

Central File copy

PERMIT APPLICATION

Carmen Johnson
Facility/Co ID # **49-03**
Date **7/23/13**
Doc ID#
DIN

CONSTRUCTION AND DEMOLITION LANDFILL

PHASE 3

IREDELL COUNTY STATESVILLE, NORTH CAROLINA

PROJECT NO. G04100

April 2006

Woodie
5/4/2006
PROFESSIONAL SEAL
6282
ENGINEER
JIMMY D. WOODIE

Prepared By:

Municipal Services  **Engineering Company, P.A.**

P.O. BOX 97 GARNER, N.C. 27529 (919) 772-5393
 P.O. BOX 278 MOREHEAD CITY, N.C. 28557 (252) 726-9481
 P.O. BOX 349 BOONE, N.C. 28607 (828) 262-1767

Received
MAY 2006
Solid Waste Section

APPROVED
DIVISION OF WASTE MANAGEMENT
SOLID WASTE SECTION
DATE 11/21/06 BY Bruce Wootton
PTC - C&D Phase 3

PERMIT APPLICATION

CONSTRUCTION AND DEMOLITION LANDFILL

PHASE 3

IREDELL COUNTY
STATESVILLE, NORTH CAROLINA

PROJECT NO. G04100

April 2006

Prepared By:

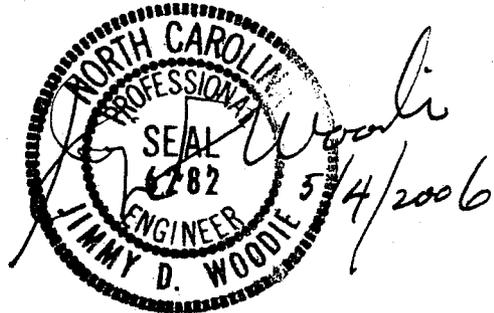


TABLE OF CONTENTS

.0504 Application Requirements for Sanitary Landfills:

Section 1:

Facility Plan

Section 2: Construction Requirements

Construction Plans

Written Report

Life Expectancy Calculations

Earth Work Calculations

.0505 Operation Requirements For Sanitary Landfills

Section 3:

Operational Plans

Written Operation Plan

Appendix A

Cap Closure Plan

Explosive Gas Monitoring Plan

Socio-Economic Analysis

Section 1

Facility Plans:

Drawing 3 of 6	Areal Limits & Existing Conditions
Drawing 4 of 6	Proposed Subbase
Drawing 5 of 6	Leachate Collection System
Drawing 6 of 6	Proposed Final Fill

SECTION 2:

Construction Drawings (Phase 3):

Drawing 1 of 7 Title Sheet
Drawing 2 of 7 Index Sheet
Drawing 3 of 7 Existing Conditions
Drawing 4 of 7 Proposed Subgrade and Erosion Control Plan
Drawing 5 of 7 Proposed Fill Plan (Phase 3)
Drawing 6 of 7 Proposed Fill Plan (Phase 4)
Drawing 7 of 7 Baseline Profile and Cross Sections

Written Report:

- i) A survey plat and deed for this property has been included in this section.
- ii) The property to be used for this site is owned by Iredell County. Iredell County is the current owner and operator of the existing MSWLF Facility, Permit #49-03. Iredell County will be the operator of this site.
- iii) At this time, there is no projected use for the land after closure.
- iv) The life expectancy of this site is approximately 12.48 years. Phase 3 has approximately 5.64 years and Phase 4 has approximately 6.84 years. The projected volume for this calculation was based on the current waste stream at Iredell County's Construction and Demolition Landfill Facility.
- v) The filling process will progress in phases as shown on the Construction Plans. Phase 2 has been constructed and filled first. Phase 2 was filled and tied to the existing C & D Landfill. Phase 2A was filled and tied to Phase 2. Phase 3 will be filled and tied to and across Phase 2 and 2A. Phase 4 will then begin and it will fill across the existing Phase 1 and Phase 2 to finish off the landfill. The Phases will be constructed as to continually maintain the minimum side slopes, completing the site. Once all phases have been completed a cap system will be placed and the landfill will be closed. See Cap Closure Plan in Appendix A.
- vi) The earthwork calculations were determined by AutoCAD computer program. A printout has been included in this section.
- vii) Seeding specifications and schedules are shown on the Erosion Control Plan Sheets in the Construction Plans.
- viii) All calculations for temporary and permanent erosion control measures have been included in this section.
- ix) The site meets or exceeds the following design requirements in Rule .0503 (2):
 - (a) The concentration of explosive gases generated by the site will not exceed twenty-five (25%) percent of the lower explosive limit for the gases in site structures of 100% of the lower explosive limit for the gases at the property boundary. See the Explosive Gas Control Plan in Appendix A.

- (b) The public access for this site will be controlled through the Iredell County MSWLF Facility's existing access road and can be closed so as not to expose the public to the potential health and safety hazards at the disposal site.
- (c) The site will meet the following surface water requirements:
 - 1) The site will not cause a discharge of pollutants into waters of the state that is in violation of the requirements of the National Pollutant Discharge Elimination System (NPDES), under Section 402 of the Clean Water Act, as amended, or that is in violation of standards promulgated under GS 143-214.1 and GS 143-215;
 - 2) The site will not cause a discharge of dredged material or fill material into waters of the state that is in violation of the requirements under Section 404 of the Clean Water Act, as amended, or that is in violation of any State requirements regulating the discharge of dredged or fill material into waters of the state, including wetlands; and,
 - 3) The site will not cause non-point source pollution of waters of the state that violates assigned water quality standards.
- (d) The site will meet the following ground water requirements:
 - 1) The bottom elevation of the solid waste will be a minimum of four feet above the seasonal high water table; and,
 - 2) The proposed landfill will comply with ground water standards established under 15 NCAC 2L at the compliance boundary.
- (e) The proposed landfill will not engage in open burning of solid waste.
- (f) The site will meet the following buffer requirements:
 - 1) A 200 foot buffer between all property lines and disposal areas;
 - 2) A 500 foot minimum buffer between private dwellings, wells and disposal areas
 - 3) A 300 foot buffer between MSW disposal areas and C & D disposal areas; and
 - 4) A 50 foot buffer between streams and disposal areas.
- (g) The site will follow and maintain the approved Erosion and Sedimentation Control Plan.

LIFE EXPECTANCY CALCULATIONS

Total Site

Given:

Projected tonnage: = 95,470,000 lbs/yr.
Compaction Rate: = 1000 lbs./cubic yard (C.Y.)
Trash to Daily Cover Ratio: = 8:1
*Landfill Volume Available: = 1,340,375 C.Y.

Site Volume:

Trash Generated/Year = 95,470,000 lbs. ÷ 1000 lbs./C.Y.
= 95,470 C.Y./Year
= (95,470 C.Y. x 9) ÷ 8 = 107,404 C.Y.
Life Expectancy = 1,340,375 ÷ 107,404 C. Y.
= 12.48 years

Phase 3

Given:

Projected volume: = 95,470,000 lbs/yr.
Compaction Rate: = 1000 lbs./cubic yard (C.Y.)
Trash to Daily Cover Ratio: = 8:1
*Landfill Volume Available: = 606,196 C.Y.

Site Volume:

Trash Generated/Year = 95,470,000 lbs. ÷ 1000 lbs./C.Y.
= 95,470 C.Y./Year
= (95,470 C.Y. x 9) ÷ 8 = 107,404 C.Y.
= 107,404 C.Y.
= 606,196 ÷ 107,404 C. Y.
= 5.64 years

*Determined by AutoCAD computer program

Earthwork Calculation Printout

Project: g04100-Iredell C&D Ph 3-construction Wed April 05 13:28:06 2006

Site Volume Table: Unadjusted

	Cut yards	Fill yards	Net yards	Method
=====				
Site: g04100-Iredell C&D Ph 3-constr				
Stratum: cut volume exist1 sub	104590	724	103866	(C) Grid
Stratum: phase 3 fill ex-sub fill-ph3	2307	608504	606196	(F) Grid
Stratum: fill sequence 1 ex-sub fillseq1	280	102579	102298	(F) Grid
Stratum: fill sequence 2 ex-sub-fs1 fillseq2	394	131719	131325	(F) Grid
Stratum: fill sequence 3 ex-sub-fs1-fs2 fillseq3	3446	137504	134059	(F) Grid
Stratum: fill sequence 4 ex-sub-fs1-fs2-fs3 fillseq4	8199	147583	139384	(F) Grid
Stratum: fill sequence 5 ex-sub-f1f2f3f4 fillseq5	118	92744	92626	(F) Grid

Erosion Control Calculations



North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

DIVISION OF LAND RESOURCES
LAND QUALITY SECTION

August 8, 2003

Mr. Joel Mashburn, County Manager
County of Iredell
Post Office Box 788
Statesville, North Carolina 28687



RE: LETTER OF APPROVAL WITH MODIFICATIONS

Project Name: Municipal C&D Landfill Facility Overall Fill for Phase 2 and 3
Project ID: IREDE-2002-038
Location: SR 2319 - Iredell County
Submitted By: County of Iredell
Date Received: August 5, 2003
New Submittal Revision
River Basin: Yadkin

Dear Mr. Mashburn:

This office has reviewed the subject erosion and sedimentation control plan. We find the plan to be acceptable with modifications and hereby issue this Letter of Approval with Modifications. The Certificate of Approval must be posted at the job site. The Modifications Required for Approval are listed on the attached page. This plan approval shall expire three (3) years following the date of approval, if no land-disturbing activity has been undertaken, as is required by Title 15A NCAC 4B .0029.

Title 15 NCAC 4B .0018(a) requires that a copy of the approved erosion control plan be on file at the job site. Also, this letter gives the notice required by G.S. 113A-61.1(a) of our right of periodic inspection to insure compliance with the approved plan.

North Carolina's Sedimentation Pollution Control Act is performance-oriented, requiring protection of existing natural resources and adjoining properties. If, following the commencement of this project, the erosion and sedimentation control plan is inadequate to meet the requirements of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statute 113A-51 thru 66), this office may require revisions to the plan and implementation of the revisions to insure compliance with the Act.

919 North Main Street, Mooresville, North Carolina 28115
Phone: 704-663-1699 \ FAX: 704-663-6040 \ Internet: www.enr.state.nc.us

An Equal Opportunity \ Affirmative Action Employer - 50% Recycled \ 10% Post Consumer Paper

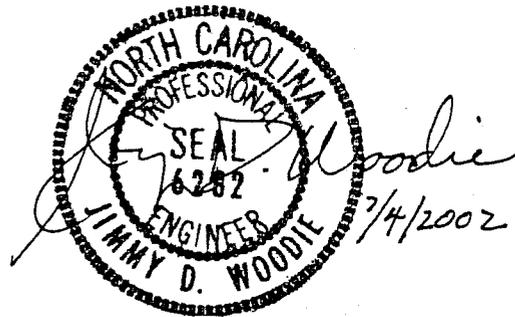
**REVISION TO APPROVED
EROSION CONTROL PLAN**

FOR

**IREDELL COUNTY
CONSTRUCTION/DEMOLITION
LANDFILL FACILITY
BORROW SITE**

STATESVILLE, NC

Project No. G01026



June 2002

Municipal Engineering Services Co., PA
Garner and Boone, North Carolina

DRAINAGE/DISTURBED AREAS

Area Designation	Area (ac.)
DA1	10.00(<i>disturbed</i>)
DA2	4.50(<i>drainage</i>)
*DA3	6.39(<i>disturbed</i>)

ORIGINAL DISTURBED AREA = 10.00 ACRES
 *ADDITIONAL DISTURBED AREA = 6.39 ACRES

Runoff Coefficient

C = .40 *unimproved rough, cleared area*

Rainfall Intensity

i = 7.0

Original Areas Draining Into Riser Basin #1(for basin sizing)

