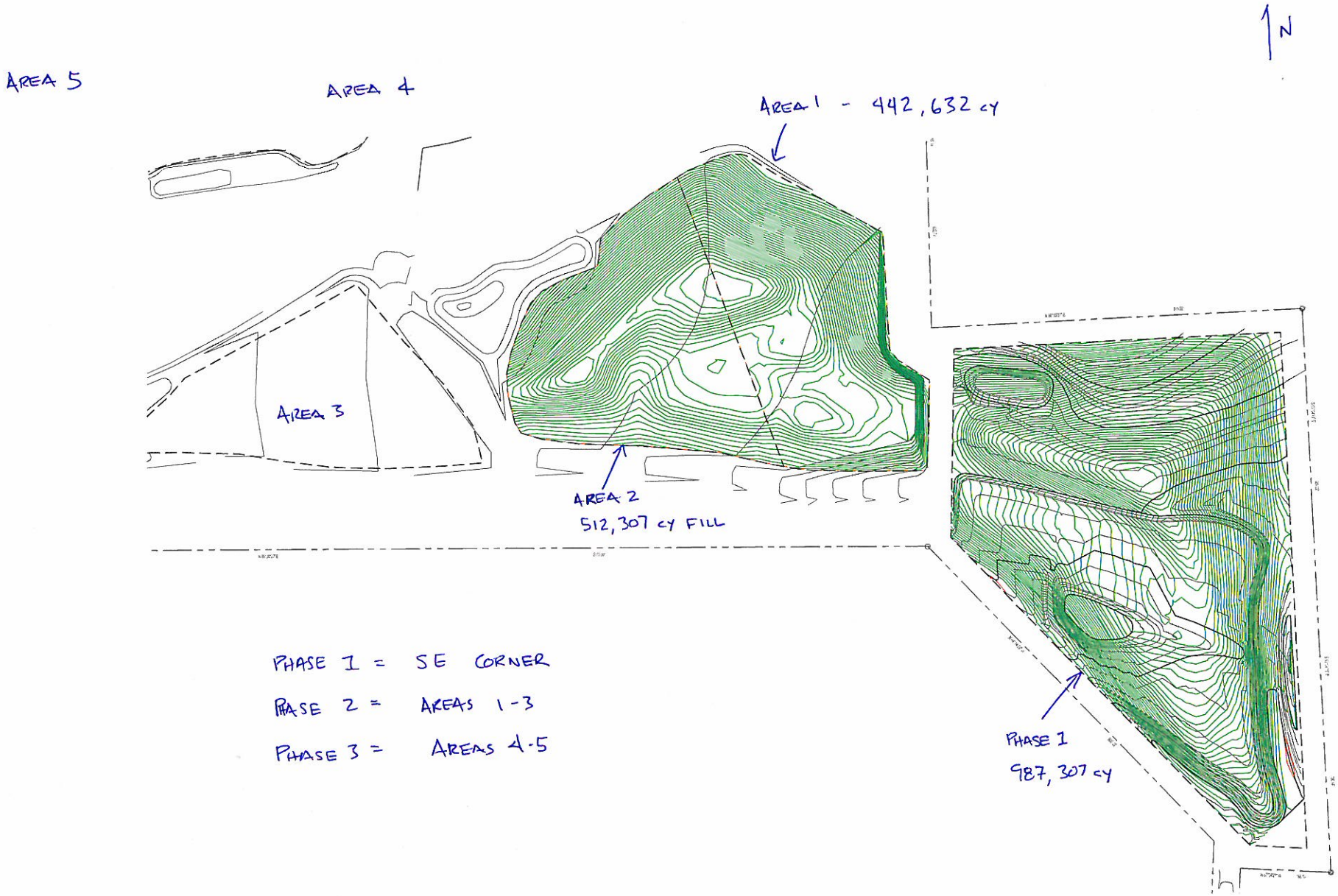
987,307 = Phase 1 total volume (cubic yards)
394,923 = Phase 1 total volume (tons)
26,328 = Annual waste acceptance rate
0.019 = k value
32.545 = Lo value

Total methane generation rates (cfm) as calculated by LandGEM are given below for the Phase 1 LCID landfill for the peak and current year of methane production.

