

Scanned By	Date	DOC ID	Permit
Backus	12/08/2015	25290	32I-LCID-1995

Permit Renewal Application

**Currin Bros. LCID Landfill
(Permit No. 32-I)
Durham, North Carolina**

Prepared for:

**Currin Bros. Inc.
Raleigh, North Carolina**

APPROVED

**DIVISION OF WASTE MANAGEMENT
SOLID WASTE SECTION**

Date 12/01/2015 By *Patricia M. Backus*

DIN 25290

**Attachment 1 Part V Document 6
Permit 32I-LCID-1995 Permit DIN 25291**

August 2015

Prepared by:

SMITH+GARDNER

14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577



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Permit Renewal Application

**Currin Bros. LCID Landfill (Permit No. 32-1)
Durham, North Carolina**

Applicant Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision and that the information provided in this application is true, accurate, and complete to the best of my knowledge.

I understand that North Carolina General Statute 130A-22 provides for administrative penalties of up to fifteen thousand dollars (\$15,000.00) per day per each violation of the Solid Waste Management Rules. I further understand that the Solid Waste Management Rules may be revised or amended in the future and that the facility siting and operations of this solid waste management facility will be required to comply with all such revisions or amendments.

Prepared For:

**Currin Bros. Inc.
Raleigh, North Carolina**

S+6 Project No. Currin 15-1

Allen Currin

8/26/15
Date

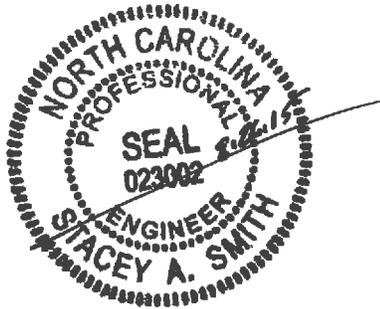
Allen Currin
Currin Bros., Inc.

Madeline German

Madeline German, P.G.
Project Geologist

Stacey A. Smith

Stacey A. Smith, P.E.
Project Manager



August 2015

SMITH + GARDNER

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Currin Bros. LCID Landfill (Permit No. 32-I) Durham, North Carolina

Permit Renewal Application

Table of Contents

North Carolina Solid Waste Management (15A NCAC 13B .0560) rules, Application Guidance for Land Clearing and Inert Debris (LCID) Landfill and the Solid Waste Management Act of 2007 addressed in each section of this document are shown in italics after each section.

Executive Summary

Attachment A	Permit Documentation <i>(15A NCAC 13B.0565)</i>
Attachment B	Legal Description of Property <i>(15A NCAC 13B.0565)</i>
Attachment C	Local Government Approval <i>(15A NCAC 13B.0565)</i>
Attachment D	Operations Manual <i>(15A NCAC 13B.0566)</i>
Attachment E	FEMA Map <i>(15A NCAC 13B.0565)</i>
Attachment F	Soil and Subsurface Investigation <i>(15A NCAC 13B.0565)</i>
Attachment G	Volume Calculations <i>(15A NCAC 13B.0565)</i>
Attachment H	Site Drawings <i>(15A NCAC 13B.0565)</i>

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EXECUTIVE SUMMARY

GENERAL

The following is a Permit Renewal Application submitted on behalf of Currin Bros. Inc. for continued operation of a Land Clearing and Inert Debris (LCID) Landfill at their facility on Coley Road in Durham, Durham County, North Carolina (NC Solid Waste Permit No. 32-I). Currin Bros. Inc. intend to continue facility operation following approval of this application.

The site use will be the continuation of LCID waste acceptance. The site is currently operating under NC Solid Waste Permit Number 32-I. The current permit expires on October 21, 2015, a copy is provided in **Attachment A**.

PROPERTY OWNERSHIP AND OPERATION

The proposed facility is owned and operated by the Currin Bros. Inc., a NC Corporation. Contact information for Currin Bros. Inc. is as follows:

Operator: Currin Bros. Inc.
Contact: Allen Currin
Address: 1610 Wolfpack Lane
Raleigh, NC 27609
Phone: 919-876-1138

REGULATORY REFERENCES

This submittal has been prepared in accordance with the requirements of the North Carolina Administrative Code (15A NCAC 13B.0565) regarding application requirements for LCID landfills, *Application Guidance LCID Landfill Permit*, and the Solid Waste Management Act of 2007 which are enforced by the Division of Waste Management (DWM) of the North Carolina Department of Environment and Natural Resources (NCDENR).

Included in the document attachments are the following *(with applicable rule(s) in italics)*:

Legal Description of the Property *(15A NCAC 13B.0565(1)(e))*;
Local Government Approval *(15A NCAC 13B.0565(1)(a))*;
Operations Manual *(15A NCAC 13B.0566)*;
Soil and Subsurface Investigation *(15A NCAC 13B.0565(3)(n))*;
Site Drawings *(15A NCAC 13B.0565(3))*.

PROPERTY DESCRIPTION

The table below lists the property owners and the deed book references for the landfill facility. The continuing development does not impact any additional properties. Legal descriptions are included in **Attachment B**.

Landfill Property Owners:

Property Owner	Deed Book Reference	Deed Book Page Reference	Area (acres)
Currin Bros. Inc.	1969	204-206	62.948

APPLICATION REQUIREMENTS

The following sections correspond with the permit application for a LCID facility as outlined in the *Application Guidance for LCID Landfill Permit*.

Local Government Approval

The site is zoned as Residential Rural (RR) or Residential Suburban-20 (RS-20) according to the Durham County GIS/Durham Unified Zoning Ordinance (UDO), and is located in a generally rural residential area. Copies of the original zoning approval letters are included in **Attachment C**. The proposed landfill activities are allowed under this approval.

Operations Manual

The Operations Manual outlines and describes protocols for facility operation and maintenance and was prepared to provide Landfill personnel with a clear understanding of how the Design Engineer assumed that the completed facility would be operated. Along with the Project Drawings, the Operations Manual has been prepared to comply with the requirements of *15A NCAC 13B.0566*. A copy of the Operations Manual is included in **Attachment D**.

Siting and Design Standards

The following sections explain how the LCID facility complies with siting and design standards in *15A NCAC 13B.0564*.

Buffers

Development buffers were satisfied during initial site permitting¹, and are shown on **Existing Conditions, Sheet 2 in Attachment H**. Landfill development is outside these buffers. The facility will only accept Land Clearing and Inert Debris materials.

¹ Permit to Operate (Area 1 & 3), 32-I-LCID, March 22, 1995.

Floodplain

The facility is not located within a floodplain. A copy of the FEMA Map for this area is included in **Attachment E**.

Water Quality

The facility is located between Rocky Branch and Laurel Creek. Tributaries of Rocky Branch are located within 1500 feet of the facility and unnamed creeks have been documented on-site. Nationwide verification and historic approval for stream/wetland impact is provided in **Appendix C**.

LCID landfills do not require stormwater permits. Historic sedimentation and erosion control documents are presented in **Appendix C**.

Public Access

The site does not allow uncontrolled public access. The primary entrance road, off Coley Road, passes the guard house and has a locked gate to prevent unauthorized access. The facility is bordered by woods and maintains a perimeter fence.

Financial Assurance

There currently is not a financial assurance responsibility under the Solid Waste Section rules for LCID landfills.

Existing and Future Airspace Survey

An aerial survey of the LCID facility was conducted on January 8, 2015 by Geodata Corp. This survey was compared with the permitted site base grades to determine the landfill volume consumed since operations began. Likewise, the survey was also compared to proposed final grades to determine remaining capacity (gross). The resulting volumes are included in the summary table below.

Volume Summary

Volume	Gross	Net ²	Acreage	Affected Areas ³
Consumed	1,600,000	1,570,000	16.9	1,2,3,4,5 & 6
Remaining	2,036,000	2,019,000	10.4	4,5,6,7 & 8
Future	1,564,000	1,564,000	10.5	9, 10, 11 & 12
Total	5,200,000 ¹	5,153,000	37.8	
2015-2020 Anticipated 5 Year Capacity: 682,000 CY				

- Note:
1. Total Volume includes Areas 1-12 from Recorded Permit No 32-I-LCID, October 21, 2010.
 2. "Gross" is a volume from the bottom of waste to top of final cover. "Net" volume includes a 1 foot reduction over area of final cover (adjusted by 5% for slope effects).
 3. Strategy for site fill is arbitrary to the numbered Areas designated in the original permit. Some in-use areas are only partially filled.

The following table presents the identified Areas and approximate acreage for each.

Area No.	Area (Ac.)
1	4.0
2	3.6
3	4.3
4	3.5
5	3.1
6	3.0
7	3.2
8	2.6
9	2.2
10	2.3
11	3.3
12	2.7
TOTAL	37.8

AutoCAD volume analysis isopach drawings are included in **Attachment G**. Survey information is presented with the drawing set in **Attachment H**.

Attachment A

Permit Documentation

**Permit Renewal Application
Currin Bros. LCID Landfill (Permit No 32-1)
Durham, North Carolina**

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FOR REGISTRATION REGISTER OF DEEDS
Willie L. Covington
DURHAM COUNTY, NC
2011 FEB 09 09:40:58 AM
BK:6665 PG:145-156 FEE:\$44.00

INSTRUMENT # 2011004320

NOTE: THE SPACE ABOVE IS FOR THE REGISTER OF DEEDS USE
THIS PAGE IS PROVIDED FOR RECORDATION PURPOSES. THE ENTIRE DOCUMENT, INCLUDING THIS PAGE, SHOULD BE RECORDED IN THE GRANTOR INDEX UNDER THE NAME OF THE LANDOWNER FOR THE PARCEL OF PROPERTY LOCATED IN DURHAM COUNTY AND SAID PROPERTY BEING OWNED BY CURRIN BROTHERS, INC. AND FURTHER IDENTIFIED BY THE DEEDS RECORDED AS LISTED BELOW:

Property	Book	Page	Acreage	Grantor	Grantee
Original Deed	1969	204-206	62.948 acres		Currin Brothers, Inc.
Original Permit issued 3/28/1995	2071	3-7	62.948 acres		Currin Brothers, Inc.
Total Site Acreage:			62.948 acres		

Note: Deed book reference is from Durham County, NC Register of Deeds office.

THE PURPOSE OF THIS RECORDATION IS TO NOTIFY FUTURE BUYERS OF SAID PROPERTY THAT A SOLID WASTE MANAGEMENT ACTIVITY HAS OPERATED ON THE PROPERTY.

Return To:
James Rogers, III
875-82 Washington St.
Raleigh, NC 27605



Facility Permit No: 32-I-LCID
Currin Brothers LCID Landfill No. 2
Permit to Construct and Operate
October 21, 2010
Doc ID No. 11866

North Carolina Department of Environment and Natural Resources

Division of Waste Management

Dexter R. Matthews

Director

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT
SOLID WASTE SECTION

**LAND CLEARING AND INERT DEBRIS (LCID) LANDFILL
PERMIT NO. 32-I-LCID**

Currin Brothers, Inc. (owner and operator)

are hereby issued a

PERMIT TO CONSTRUCT AND OPERATE

Currin Brothers LCID LANDFILL NO.2

Located off of S.R. 1000 (Coley Road) in Durham 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 legal description of the site is identified on the deed recorded for this property listed in Attachment No. 1 of this permit.

cn=Edward F. Mussler III P.
E., o=Division of Waste
Mngt, ou=Solid Waste
Section, email=ed.
mussler@ncdenr.gov, c=US
2010.10.21 16:19:42 -04'00'

Edward F. Mussler, III, P.E.
Permitting Branch Supervisor
Solid Waste Section

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Telephone 919-508-8400 \ Fax 919-733-4810 \ Internet <http://wastenotnc.org>

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One
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ATTACHMENT 1

PART I: PERMITTING HISTORY

Permit	Date
Date of Original Issue (PTO Areas 1 and 3)	March 22, 1995
Permit Amendment	October 21, 2010

PART II: LIST OF DOCUMENTS FOR THE APPROVED PLAN

1. *Currin Brothers LCID Landfill No. 2 Permit Renewal Application, Permit No. 32-I-LCID. Prepared by Glen B. Currin, owner and John A.K. Tucker, P.E. - April 5, 2010, Document ID No.11439. Revised drawings and calculations – June 14, 2010, Document ID No. 11440. Revised calculations – June 18, 2010, Document No. 11441. Hydrogeologic Report – August 23, 2010, Document No.11442. Compliance History Review Acceptance – September 17, 2010, Document No. 11601.*
2. Correspondence associated with this permit: February 5, 2010 through August 23, 2010. Document ID No's. 9560, 10479, and 11443.
3. Historical information: Previous permit issued March 22, 1995; Documentation associated with permit issued March 22, 1995. Document ID No. 11450 and ID No. 11676.

PART III: PROPERTIES APPROVED FOR THE SOLID WASTE FACILITY

Property	Book	Page	Acreage	Grantor	Grantee
Deed	1969	204-206	Deed for 62.948 acres		Currin Brothers, Inc.
Original Permit (3/22/1995)	2071	3 through 7	Permit parcel Area 1 and Area 3 acreage not stated		Currin Brothers, Inc.
Total Site Acreage:			62.948 acres		

Note: Deed book reference is from Durham County, NC Register of Deeds office.