Area	A	i	C
DA1	= 10.00 acs.	7.0 in/hr.	.40
<hr/>			
	= 10.00 acs.	7.0 in/hr.	.40

$$Q_{(25)} = CiA = (.40)(7.0)(10.00) = 28.0 \text{ cfs}$$

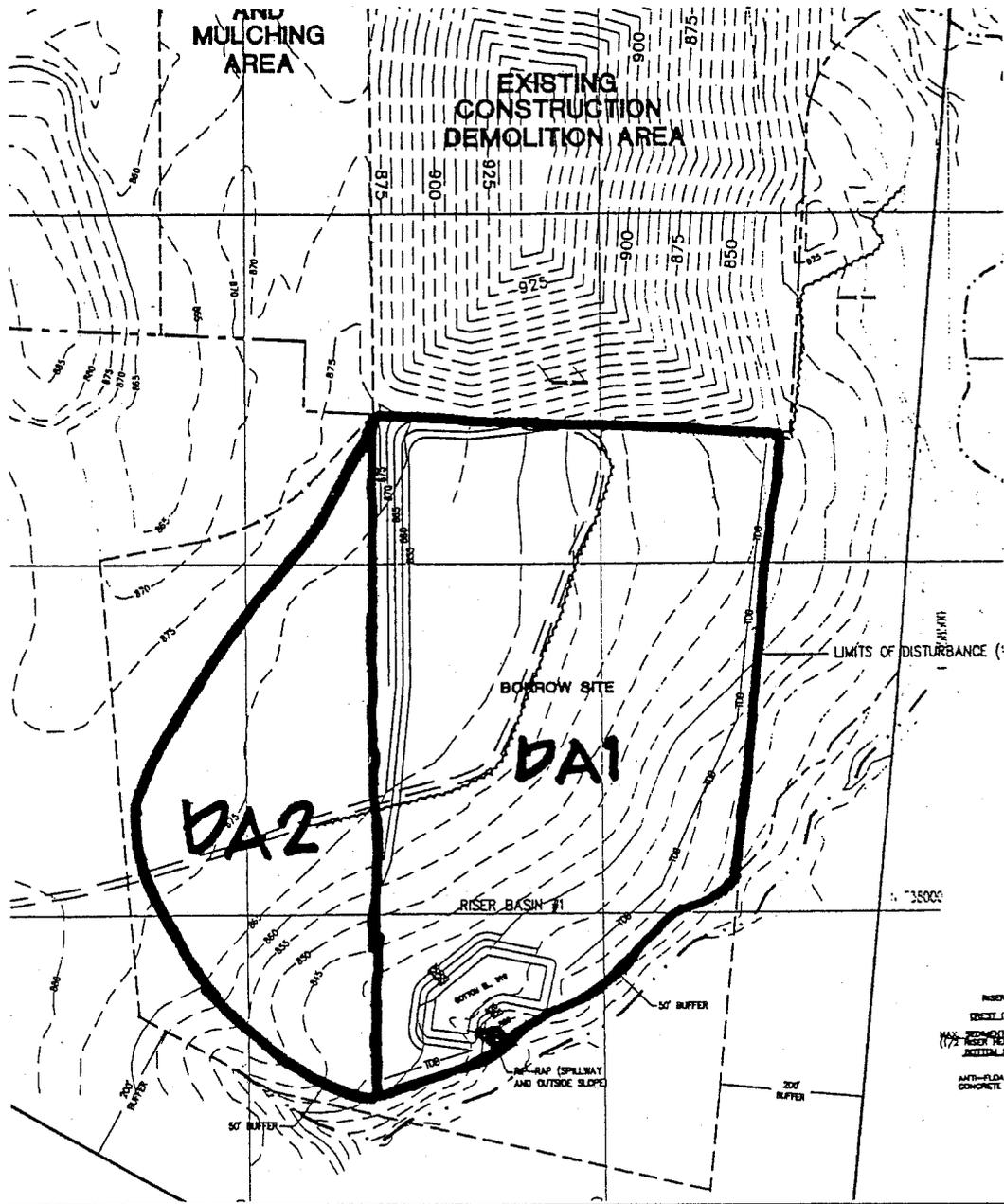
Original Areas Draining Into Riser Basin #1(for spillway sizing)

Area	A	i	C
DA1	= 10.00 acs.	7.0 in/hr.	.40
DA2	= 4.50 acs.	7.0 in/hr.	.40
<hr/>			
	= 14.50 acs.	7.0 in/hr.	.40

$$Q_{(25)} = CiA = (.40)(7.0)(14.50) = 40.60 \text{ cfs}$$

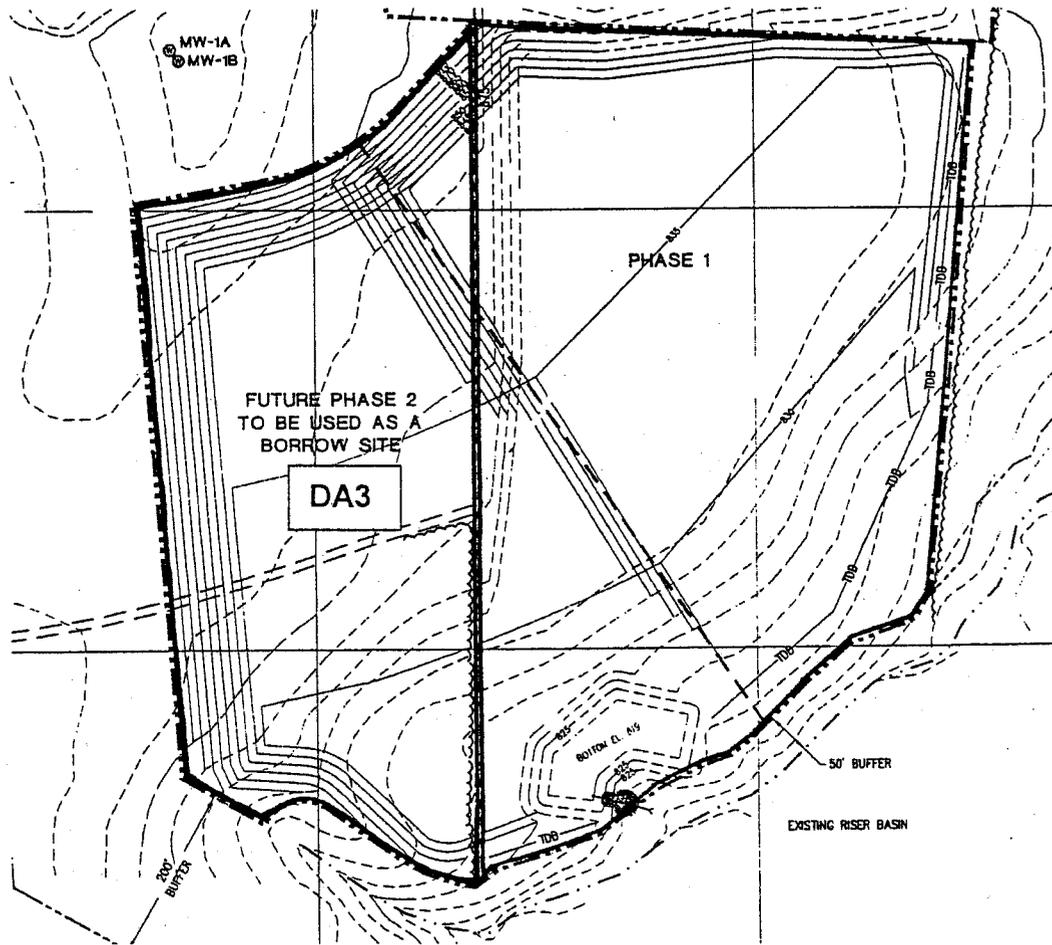
PREVIOUSLY SUBMITTED
DRAINAGE /DISTURBED AREAS MAP

DA1 = 10.0 ACRES
DA2 = 4.50 ACRES



NEW DISTURBED AREA

DA3 = 6.39 ACRES



Areas Draining Into Riser Basin #1 (for basin sizing and spillway)

Area	A	i	C
DA1	= 10.00 acs.	7.0 in/hr.	.40
DA3	= 6.39 acs.	7.0 in/hr.	.40
	= 16.39 acs.	7.0 in/hr.	.40

$$Q_{(25)} = CiA = (.40)(7.0)(16.39) = 45.89 \text{ cfs}$$

CHECK EXISTING RISER BASIN #1 WITH NEW FLOW

$$Q = 45.89 \text{ cfs}$$

$$A = 16.39$$

Surface area of riser basin:

$$\text{Surface area } S = .01Q \quad S = (.01)(45.89) = 0.4589 \text{ acs.}$$

$$S = 0.4589 \times 43560 \text{ ft}^2 = 19,990 \text{ ft}^2$$

Depth of riser basin:

$$\text{depth} = \text{Capacity/surface area}$$

Capacity needed is 1800 ft³/acre.

$$\text{Capacity} = (1800)(16.39) = 29,502 \text{ ft}^3$$

Due the location and the shape of the basin, the average end method of calculating the storage of the basin is as follows:

	<u>ORIGINAL</u>	<u>REVISED</u>
bottom area elevation 819	= 9,234	= 14,091
½ riser height 821	= 11,140	= 16,300

therefore:

ORIGINAL

$$9234 + 11140 = (20,374 \div 2) 2' = \underline{20,374 \text{ ft}^3}$$

REVISED

$$14,091 + 16,300 = (30,391 \div 2) 2' = \underline{30,391 \text{ ft}^3}$$

The actual storage capacity of the existing basin is not adequate to contain the runoff, therefore, if Phase 2 is constructed or if it is used as a borrow site the basin will need to be enlarged by 20' on the three northern sides(as shown on the plan sheet).

CHECK EXISTING EMERGENCY SPILLWAY:

**RISER BASIN #1
EMERGENCY SPILLWAY CALCULATION**

n = 0.032 9" rip-rap
B = 10.00
S = 0.032
Y = 1.5
M = 3
Depth = 1.5

W = 19
R = 1.116138R value
Q = 194.4084 Flow
A = 21.75 Adjusted Area of flow
P = 19.48683 Adjusted Wetted Perimeter

V = 8.938318 Va = 9.8

Shear Stress	2.9952	0-.45	jute netting	5.00max.	15" stone
		.46-1.45	straw with net	6.00max.	18" stone
		1.45-2.00	synthetic mat	7.00max.	21" stone
		2.00max.	6" stone	8.00max.	24" stone
		<u>3.00max.</u>	<u>9" stone</u>		
		4.00max.	12" stone		

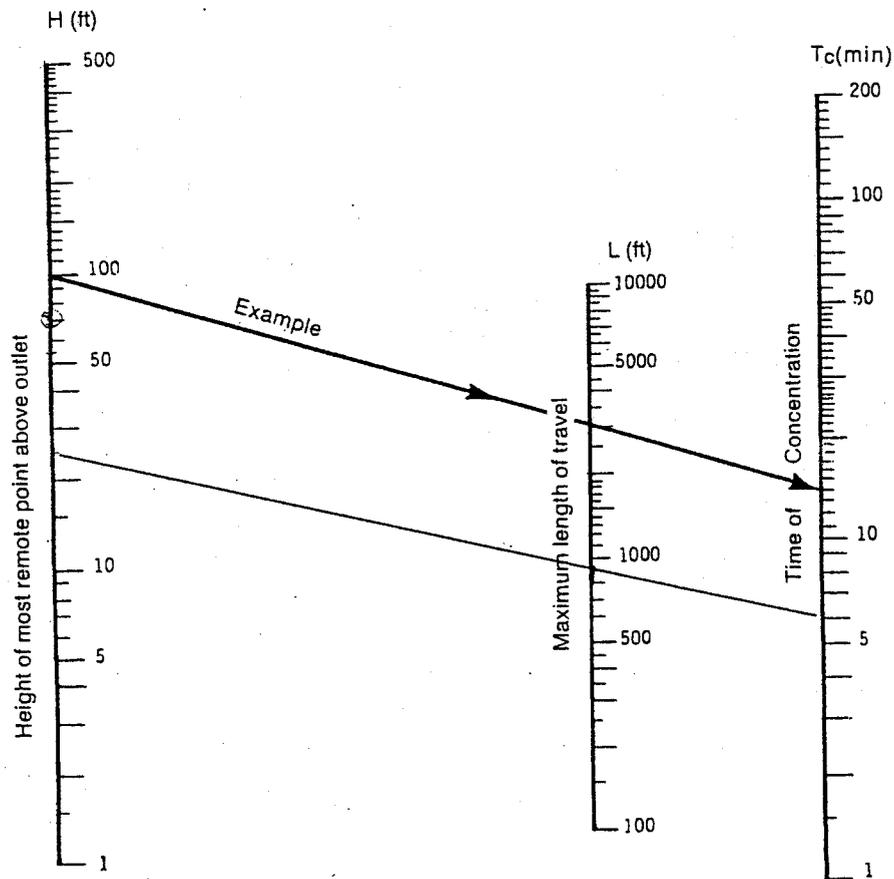
Existing Dimensions:

Bottom of Weir = 10'
Top of Weir = 19'
Line with 9" Rip Rap

Conclusion:

Spillway does not need to be revised

REFERENCE MATERIALS



Note:
Use nomograph T_c for natural basins with well-defined channels, for overland flow on bare earth, and for mowed-grass roadside channels.