12.97 cfm in 2001
10.53 cfm in 2012

Methane generation from a conventional municipal solid waste landfill using AP-42 emission factors for k and Lo are as follows:

72.7 cfm in 2001
46.82 in 2012



PHASE 1 = SE CORNER

PHASE 2 = AREAS 1-3

PHASE 3 = AREAS 4-5

Summary Report

Landfill Name or Identifier: Composite LCID Waste

Date: Thursday, August 23, 2012

Description/Comments:

About LandGEM:

First-Order Decomposition Rate Equation:

$$Q_{CH_4} = \sum_{i=1}^{n} \sum_{j=0.1}^{1} k L_o \left(\frac{M_i}{10} \right) e^{-k t_{ij}}$$

Where,

Q_{CH4} = annual methane generation in the year of the calculation ($m^3/year$)
i = 1-year time increment
n = (year of the calculation) - (initial year of waste acceptance)
j = 0.1-year time increment
k = methane generation rate ($year^{-1}$)
L_o = potential methane generation capacity (m^3/Mg)

M_i = mass of waste accepted in the ith year (Mg)
t_{ij} = age of the jth section of waste mass M_i accepted in the ith year (*decimal years*, e.g., 3.2 years)

LandGEM is based on a first-order decomposition rate equation for quantifying emissions from the decomposition of landfilled waste in municipal solid waste (MSW) landfills. The software provides a relatively simple approach to estimating landfill gas emissions. Model defaults are based on empirical data from U.S. landfills. Field test data can also be used in place of model defaults when available. Further guidance on EPA test methods, Clean Air Act (CAA) regulations, and other guidance regarding landfill gas emissions and control technology requirements can be found at http://www.epa.gov/ttnatw01/landfill/landflpg.html.

LandGEM is considered a screening tool — the better the input data, the better the estimates. Often, there are limitations with the available data regarding waste quantity and composition, variation in design and operating practices over time, and changes occurring over time that impact the emissions potential. Changes to landfill operation, such as operating under wet conditions through leachate recirculation or other liquid additions, will result in generating more gas at a faster rate. Defaults for estimating emissions for this type of operation are being developed to include in LandGEM along with defaults for convential landfills (no leachate or liquid additions) for developing emission inventories and determining CAA applicability. Refer to the Web site identified above for future updates.

Input Review

LANDFILL CHARACTERISTICS

Landfill Open Year	**1986**	
Landfill Closure Year (with 80-year limit)	**2001**	
Actual Closure Year (without limit)	***2001***	
Have Model Calculate Closure Year?	**No**	
Waste Design Capacity	**394,923**	*short tons*

MODEL PARAMETERS

Methane Generation Rate, k	**0.019**	*$year^{-1}$*
Potential Methane Generation Capacity, L_o	**33**	*m^3/Mg*
NMOC Concentration	**4,000**	*ppmv as hexane*
Methane Content	**50**	*% by volume*

GASES / POLLUTANTS SELECTED

Gas / Pollutant #1:	**Total landfill gas**
Gas / Pollutant #2:	**Methane**
Gas / Pollutant #3:	**Carbon dioxide**
Gas / Pollutant #4:	**NMOC**