PART IV: GENERAL PERMIT CONDITIONS

1. This permit is issued by the North Carolina Department of Environment and Natural Resources, Division of Waste Management, Solid Waste Section (Section). In accordance with North Carolina Solid Waste Management Rule 15A NCAC 13B .0201(e), a land clearing and inert debris solid waste management facility permit may be combined in two parts: a Permit to Construct and a Permit to Operate. The Permit to Construct shall expire on October 21, 2015. The Permit to Construct conditions are stated in Attachment 2 of this permit. The Permit to Operate shall expire October 21, 2015. The Permit to Operate conditions are contained in Attachment 3 of this permit.
2. The persons to whom this permit is issued ("permittee") are the owners and operators of the solid waste management facility.
3. This permit shall not be effective unless the certified copy is filed in the Register of Deeds Office and indexed in the grantor index under the name of the owner of the land in the county or counties in which the land is located. The certified copy of the permit, affixed with the Register's seal and the date, book, and page number of recording must be returned to the Division of Waste Management, within 30 (thirty) calendar days. If the Section does not receive the certified copy of the recorded permit within 30 calendar days of issuance of the permit, then and in that event, the permit is suspended and of no effect until the date the Section receives the certified copy of the recorded permit.
4. When this property is sold, leased, conveyed, or transferred in any manner, the deed or other instrument of transfer must contain in the deed 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 permit.
5. By beginning construction or receiving waste at this facility the permittee shall be considered to have accepted the terms and conditions of this permit.
6. Construction and operation of this solid waste management facility must be in accordance with the Solid Waste Management Rules, 15A NCAC 13B, Article 9 of Chapter 130A of the North Carolina General Statutes (NCGS 130A-290, et seq.), the conditions contained in this permit; and the approved plan. Should the approved plan and the rules conflict, the Solid Waste Management Rules shall take precedence unless specifically addressed by permit condition.
7. The permit is issued based on the documents submitted in support of the application for permitting the facility including those identified in Attachment I, "List of Documents for

Approved Plan," and which constitute the approved plan for the facility. Where discrepancies exist, the most recent submittals and the Conditions of Permit shall govern.

8. This permit may be transferred only with the approval of the Section, through the issuance of a new or substantially amended permit in accordance with applicable statutes and rules. In accordance with NCGS 130A-295.2(g), the permittee must notify the Section thirty (30) days prior to any significant change in the identity or business structure of either the owner or the operator, including but not limited to, a proposed transfer of ownership of the facility or a change in the parent company of the owner or operator of the facility.
9. The permittee is responsible for obtaining all permits and approvals necessary for the development of this project including approval from appropriate agencies for sedimentation and erosion control, and a General or Individual National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge Permit, if applicable. Issuance of this permit does not remove the permittee's responsibilities for compliance with any other local, state or federal rule, regulation or statute.

- End of Section -

ATTACHMENT 2 CONDITIONS OF PERMIT TO CONSTRUCT

PART I: FACILITY SPECIFIC CONDITIONS

1. Pursuant to the NC Solid Waste Management Rules (Rule) 15A NCAC 13B .0201(c) and (e), this permit approves further construction of the Currin Brothers LCID Landfill for an additional 4.15 acres, according to the approved plans / documentation prepared by Glen B. Currin, owner and John A.K. Tucker, P.E. - April 5, 2010, Document ID No.11439. Revised drawings and calculations – June 14, 2010, Document ID No. 11440. Revised calculations – June 18, 2010, Document No. 11441. Hydrogeologic Report – August 23, 2010, Document No.11442. Any revisions to these approved plans must be approved by the North Carolina Solid Waste Section.

2. The landfill is permitted for a total gross capacity of 5,200,000 cubic yards. Gross capacity is the measured volume between the bottom of waste and the top of the final cover. Development of the landfill is approved as summarized below:

	Acreage	Capacity	Status
		(cubic yards)	
Previous permitted phases (Areas 1 & 3)	11.7	1,250,000	Permitted
For this permit (5-year term)	4.15 additional acres		
Acres remaining	32		
Total acreage	47.85 (excluding buffers)	5,200,000 Areas 1-12	

3. The following are required prior to receiving solid waste in a new phase:
 - a. Written certification from a Registered Professional Engineer must be submitted to the Section certifying that the waste disposal unit(s) has been constructed in accordance with the approved plans.

 - b. A sign must be posted at the entrance as required by the NC Solid Waste Management Rules Operational Requirements, 15A NCAC 13B .0566(16).

- c. The disposal unit boundary must be accurately identified with permanent markers.
- d. A site inspection and pre-operative meeting must be conducted by a representative of the Section. The permittee must notify the Section's Environmental Senior Specialist and make arrangements for the site inspection and pre-operative meeting.
- e. After completion of the requirements in subparagraphs a. through d. above, the Section Environmental Senior Specialist shall notify the Permitting Branch Supervisor by letter or email that the pre-operative requirements have been met and that the unit(s) may commence receiving waste. The permittee will be copied on the notification and may begin receiving waste at that time.

EROSION AND SEDIMENTATION CONTROL REQUIREMENTS

4. All earth disturbing activities must be conducted in accordance with the Sedimentation Pollution Control Act of 1973 (15 NCAC 4) and consistent with any other local, state or federal requirements.
5. Facility construction, operations or practices must not cause or result in a discharge of pollution, dredged material, and/or fill material into waters of the state in violation of the requirements under Sections 401 and 404 of the Clean Water Act, as amended.
6. Modifications to the approved sedimentation and erosion control activities require approval by the North Carolina Land Quality Section. The permittee must notify the Section of any sedimentation and erosion control plan modifications.

- End of Section -

ATTACHMENT 3

CONDITIONS OF PERMIT TO OPERATE

PART I: FACILITY SPECIFIC CONDITIONS

1. This Permit to Operate expires October 21, 2015. Pursuant to 15A NCAC 13B .0201(g), no later than April 21, 2015, the owner or operator must submit a request to the Section for permit review and must submit updated facility plans meeting the requirements of Rule 0.565 and .0566.
2. This facility must conform to the operational requirements of the NC Solid Waste Management Rules, 15A NCAC 13B .0566, and to the operational plan required by 15A NCAC 13B .0565(4) prepared by John Tucker, P.E.
3. This Permit to Operate authorizes the operation of the LCID Landfill when the Permittee has complied with the conditions specified in Attachment 2 (Conditions of Permit to Construct) of this permit. The total of 5,200,000 cubic yards of gross capacity in accordance with approved plan referenced in Attachment 1, Part II of this permit (List of Documents For the Approved Plan).
4. This facility is permitted to receive land clearing waste; yard trash; untreated and unpainted wood; uncontaminated soil; inert debris such as unpainted rock, brick, concrete, and concrete block; and asphalt in accordance with NCGS 130-294(m).
5. This facility is permitted to receive waste generated within Durham County. Proposed changes to the service area must be submitted to the Section for review prior to any changes in accordance with Condition No. 9 of this Attachment.
6. The permanent markers that accurately delineate the waste disposal boundary must be maintained.
7. Excavation, grading and fill material side slopes must not exceed a ratio of three horizontal feet to one vertical feet (3:1).
8. Open burning of land clearing waste is prohibited. If a fire occurs, the permittee must provide oral notification to the Section within 24 hours of the occurrence followed by a written report of the details of the fire within 10 working days of the occurrence. The report must include the cause, the location(s) on the premises, the dimensions and volume of material involved, a description of emergency response activities with results, and a description of mitigation measures implemented to reduce or eliminate conditions leading to the fire. Other conditions may be required based on the severity or nature of the fire.

9. Revisions to the design or operation of the facility or changes to the facility service area must be submitted to the Section for review and approval prior to the implementation of any changes. Revisions or changes that require modification to the permit will be subject to the appropriate permitting fee.
10. Amendments or revisions to the NC General Statutes or to the NC Solid Waste Management Rules or any violation of ground water standards may necessitate modification of the approved design or operation plans, waste acceptance requirements or may require closure of the facility.

Cover Material Requirements

11. Solid waste must be covered with 1 foot of suitable soil cover at least once per month or when the active area reaches 1 acre in size, whichever occurs first, or more often when necessary to prevent the site from becoming a nuisance or to mitigate conditions associated with fire, windblown materials, vectors or excessive water infiltration.
12. The facility must maintain a supply of cover material adequate to cover the working face in case of an emergency or fire, at all times.
13. Vegetative ground cover sufficient to control erosion must be established within 30 (thirty) working days upon completion of any phase of LCID landfill development or as addressed in the approved Sedimentation and Erosion Control permit.
14. Within 120 calendar days after completion of the final disposal operations, the disposal area must be closed and covered with a minimum of 1 foot of suitable soil cover sloped to allow surface water runoff in a controlled manner. However, for ditches with depths greater than 6 inches and widths less than 3 feet located on the landfill, at least 2 feet of soil is required between the bottom elevation of the ditches and the waste mass.

Drainage Control and Water Protection Requirements

15. All required sedimentation and erosion control measures must be installed and maintained to mitigate excessive on-site erosion and to prevent silt from leaving the site of the landfill unit during the service life of the facility.
16. Ground water quality at this facility is subject to the classification and remedial action provisions of 15 NCAC 2L.
17. Solid waste must be placed a minimum of four feet above the seasonal high water table.
18. Solid waste must not be disposed in standing water. Surface water must be diverted away from the operational area and must not be impounded over or in waste.

Facility Permit No: 32-I-LCID
Currin Brothers LCID Landfill No. 2
Permit to Construct and Operate
October 21, 2010
Doc ID No. 11866
Page 9 of 9

19. Leachate must be properly managed on site using best management practices.

- End of Permit Conditions -

I do hereby certify that the attached PERMIT TO CONSTRUCT AND OPERATE is an exact and true original of PERMIT NUMBER 32-I for the Currin Brothers, Inc. LCID Landfill.

Edward F. Mussler, III, P.E.
Permitting Branch Supervisor
Solid Waste Section
Division of Waste Management

North Carolina

Wake County

I, Betty Jo Stanfield, Notary Public for Wake County,

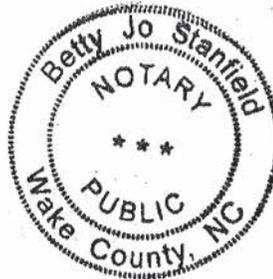
North Carolina, do hereby certify that Edward F. Mussler, III, Supervisor of the Permitting Branch, Solid Waste Section, Division of Waste Management, NCDENR, personally appeared before me this day and acknowledge the due execution of the foregoing instrument.

Witness my hand and official seal,

This the 22 day of OCTOBER, 2016.

OFFICIAL SEAL

Betty Jo Stanfield
NOTARY PUBLIC



My commission expires December 29, 2014.

Note to Register of Deeds: This certified original permit shall be recorded by the Register of Deeds and indexed in the grantor index under the name of the land owner. The certified original affixed with the Register's seal and the date, book, and page number of recording shall be returned to the Permitting Branch Supervisor, Division of Waste Management, Solid Waste Section, 1646 Mail Service Center, Raleigh, NC 27699-1646.



WILLIE L. COVINGTON
REGISTER OF DEEDS, DURHAM COUNTY
DURHAM COUNTY COURTHOUSE
200 E. MAIN STREET
DURHAM, NC 27701

PLEASE RETAIN YELLOW TRAILER PAGE

It is part of recorded document, and must be submitted with original for re-recording
and/or cancellation.

Filed For Registration: 02/09/2011 09:40:58 AM
Book: RE 6665 Page: 145-156
Document No.: 2011004320
S-INS 12 PGS \$44.00
Recorder: SHARON M CEARNEL



2011004320

Attachment B

Legal Description of Property

**Permit Renewal Application
Currin Bros. LCID Landfill (Permit No. 32-1)
Durham, North Carolina**

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PART OF
PERMIT # 32-I

BOOK 1969 PAGE 204

DURHAM COUNTY

APR 11 1994

325.00



Real Estate
Excise Tax

Excise Tax

RECEIVED

FILED
BOOK 1969 PAGE 204-206

'94 APR 11 AM 11 16

RUTH C. GARRETT
REGISTER OF DEEDS
DURHAM COUNTY, N.C.

SOLID WASTE MANAGEMENT
WAYTEVILLE REGIONAL OFFICE

Recording Time, Book and Page

Tax Lot No. Map 986, Block 1, Parcel 4 Parcel Identifier No.

Verified by County on the day of 19 by

Mail after recording to Pipkin & Knott, 100 E. Six Forks Road, Suite 308, Raleigh, N.C. 27609

This instrument was prepared by Pipkin & Knott

Brief description for the Index

62.948 acres PB 131, p. 78

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 21st day of March, 1994, by and between

GRANTOR

SIM COLEY BRINKLEY, a/k/a S. COLEY BRINKLEY and SALLY F. BRINKLEY, his wife; HAZEL BRINKLEY STAPLES, a/k/a HAZEL B. STAPLES, and ALEX T. STAPLES, her husband; DOROTHY BRINKLEY LOFTIS and CARLTON S. LOFTIS, her husband; and JEWEL (a/k/a JEWELL) BRINKLEY THARRINGTON, and PERRY R. THARRINGTON, her husband.

GRANTEE

CURRIN BROS., INC., a North Carolina corporation P.O. Box 547 Fuquay-Varina, N.C. 27526

Enter in appropriate block for each party; name, address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of Carr Township, Durham County, North Carolina and more particularly described as follows:

Being all of the property described in and conveyed by the deed dated August 27, 1936 from R.O. Everett and G.C. Scott, Commissioners, to H.C. Brinkley that now lies west of the western edge of the right of way of S.R. 1900 (Coley Road); this deed is recorded in Deed Book 119, Page 319, Durham County Registry. This parcel containing 62.948 acres more or less is more particularly described in a plat captioned "Survey for Currin Bros., Inc., Carr Township, Durham Co., N.C." dated January 15, 1994, by Mauldin-Watkins Surveying, P.A., recorded in Plat Book 131, Page 78, Durham County Registry. Conveyed with the above parcel subject to the right-of-way of S.R. 1900 (Coley Road) is all of the Grantors' interest in the western half of the right-of-way of S.R. 1900 (Coley Road), including but not limited to any right to any portion of this right-of-way that is subsequently abandoned or released.

13377

1213

BOOK 1969 PAGE 205

The property hereinabove described was acquired by Grantor by instrument recorded in See Estate of
Hubert Charles Brinkley, died 10/7/55, and of Lottie Coley Brinkley 90-E-944.

A map showing the above described property is recorded in Plat Book 131 page 78.

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.