For overland flow, grassed surfaces, multiply T_c by 2.

For overland flow, concrete or asphalt surfaces, multiply T_c by 0.4.

For concrete channels, multiply T_c by 0.2.

Figure 8.03a Time of concentration of small drainage basins.

8.03.4

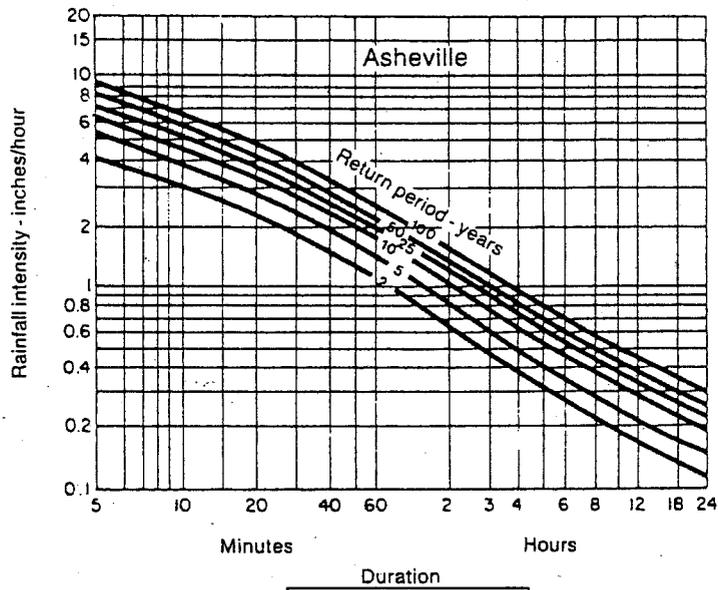


Figure 8.03f Rainfall intensity duration curves—Asheville

USE THIS ONE
25 YR. STORM

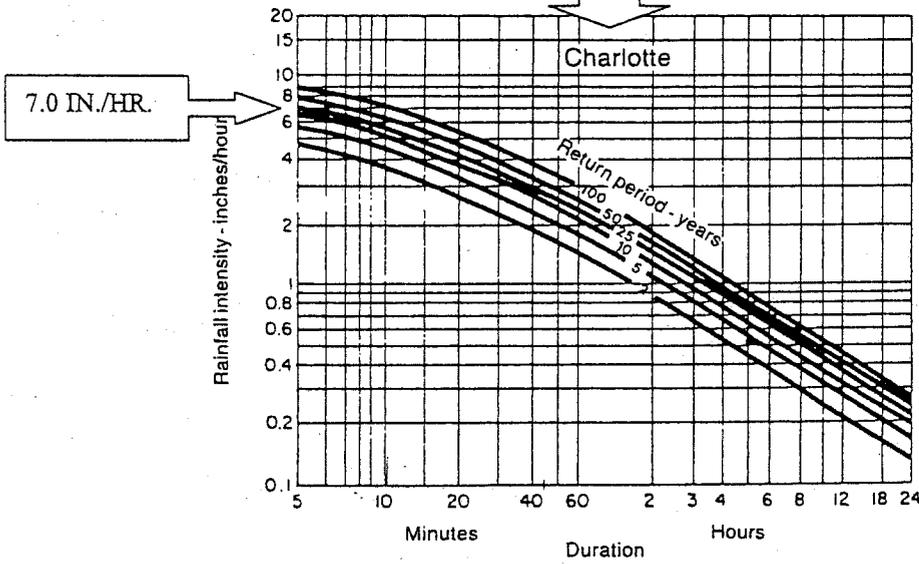
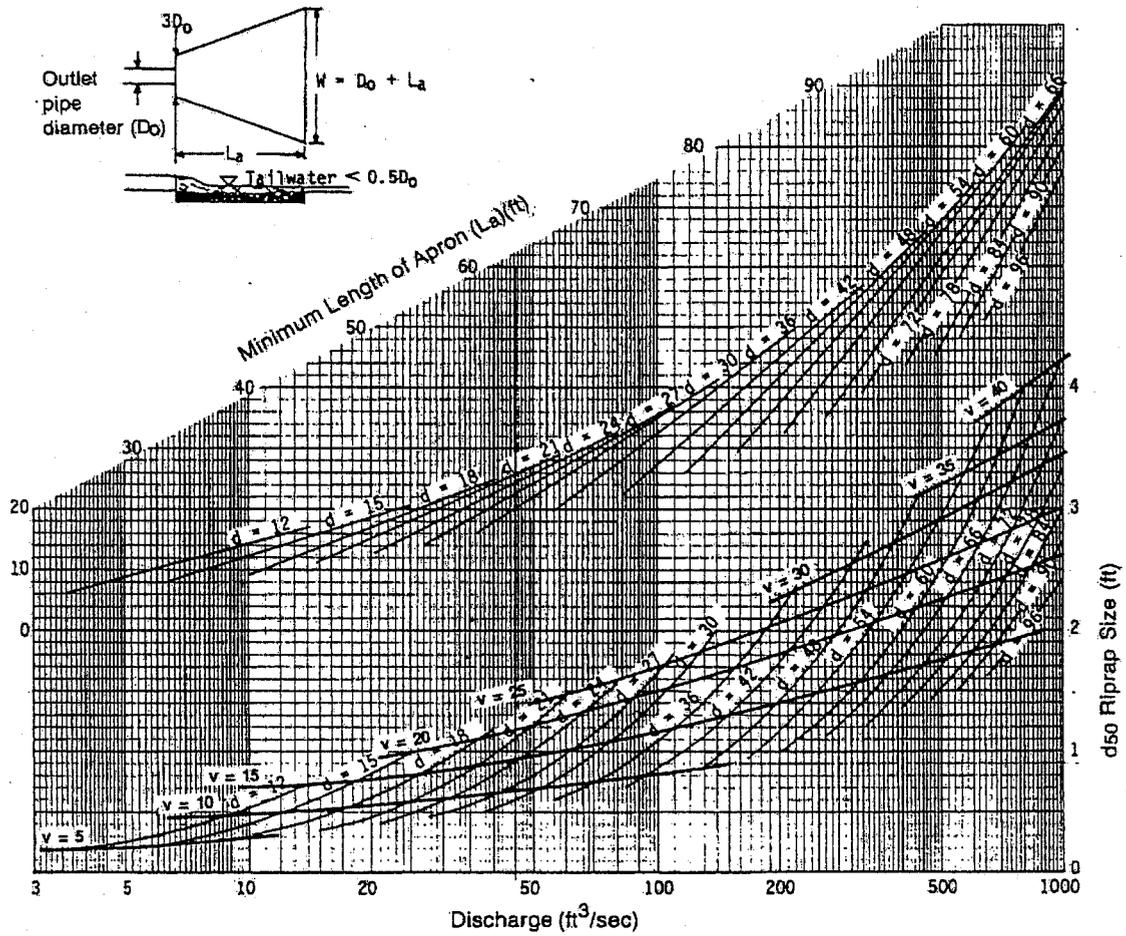


Figure 8.03g Rainfall intensity duration curves—Charlotte.

8.03.7



Curves may not be extrapolated.

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

SECTION 3

Operational Drawings (Phase 3):

Drawing 1 of 7	Title Sheet
Drawing 2 of 7	Index and Vicinity Map
Drawing 3 of 7	Proposed Fill Sequence 1
Drawing 4 of 7	Proposed Fill Sequence 2
Drawing 5 of 7	Proposed Fill Sequence 3
Drawing 6 of 7	Proposed Fill Sequence 4
Drawing 7 of 7	Proposed Fill Sequence 5

OPERATIONAL PLAN FOR IREDELL COUNTY CONSTRUCTION AND DEMOLITION LANDFILL

The Construction and Demolition Landfill will receive the following solid wastes:

- Land clearing debris as defined in G.S. 130A-290, specifically, solid waste which is generated solely from land-clearing activities, such as stumps, trees, etc.;
- Inert debris defined as solid waste which consists solely of material that is virtually inert, such as brick, concrete, rock and clean soil;
- Asphalt in accordance with G.S. 130-294(m);
- Construction and demolition debris defined as solid waste resulting solely from construction, remodeling, repair or demolition operations on pavement, buildings or other structures; and
- Construction and demolition like waste from industrial sources within the County such as shingles from a manufacturer of shingles and mobile home debris from a manufacturer of mobile homes.

Operational soil cover of at least six inches (6") shall be placed at least once per week or when active area reaches 1/2 acre in size or more often as necessitated by the nature of the waste so as to prevent the site from becoming a visual nuisance and to prevent fire, windblown materials, vectors or water infiltration.

Areas which will not have additional waste placed on them for 12 months or more, but where final termination of operations has not occurred, shall be covered with a minimum of one foot of soil cover.

Off and on-site erosion will be controlled through erosion control structures and devices. Provisions for a vegetative ground cover sufficient to restrain erosion shall be accomplished within **30 working days or 120 calendar days** upon completion of any phase of the landfill development.

The County will record and retain at the landfill an operating record of the following information:

1. Inspection records, waste determination records, and training procedures;
2. Amounts by weight of construction and demolition waste received at the landfill to include source of generation;

3. Any demonstration, certification, findings, monitoring, testing or analytical data required for surface and groundwater monitoring.

All information contained in the operating record will be furnished upon request to the Division of Solid Waste Management or be made available at all reasonable times for inspection by the Division.

Ground and surface water shall be sampled and analyzed according to Subtitle D Appendix I, detection monitoring requirements. The monitoring frequency for all Appendix I detection monitoring constituents shall be at least semi-annual during the life of the facility, to include the closure and post-closure period. At least one sample from each well (background and down-gradient) shall be collected and analyzed during subsequent semi-annual sampling events.

OPERATIONAL REQUIREMENTS

1. Waste Acceptance and Disposal Requirements
 - a. The Construction and Demolition Landfill (C&DLF) will only accept those solid wastes which it is permitted to receive. The County will notify the Division within 24 hours of attempted disposal of any waste the landfill is not permitted to receive, including waste from outside the county area the landfill is permitted to serve.
 - b. The following wastes are prohibited from disposal at the C&DLF:
 - i. Hazardous waste as defined within 15A NCAC 13A, to also include hazardous waste from conditionally exempt small quantity generators;
 - ii. Polychlorinated biphenyls (PCB) wastes as defined in 40 CFR 761;
 - iii. Liquid wastes; and
 - iv. Municipal solid waste.
 - v. Asbestos waste will not be disposed of in the Construction and Demolition Landfill. Asbestos waste shall be managed in accordance with 40 CFR 61 at the MSWLF unit.