WASTE ACCEPTANCE RATES

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
1986	23,935	26,328	0	0
1987	23,935	26,328	23,935	26,328
1988	23,935	26,328	47,869	52,656
1989	23,935	26,328	71,804	78,984
1990	23,935	26,328	95,738	105,312
1991	23,935	26,328	119,673	131,640
1992	23,935	26,328	143,607	157,968
1993	23,935	26,328	167,542	184,296
1994	23,935	26,328	191,476	210,624
1995	23,935	26,328	215,411	236,952
1996	23,935	26,328	239,345	263,280
1997	23,935	26,328	263,280	289,608
1998	23,935	26,328	287,215	315,936
1999	23,935	26,328	311,149	342,264
2000	23,935	26,328	335,084	368,592
2001	0	0	359,018	394,920
2002	0	0	359,018	394,920
2003	0	0	359,018	394,920
2004	0	0	359,018	394,920
2005	0	0	359,018	394,920
2006	0	0	359,018	394,920
2007	0	0	359,018	394,920
2008	0	0	359,018	394,920
2009	0	0	359,018	394,920
2010	0	0	359,018	394,920
2011	0	0	359,018	394,920
2012	0	0	359,018	394,920
2013	0	0	359,018	394,920
2014	0	0	359,018	394,920
2015	0	0	359,018	394,920
2016	0	0	359,018	394,920
2017	0	0	359,018	394,920
2018	0	0	359,018	394,920
2019	0	0	359,018	394,920
2020	0	0	359,018	394,920
2021	0	0	359,018	394,920
2022	0	0	359,018	394,920
2023	0	0	359,018	394,920
2024	0	0	359,018	394,920
2025	0	0	359,018	394,920

Pollutant Parameters

		Gas / Pollutant Default Parameters:		User-specified Pollutant Parameters:	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Gases	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
Pollutants	1,1,1-Trichloroethane (methyl chloroform) - HAP	0.48	133.41		
	1,1,2,2-Tetrachloroethane - HAP/VOC	1.1	167.85		
	1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.4	98.97		
	1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.20	96.94		
	1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.41	98.96		
	1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.18	112.99		
	2-Propanol (isopropyl alcohol) - VOC	50	60.11		
	Acetone	7.0	58.08		
	Acrylonitrile - HAP/VOC	6.3	53.06		
	Benzene - No or Unknown Co-disposal - HAP/VOC	1.9	78.11		
	Benzene - Co-disposal - HAP/VOC	11	78.11		
	Bromodichloromethane - VOC	3.1	163.83		
	Butane - VOC	5.0	58.12		
	Carbon disulfide - HAP/VOC	0.58	76.13		
	Carbon monoxide	140	28.01		
	Carbon tetrachloride - HAP/VOC	4.0E-03	153.84		
	Carbonyl sulfide - HAP/VOC	0.49	60.07		
	Chlorobenzene - HAP/VOC	0.25	112.56		
	Chlorodifluoromethane	1.3	86.47		
	Chloroethane (ethyl chloride) - HAP/VOC	1.3	64.52		
	Chloroform - HAP/VOC	0.03	119.39		
	Chloromethane - VOC	1.2	50.49		
	Dichlorobenzene - (HAP for para isomer/VOC)	0.21	147		
	Dichlorodifluoromethane	16	120.91		
	Dichlorofluoromethane - VOC	2.6	102.92		
	Dichloromethane (methylene chloride) - HAP	14	84.94		
	Dimethyl sulfide (methyl sulfide) - VOC	7.8	62.13		
	Ethane	890	30.07		
	Ethanol - VOC	27	46.08		

Pollutant Parameters (Continued)

	Compound	Gas / Pollutant Default Parameters: Concentration (*ppmv*)	Molecular Weight	User-specified Pollutant Parameters: Concentration (*ppmv*)	Molecular Weight
Pollutants	Ethyl mercaptan (ethanethiol) - VOC	2.3	62.13		
	Ethylbenzene - HAP/VOC	4.6	106.16		
	Ethylene dibromide - HAP/VOC	1.0E-03	187.88		
	Fluorotrichloromethane - VOC	0.76	137.38		
	Hexane - HAP/VOC	6.6	86.18		
	Hydrogen sulfide	36	34.08		
	Mercury (total) - HAP	2.9E-04	200.61		
	Methyl ethyl ketone - HAP/VOC	7.1	72.11		
	Methyl isobutyl ketone - HAP/VOC	1.9	100.16		
	Methyl mercaptan - VOC	2.5	48.11		
	Pentane - VOC	3.3	72.15		
	Perchloroethylene (tetrachloroethylene) - HAP	3.7	165.83		
	Propane - VOC	11	44.09		
	t-1,2-Dichloroethene - VOC	2.8	96.94		
	Toluene - No or Unknown Co-disposal - HAP/VOC	39	92.13		
	Toluene - Co-disposal - HAP/VOC	170	92.13		
	Trichloroethylene (trichloroethene) - HAP/VOC	2.8	131.40		
	Vinyl chloride - HAP/VOC	7.3	62.50		
	Xylenes - HAP/VOC	12	106.16		