Title to the property hereinabove described is subject to the following exceptions:

1. The lien for 1994 property taxes.
2. Transmission Line Easement dated January 16, 1978, from Lottie Coley Brinkley, et als to Carolina Power & Light Company, recorded in Book 963, Page 567, Durham County Registry.
3. General Service Easement for electrification or telephone purposes dated 10/25/51 from H.C. Brinkley and Lottie C. Brinkley to Wake Electric Membership Corp. recorded in Book 208, Page 121, Durham County Registry.
4. General Service Easement dated 4/2/58 from Lottie C. Brinkley, widow, to Wake Electric Membership Corporation, recorded in Book 256, Page 431, Durham County Registry.

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

Sim Coley Brinkley (SEAL)
SIM COLEY BRINKLEY

Sally F. Brinkley (SEAL)
SALLY F. BRINKLEY

Hazel Brinkley Staples (SEAL)
HAZEL BRINKLEY STAPLES

Alex T. Staples (SEAL)
ALEX T. STAPLES

Dorothy Brinkley Loftis (SEAL)
DOROTHY BRINKLEY LOFTIS

Carlton S. Loftis (SEAL)
CARLTON S. LOFTIS

Jewel Brinkley Tharrington (SEAL)
JEWEL BRINKLEY THARRINGTON

Perry R. Tharrington (SEAL)
PERRY R. THARRINGTON

The foregoing Certificate(s) of

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.

REGISTER OF DEEDS FOR COUNTY
By Deputy/Assistant - Register of Deeds

Attachment C

Local Government Approval

**Permit Renewal Application
Currin Bros. LCID Landfill (Permit No. 32-1)
Durham, North Carolina**

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ZONING

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**Durham
City
County
Planning
Department**



101 City Hall Plaza
Durham, NC 27701
(919) 560-4137
Fax 560-4641

March 16, 1994

Mr. Steve Deaton
6508 Falls of Neuse Road, Suite 100
Raleigh, NC 27615

Dear Mr. Deaton:

Based upon a letter dated February 28, 1994 from Jim Barber, Eastern Area Engineer of the Division of Solid Waste Management, Department of Environmental Health and Natural Resources, I have reviewed, via a request by Allen Currin, Currin Brothers, Inc., to determine the legality of a potential site for a Land Clearing and Inert Debris (LCID) permit for property located on Coley Road and further described on Tax Map 986, Block 1, Lot 4. This location has been submitted for consideration as a permitted use under the regulations of the Rural District zoning classification in the Durham County Zoning Ordinance prior to January 1, 1994.

Prior to January 1, 1994, a Land Clearing and Inert Debris (LCID) landfill was a permitted use in Rural District under the Durham County Zoning Ordinance. Therefore, since this location on Coley Road was under active consideration before January 1, 1994 for purchase, design, and permitting the Planning Department supports the final permit application conditioned upon State approval for conformance with North Carolina Solid Waste Management Rules (15A NCAC 13); Section .0500 - Disposal Sites, Paragraphs .0563 (Applicability Requirements for Land Clearing/Inert Debris Landfills); .0564 (Siting criteria for Land Clearing/Inert Debris Landfills); .0565 (Application Requirements for Land Clearing/Inert Debris Landfills) and .0566 (Operational Requirements for Land Clearing/Inert Debris Landfills).

Mr. Steve Deaton
March 16, 1994
Page 2

For your information, the merged Durham Zoning Ordinance, effective December 31, 1993 at 11:59 p.m. prohibits land clearing/inert debris landfills in the City and County of Durham Watersheds except for Jordan District B and Eno River District B areas.

If I can be of further assistance, please call me at 560-4137.

Sincerely,

Gerald E. Kelley
Assistant Director

GEK/bd

cc: Jim Barber, Eastern Area Engineer
Fayetteville Regional Office
226 Green Street, Suite 601
Fayetteville, NC 28301

Allen Currin
Currin Brothers, Inc.
P. O. Box 547
Fuquay-Varina, NC 27526

NATIONWIDE PERMIT

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**U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT**

Action ID. _____

County Durham

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Property Owner/Agent Currin Bros, Inc. c/o Allen Currin

Address ~~1610~~ 1610 Wolfpack Lane

Raleigh, N.C. 27609

Telephone No. (919) 876-1138

Size and Location of project (waterbody, road name/number, town, etc.) 62.948 acres on W side of Coley Rd. (S.R. 1900), about 2,500 ft N of S.R. 1902, E of Durham, about 1/2 mile W of Durham / Wake County line, N.C.

Description of Activity

Construction of sediment basins + filling of less than 1/2 of an acre of creek channels (no wetlands on site).

Section 404 (Clean Water Act, 33 USC 1344) only.

Section 10 (River and Harbor Act of 1899) only.

Section 404 and Section 10.

26 Regional General Permit or Nationwide Permit Number.

Any violation of the conditions of the Regional General or Nationwide Permit referenced above may subject the permittee to a stop work order, a restoration order, and/or appropriate legal action.

This Department of the Army Regional General/Nationwide Permit verification does not relieve the undersigned permittee of the responsibility to obtain any other required Federal, State, or local approvals/permits. The permittee may need to contact appropriate State and local agencies before beginning work.

By signature below, the permittee certifies an understanding and acceptance of all terms and conditions of this permit.

Property Owner/Authorized Agent Signature Currin Bros. Inc. By: C. Allen Currin

Regulatory Project Manager Signature Jan B. Manuola

Date May 26, 1994

Expiration Date May 26, 1996

SURVEY PLATS, FIELD SKETCH, WETLAND DELINEATION FORM, ETC., MUST BE ATTACHED TO THE YELLOW (FILE) COPY OF THIS FORM, IF REQUIRED OR AVAILABLE.



DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402 1890

October 11, 1988

MEMORANDUM FOR

Regulatory Branch

SUBJECT: Nationwide Permit No. 26

Mr. Todd Faucette
Currin Bros., Inc.
Post Office Box 547
Fuquay-Varina, North Carolina 27526

Dear Mr. Faucette:

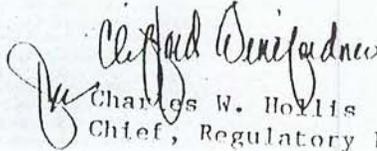
On October 4, 1988, you met with Ms. Kathy Trott of my staff at the Raleigh Field Office to discuss a proposed stump dump for Currin Bros, Inc., located south of N.C. 98 off Coley Road (State Road 1901) west of the Wake/Durham County lines in Durham County, North Carolina.

At the meeting, you stated that less than one (1) acre of wetlands and/or waters of the United States would be filled by this project. The site is located above the headwaters of Laurel Creek. For the purposes of the Corps of Engineers' Regulatory Program, Title 33, Code of Federal Regulations (CFR), Part 330, published in the Federal Register on November 13, 1986, lists nationwide permits. Authorization was provided for discharges of dredged or fill material into non-tidal rivers, streams, and their lakes and impoundments, including adjacent wetlands, that are located above the headwaters and other non-tidal waters of the United States, including adjacent wetlands, that are not a part of a surface tributary system to interstate waters or navigable waters of the United States. This general authorization is valid only for work that causes the loss or substantial adverse modification of less than 1 acre of wetlands.

Your work, as described at your meeting on October 4, 1988, is authorized by the above nationwide permit provided it is accomplished in strict accordance with the enclosed conditions. Please be aware that this authorization will not relieve you of the responsibility to obtain any required State or local approval.

Should you have any questions, please contact Ms. Kathy Trutt,
Regulatory Branch, Raleigh Field Office, (919) 846-0749.

Sincerely,


Charles W. Hollis
Chief, Regulatory Branch

Enclosure

Copies Furnished (without enclosure):

Mr. John Parker
North Carolina Department of
Natural Resources and
Community Development
Post Office Box 27687
Raleigh, North Carolina 27611-7687

Mr. Tom Kegerize
Durham County Sedimentation and
Erosion Control
120 East Parrish Street
Suite 100
Durham, North Carolina 27701

Mr. William Mills
Water Quality Section
Division of Environmental Management
North Carolina Department of Natural
Resources and Community Development
Post Office Box 27687
Raleigh, North Carolina 27611-7687

CONDITIONS

- a. Any discharge of dredged or fill material will not occur in the proximity of a public water supply.
- b. The activity will not jeopardize a threatened or endangered species as identified under the Endangered Species Act, or destroy or adversely modify the critical habitat of such species.
- c. The activity will not significantly disrupt the movement of those species of aquatic life indigenous to the waterbody (unless the primary purpose of the fill is to impound water).
- d. Any discharge of dredged or fill material will consist of suitable material free from toxic pollutants.
- e. Any structure or fill will be properly maintained.
- f. The activity will not occur in a component of the National Wild and Scenic River System nor in a river officially designated by Congress as a "study river" for possible inclusion in the system.
- g. If the activity may adversely affect historic properties which the National Park Service has listed on, or determined eligible for listing on, the National Register of Historic Places, or if significant historic properties are encountered before or during work, the permittee will notify the District Engineer.
- h. An individual state water quality certification must be obtained or waived. Conditions of certification will be considered to be special conditions of the Federal nationwide permit.
- i. The following management practices will be followed to the maximum extent:
 - (1) Discharges of dredged or fill material into waters of the United States will be avoided or minimized through the use of other practical alternatives.
 - (2) Discharges in spawning areas during spawning seasons will be avoided.
 - (3) Discharges will not restrict or impede the movement of aquatic species indigenous to the waters or the passage of normal or expected high flows or cause the relocation of the waters (unless the primary purpose of the fill is to impound water).

(4) If the discharge creates an impoundment of water, adverse impacts on the aquatic system caused by the accelerated passage of water and/or the restriction of its flow will be minimized.

(5) Discharge in wetland areas will be avoided.

(6) Heavy equipment working in wetlands will be placed on mats.

(7) Discharges into breeding areas for migratory waterfowl will be avoided.

(8) All temporary fills will be removed in their entirety.



State of North Carolina
Department of Natural Resources and Community Development
Division of Environmental Management
512 North Salisbury Street • Raleigh, North Carolina 27611

James C. Martin, Governor
S. Thomas Rhodes, Secretary

R. Paul Wilms
Director

October 12, 1988

Mr. J. Todd Faucette, Estimator
Currin Bros., Inc.
P. O. Box 547
Fuquay-Varina, NC 27526

Subject: Proposed Fill in
Headwaters or Isolated
Wetlands
Currin Bros. Grading
Contractors
Durham County

Dear Mr. Faucette:

Upon review of your request for Water Quality Certification to place fill material in a tributary to Laurel Creek, we have determined that the proposed fill can be covered by General Water Quality Certification No. 2176 issued November 4, 1987. A copy of the General Certification is attached. This Certification may be used in qualifying for coverage under Corps of Engineers' Nationwide Permit No. 26.

If you have any questions, please contact Bill Mills at 919/733-5083.

Sincerely,

William C. Mills
R. Paul Wilms

RPW/dkb

Attachment

cc: Wilmington District Corps of Engineers
Raleigh Regional Office

Pollution Prevention Pays

P.O. Box 27687, Raleigh, North Carolina 27611-7687 Telephone 919-733-7015

An Equal Opportunity Affirmative Action Employer

GENERAL CERTIFICATION

THIS GENERAL CERTIFICATION is issued in conformity with the requirements of Section 401, Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Environmental Management Regulations in 15NCAC2H, Section .0500 for the discharge of fill material to navigable waters or adjacent wetlands areas which are above the headwaters or to wetland areas that are not a part of the surface tributary system to interstate waters or navigable waters of the United States (i.e. isolated wetlands) as described in 33 CFR 330.5(a)(26) of the Corps of Engineers' regulations. The category of activities shall include any fill activity in these headwaters and isolated wetlands areas where the activity does not result in the loss or substantial modification of 10 acres or more of waters of the United States, including wetlands.

The State of North Carolina certifies that the specified category of activity will not violate Sections 301, 302, 303, 306 and 307 of the Public Laws 92-500 and 95-217 if conducted in accordance with the conditions hereinafter set forth.

Conditions of Certification:

1. Proposed fill or substantial modification of 1 to 10 acres of such waters, including wetlands, requires a written concurrence from the Division of Environmental Management. Activities involving less than one acre do not require written concurrence.
2. Excluded from this General Certification are discharges of fill in waters classified WS I, II, or III (public water supplies) and SA (shellfish waters). This exclusion also applies to fill in wetlands adjacent to these waters. Discharge proposed for these waters or wetlands must be considered for certification on a case-by-case basis;

3. That the discharge will consist of suitable material free from toxic pollutants in other than trace quantities;
4. That established erosion control practices are utilized to prevent excessive increases in turbidity and settleable solids concentrations in the water body as a result of the discharge;
5. That the discharge of fill material shall be in accordance with the conditions and management practices specified by the Corps of Engineers in 33 CFR 330.5 and 330.6 for nationwide permit number 26.

Non-compliance with or violation of the conditions herein set forth by a specific fill project shall result in revocation of this Certification for the project.

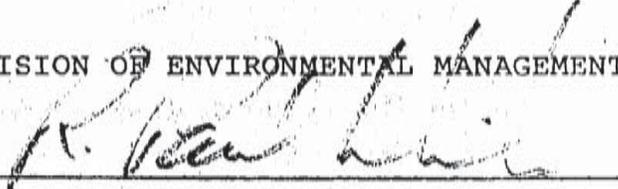
The Director of the North Carolina Division of Environmental Management may require submission of a formal application for certification for any project in this category of activity, if it is determined that the project is likely to have a significant adverse effect upon water quality or degrade the waters so that existing uses are precluded.

Public Hearings may be held for specific applications or group of applications prior to Certification if deemed in the public's best interest by the Director of the North Carolina Division of Environmental Management.

This the 5th day of November 1987.