- c. The County will implement a program at the landfill for detecting and preventing the disposal of hazardous and liquid wastes. This program will include, at a minimum;
 - i. Random inspections of incoming loads or other comparable procedures;
 - ii. Records of any inspections;
 - iii. Training of facility personnel to recognize hazardous and liquid wastes.
 - iv. Development of a contingency plan to properly manage any identified hazardous and liquid wastes. The plan must address identification, removal, storage and final deposition of the waste.
- d. The removal of solid waste from a sanitary landfill is prohibited unless the owner/operator approves and the removal is not performed on the working face.

2. Cover Material Requirements

- a. Except as in Part (b), the County must cover disposed solid waste with six inches (6") of earthen material at the end of each week, or at more frequent intervals if necessary, to control disease vectors, fires, odors, blowing litter and scavenging.
- b. Areas which will not have additional wastes placed on them for 12 months or more, but where final termination of disposal operations has not occurred, shall be covered with a minimum of one foot of intermediate cover.

See the Cap Closure Plan in Appendix A.

3. Disease Vector Control

- a. The County will prevent or control on-site populations of disease vectors using techniques appropriate for protection of human health and the environment.
- b. "Disease Vectors" means any rodents, flies, mosquitoes, or other animals, including insects capable of transmitting disease to humans.

4. Explosive Gases

- a. The County will ensure that:
 - i. The concentration of methane gas generated by the landfill does not exceed 25 percent of the lower explosive limit for methane in landfill structures (excluding gas control or recovery system components); and
 - ii. The concentration of methane gas does not exceed the lower explosive limit for methane at the landfill property boundary.
- b. "Lower explosive limit" means the lowest percent by volume of a mixture of explosive gas in air that will propagate a flame at 25° C and atmospheric pressure.

See the Explosive Gas Control Plan in Appendix A.

5. Access, Security, and Sign Requirements

- a. The landfill will be adequately secured by means of gates, chains, beams, fences and other security measures approved by the Division of Solid Waste Management to prevent unauthorized entry.
- b. An attendant will be on duty at the site at all times while it is open for public use to ensure compliance with operational requirements.
- c. The access road to the site will be of all-weather construction and maintained in good condition. The entrance will be gravel constructed to prevent the tracking of mud onto secondary roads.
- d. Dust control measures will be implemented when necessary.
- e. Signs providing information on tipping or disposal procedures, the hours during which the site is open for public use, the permit number and other pertinent information will be posted at the site entrance.
- f. Signs will be posted stating that no hazardous, municipal or liquid waste can be received.

- g. Traffic signs or markers will be provided as necessary to promote an orderly traffic pattern to and from the discharge area and to maintain efficient operating conditions.

6. Safety Requirements

- a. Open burning of solid waste is prohibited.
- b. Equipment will be provided to control accidental fires and or arrangements will be made with the local fire protection agency to immediately provide fire –fighting services when needed.
- c. Fires that occur at a sanitary landfill will be reported to the Division within 24 hours and a written notification will be submitted within 14 days.

7. Erosion and Sediment Control Measures

- a. Adequate sediment control measures (structures or devices), will be utilized to prevent silt from leaving the landfill.
- b. Adequate sediment control measures (structures or devices), will be utilized to prevent excessive on-site erosion.
- c. Provisions for a vegetative ground cover sufficient to restrain erosion will be accomplished within **30 working days** or **120 calendar days** upon completion of any phase of landfill development.

8. Drainage Control and Water Protection Requirements

- a. A minimum separation distance of four feet between waste and the water table will be maintained, unless otherwise specified by the Division in the permit.
- b. Surface water will diverted from the operational area.
- c. Surface water will not be impounded over or in waste.
- d. Solid waste will not be disposed of in water.
- e. The landfill will not:
 - i. Cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirements of the Clean Water Act, including, but not

limited to, the National Pollutant Discharge Elimination System (NPDES) requirements pursuant to Section 402.

- ii. Cause the discharge of non-point source of pollution to waters of the United States, including wetlands, that violates any requirements of an area-wide or state-wide water quality management plan that has been approved under Section 208 or 319 of the Clean Water Act, as amended.

9. Liquids Restriction

- a. Bulk or non-containerized liquid waste will not be placed in the landfill.
- b. Containers holding liquid wastes will not be placed in the landfill. Barrels and drums will not be disposed of unless they are empty and perforated sufficiently to ensure that no liquid or hazardous waste is contained therein.
- c. For the purpose of this paragraph:
 - i. "Liquid waste" means any waste material that is determined to contain "free liquids" as defined by Method 9095 (Paint Filter Liquids Test), S.W. 846.

10. Record keeping Requirements

- a. The County C&DLF will record and retain at the facility, or an alternative location near the facility approved by the Division of Solid Waste Management, in an operating record the following information as it becomes available.
 - i. Inspection records, waste determination records, and training procedures;
 - ii. Amounts, by weight, of solid waste received at the landfill to include source of generation.
 - iii. Any demonstration, certification, findings, monitoring, testing or analytical data required for surface and groundwater monitoring.

- b. All information contained in the operating record will be furnished upon request to the Division of Solid Waste Management or be made available at all reasonable times for inspection by the Division.
- c. The County will maintain a copy of the operation plan and approved construction drawings at the landfill.

11. Spreading and Compacting Requirements

- a. The landfill will restrict solid waste into the smallest area feasible.
- b. Solid waste will be compacted as densely as practical into cells.
- c. Appropriate methods such as fencing and diking will be provided within the area to confine solid waste subject to be blown by the wind. At the conclusion of each day of operation, all windblown material resulting from the operation will be collected and returned to the area.

APPENDIX A

CAP CLOSURE PLAN

Iredell County will cap their landfill within 180 days after the final receipt of waste.

The cap system will consist of 12 inches of bridging material (temporary cover), 18 inches of soil liner with permeability no greater than 1×10^{-5} cm/sec, and 18 inches erosive layer (Figure 1). The cap system will also include the proper seeding and mulching of the erosive layer and other erosion control devices.

CONSTRUCTION MATERIALS

General

All materials and equipment shall be furnished by an established and reputable manufacturer or supplier. All materials and equipment shall be new and shall be of first class ingredients and construction, designed and guaranteed to perform the service required and shall conform with the following standard specifications or shall be the product of the listed manufacturers or similar and equal thereto as approved by the Engineer.

Cohesive Soil Liner

The soil for the cohesive soil liner shall consist of the red, orange, clayey silt onsite if the mica content is less than 0.5 percent by weight passing the No. 200 Sieve and a permeability of 1×10^{-5} cm/sec or less is achieved. Off-site cohesive soils may be used if approved by the Engineer and if it provides a permeability of 1×10^{-5} cm/sec or lower. Wyoming bentonite or an approved equal may be blended with the soil to lower the soil's permeability.

Erosive Layer

The soil for the erosive layer shall be the best topsoil that is available on the site.

CONSTRUCTION METHODS

Subbase

- (a) Subbase shall be the one foot of bridging material that has been installed as the temporary cover.

Cohesive Soil Liner

- (a) A test strip of compacted cohesive soil liner shall be prepared and tested for density, moisture content, and permeability prior to

general installation of the cohesive soil liner. The test strip shall be approximately 2,500 square feet in surface area and constructed to conform geometrically to the site topography with a minimum lateral dimension in any direction of 125 feet. The test strip shall consist of at least two compacted six inch lifts of cohesive soil liner. Test results from the test strip shall be used to guide placement and achieve of the required maximum permeability of 1×10^{-5} cm/sec of the cohesive soil liner. The test strip may be used as an integral part of the overall cohesive soil liner if it meets the required specification for the liner.

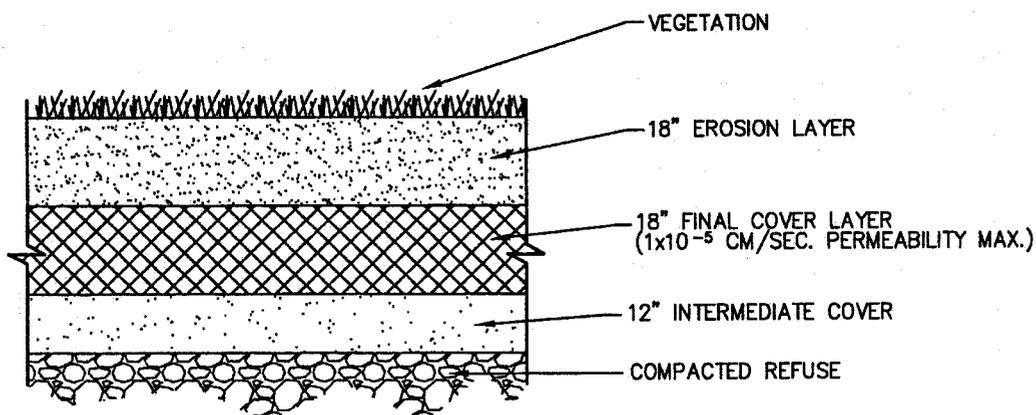
- (b) The soils shall be placed to the total thickness shown on the plans in maximum eight inch thick loose lifts with a maximum 6 inch compacted lift at a moisture content between 0 to 3% above optimum moisture to 95% Standard Proctor maximum dry density (ASTM Test Designation D698). The soils for the cohesive soil liner must be compacted wet of optimum if the desired permeability is to be obtained. A sheepsfoot roller or approved alternative may be used to compact the soil liner provided the compaction and permeability requirements can be achieved. Each lift shall be tested for permeability prior to the placement of the succeeding lift and visually inspected to confirm that all soil clods have been broken and that the surface is sufficiently scarified so that adequate bonding can be achieved. Soils for cohesive soil liner shall be screened, disked, or prepared using any other, approved method as necessary to obtain a homogeneous cohesive soil with clod sizes in a soil matrix no larger than about 1.5 inches in maximum diameter. After each lift, the surface shall be scarified prior to placement of the next lift to provide good bonding from one lift to the next.
- (c) The cohesive soil liner shall be tested to evaluate the coefficient of permeability. The coefficient of permeability of the soil liner shall be equal to or less than 1×10^{-5} cm/sec after placement and compaction.
- (d) Laboratory falling head permeability tests shall be performed on tube (Shelby or drive) samples of the cohesive soil liner after placement and compaction. Test shall be performed in accordance with the U.S. Army Corps of Engineers' "Permeability Testing on Sampling Tubes", EM 1110-2-1906, Appendix VII, 30 Nov. 70, paragraph 5, page VII-16, or approved alternative.
- (e) A minimum of four soil samples each, per lift, per acre, of cohesive soil liner shall be secured for permeability testing. All permeability testing shall be on random samples judged by the Engineer to be representative of the most permeable soil conditions for the area being tested. Where tests do not indicate satisfactory permeability, the failing area shall be reworked and retested. If the tests still do not indicate the desired permeability is being achieved, the

- compaction procedure or soil must be adjusted to achieve the desired permeability.
- (f) A minimum of two inches of soil shall be removed prior to securing each sample for permeability testing. The sampling tube shall be advanced vertically in to the soil with as little soil disturbance as possible and should be pushed using uniform pressure. The sampling tube (Shelby tube), when extracted, shall be free of dents, and the ends shall not be distorted. A back hoe or approved alternative should be used to advance the sampling tube (Shelby tube) as long as disturbance is minimized. Drive tube samples of the liner may be obtained for permeability testings. If the Engineer judges the sample to be too disturbed, another sample shall be taken. Once an acceptable sample has been secured and properly prepared, all sample excavations shall be backfilled to grade with similar soils in maximum three inch loose lifts and hand tamped with a blunt tool to achieve a tight seal equivalent to the original density.
 - (g) No additional construction shall proceed on the soil layers at the areas being tested until the Engineer has reviewed the results of the tests and judged the desired permeability is being achieved.
 - (h) As a minimum, sufficient visual classifications (ASTM Test Designation D2488) and Atterberg limits (ASTM Test designation D4318) shall be conducted in association with each permeability test to verify that the construction materials meet specifications. Where mica content is in question, sufficient gradation analyses (ASTM Test Designation D422) shall be conducted to verify the mica content meets the required limit.
 - (i) If the soil for the cohesive soil liner is incapable of achieving the required permeability when compacted, bentonite or approved alternative may be mixed with the soils to decrease the permeability. The amount of additive required must be determined in the laboratory. Where additives are required, the soil shall be placed in maximum eight inch thick loose lifts and compacted between 0 to +3% optimum moisture content to 95% Standard proctor maximum dry density (ASTM Test Designation D698) for the soil-additive mixture. All other compaction procedures for the soil apply. Permeability testing shall be conducted according to article 3.02.
 - (j) The cohesive soil liner shall be protected from desiccation, flooding and freezing. Protection, if required, may consist of a thin plastic protective cover, (or other material as approved by the Engineer) installed over the completed cohesive soil liner until such time as the placement of the flexible membrane liner begins. Areas found to have desiccation cracks or which exhibit swelling, heaving or other similar conditions shall be replaced or reworked by the contractor to remove these defects.