Results

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
1986	0	0	0	0	0	0
1987	3.660E+01	2.931E+04	1.969E+00	9.776E+00	1.465E+04	9.846E-01
1988	7.251E+01	5.806E+04	3.901E+00	1.937E+01	2.903E+04	1.951E+00
1989	1.077E+02	8.628E+04	5.797E+00	2.878E+01	4.314E+04	2.899E+00
1990	1.423E+02	1.140E+05	7.657E+00	3.802E+01	5.698E+04	3.829E+00
1991	1.762E+02	1.411E+05	9.482E+00	4.708E+01	7.056E+04	4.741E+00
1992	2.095E+02	1.678E+05	1.127E+01	5.597E+01	8.389E+04	5.637E+00
1993	2.422E+02	1.939E+05	1.303E+01	6.469E+01	9.696E+04	6.515E+00
1994	2.742E+02	2.196E+05	1.475E+01	7.325E+01	1.098E+05	7.377E+00
1995	3.057E+02	2.448E+05	1.645E+01	8.165E+01	1.224E+05	8.223E+00
1996	3.365E+02	2.695E+05	1.811E+01	8.989E+01	1.347E+05	9.053E+00
1997	3.668E+02	2.937E+05	1.973E+01	9.797E+01	1.468E+05	9.867E+00
1998	3.965E+02	3.175E+05	2.133E+01	1.059E+02	1.587E+05	1.067E+01
1999	4.256E+02	3.408E+05	2.290E+01	1.137E+02	1.704E+05	1.145E+01
2000	4.542E+02	3.637E+05	2.444E+01	1.213E+02	1.819E+05	1.222E+01
2001	4.823E+02	3.862E+05	2.595E+01	1.288E+02	1.931E+05	1.297E+01
2002	4.732E+02	3.789E+05	2.546E+01	1.264E+02	1.895E+05	1.273E+01
2003	4.643E+02	3.718E+05	2.498E+01	1.240E+02	1.859E+05	1.249E+01
2004	4.555E+02	3.648E+05	2.451E+01	1.217E+02	1.824E+05	1.225E+01
2005	4.470E+02	3.579E+05	2.405E+01	1.194E+02	1.790E+05	1.202E+01
2006	4.386E+02	3.512E+05	2.360E+01	1.171E+02	1.756E+05	1.180E+01
2007	4.303E+02	3.446E+05	2.315E+01	1.149E+02	1.723E+05	1.158E+01
2008	4.222E+02	3.381E+05	2.272E+01	1.128E+02	1.690E+05	1.136E+01
2009	4.143E+02	3.317E+05	2.229E+01	1.107E+02	1.659E+05	1.114E+01
2010	4.065E+02	3.255E+05	2.187E+01	1.086E+02	1.627E+05	1.093E+01
2011	3.988E+02	3.193E+05	2.146E+01	1.065E+02	1.597E+05	1.073E+01
2012	3.913E+02	3.133E+05	2.105E+01	1.045E+02	1.567E+05	1.053E+01
2013	3.839E+02	3.074E+05	2.066E+01	1.026E+02	1.537E+05	1.033E+01
2014	3.767E+02	3.017E+05	2.027E+01	1.006E+02	1.508E+05	1.013E+01
2015	3.696E+02	2.960E+05	1.989E+01	9.873E+01	1.480E+05	9.943E+00
2016	3.627E+02	2.904E+05	1.951E+01	9.687E+01	1.452E+05	9.756E+00
2017	3.558E+02	2.849E+05	1.915E+01	9.505E+01	1.425E+05	9.573E+00
2018	3.491E+02	2.796E+05	1.878E+01	9.326E+01	1.398E+05	9.392E+00
2019	3.426E+02	2.743E+05	1.843E+01	9.150E+01	1.372E+05	9.216E+00
2020	3.361E+02	2.692E+05	1.808E+01	8.978E+01	1.346E+05	9.042E+00
2021	3.298E+02	2.641E+05	1.774E+01	8.809E+01	1.320E+05	8.872E+00
2022	3.236E+02	2.591E+05	1.741E+01	8.643E+01	1.296E+05	8.705E+00
2023	3.175E+02	2.542E+05	1.708E+01	8.481E+01	1.271E+05	8.541E+00
2024	3.115E+02	2.495E+05	1.676E+01	8.321E+01	1.247E+05	8.380E+00
2025	3.057E+02	2.448E+05	1.645E+01	8.165E+01	1.224E+05	8.223E+00
2026	2.999E+02	2.402E+05	1.614E+01	8.011E+01	1.201E+05	8.068E+00
2027	2.943E+02	2.356E+05	1.583E+01	7.860E+01	1.178E+05	7.916E+00
2028	2.887E+02	2.312E+05	1.553E+01	7.712E+01	1.156E+05	7.767E+00
2029	2.833E+02	2.268E+05	1.524E+01	7.567E+01	1.134E+05	7.621E+00
2030	2.780E+02	2.226E+05	1.495E+01	7.425E+01	1.113E+05	7.477E+00
2031	2.727E+02	2.184E+05	1.467E+01	7.285E+01	1.092E+05	7.337E+00
2032	2.676E+02	2.143E+05	1.440E+01	7.148E+01	1.071E+05	7.199E+00
2033	2.626E+02	2.102E+05	1.413E+01	7.013E+01	1.051E+05	7.063E+00
2034	2.576E+02	2.063E+05	1.386E+01	6.881E+01	1.031E+05	6.930E+00
2035	2.528E+02	2.024E+05	1.360E+01	6.752E+01	1.012E+05	6.800E+00