DIVISION OF ENVIRONMENTAL MANAGEMENT

By


R. Paul Wilms, Director

SEDIMENTATION AND EROSION CONTROL

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DEC 5 1994

COUNTY OF DURHAM
SEDIMENTATION AND EROSION CONTROL

November 29, 1994

LITTLE & LITTLE

Currin Brothers, Inc.
P.O. Box 547
Fuquay-Varina, NC 27526
Attn: Glenn R. Currin

Dear Mr. Currin:

RE: LETTER OF APPROVAL
Project Name: LCID (Currin 2)
JCN: 1747-08
Submitted By: Little & Little
Date Submitted: 11/21/94
New Submittal () Revised (X)

This office has reviewed the subject Sedimentation & Erosion Control Plan. We find the plan to be acceptable and hereby issue this letter of approval (if any stipulations or recommendations are applicable, a list is enclosed and is incorporated as a part of this letter of approval).

Please be advised that a copy of the approved plan must be on file at the job site, and a land disturbing permit must be obtained and prominently displayed. Pursuant to G.S. 113A-61(d) and Section 19 (a) and (c) of the Sedimentation and Erosion Control Ordinance you are hereby notified that the Sedimentation and Erosion Control Office has the right to inspect the site over the life of the project to insure compliance with the approved plan and ordinance.

The Durham County and City Sedimentation and Erosion Control program is performance oriented, requiring protection of the natural resources and adjoining properties. If following the commencement of this project it is determined that the Sedimentation & Erosion Control plan is inadequate to meet the requirements of the Sedimentation and Erosion Control Ordinance, this office may require revisions in the plan and its implementation to insure compliance with the Ordinance.

Recognizing the desirability of early coordination of Sedimentation Control, we believe that it would be beneficial if a preconstruction conference can be arranged to discuss the approved plan for this project. Please contact this office and let us know the date of construction start-up and the date of the preconstruction conference so that we may try to attend.

We look forward to working with you on this project.

Sincerely,

Thomas R. Kagarise
Erosion Control Officer

CURRIN BROS. INC.

GRADING CONTRACTORS

P.O. BOX 547 - FUQUAY-VARINA, N.C. 27526

OFFICE: (919) 876-1138

NC LICENSE # 17B17
UNCLASSIFIED
UNLIMITED

APPROVED
DIVISION OF SOLID WASTE MANAGEMENT

DATE 9/7/93 BY JOB

AMENDMENT #1

March 26, 1993

N.C. Department of Environment, Health and Natural Resources
Solid Waste Section
Solid Waste Division
225 Green St.
Wachovia Bldg. Suite 601
Fayetteville, NC 28301

Attn: Jim Barber

Ref: Currin Bros. Durham L.C.I.D. Landfill
Operational Plan

Dear Sir,

The following is the individual responsible for the operation and maintenance of the facility.

Allen Currin
1610 Wolfpack Lane
Raleigh, NC 27609
Ph 876-1138

After the completion of the facility it will be reforested with weyerhauser improved loblolly pines.

Currin Bros. Inc. agrees to comply with the operational requirements set forth in rule .0566 in the NC Solid Waste Management Rules as amended through January 9, 1992.

In case of an emergency the Redwood Fire Department would respond. Their number is 688-8422

If you have any questions please call me at 876-1138

Sincerely
Currin Bros. Inc.

CURRIN BROS. INC.

GRADING CONTRACTORS

P.O. BOX 547 - FUQUAY-VARINA, N.C. 27526

OFFICE: (919) 876-1138

NC LICENSE # 17817
UNCLASSIFIED
UNLIMITED

February 16, 1993

N. C. Department of Environment, Health and Natural Resources
Solid Waste Section
Solid Waste Management Division
225 Green St.
Wachovia Bldg. Suite 601
Fayetteville, NC 28301

ATTN: Jim Barber
Mark S. Fry

Dear Sirs:

REF: CURRIN BROS. DURHAM L.C.I.D. LANDFILL

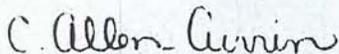
Enclosed you will find a revised set of drawings for the Durham L.C.I.D. Landfill. Borrow areas have been noted that we feel will be necessary to complete the project in the future. At the current rate, the estimated completion will take approximately fifteen years. It is our intention to complete the slopes on the southwest side adjacent to Coley Road in the near future. All areas are to be graded to prevent ponding water and to divert water away from the debris.

J. D. Goldston, Jr. with Goldston Well Drilling Co. informed us that he had drilled many wells in the vicinity of the Currin L.C.I.D. Landfill. He also confirmed that the water table was found to be 300 to 400 feet deep and in most cases there was no water found. Mr. Goldston drilled the J. A. Black well that is adjacent to the site. He said it was approximately 400 feet.

If you have any questions, please call me at 876-1138.

Sincerely,

CURRIN BROS., INC.



C. Allen Currin
Vice President

CAC:mg

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Attachment D

Operations Manual

**Permit Renewal Application
Currin Bros. LCID Landfill (Permit No. 32-1)
Durham, North Carolina**

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Operations Manual

Currin Bros. LCID Landfill (Permit No. 32-I) Durham, North Carolina

Prepared for:

**Currin Bros. Inc.
Raleigh, North Carolina**

August 2015

Prepared by:

SMITH+GARDNER

14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577



PRINTED ON 100% RECYCLED PAPER

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This document is intended for the sole use of the client for which it was prepared and for the purpose agreed upon by the client and Smith Gardner, Inc.

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Operations Manual

**Currin Bros. LCID Landfill (Permit No. 32-1)
Durham, North Carolina**

Prepared For:

**Currin Bros. Inc.
Raleigh, North Carolina**

S+G Project No. Currin 15-1

DocuSigned by:

Madeline German

B753AE88EABA4B8...
Madeline German, P.E.

Project Geologist



DocuSigned by:

Stacey A. Smith

27B482DF1A09438...
Stacey A. Smith, P.E.

Project Manager

August 2015

SMITH+GARDNER

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Currin Bros. LCID Landfill (Permit No. 32-I) Durham, North Carolina

Operations Manual

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Figure 1	Site Location Map
Figure 2	Existing Conditions

APPENDICES

Appendix A	Fire Occurrence Notification Form
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1.0 GENERAL FACILITY OPERATIONS

This Operations Manual was prepared for operations of the Currin Bros. LCID Landfill (Permit No.32-I-LCID) located at 1810 Coley Road in Durham, North Carolina. This document discusses the operation of the LCID Landfill and other solid waste management activities:

Figure 1 is a USGS map of the site and **Figure 2** is a site map that illustrates the location of existing and proposed landfill units and other solid waste management activities.

The information contained herein was prepared to provide facility personnel with a clear understanding of how the Design Engineer assumed that the completed facility would be operated and how regulatory operations criteria will be met. While deviations from the operations procedures outlined herein may be acceptable, they must be reviewed and approved by the NC Department of Environment and Natural Resources (DENR) Division of Waste Management (DWM) prior to implementation. Additionally, the Design Engineer should be consulted regarding any changes which may affect the facility design

1.1 Contact Information

All correspondence and questions concerning the Currin Bros. LCID Landfill operation should be directed to the appropriate personnel listed below. For fire or police emergencies dial 911.

1.1.1 Owner

Currin Bros. Inc.
1610 Wolfpack Lane
Raleigh, NC 27609
Phone: (919) 876-1138

Currin Bros. LCID Landfill

1810 Coley Road
Durham, NC 27703
Phone: (919) 876-1138
FAX: (919) 790-9423

Primary Contact: Allen Currin

1.1.2 Engineer

Smith Gardner, Inc.
14 N. Boylan Ave.
Raleigh, NC 27603
Phone: (919) 828-0577

Primary Contact: Stacey A. Smith, P.E.
stacey@smithgardnerinc.com

1.1.3 North Carolina Department of Environment and Natural Resources

North Carolina DENR - Raleigh Central Office (RCO)
217 W. Jones Street
Raleigh, NC 27603
1646 Mail Service Center
Raleigh, NC 27699-1646
Phone/Fax: (919) 707-8200

North Carolina DENR - Raleigh Regional Office (RRO)
3800 Barrett Drive
Raleigh, NC 27609
Phone: (919) 571-4700
Fax: (919) 571-4718

Division of Waste Management (DWM) - Solid Waste Section:

Western District Supervisor: Deb Aja (ARO)
Environmental Senior Specialist: John Patrone (WSRO)

Division of Land Resources - Land Quality Section:

Regional Engineer: John Holley, P.E. (RRO)

1.2 **Facility Operating Hours**

Normal hours of operation will be 7:00 A.M. to 7:00 P.M. Monday through Saturday. The facility will be closed on Sunday and on holidays as designated by the owner.

The owner may elect to modify these hours from time to time.

1.3 **Site Access**

The site will be accessed by the existing entrances on Coley Road. A guard house is located prior to the active disposal area, and may change as needed.

1.3.1 Physical Restraints

Limiting access to the facility is important for the following reasons:

- Unauthorized and illegal dumping of debris materials is prevented.
- Trespassing, and injury resulting therefrom, is discouraged.
- The risk of vandalism is greatly reduced.

Access to active areas of the facility will be controlled by a combination of fences, natural barriers and strictly enforced operating hours. An attendant will be on duty at all times when the facility is open for public use to enforce access restrictions (see also **Section 1.2**). Entrance gates will be securely locked during non-operating hours.

1.3.2 Security

The facility is secured by fencing, security gates and natural buffers. Frequent gate and fence inspections 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(s) containing the information required by the DWM will be placed at the facility entrance. The sign(s) will provide information on operating hours, operating procedures and acceptable wastes. Additional signage will be provided as necessary within the facility to distinctly distinguish the roadway to the active area(s). Service and maintenance roads for use by facility staff will be clearly marked and barriers (e.g., traffic cones, barrels, etc.) will be provided as required.

1.5 Communications

Cell phones will be used to maintain communication between on-site staff at the active landfill unit and the landfill guard house.

1.6 Fire Control

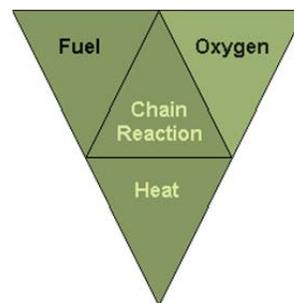
The possibility of fire within the landfill or a piece of equipment must be anticipated in the daily facility operation. Potential fire hazards include both surface conditions and subsurface conditions. Surface conditions include equipment operations and newly placed debris. Subsurface conditions include existing debris previously landfilled.

1.6.1 Open Burning

Open burning is not allowed at the facility in accordance with *15A NCAC 13B .0566(12)*. Controlled burning will occur only if permitted or approved by the DWM, the Division of Air Quality (DAQ), and the local fire department.

1.6.2 Fire Tetrahedron¹

To better understand the properties of fire, the fundamental methods to extinguish it must be understood. The fire “tetrahedron” illustrates the rule



¹ National Fire Protection Association (www.nfpa.org).

that to ignite and burn, each component of the tetrahedron (fuel, oxygen, heat, and/or chemical chain reaction) represents a property of flaming fire. A fire is prevented or extinguished by “removing” any one of them. A fire naturally occurs when the elements are combined in the right mixture (e.g., more heat needed for igniting some fuels, unless there is concentrated oxygen). The fire tetrahedron is a more modern adaptation of the traditional fire “triangle” recognizing the chemical reactions that may occur as a component - “the uninhibited chain reaction”. This chain reaction is the feedback of heat to the fuel to produce the gaseous fuel used in the flame. In other words, the chain reaction provides the heat necessary to maintain the fire. These principles are integral in the prevention and management of potential fire situations. *Please note this information is considered as a basis of understanding which may be superseded by the direction and skill of the local Fire Marshal.*

1.6.3 Equipment

A combination of factory installed fire suppression systems and/or portable fire extinguishers will be operational on all pieces of heavy equipment at all times. Potential fire hazards are created from the build-up of fine, dry dust particles on and around operational motors and control panels. The presence of these build-ups can cause overheating and potential fire if periodic equipment cleaning and maintenance are not practiced. Portable fire extinguishers should be maintained in a state of readiness on each piece of moving equipment and equipment should be cleaned periodically.

1.6.4 General Fire Management Strategies

Each fire situation is site specific; however, general strategies for active fire management include the following (in no particular order):

- Accelerated high temperature combustion (displacing fuel);
- Covering burning material with soil (reduce oxygen);
- Covering burning material with foams (reduce oxygen);
- Flooding burning material with water (reduce heat);
- Injecting an inert gas such as CO₂ (reduce oxygen);
- Excavating the burning material (displacing fuel) and then extinguishing it in small controlled areas; and
- Applying extinguishing agents that will interfere with and inhibit the combustion process at the molecular level (break the chemical reaction).

1.6.5 Surface Emissions

The presence of surface emissions in the form of steam or smoke may occur from time to time. On-site personnel shall watch sensitive areas across the cover for signs of these types of emissions.

1.6.5.1 Steam

Steam is pure water vapor, produced by evaporated water within the debris mass. Ordinarily, steam is completely colorless. As steam cools and condenses it becomes visible as water vapor and can produce a white cloud which dissipates relatively quickly. It is odorless and tasteless. Because the humidity is very high, the cloud may leave water droplets on solids that touch it. Observed steam emissions on site will continue to be monitored; changes will be reported to the site manager.

1.6.5.2 Smoke

Smoke consists of gases and soot. The gases typically include water vapor, but smoke differs from steam in that there are other gases, such as carbon dioxide and sulfur oxides, plus there are small particles. The types of particles depend on the source of the smoke, but usually you can smell or taste either the soot or some of the gases from smoke. Smoke may be white, but more commonly it is colored by its particles and will linger across the cover as the particles in the smoke are suspended. Observed smoke will be covered with soil or other action to prevent fire creating conditions and continue to be monitored until smoke is no longer produced. The site manager will be notified when smoke is observed on site.

1.6.6 Fires Within Disposal Areas

Fires within the landfill disposal areas will be limited by the use of periodic cover as a fire break and control of "hot" loads entering the landfill. Landfill personnel at the guard house will turn away all trucks containing debris that is suspected to be hot. 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 debris to extinguish the fire.