Prior to beginning closure, Iredell County shall notify the Division of Solid Waste that a notice of intent to close the unit has been placed in the operating record. The County shall begin closure activities no later than 30 days after the date on which the landfill receives the final wastes; or if the landfill has remaining capacity and there is a reasonable likelihood that the landfill will receive additional wastes, no later than one year after the most recent receipt of wastes. Extensions beyond the one year deadline for the beginning closure may be granted by the Division of Solid Waste if the County demonstrates that the landfill has the capacity to receive additional wastes and the County has taken and will continue to take all steps necessary to prevent threats to human health and the environment from the enclosed landfill.

The County shall complete closure activities in accordance with the closure plan within 180 days following the final receipt of waste. Extensions of the closure period may be granted by the Division of Solid Waste if the County demonstrates that the closure will, of necessity, take longer than 180 days and the County has taken and will continue to take all steps to prevent threats to human health and the environment from the enclosed landfill.

Following the closure of the landfill, the County shall record a notation on the deed to the landfill property and notify the Division of Solid Waste that the notation has been recorded and a copy has been placed in the operating record. The notation on the deed shall in perpetuity notify any potential purchaser of the property that the land has been used as a landfill and its use is restricted under the closure plan approved by the Division of Solid Waste. The County may request permission from the Division to remove the notation from the deed if all wastes are removed from the landfill.



FINAL COVER DETAIL
NOT TO SCALE

FIGURE 1

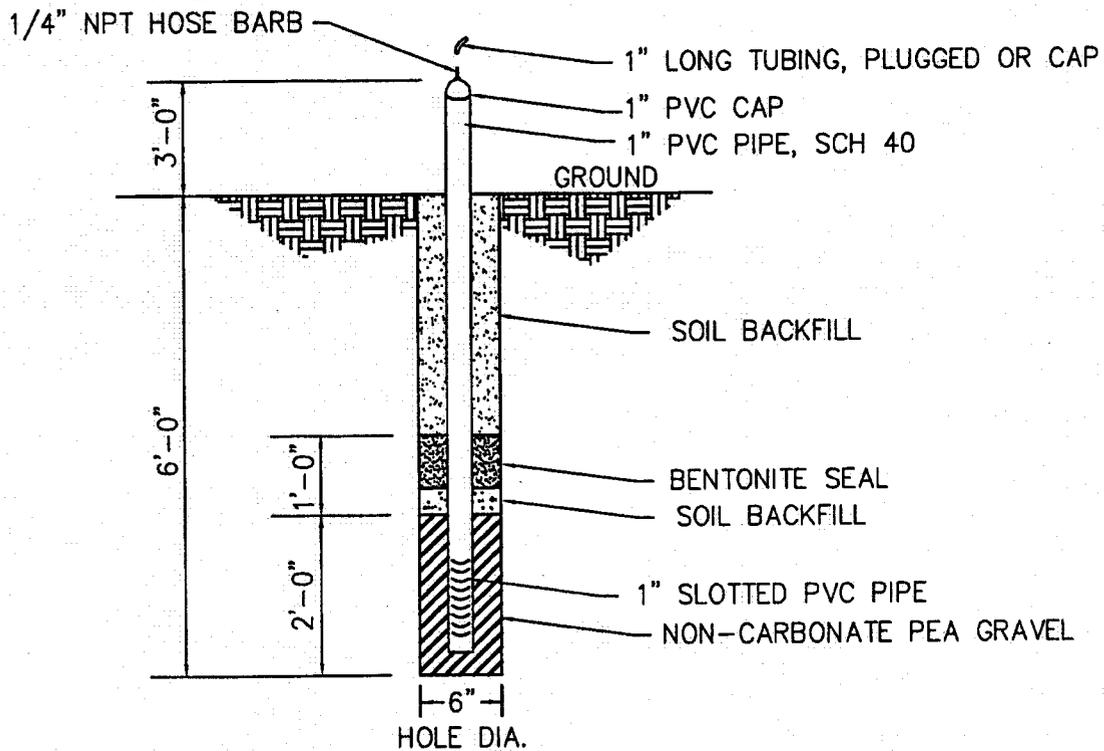
EXPLOSIVE GAS CONTROL PLAN

Quarterly the Iredell County landfill will monitor the explosive gas at the landfill structures and at or near the landfill boundary. The monitoring system will consist of two phases. Temporary probes will be placed in the ground as depicted in the Construction Plan drawings. The probes are holes that are two to three feet deep either poked in the ground or hand excavated. The top of the hole is then plugged by some means such as a plastic soft drink bottle. The second phase will consist of a plastic stand pipe similar to a piezometer used for groundwater detection. A typical permanent methane probe is detailed in the Construction drawings.

Gas can be detected by use of an instrument that reports the percent of lower explosive limit. An instrument that can be used is the Gas Tech GP 204 which the County owns and currently uses to test their MSW Landfill.

Quarterly, a County employee will visit each monitoring point either the temporary or permanent. Using the detection instrument, he will determine if methane gas has filled the probes. If the probe is near the property line and methane gas is detected, it must then be determined if the gas is migrating across the landfill boundary. If the probe is on the boundary or methane gas has migrated beyond the boundary, a remediation plan must be completed by Iredell County.

Other points of monitoring will be the landfill structures. If methane gas is detected beyond 25% of its lower explosive limit, then a remediation plan is stated in the operational requirements.



METHANE GAS MONITORING PROBE
 NOT TO SCALE



NOTE:
ALL EXISTING HOUSES AND ROADS SHOWN ON
COUNTY PROPERTY WILL BE REMOVED AT TIME
OF CONSTRUCTION.

- LEGEND**
- SANITARY SEWER EASEMENT
 - - - PHASE LIMITS
 - CREEK
 - EXISTING CONTOURS
 - PROPERTY LINE
 - BUFFER ZONE
 - MONITORING WELL
 - EXISTING PIEZOMETER
 - EXISTING TEMPORARY DIVERSION BERM



Engineering Company, P.A.

Municipal Services

P.O. BOX 97 GARNER, N.C. 27529
(919) 772-5393

**MUNICIPAL SOLID WASTE
LANDFILL FACILITY
IREDELL COUNTY
NORTH CAROLINA**

REVISIONS		DESCRIPTION
03/07/02	2	REVISED EXISTING CONDITIONS AND ADDED PROPOSED C & D
05/24/01	1	REVISED SAN. SEWER NOTE AND PROPERTY LINE
DATE	BY	REV.

**FACILITY PLAN
AREAL LIMITS & EXISTING CONDITIONS**

SCALE: 1"=200'

DATE: 11/9/00

DRWN. BY: B. BADEY

CHKD. BY: W. SULLIVAN

PROJECT NUMBER: **G99087.6**

DRAWING NO. F1 SHEET NO. 3 OF 6



LEGEND

- SANITARY SEWER EASEMENT
- PROPOSED SUBGRADE
- PHASE LIMITS
- CREEK
- EXISTING CONTOURS
- PROPERTY LINE
- BUFFER ZONE
- ⊕ MONITORING WELL
- ⊕ EXISTING PIEZOMETER
- TEMPORARY DIVERSION BERM
- C & D PHASE LIMITS

Engineering Company, P.A.



Municipal Engineering Services

P.O. BOX 87 GARNER, N.C. 27626 (919) 772-5383

P.O. BOX 949 BOONE, N.C. 28607 (704) 262-1787

**MUNICIPAL SOLID WASTE
LANDFILL FACILITY
IREDELL COUNTY
NORTH CAROLINA**

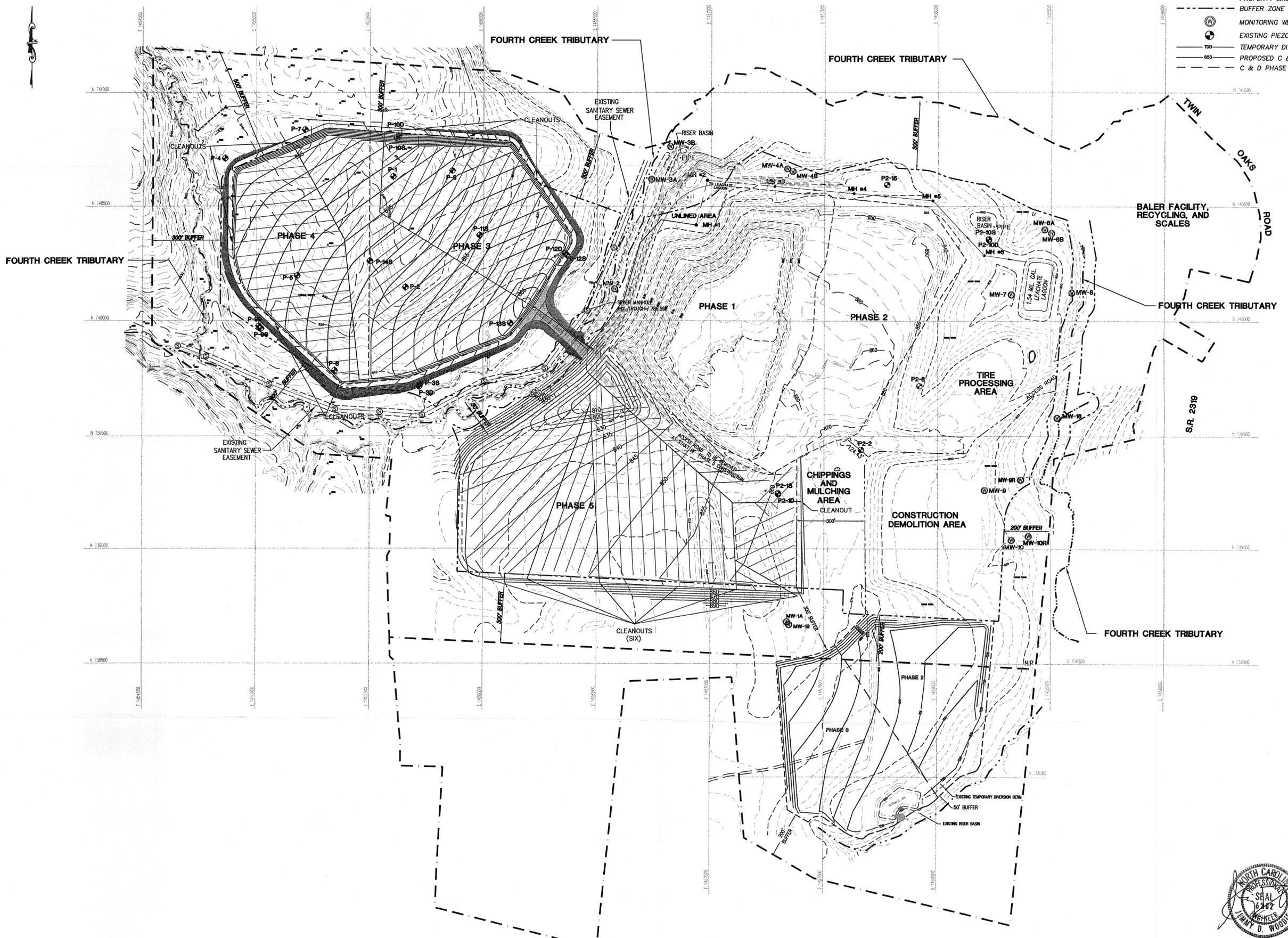
REVISIONS		DATE	BY	REV.	DESCRIPTION
09/03/03	LCH	4			REVISED C&D SUBBASE
03/01/02	LCH	3			REVISED EXISTING TOPO AND ADDED PROP. C & D
5/18/01	LCH	2			REVISED ACCESS ROAD CONTOURS
5/24/01	LCH	1			REVISED SAN. SEWER NOTE AND PROPERTY LINE