Attachment B

S+G ENGINEERS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Currin Brothers LCID Landfill	Holly Springs, NC	Currin 12-3

Photo No.	Date:
1	8/9/12

Direction Photo Taken:

N/A

Description:

TP-1

Photo No.	Date:
2	8/9/12

Direction Photo Taken:

N/A

Description:

Debris excavated from TP-1.

S+G ENGINEERS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Currin Brothers LCID Landfill	Holly Springs, NC	Currin 12-3

Photo No.	Date:
3	8/9/12

Direction Photo Taken:

N/A.

Description:

View of TP-2.

Photo No.	Date:
4	8/9/12

Direction Photo Taken:

N/A

Description:

View of the solid pilot rod for the Push Probe evaluation being advanced within waste limits.

S+G ENGINEERS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Currin Brothers LCID Landfill	Holly Springs, NC	Currin 12-3

Photo No.	Date:
5	8/9/12

Direction Photo Taken:

N/A

Description:

View of perforated push probe (hollow) being advanced within the waste limits

Photo No.	Date:
6	8/9/12

Direction Photo Taken:

N/A

Description:

Connection of Push Probe and GEM-2000.

S+G ENGINEERS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Currin Brothers LCID Landfill	Holly Springs, NC	Currin 12-3

Photo No.	Date:
7	8/9/12

Direction Photo Taken:

N/A

Description:

Soil Vapor Probe pilot rod being advanced outside of waste limits using a hammer drill.

Photo No.	Date:
8	8/9/12

Direction Photo Taken:

N/A

Description:

Soil Vapor Probe pilot rod being removed using a jack.