In general, fires that break out close to the surface of the disposal area should be excavated and smothered with cover material. Deep fires should be smothered out by placing moist soil on the surface and by constructing soil barriers around the fire. Where the smothering technique fails, the burning material must be excavated and smothered or quenched with water once the burning material is brought to the surface. Water is usually not effective unless it can be directly applied to the burning material.

1.6.7 Notification

The owner will verbally notify the DWM (see **Section 1.1.2**) within 24 hours of discovery of a fire within any landfill disposal area. In addition, written documentation describing the fire, the actions carried out to extinguish the fire,

and a strategy for preventing future occurrences will be provided to the DWM within 15 days following any such occurrence using the DWM's Fire Occurrence Notification Form (see **Appendix A**).

1.7 Severe Weather Conditions

Unusual weather conditions can directly affect landfill facility operations. Some weather conditions and recommended operational responses are as follows.

1.7.1 Ice Storms

An ice storm can make access to the facility dangerous, prevent movement or placement of daily cover, and, thus, may require closure of the facility until the ice is removed or has melted.

1.7.2 Heavy Rains

Exposed soil surfaces can create a muddy situation in some portions of the facility during rainy periods. The control of drainage and use of crushed stone on unpaved roads should provide all-weather access for the site and promote drainage away from critical areas. In areas where the aggregate surface is washed away or otherwise damaged, new aggregate should be used for repair.

Intense rains can affect newly constructed drainage structures such as swales, diversions, cover soils, and vegetation. After such a rain event, inspection by facility personnel will be initiated and corrective measures initiated to repair any damage found before the next rainfall. In extreme cases the landfill will be closed for employee and customer safety and to prevent excessive site damage.

1.7.3 Electrical Storms

The open area of the facility is susceptible to the hazards of an electrical storm. If necessary, activities will be suspended during such an event. Refuge will be sought as necessary in the on-site buildings or in rubber-tired vehicles.

1.7.4 Violent Storms

In the event of hurricane, tornado, or severe winter storm warning issued by the National Weather Service, facility operations may be suspended until the warning is lifted. Daily cover will be placed on exposed debris and buildings and equipment will be properly secured.

1.8 Equipment Requirements

The owner will maintain on-site equipment required to perform the necessary site activities. Periodic equipment maintenance and minor and major repair work will be performed in designated maintenance zones.

The available equipment for daily operation and site maintenance are listed in the following table. However the operator may change as needed.

Table 1 Available Equipment

Description	Number	Primary Function (Allocation)
1) Dozer (D7)	2	Stripping and grading of borrow areas, fine grading, slope work, and site cleanup
2) Backhoe (330L)	1	General site work, sediment control, and site cleanup
3) Cat Loader (963)	1	Loading soil
4) Off Road Truck (D25)	1	Hauling soil

1.9 Personnel Requirements

The facility maintains a very low staff turnover rate. The anticipated personnel requirements for site operation and maintenance are listed in the following table. However, personnel may be adjusted as needed.

Table 2 Personnel Requirements

Description	Primary Function (Allocation)	On-Site
1) Site Manager - 1	Overall management of the facility	Every Day
2) Operators - 2	General labor and operational staff around the site	When needed

1.10 Health and Safety

All aspects of the facility operations were developed with the health and safety of the operating staff, customers and neighbors in mind. Safety equipment provided includes equipment rollover protective cabs, seat belts, audible reverse warning devices, hard hats, safety shoes and first aid kits. Facility personnel will be encouraged to complete the American Red Cross Basic First Aid Course. Other safety requirements as designated by the owner may also be implemented.

The following are some general recommendations for the health and safety of workers:

1.10.1 Personal Hygiene

The following items are recommended as a minimum of practice:

- Wash hands before eating, drinking, or smoking.
- Wear personal protective equipment as described in **Section 1.10.2**.
- Wash, disinfect, and bandage ANY cut, no matter how small it is. Any break in the skin can become a source of infection.
- Keep fingernails closely trimmed and clean (dirty nails can harbor pathogens).

1.10.2 Personal Protective Equipment

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

- Safety shoes with steel toes.
- Noise reduction protection should be used in areas where extended exposure to continuous high decibel levels are expected.
- Disposable rubber latex or chemical resistant gloves for handling and/or sampling of debris materials.
- Dust filter masks (voluntary).
- Hard hats (in designated areas).

Following use, PPE's should be disposed of or adequately cleaned, dried, or readied for reuse.

1.10.3 Mechanical Equipment Hazard Prevention

Equipment should be operated with care and caution. All safety equipment such as horns, backup alarms, and lights should be functional. A Lockout-Tagout program will be used to identify equipment in need or under repair and insure that operation is "off-limits" prior to maintenance or repair.

1.10.4 Employee Health and Safety

Some general safety rules are:

- Consider safety first when planning and conducting activities.
- Review the equipment O&M manual(s) prior to attempting repairs/changes.
- Remember the buddy system for mechanical equipment repair.
- Post emergency contact phone numbers.
- Provide easy and visible access to the Right to Know materials.
- Provide easy and visible access to first aid kits and fire extinguishers.

1.10.5 Physical Exposure

Facility personnel may come in contact with the fluids, solids and airborne constituents found at the facility. Safe work practices around these potential exposures as well as appropriate equipment use and proper disposal procedures will be followed.

1.10.6 Material Safety Data Sheets

Material Safety Data Sheets (MSDS) will be made available for all chemicals stored on site for use at the facility.

1.11 **Record Keeping Program**

The owner will maintain the following records at the corporate office and with the engineer:

- A. Current permit(s) (Permit to Construct, Permit to Operate, etc.);
- B. Current operations manual/plan(s) and engineering plan for each landfill unit;
- C. Inspection reports;
- D. Audit and compliance records;
- E. Annual reports (including survey and other documentation related to airspace usage in landfill units);
- F. Daily tonnage records;
- G. Closure information, where applicable, including:
 - 1. Notification of intent to close;
 - 2. Testing;
 - 3. Certification; and
 - 4. Recording.

The operating record will be kept up to date by the owner or his designee; it will be presented, on request, to the DWM for inspection.

2.0 DEBRIS HANDLING OPERATIONS

This section describes the required debris handling operations for the Currin Bros. LCID Landfill facility.

2.1 Acceptable Material

Only the following waste materials generated within the approved service area may be disposed of in the LCID landfill unit:

- Land Clearing and Inert Debris Landfill: as defined in *15A NCAC 13B.0101(22)* means a facility for the disposal of land-clearing waste, concrete, brick, concrete block, uncontaminated soil, gravel and rock, untreated and unpainted wood, and yard trash.
- Land Clearing Waste: as defined in *15A NCAC 13B.0101(23)* means solid waste which is generated solely from land-clearing activities, limited to stumps, trees, limbs, brush, grass, and other naturally occurring vegetative material.
- Partially Hardened Concrete: Approved February 3, 2015 per NCDENR DIN 23287. Specifics are discussed in **Section 2.6**.
- Other Wastes as Approved by the Solid Waste Section of the Division of Waste Management.

2.2 Prohibited Wastes

No municipal solid waste (MSW), construction and demolition debris waste (C&D), hazardous waste (as defined by *15A NCAC13A* 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 facility follows a strict screening program, described in **Section 2.3**, to ensure no prohibited waste is accepted.

2.3 Receiving, Handling and Disposal

To assure that prohibited wastes are not entering the facility, screening programs have been implemented. Using this method the facility screens 100% of loads, facility customers are strongly discouraged from delivering unacceptable waste and all debris deposited in the landfill has been accounted as acceptable. The frequency for screening includes every load described as follows.

2.3.1 Receiving

All vehicles must stop at the guard house located prior to the active area and visitors are required to sign-in. All debris transportation vehicles have their load content assessed. The driver of every load is briefly interviewed when entering the facility. If you are a new hauler, a more comprehensive interview, as well as

in depth explanation of landfill policy and procedure is conducted. The time, date, name and license plate for every load is recorded on the days log sheet.

Additionally, the guard house attendant(s) request from the vehicle driver a description of the debris being carried to ensure that unacceptable waste is not allowed into the facility. The attendant(s) then visually checks the vehicle as it enters the facility. Signs informing users of the acceptable and unacceptable types of waste are posted at the entrance. Once past the guard house, the vehicles are routed to the appropriate disposal unit or other area as applicable. The hauler is responsible for removing unacceptable waste from the facility property.

2.3.2 Disposal

All debris unloaded on the active face will be inspected by the equipment operators, trained to spot unacceptable wastes, before and during spreading and compaction. Each load is dumped in front of a trackhoe and operator and immediately spread on the current lift by the trackhoe bucket and visually observed. Any suspicious looking material is reported immediately to the designated primary inspector for further evaluation. If any on-site personnel notice prohibited waste, it is placed back into the vehicle of origin and a significant penalty (fine) is levied against all offenders.

Personnel will direct traffic as necessary to expedite safe vehicle movement. Caution will be used in wet conditions such that no debris will be placed into ponded water. Likewise, surface water will not be allowed to be impounded over waste.

2.4 Cover

Adequate soil cover shall be applied monthly or when the active area reaches one (1) acre in size. If necessary, cover may be placed at more frequent intervals to control disease vectors, fires, odors and scavenging. 120 days following completion of phase operations, the area will be covered with a minimum one foot soil cover that allows controlled water runoff.

2.5 Height Monitoring

Periodically the facility staff will monitor landfill top and side slope elevations with a level. When such elevations approach design grades, the final top-of-waste grades will be staked to limit over-placement of waste.

2.6 Partially Hardened Concrete

An area located within the landfill footprint will be used to pour and cure the excess concrete leftover following completed pour jobs. Trucks are permitted to back up to the

designated disposal area, located outside the working face, dump their excess concrete and rinse off the chute. A marginal water amount may be used for chute rinsing. No mixer rinsing or clean out shall occur on-site. Run-on and storm water shall be diverted away from the poured concrete.

2.7 Materials Recovery

From time to time, materials typically destined for disposal, may be utilized for beneficial use on site in erosion control applications, road base, and for stabilization. The following materials may be used in beneficial means as follows:

- Brick, Block, and Concrete (crushed and broken): roads, road base, tipping area not to exceed 12" in thickness and for rip rap, and slope stabilization.
- Partially Hardened Concrete: entrance road, access roads, and tipping areas to create all-weather access not to exceed 12" in thickness.
- Processed Mulch: slope stabilization, mulch cover, and soil enhancement not to exceed 6".

3.0 ENVIRONMENTAL MANAGEMENT

This section reviews the overall environmental management tasks required for the successful operation of the Currin Bros. LCID Landfill.

3.1 Surface Water Control

As used herein, the definition of “surface water” is water which results from precipitation or site run-on that has not contacted the waste.

Proper surface water control at the facility will accomplish the following goals:

- Minimize the potential for the discharge of pollutants to waters of the United States, including wetlands (point or non-point sources);
- Prevent the run-on of surface water into the landfill unit(s) or the active face(s);
- Prevent the run-off of surface water that has come into contact with the waste (i.e. leachate);
- Limit the erosion caused by surface waters;
- Limit sediments carried off-site by surface waters; and
- Maximize the SEPARATION of SURFACE water from LEACHATE.

Erosion and sedimentation control plans are on site for the landfill units and other site activities. These plans describe both short and long term engineered features and practices for preventing erosion and controlling sedimentation at this site. The following is a brief discussion of some of these features and practices, focusing more on the landfill units.

3.1.1 Surface Water Run-On Control

The perimeter berms and/or perimeter channels around the landfill unit(s) are designed to prevent the run-on of surface water from adjacent land into the landfill. Additional structures such as diversion berms, channels, down pipes, etc. carry surface water away from the landfill.

3.1.2 Active Face Run-Off Control

Particular care is required to ensure that surface water coming from the active face, e.g. having potential contact with the waste, is allowed to percolate into the underlying waste. Only run-off from disposal surfaces that have received adequate cover is not considered leachate and should be directed to the stormwater drainage system where practical.

3.1.3 Erosion Control

The serviceability of the landfill relies heavily on soil berms, barrier layers, and agricultural layers that are readily eroded by flowing water. Erosion control provisions incorporated in the landfill include the following:

- The slope of the working face should typically be no steeper than practical to limit erosion of the periodic cover.
- Intermediate cover that has been exposed for more than 30 days must be seeded immediately and repaired when erosion features are identified.
- Water collected by each drainage break is routed to stormwater drainage channels or down pipes so that the run-off volume does not accumulate going down the slope.
- The vegetative soil layer placed over the final cover must be seeded immediately.

Additional erosion control measures have been established within the drainage channels and at points of stormwater discharge. Final cover should be inspected regularly for erosion damage and promptly repaired. Revegetation should be performed in accordance with the requirements of the applicable erosion and sedimentation control plan and/or the NC Erosion and Sedimentation Control Planning and Design Manual².

3.1.4 Sedimentation Control

Stormwater run-off from the landfill unit(s) is conveyed to one of the on-site sediment basins. These basins should be inspected regularly for sediment build-up or erosion damage. The basins and/or traps should be cleaned out when sediment fills the lower half of the basin.

3.2 Vector Control

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

3.3 Odor Control

Due to the nature of the waste disposed in this landfill unit, odor control is not anticipated to be of concern. However, if odor control becomes a problem, additional measures (such as additional cover) will be implemented to ensure odor control.

² NC Division of Land Resources (Current Update), North Carolina Erosion and Sediment Control Planning and Design Manual, NCDENR - Division of Land Resources - Land Quality Section, Raleigh, NC.