FACILITY PLAN PROPOSED SUBBASE	
SCALE:	1"=200'
DATE:	11/9/00
DRWN. BY:	B. BADEY
CHKD. BY:	W. SULLIVAN
PROJECT NUMBER	G99087.6
DRAWING NO.	F2
SHEET NO.	4 OF 6



P:\SolidWaste\iredell C&D volumes 9-3-03\dwg\rv-9-3-03\99087F-04.dwg, 09/09/2003 09:56:55 AM, LCH

- LEGEND**
- LEACHATE PIPE
 - SANITARY SEWER EASEMENT
 - PROPOSED SUBGRADE
 - PHASE LIMITS
 - CREEK
 - EXISTING CONTOURS
 - PROPERTY LINE
 - BUFFER ZONE
 - MONITORING WELL
 - ⊙ EXISTING PIEZOMETER
 - TD8 TEMPORARY DIVERSION BERM
 - 650 PROPOSED C & D SUBGRADE
 - C & D PHASE LIMITS



Engineering Company, P.A.

Municipal Services

P.O. BOX 87 GARNER, N.C. 27829
(818) 772-5883

P.O. BOX 348 BOONE, N.C. 28607
(704) 282-1767

**MUNICIPAL SOLID WASTE
LANDFILL FACILITY
IREDELL COUNTY
NORTH CAROLINA**

DATE	REV.	BY	DESCRIPTION
09/03/03	LCH	4	REVISED CAD SUBBASE
03/06/02	LCH	3	REVISED EXISTING TOPO AND ADDED PROP. C & D
6/18/01	LCH	2	REVISED ACCESS ROAD AND LEACHATE F.M.
5/24/01	LCH	1	REVISED SAN. SEWER NOTE AND PROPERTY LINE

FACILITY PLAN
LEACHATE COLLECTION SYSTEM

SCALE: 1"=200'
DATE: 11/9/00
DRWN. BY: B. BADEY
CHKD. BY: W. SULLIVAN
PROJECT NUMBER
G99087.6
DRAWING NO. F3 SHEET NO. 5 OF 6

NORTH CAROLINA
REGISTERED PROFESSIONAL ENGINEER
SHEAL
6242
JIMMY D. WOODIE
11/9/2003

P:\Solid\Iredev\iredev\c&d volumes 9-3-03\dwg-mv-9-3-03\99087F-05.dwg, 09/05/2003 10:03:22 AM, LCH

P:\SolidWaste\iredell C&D volumes 9-3-03\dwg-nv-9-3-03\90087F-06.dwg, 09/06/2003 10:04:48 AM, LCH



- LEGEND**
- PROPOSED FILL
 - SANITARY SEWER EASEMENT
 - PROPOSED SUBGRADE
 - PHASE LIMITS
 - CREEK
 - EXISTING CONTOURS
 - PROPERTY LINE
 - BUFFER ZONE
 - ⊙ MONITORING WELL
 - ⊙ EXISTING PIEZOMETER
 - TEMPORARY DIVERSION BERM
 - C & D PHASE LIMITS

TERRY D. WOODS
 9/17/2003

Municipal Engineering Services
 Company, P.A.
 P.O. BOX 87 GARNER, N.C. 27539
 (816) 772-5393

**MUNICIPAL SOLID WASTE
 LANDFILL FACILITY
 IREDELL COUNTY
 NORTH CAROLINA**

DATE	REV.	DESCRIPTION
9/03/03	LCH	4 REVISION C&D SUBBASE
3/06/02	LCH	3 REVISION EXISTING TOPO, ADDED PROPOSED C & D FILL
6/18/01	LCH	2 REVISION ACCESS ROAD
5/24/01	LCH	1 REVISION SAN. SEWER NOTE AND PROPERTY LINE

SCALE:	1"=200'
DATE:	11/9/00
DRWN. BY:	B. BADEY
CHKD. BY:	W. SULLIVAN
PROJECT NUMBER	G99087.6
DRAWING NO.	F4
SHEET NO.	6 OF 6

FACILITY PLAN
 PROPOSED FINAL FILL

IREDELL COUNTY CONSTRUCTION AND DEMOLITION LANDFILL CONSTRUCTION PLAN PHASE 3

OWNER: IREDELL COUNTY
PROJECT NO. G04100

BOARD OF COMMISSIONERS

Sara Haire Tice - Chairman
Robert G. (Godfrey) Williams Vice-Chairman
Stephen D. Johnson
Kenneth M. Robertson, Jr.
Marvin Norman

COUNTY MANAGER

Joel Mashburn

SOLID WASTE DIRECTOR

David Lambert

Engineer

Municipal Engineering Services Company, P.A.
Garner, NC - Morehead City, NC - Boone, NC

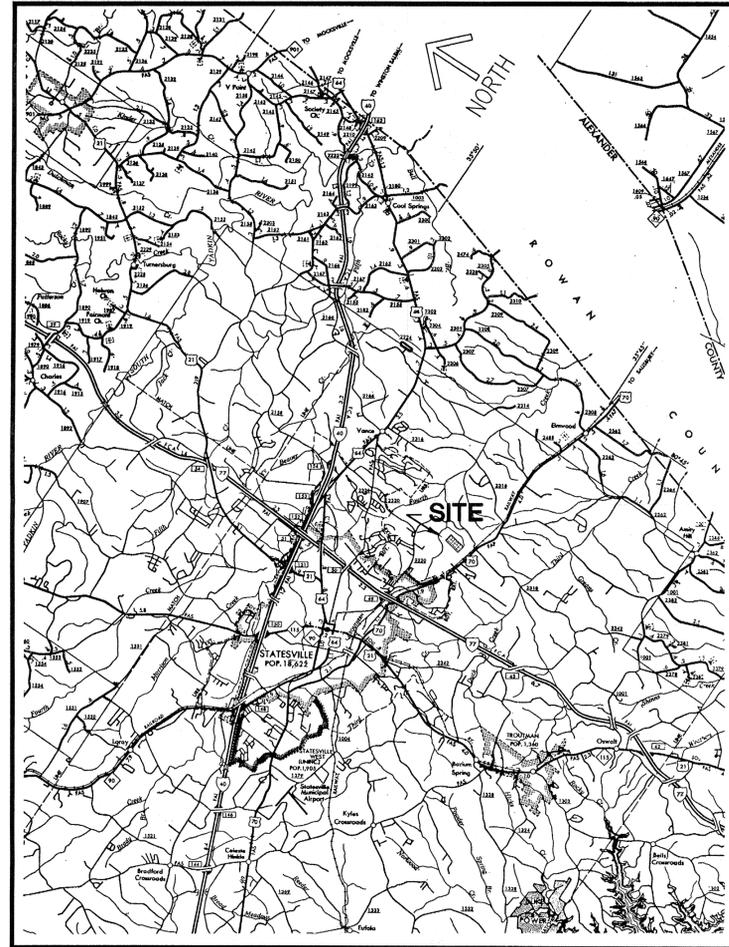
by  *J. Woodie*
Professional Engineer
5/4/2006



SCALE:	NTS
DATE:	5/25/05
DRWN. BY:	L. HAMPTON
CHKD. BY:	J. WOODIE
PROJECT NUMBER	G04100
DRAWING NO.	T1
SHEET NO.	1 OF 7

INDEX

SHEET NO.	DRAWING NO.	DESCRIPTION
1	T1	TITLE SHEET
2	T2	INDEX AND VICINITY MAP
3	C1	EXISTING CONDITIONS
4	C2	PROPOSED SUBGRADE AND EROSION CONTROL PLAN
5	C3	PHASE 3 FILL PLAN
6	C4	PHASE 4 FILL PLAN
7	C5	BASELINE PROFILE AND CROSS SECTIONS



VICINITY MAP



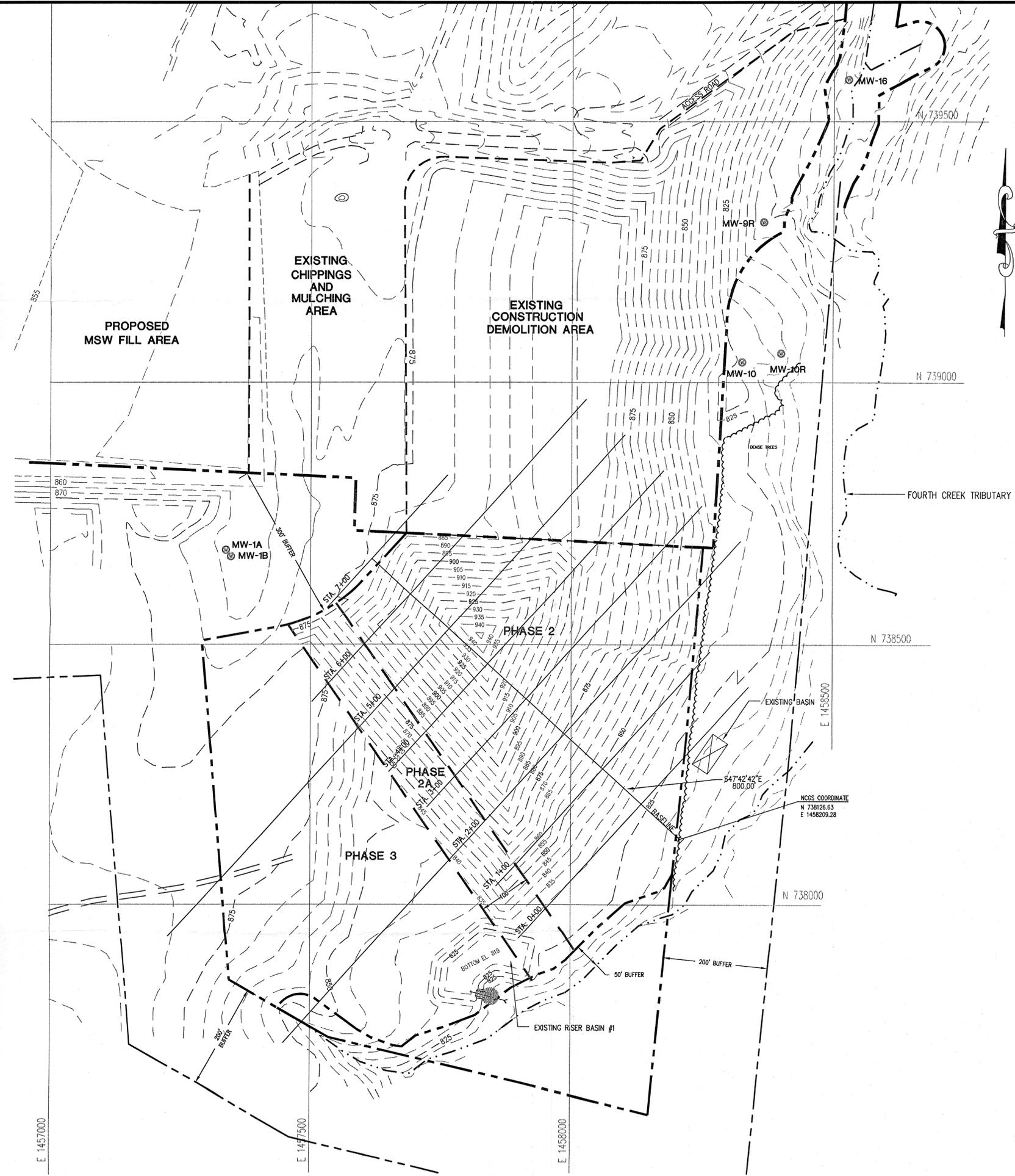
CONSTRUCTION AND DEMOLITION
LANDFILL FACILITY
IREDELL COUNTY
NORTH CAROLINA

Municipal Services
Engineering Company, P.A.
P.O. BOX 87 GARNER, N.C. 27529 (919) 772-0583
P.O. BOX 349 BOONE, N.C. 28607 (828) 262-1767
P.O. BOX 628 MORRHEAD CITY, N.C. 28557 (252) 726-9461