S+G ENGINEERS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Currin Brothers LCID Landfill	Holly Springs, NC	Currin 12-3

Photo No.	Date:
9	8/9/12

Direction Photo Taken:

N/A

Description:

Soil Gas Vapor Probe sample tube being advanced into pilot hole.

Photo No.	Date:
10	8/9/12

Direction Photo Taken:

N/A

Description:

Soil Gas Vapor Probe sample tube connection with GEM-2000.

S+G ENGINEERS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Currin Brothers LCID Landfill	Holly Springs, NC	Currin 12-3

Photo No.	Date:
11	8/9/12

Direction Photo Taken:

N/A

Description:

Ambient Gas Sampling at concrete culvert.

Photo No.	Date:
12	8/9/12

Direction Photo Taken:

N/A

Description:

View of buffer area south of landfill, near concrete culvert.

S+G ENGINEERS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Currin Brothers LCID Landfill	Holly Springs, NC	Currin 12-3

Photo No.	Date:
13	8/9/12

Direction Photo Taken:

East.

Description:

Buffer area near eastern property boundary.

Photo No.	Date:
14	8/9/12

Direction Photo Taken:

Northwest

Description:

View of active operations on-site.

John A.K. Tucker, P.E.
Consulting Engineer

March 5, 2012

Brian Wootton
Hydrogeologist
Solid Waste Section
NC Dept. of Environment and Natural Resources
1646 Mail Service Center
Raleigh, NC 27699-1646

Subject: Currin Brothers LCID Landfill
Permit 92-N
Doc ID 16409

Dear Mr. Wootton:

Thank you for your letter of February 6, 2012. I am enclosing the revised documents that were requested. All comments have been addressed, with the exception of item 3.

After meeting with my colleague, David Garrett, we are of the opinion that to comply with the conditions of Item 3, as written, puts us in an untenable position with regard to liability. I think David has explained our concerns quite well in the attached memorandum.

We and the owners of the facility understand and appreciate the concerns of the Division about monitoring of gas at landfills. Perhaps we could meet with you and other members of the staff to develop a plan that meets the objectives of all parties involved.

I look forward to hearing from you soon.

Regards,

John A.K. Tucker, P.E.

cc: Currin Bros. Inc.
David Garrett

P.O. Box 297 *Fuquay-Varina* *North Carolina*
Voice (919) 567-0483 *Fax (919) 567-3611* *johnak@johntuckerpe.com*

David Garrett, P.G., P.E.

Engineering and Geology

March 5, 2012

MEMORANDUM

TO: John Tucker, PE. Glenn Currin

RE: Comment on Landfill Gas Monitoring
Sunset Lake Road LCID, Permit 92-N

I am writing to express my concern over the requirement for monitoring landfill gas at the LCID. The Solid Waste rules require a demonstration that gas is not exceeding regulatory thresholds; i.e., 25% LEL within onsite structures and 100% LEL at the property line. Subsurface gas migration can be influenced by porous soil, jointing and other fractures, and manmade conduits. Gas migration is typically hindered by low permeability soils (including surficial clay) and ground water. I have prepared numerous gas monitoring plans for MSW and C&D landfills, but these efforts were based on data acquired through detailed geologic investigations.

I am of the opinion that a relatively shallow soil-gas investigation that penetrates below the surficial clay layer would be sufficient to detect a "halo effect" of steady state gas migration if the concentrations approach the LEL at the property line. However, in the absence of site specific geologic information, which is not required for LCID facilities, the random siting of gas monitoring wells based solely on proximity to offsite structures is not technically responsible.

While it is true that deeper borings, such as would be required for installing gas monitoring wells will penetrate to the more porous soils that typically exist near the water table, not having a geographical spread of data provides no basis for determining where the wells should go, that is, if a spread of data indicate the need for wells. I can provide guidance on how to construct a gas monitoring well, but I cannot advise siting the wells based on guesswork.

I do not believe such a course of action would absolve the facility owner, its consultants, or the State for that matter, of any liability in the event of an incident pertaining to an undetected gas migration. Please notify me if I can provide further input or be of assistance on this matter. DG

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