3.4 Dust Control

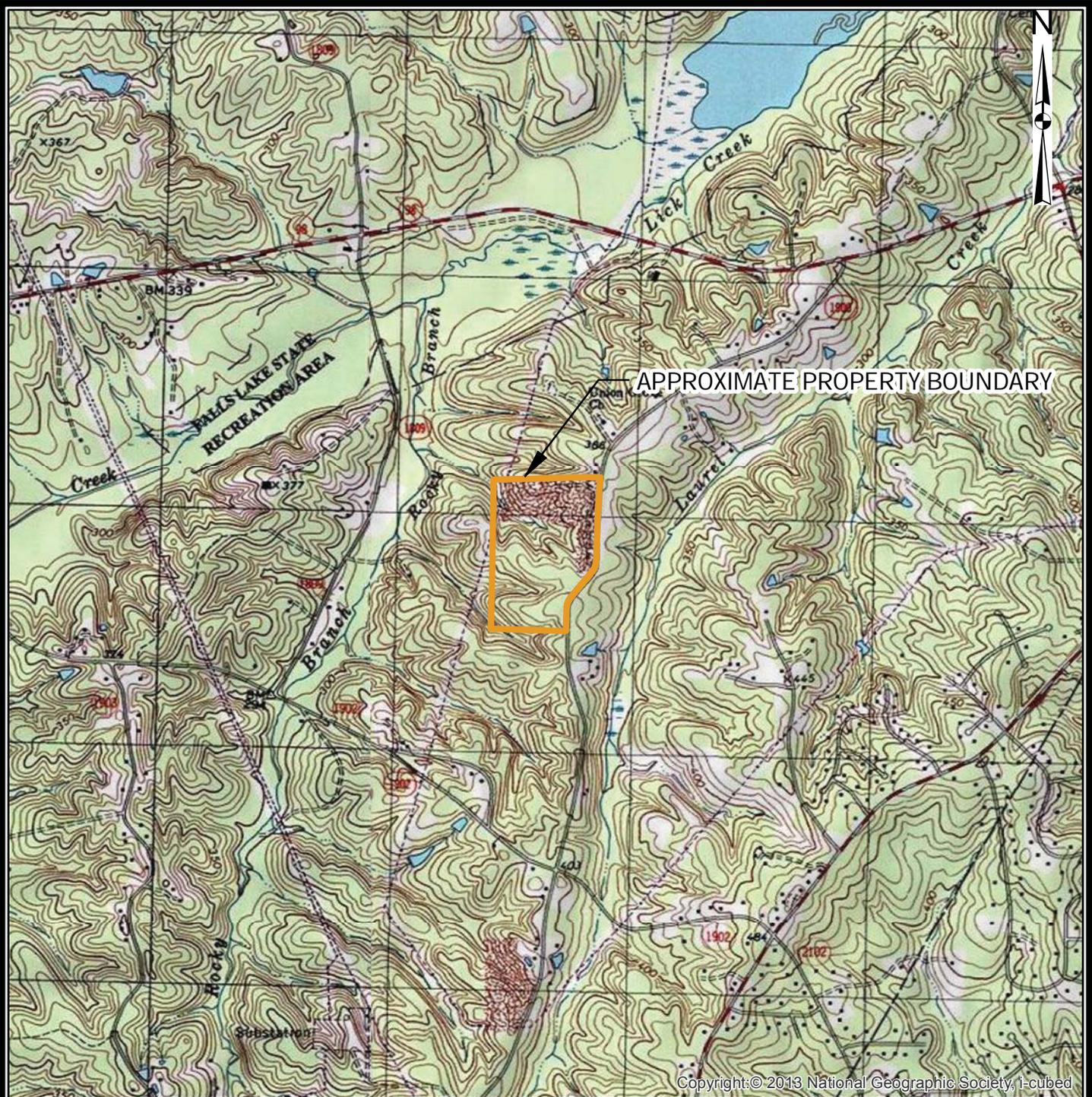
Dust related to equipment operations and traffic on the access roads will be minimized by strict enforcement of slow speeds across the site.

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FIGURES

**Operations Manual
Currin Bros. LCID Landfill (Permit No. 32-1)
Durham, North Carolina**

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**CURRIN BROTHERS LANDFILL
 LCID LANDFILL - PERMIT 32-1
 DURHAM, NORTH CAROLINA
 SITE LOCATION MAP**

NC LIC. NO. C-0828 (ENGINEERING)

SMITH + GARDNER

14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577

DRAWN: J.A.L.	APPROVED: S.A.S.	SCALE: AS SHOWN	DATE: Apr. 2015	PROJECT NO.: CURRIN 15-1	FIGURE NO.: 1
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Appendix A

Fire Occurrence Notification Form

**Operations Manual
Currin Bros. LCID Landfill (Permit No. 32-1)
Durham, North Carolina**

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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:

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Attachment E

FEMA Map

**Permit Renewal Application
Currin Bros. LCID Landfill (Permit No. 32-1)
Durham, North Carolina**

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Attachment F

Soil and Subsurface Investigation

**Permit Renewal Application
Currin Bros. LCID Landfill (Permit No. 32-1)
Durham, North Carolina**

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From: [John A.K. Tucker, PE](#)
To: [Wootton, Brian;](#)
Subject: Re: Currin Brothers Landfill
Date: Monday, August 23, 2010 3:29:43 PM

Brian - you are correct. The report was intended for 32-I LCID. Since they are both in Durham and close to each other, this is not unusual.

Regards

JT

John A.K. Tucker, PE
Consulting Engineer
PO Box 297
Fuquay Varina, NC 27526

Phone (919) 567-0483

On 8/23/2010 11:52 AM, Wootton, Brian wrote:

John,

Pertaining to the Hydrogeologic Evaluation Report by David Garret submitted on August 20, 2010; the documentation refers to Permit No. 32D – LCID, instead of 32-I LCID. Please respond with an e-mail correction verification. A brief sentence confirming the correct permit number for this LCID landfill will suffice.

Thanks,

Brian

From: John A.K. Tucker, PE [<mailto:johnak@johntuckerpe.com>]
Sent: Friday, August 20, 2010 9:00 AM
To: Wootton, Brian
Subject: Currin Brothers Landfill

Attached is the report regarding ground water conditions. Do you need a paper copy as well?

Thanks,

JT

--

John A.K. Tucker, PE
Consulting Engineer
PO Box 297
Fuquay Varina, NC 27526

Phone (919) 567-0483

David Garrett & Associates
Engineering and Geology 

August 20, 2010

Mr. John Tucker, P.E.
Consulting Engineer
P.O. Box 297
Fuquay-Varina, North Carolina 27526

RE: Report of Hydrogeologic Evaluation
Currin LCID Landfill
Durham County, NC
Solid Waste Permit #32D-LCID

Dear Mr. Tucker:

I am pleased to present the following report of a limited-scope evaluation of the geology and hydrogeology of the subject site. I understand that a planned expansion is under consideration within a portion of the site (contiguous with the existing LCID footprint) that was previously used for borrow soil. This work is limited to the hydrogeologic aspects of the LCID permit, specifically focusing on the depth to ground water below planned base grades, i.e., existing grades within the borrow area. Ground water at the site is not monitored – not required for LCID facilities – nor have any NC DENR Division of Water Resources research wells been identified near the site, so we do not have an extensive data base for historic water levels.

However, the geologic aspects of the site are fairly well understood – the site is located in the Durham Triassic Basin – and there is adequate exposure of subsurface conditions present in the former borrow area that a generalized conclusion can be drawn from this work that the proposed base grades will provide the minimum required vertical separation of 4 feet, without an extensive ground water investigation or lengthy observation period. Inasmuch as this is the conclusion of this work, the remainder is a brief summary of the research and field work upon which this conclusion is based. I have assumed that any necessary studies for wetlands, endangered species, riparian buffers, and historic sites have been taken care of outside the scope of this work.

Please contact me at your earliest convenience if you have questions or comments, or if I may be of further service.



Consulting Engineer and Geologist

5105 Harbour Towne Drive • Raleigh • North Carolina • 27604
919-418-4375 (Mobile) • 919-231-1818 (Office/fax) • E-mail: david@davidgarrettpe.com

1.0 Scope of the Investigation

This work – discussed in advance with NC DENR Solid Waste officials – includes a literature review and a test pit investigation to confirm evidence of past ground water movement (or the lack thereof) within the upper 4 feet beneath planned LCID base grades.

2.0 Regional Geology

Figure 1 is an excerpt of the NC Carolina Geologic Map,^a which depicts the site within the Durham Triassic Basin, a geologic feature characterized with low permeability “redbed” sandstone, siltstone, mudstone, and conglomerate. The map shows the LCID vicinity underlain by clayey sandstone interbedded with mudstone. These units were described by Stuckey^b as follows:

“Predominantly of a brownish or reddish color . . . beds are lenticular and therefore usually pinch out in a short distance . . . materials are poorly sorted, resulting in a low porosity and permeability, which has been further reduced by compaction and cementation. The result is that ground water movement is generally reduced to bedding planes, joints and other fractures. Jointing and fracturing is generally more pronounced in the coarser and harder strata such as the sandstone and conglomerate than it is in the shales and mudstones, so that the former usually furnish larger supplies. The Triassic sedimentary rocks have been intruded by many “trap” dikes which have fractured and baked the adjacent strata. Therefore, a well drilled near such a dike usually furnishes a larger water supply than a well drilled in the same strata at some distance from the dike.”

There are no major diabase dikes mapped in the immediate vicinity of the site.^c In regional water resources and engineering practice, the Triassic formations typically support low yields in water wells, owing to low permeability and a generally deep water table. Ground water can be “perched” within the upper low permeability soils, which is subject to conditions, but true ground water is present is typically found deep within the fractured bedrock.

^a North Carolina Geologic Survey, 1985 State Geologic Map, viewed on-line at http://www.geology.enr.state.nc.us/maps/ncgs_main_maps_page.html

^b M. J. Mundorff, Progress Report on Ground Water in North Carolina, Bulletin 47, U.S. Geological Survey, 1945, and the NC Department of Conservation and Development, Division of Mineral Resources, Jasper L. Stuckey, State Geologist (quoted from an earlier work in the text), viewed on-line at http://www.ncwater.org/Education_and_Technical_Assistance/Ground_Water/Publications

Other classic descriptions of groundwater conditions within the Triassic Basins can be found in:

George L. Bain and J. D. Thomas, Geology & Ground Water Resources in Durham Area, Ground Water Bulletin 7, U.S. Geological Survey, 1966

H.E. LeGrand, Ground Water of the Piedmont and Blue Ridge Provinces in the Southeastern States, Geological Survey Circular 538, U.S. Geological Survey, 1967

^c E.R. Burt, P.A. Carpenter, III, R.D. McDaniel, and W.F. Wilson, Diabase Dikes of the Eastern Piedmont of North Carolina, Information Circular 23, North Carolina Geological Survey, 1978.

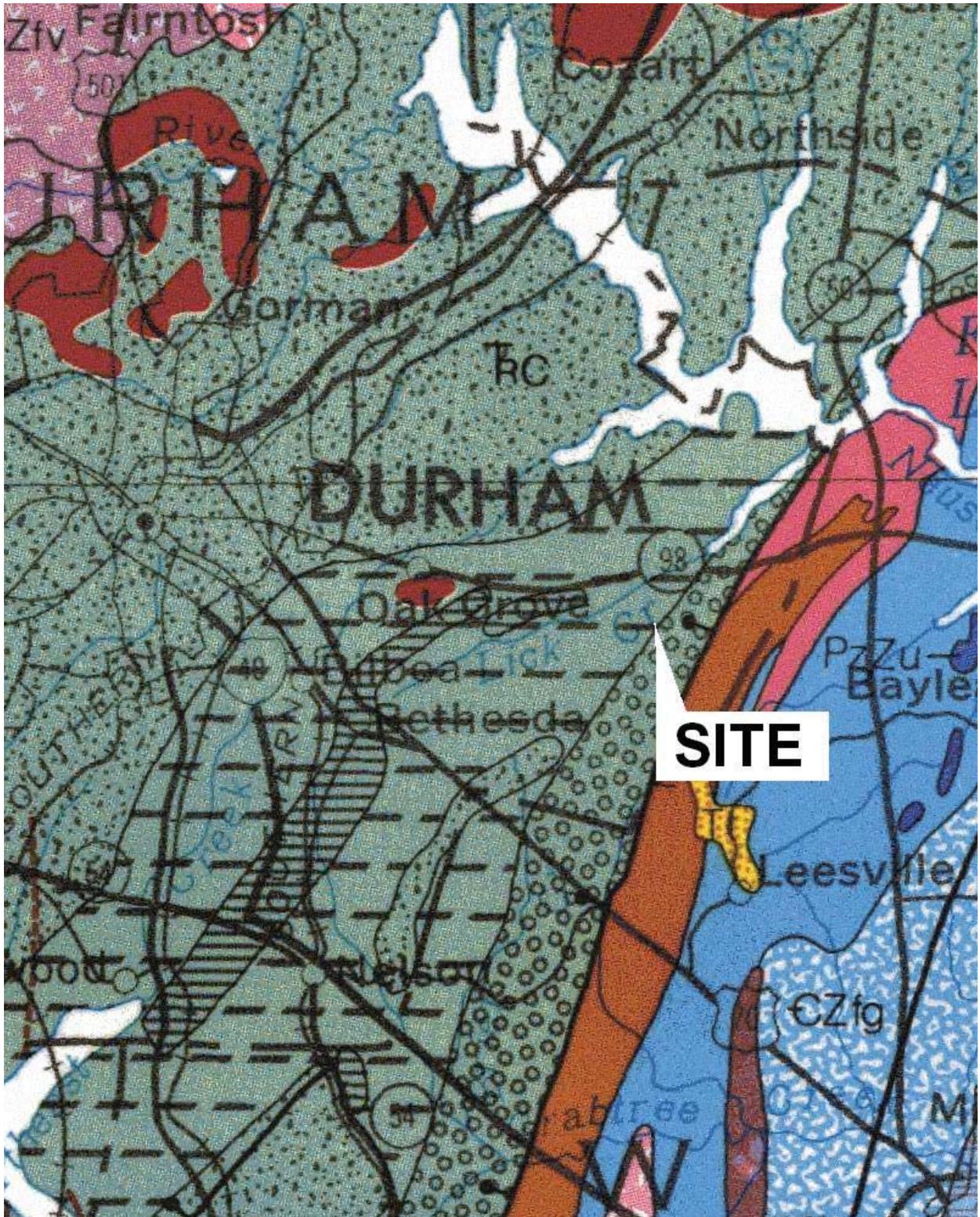


Figure 1 – Excerpt from NC Geologic Map, 1985

3.0 Mapped Soil Series

The following soil types are mapped within the facility boundary (see **Figure 2**)^d:

Series Name	USDA Texture	USCS Classification	Flood Hazard	Depth to Seasonal High Water	Depth to Bedrock	Available Water Capacity ⁴
CrB Cecil	fine sandy loam	SM-SC, SM, ML, CL-ML	None	>6'	>5'	0.12 – 0.14
CrC ^{1,2} Cecil	fine sandy loam	SM-SC, SM, ML, CL-ML	None	>6'	>5'	0.12 – 0.14
PfC Pinkston	fine sandy loam	SM-SC, SM, ML, CL-ML	None	>6'	>2.5'	0.12 – 0.15
PfE ^{1,3} Pinkston	fine sandy loam	SM-SC, SM, ML, CL-ML	None	>6'	>2.5'	0.12 – 0.15
WsC White Store	sandy loam	SM, SM-SC, CH, CL	None	>1.5'	>4'	0.10 – 0.15

¹predominant within the proposed expansion footprint

²permeability varies 2 to 0.6 inches per hour, or 1.4E-3 to 4.3E-4 cm/sec

³permeability varies 6 to 2 inches per hour, or 8.5E-3 to 1.4E-3 cm/sec

⁴given in inches of water per inch of soil – though used in an agricultural context, this index indicates the availability of water to sustain plants and (ostensibly) to recharge the ground water; values below 0.2 are low^e

The Cecil and Pinkston soils are generally located in the higher elevations – these soils drain moderately well to slow and have a low field capacity, i.e., the ability for the soils to hold moisture is low. The literature describes both the Cecil and Pinkston soils as clayey with “slow intake” and poorly suited for constructing spring-fed ponds – from an agricultural standpoint – due to “no water” availability. This is consistent with the author’s experience working in the Triassic Basin. White Store soils are generally located within lower elevations (out of the proposed development area), but with similarly low permeability and water availability.