DATE	BY	REV.	DESCRIPTION
			CONSTRUCTION PLANS - PHASE 3 INDEX AND VICINITY MAP

SCALE:	1:1
DATE:	5/24/05
DRWN. BY:	L. HAMPTON
CHKD. BY:	J. WOODIE
PROJECT NUMBER	GO4100
DRAWING NO.	T2
SHEET NO.	2 OF 7

- LEGEND:**
- - - - -875- - - - - EXISTING INDEX CONTOURS
 - - - - - EXISTING INTERMEDIATE CONTOURS
 - - - - - BUFFERS
 - - - - - PHASE LINE
 - - - - - PROPERTY LINE
 - - - - - DRAINAGE FEATURE
 - ⊙ MW-1B EXISTING MONITORING WELL



**Engineering
Company, P.A.**

P.O. BOX 349 BOONE, N.C. 28807
(828) 262-1767

**Municipal
Services**

P.O. BOX 87 GARNER, N.C. 27626
(919) 772-5993

P.O. BOX 828 MOREHEAD CITY, N.C. 28557
(252) 726-8481

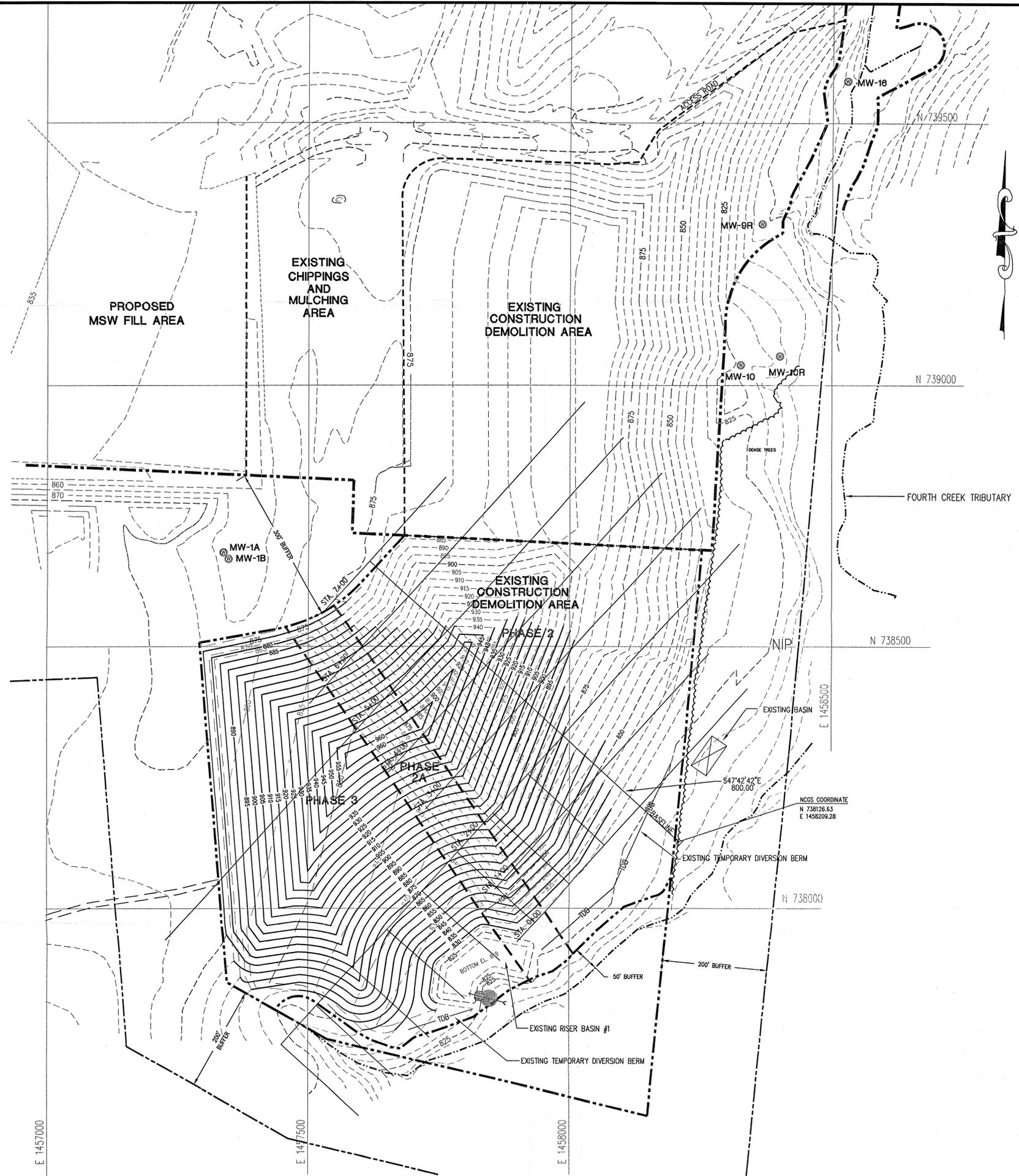
**CONSTRUCTION AND DEMOLITION
LANDFILL FACILITY
IREDELL COUNTY
NORTH CAROLINA**

DATE	BY	REV.	DESCRIPTION				
CONSTRUCTION PLAN - PHASE 3 EXISTING CONDITIONS AS OF 6/8/05							
SCALE: 1" = 100'							
DATE: 7/19/05							
DRWN. BY: L. HAMPTON							
CHKD. BY: J. WOODIE							
PROJECT NUMBER G04100							
DRAWING NO.							SHEET NO.
C1							3 OF 7



C:\Program Files\Autodesk\AutoCAD 2004\Projects\G04100-000.dwg, 3/7/7/2005 10:36:26 AM, lch

- LEGEND:**
- 875--- EXISTING CONTOURS
 - 875— PROPOSED CONTOURS
 - — — — — BUFFERS
 - — — — — PHASE LINE
 - — — — — PROPERTY LINE
 - — — — — DRAINAGE FEATURE
 - TDB— EXISTING TEMPORARY DIVERSION BERM
 - ⊙ MW-1B EXISTING MONITORING WELL



Engineering Company, P.A.
Municipal Services

P.O. BOX 349 BOONE, N.C. 28607
 (828) 262-1787

P.O. BOX 97 GARNER, N.C. 27529
 (919) 772-5383

P.O. BOX 828 MOREHEAD CITY, N.C. 28557
 (252) 728-9461

**CONSTRUCTION AND DEMOLITION
 LANDFILL FACILITY
 IREDELL COUNTY
 NORTH CAROLINA**

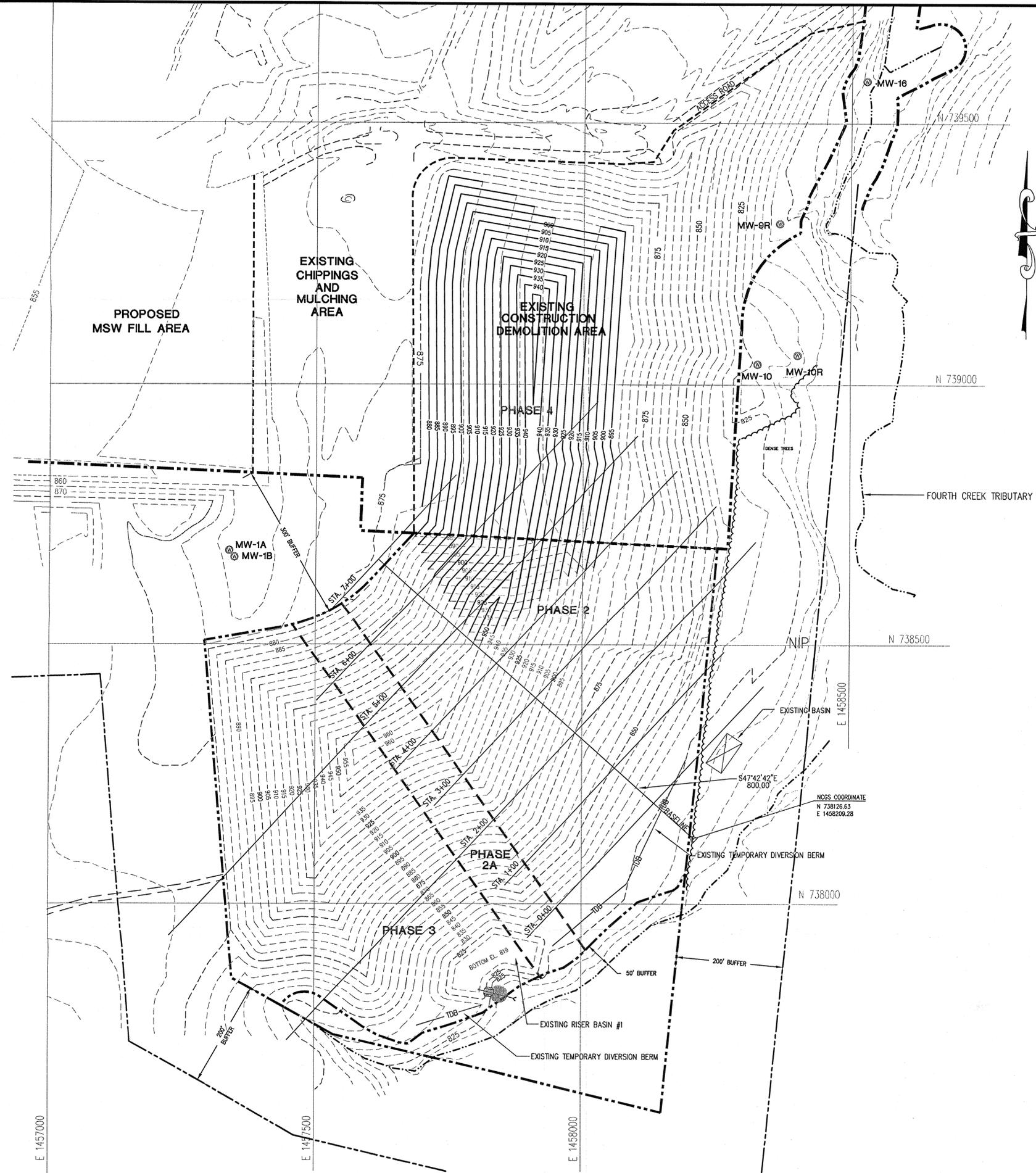
DATE	BY	REV.	DESCRIPTION

SCALE: 1" = 100'
 DATE: 7/19/05
 DRWN. BY: L. HAMPTON
 CHKD. BY: J. WOODIE
 PROJECT NUMBER: G04100
 DRAWING NO. C3 SHEET NO. 5 OF 7



P:\SolidWaste\G04100-iredeell C&D Ph. 3-construction.dwg (construction plans\G04100-c05.dwg, 5/4/2006 10:37:26 AM, lch

- LEGEND:**
- 875--- EXISTING CONTOURS
 - 875--- PROPOSED CONTOURS
 - 875--- BUFFERS
 - 875--- PHASE LINE
 - 875--- PROPERTY LINE
 - 875--- DRAINAGE FEATURE
 - 875--- TDB EXISTING TEMPORARY DIVERSION BERM
 - 875--- EXISTING MONITORING WELL