Based on the foregoing soil descriptions, it does not appear that the Cecil and Pinkston soils are likely to produce water tables that are detrimental to the proposed landfill expansion, which is consistent with the findings of the test pit investigation (see **Section 6.0**).

^d USDA, Natural Resource Conservation Service, Soil Survey of Durham County, June 1976

^e USDA, Natural Resource Conservation Service, Soil Quality Indicators, June 2008, available on-line at http://soils.usda.gov/sqi/assessment/files/available_water_capacity_sq_physical_indicator_sheet.pdf

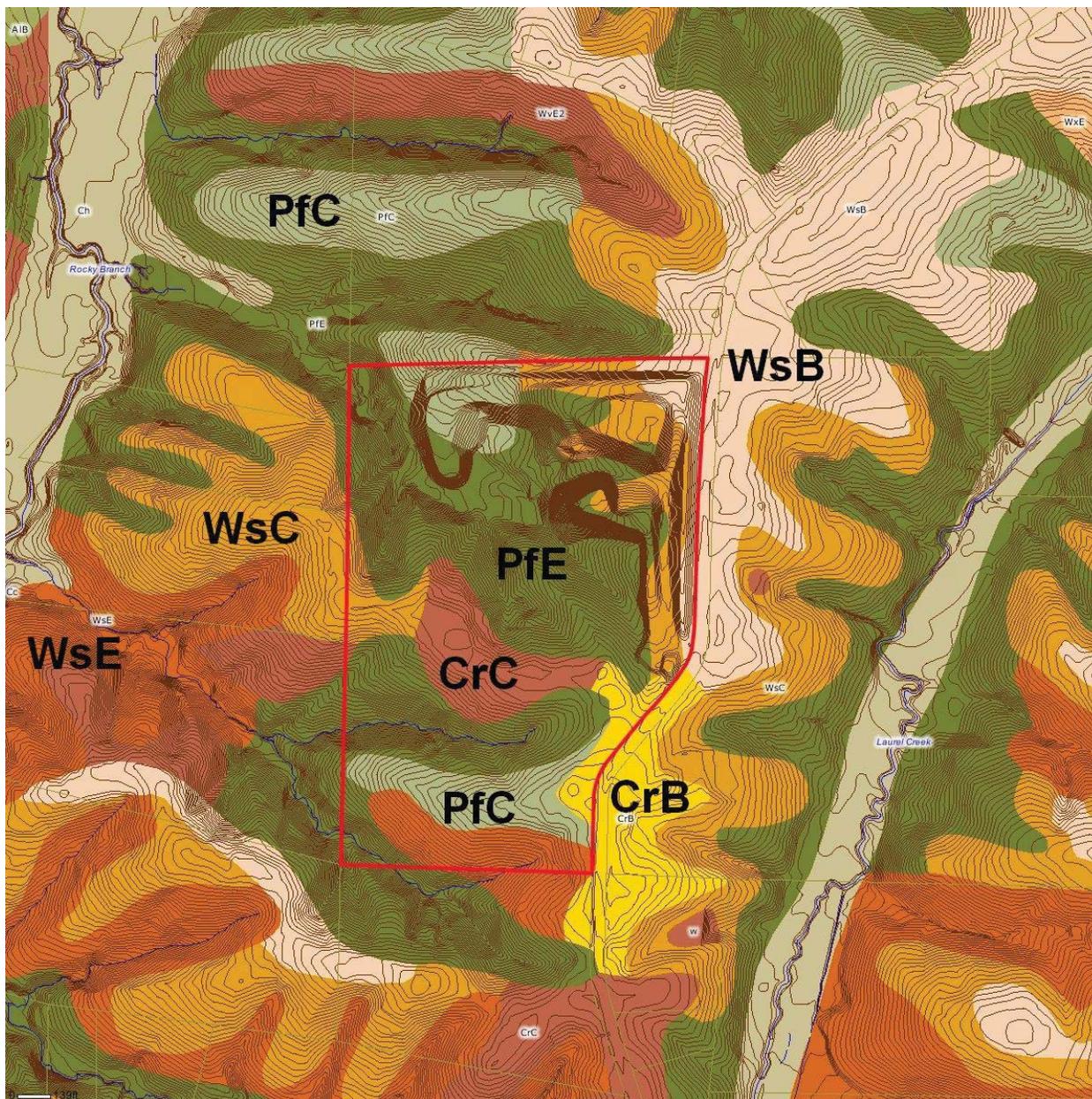


Figure 2 – Area Soils Map (from Durham County GIS)

4.0 Physical Site Description

The following information was acquired from Durham County GIS tax data:

Parcel Ref No.	194924
PIN	0870-02-67-3639
Deed Bk/Pg	1969 / 204
Plat Bk/Pg	000131 / 000078
Physical Address	1810 Coley Rd (SR 1900)
Map Acres	63.385
GPS COORDINATES:	N: 35.97071 E: -78.74075

The site is partly wooded with the existing LCID covering less than 12 acres. The site is situated on the western flank of a north-south sloping dissected ridge, with ground surface elevations within the eastern portion the site varying from El. 390 near the entrance drive on Coley Road and El. 400 along the crest of the landfill (ca. 2005), decreasing to El. 320 where the main drainage feature exists along the west property line. General drainage on the west side of the ridge is to the west via an unnamed tributary to Rocky Branch, which in turn flows north-northeast to the Neuse River (Falls Lake). The east side of the ridge (off the subject property) flows east toward Laurel Creek, which is subparallel to Rocky Creek and also flows north to the Neuse River (see **Figure 3**). The larger creeks reflect a prominent regional fracture pattern with a north-northeast trend; the smaller unnamed tributaries mark a less prominent fracture pattern oriented northwest-southeast – these may be a conjugate joint set. Manmade “outcrops” of the reddish-brown Triassic siltstone-mudstone are visible in the borrow site (LCID expansion area).

5.0 Regional Hydrogeologic Conditions

Ground water recharge occurs over much of the site and the higher elevations nearby, but recharge is slow due to slow percolation of surface water into the subsurface. Ground water discharge occurs at local streams via numerous isolated, short-segmented “closed loop” aquifers formed along regional jointing, typical of the piedmont. A regional well survey has not been completed at present, but municipal water is present in the vicinity of the site. The Facility Boundary includes an on-site discharge feature, which is typically desirable for solid waste facilities. Parcels west of the Facility did not contain houses in 2005.

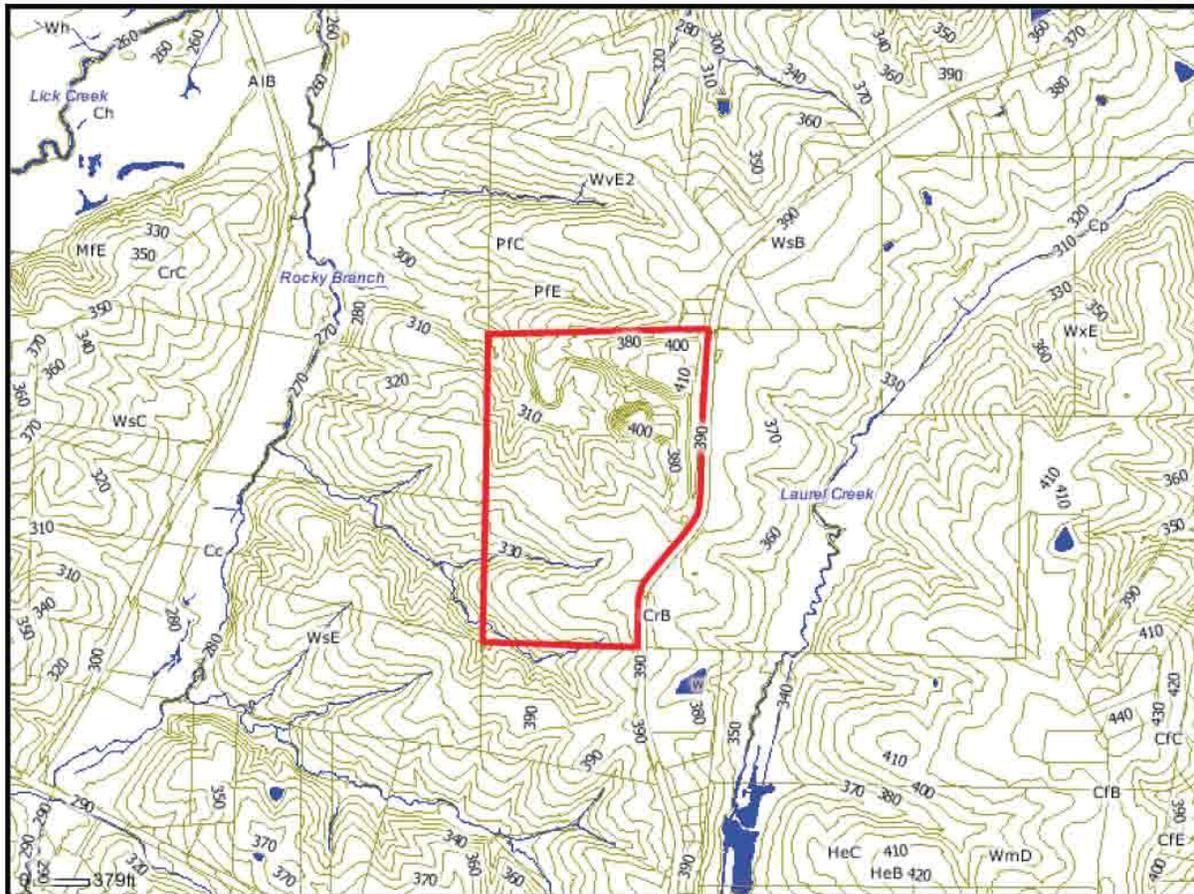


Figure 3 – Topography of Site and Vicinity

6.0 Test Pit Investigation

Two test pits – shallow trenches, really – were excavated with a track-mounted excavator equipped with rock teeth. The soils exposed at the surface were very hard and dry. The test pit locations are shown on a hand-drawn figure in **Appendix 1**. Locations for the test pits were verified with a hand-held GPS unit and shown on the master drawings for the project (by others). A skilled environmental technician observed the test pits, specifically looking for soil moisture conditions, soil texture, and chroma (gleying or staining) which would indicate past ground water movement. Logs of the test pits can be found in **Appendix 1**. Photographs of the test pits are presented in **Appendix 2**.

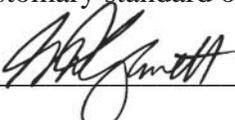
The soils were observed to be very dry and exhibited no staining associated with ground water movement. Test Pit #1 encountered slightly moist clayey soils with roots and minor inert debris, which did exhibit color variation – believed to be fill – extending to a depth of 2.5 feet beneath the surface (see **Photo 1.1**). The underlying soils consist of dry, hard sandy-silt (see **Photo 1.2**). Refusal occurred at 3.5 feet. Test Pit #2 refused at a depth of 2 feet – that is, the equipment being used to excavate the pit was not sufficiently powerful to dig deeper. No evidence of water, past or present, was observed in either test pit. Even though the pits did not extend a full four feet beneath the proposed base grade (i.e., the ground surface), nothing was observed to suggest that the seasonal high water table would rise higher than four feet beneath the surface.

7.0 Conclusions and Recommendations

The base of the proposed LCID expansion will meet the vertical separation requirement of four feet to seasonal high ground water, based on the findings of the investigation. Care should be taken to avoid ponding surface water uphill of the proposed LCID expansion, via proper waste placement practices and drainage. This report satisfies the typical investigation requirements for LCID landfills in the State of North Carolina. No further investigations or monitoring of the ground water is considered necessary.

8.0 Certification

This work was performed by, or under the supervision of, a qualified geologist duly licensed in the State of North Carolina, who is experienced with the applicable regulations for the subject project and familiar with subsurface conditions at and in the vicinity of the project site. The work meets the customary standard of care appropriate for the project and applicable regulations.

Signed Name: 

Printed Name: G. David Garrett, PG, PE

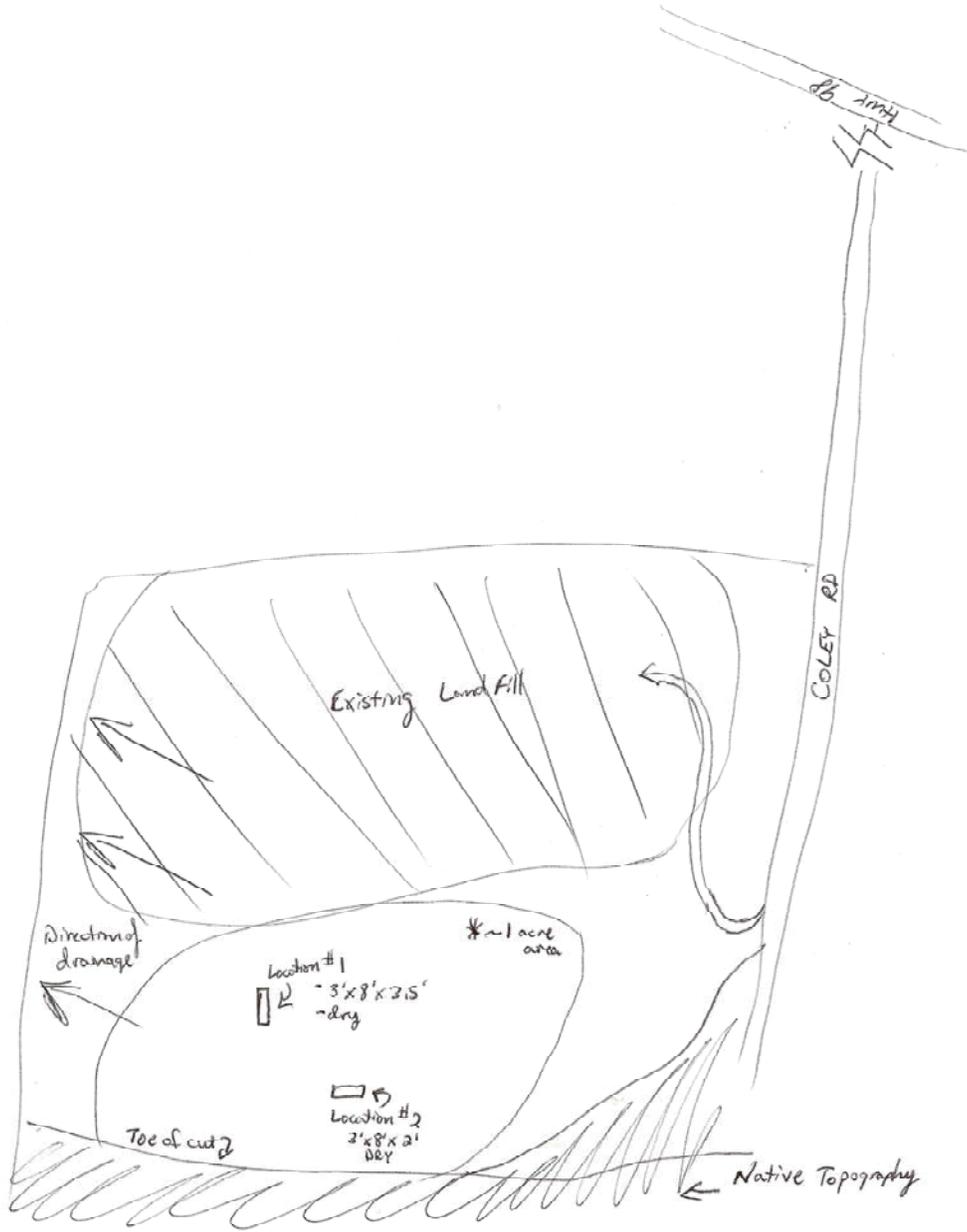
Original Date: August 19, 2010



Appendix 1

Test Pit Logs and Map

Test Pit Location Map



Test Pit Logs

Date: July 29, 2010
Weather: Sunny, mid-90's
Observer: Aaron Hill – Environmental Field Management

Test Pit #1

0 – 2.5' Moist, tan and brown clay, possible fill, with roots and inert debris (Photo 1.1)

2.5 – 3.5' Hard, dry, red-brown sandy silt (Photo 1.2)

3.5' Track hoe refusal

Test Pit #2

0 – 2.0' Hard, dry, red-brown sandy silt (Photo 2.1 and Photo 2.2)

2.0' Track hoe refusal

Note: material difficult to dig but friable and crumbly when excavated

Appendix 2

Test Pit Photographs



Overview of test pit investigation – expansion site is at approximate proposed base grades



Photo 1.1 – Clayey soils (suspected fill) within upper 2.5 feet beneath surface



Photo 1.2 – Hard, dry sandy silt or silty sand below depth of 2.5 feet

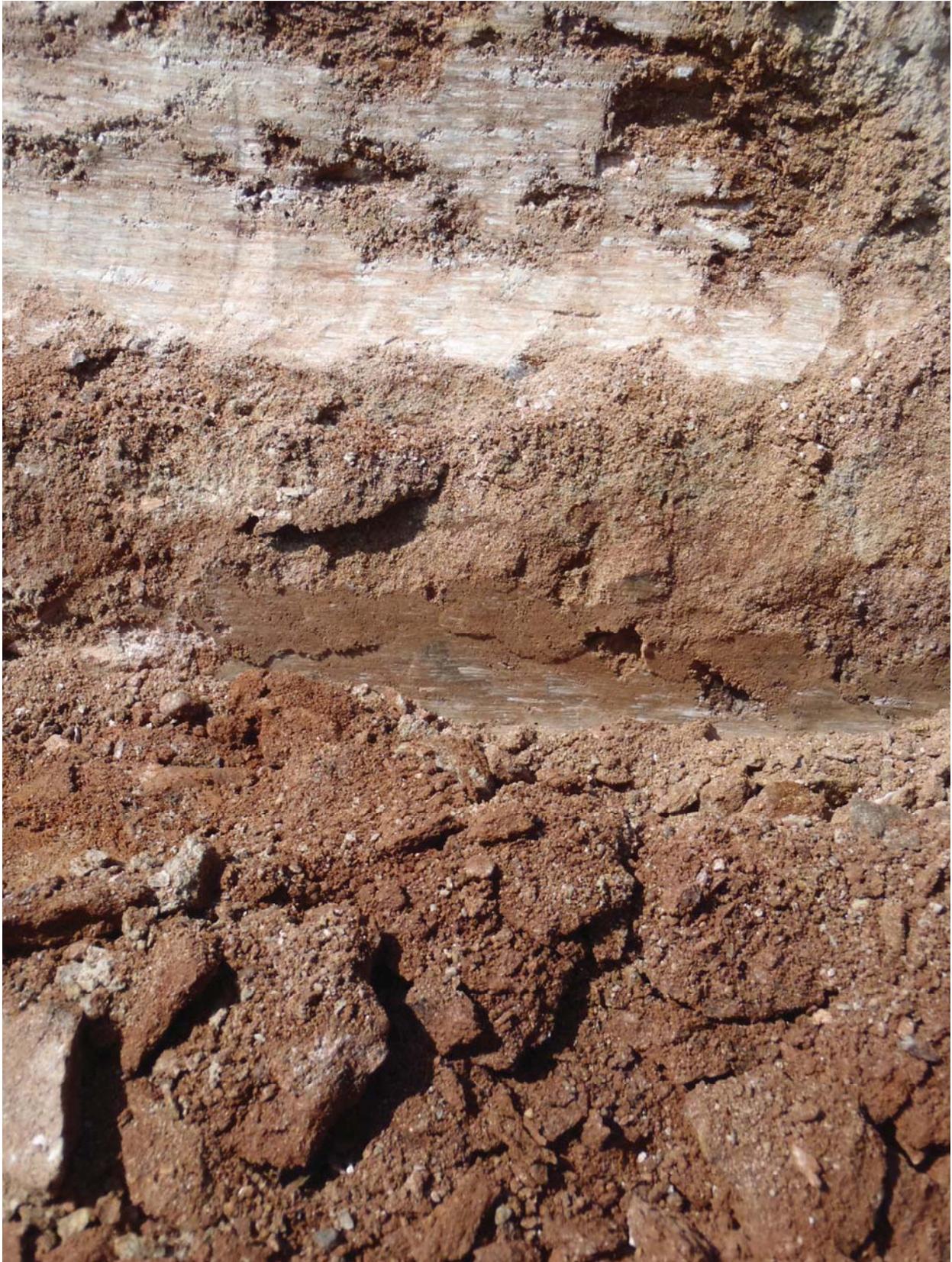


Photo 2.1 – Hard, dry, red-brown sandy silt



Photo 2.2 – Hard, dry, red-brown sandy silt

Attachment G

Volume Calculations

**Permit Renewal Application
Currin Bros. LCID Landfill (Permit No, 32-1)
Durham, North Carolina**

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Base Surface BASE-1294
Comparison Surface TOPO 010815

Cut volume (unadjusted) 144.16 Cu. Yd.
Fill volume (unadjusted) 1,607,415.15 Cu. Yd.
Net volume (unadjusted) 1,607,270.99 Cu. Yd.<Fill>



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Base Surface TOPO 010815_BASE-1294_FUTURE_PASTE
Comparison Surface FCVR-1294-MODIFIED

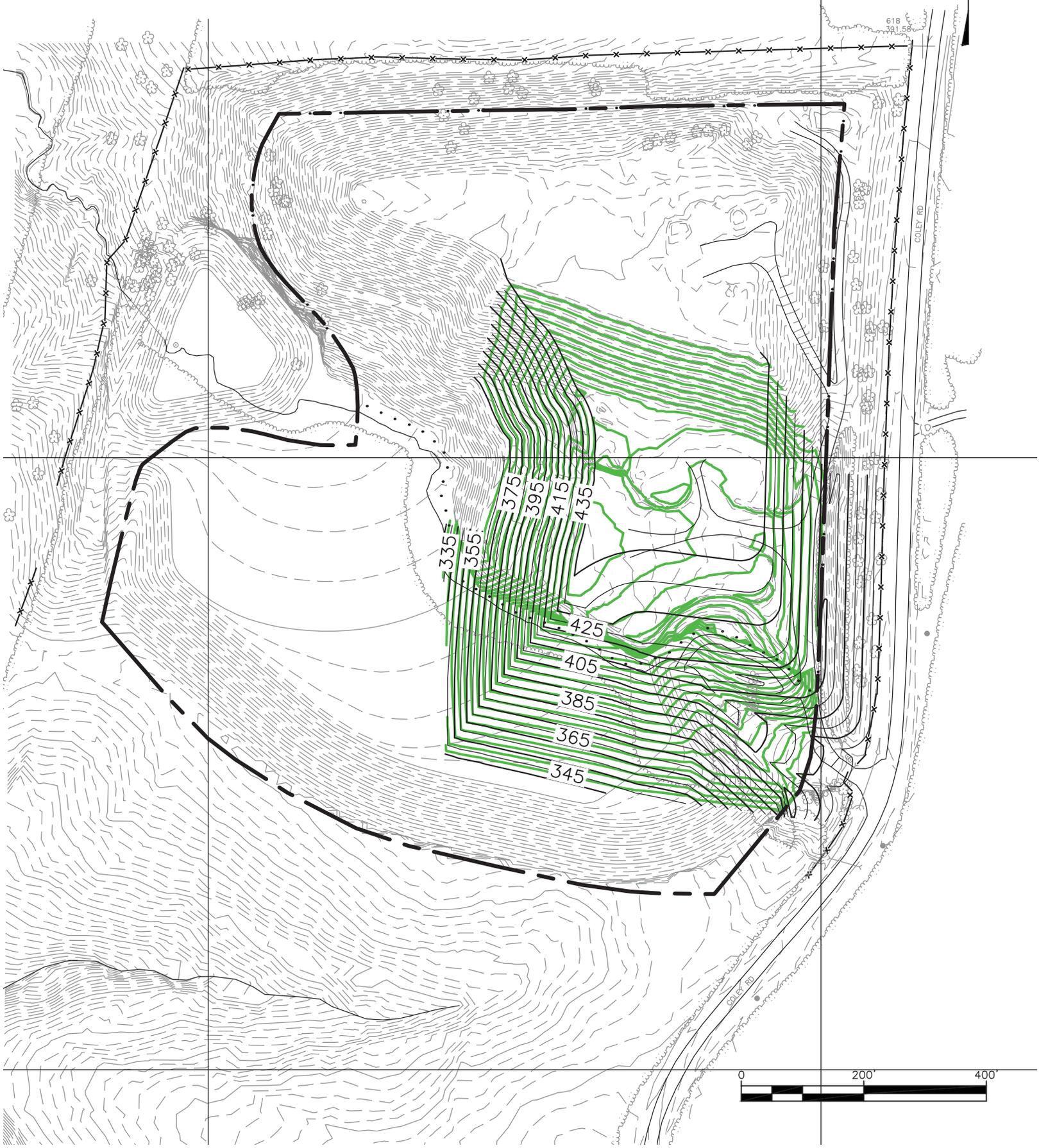
Cut volume (unadjusted) 65,704.53 Cu. Yd.
Fill volume (unadjusted) 2,036,072.19 Cu. Yd.
Net volume (unadjusted) 1,970,367.67 Cu. Yd.<Fill>



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Base Surface TOPO 010815_BASE-1294_FUTURE_PASTE
Comparison Surface FILL GRADES-5YR

Cut volume (unadjusted) 105.47 Cu. Yd.
Fill volume (unadjusted) 681,923.76 Cu. Yd.
Net volume (unadjusted) 681,818.30 Cu. Yd.<Fill>



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Attachment H

Site Drawings

**Permit Renewal Application
Currin Bros. LCID Landfill (Permit No, 32-1)
Durham, North Carolina**

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