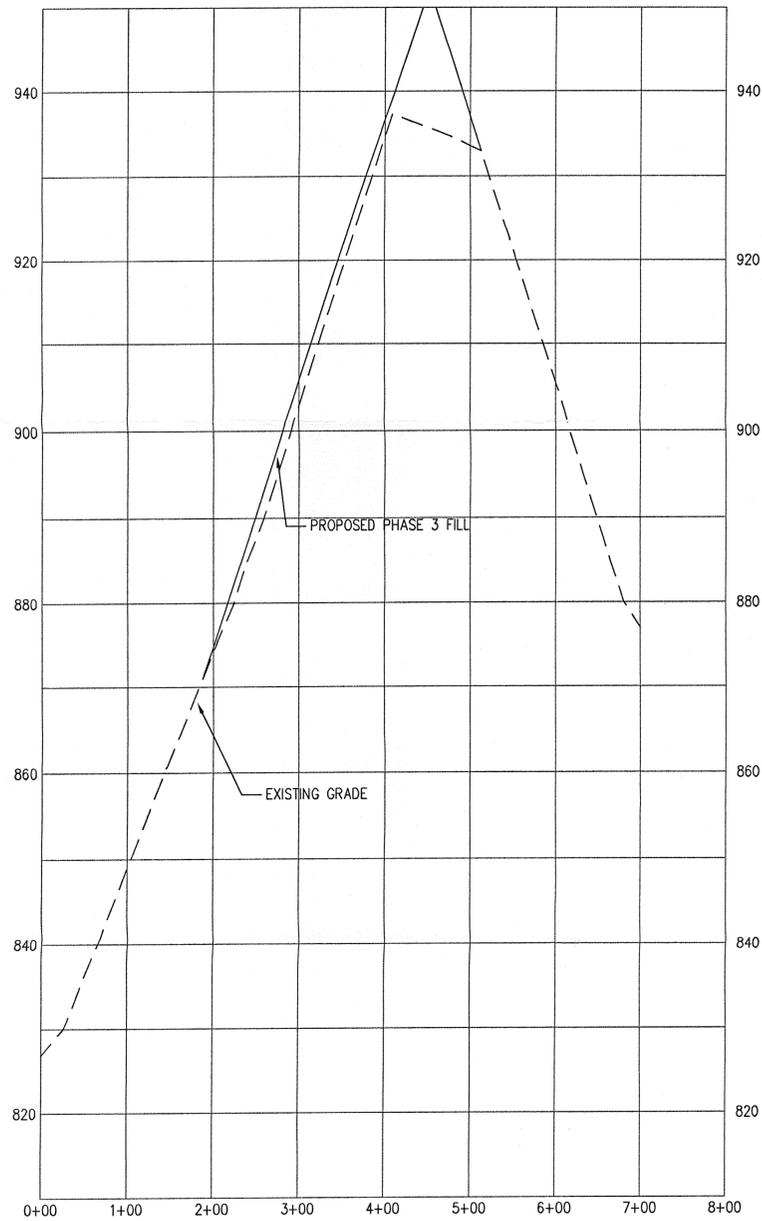
Municipal Services
Engineering Company, P.A.

P.O. BOX 87 GARNER, N.C. 27529 (919) 772-5983
P.O. BOX 828 MOREHEAD CITY, N.C. 28557 (252) 726-9481

**CONSTRUCTION AND DEMOLITION
LANDFILL FACILITY
IREDELL COUNTY
NORTH CAROLINA**

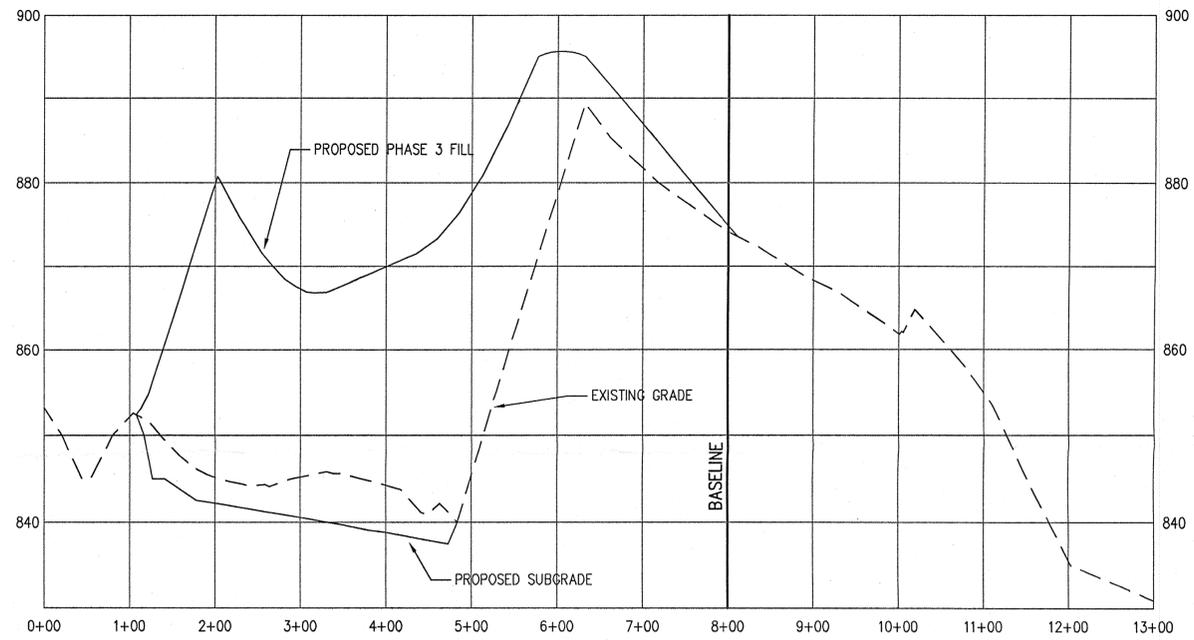
DATE	BY	REV.	DESCRIPTION
CONSTRUCTION PLANS - PHASE 3 PROPOSED PHASE 4 FILL PLAN			
SCALE: 1" = 100'			
DATE: 3/3/06			
DRWN. BY: L. HAMPTON			
CHKD. BY: J. WOODIE			
PROJECT NUMBER			
G04100			
DRAWING NO.	SHEET NO.		
C4	6 OF 7		





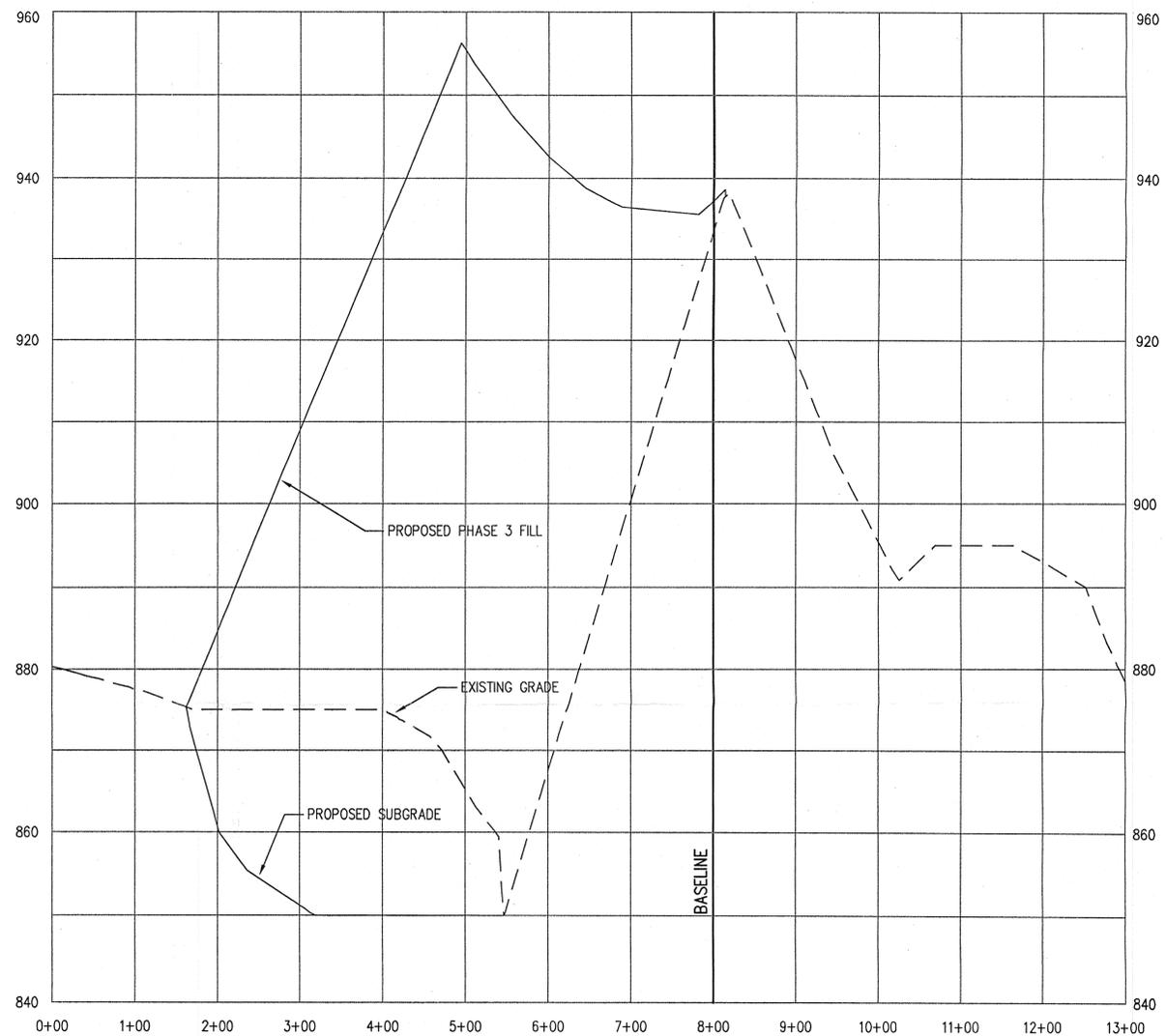
BASELINE PROFILE

SCALE: HORIZ.: 1" = 100'
VERT.: 1" = 10'



STATION 2+00

SCALE: HORIZ.: 1" = 100'
VERT.: 1" = 10'



STATION 5+00

SCALE: HORIZ.: 1" = 100'
VERT.: 1" = 10'



Municipal Services Engineering Company, P.A.
 P.O. BOX 87 GARNER, N.C. 27529 (619) 772-5363
 P.O. BOX 828 ROCKFORD CITY, N.C. 28657 (621) 723-8461

**CONSTRUCTION AND DEMOLITION
 LANDFILL FACILITY
 IREDELL COUNTY
 NORTH CAROLINA**

DATE	BY	REV.	DESCRIPTION

CONSTRUCTION PLANS - PHASE 3
 BASELINE PROFILE AND CROSS SECTIONS

SCALE: 1" = 100'
 DATE: 7/26/05
 DRWN. BY: L. HAMPTON
 CHKD. BY: J. WOODIE
 PROJECT NUMBER: G04100
 DRAWING NO.: C5
 SHEET NO.: 7 OF 7

IREDELL COUNTY CONSTRUCTION AND DEMOLITION LANDFILL OPERATION PLAN PHASE 3

OWNER: IREDELL COUNTY
PROJECT NO. G04100

BOARD OF COMMISSIONERS

Sara Haire Tice - Chairman
Robert G. (Godfrey) Williams - Vice Chairman
Stephen D. Johnson
Kenneth M. Robertson, Jr.
Marvin Norman

COUNTY MANAGER

Joel Mashburn

SOLID WASTE DIRECTOR

David Lambert

Engineer
Municipal Engineering Services Company, P.A.
Garner, NC - Morehead City, NC - Boone, NC

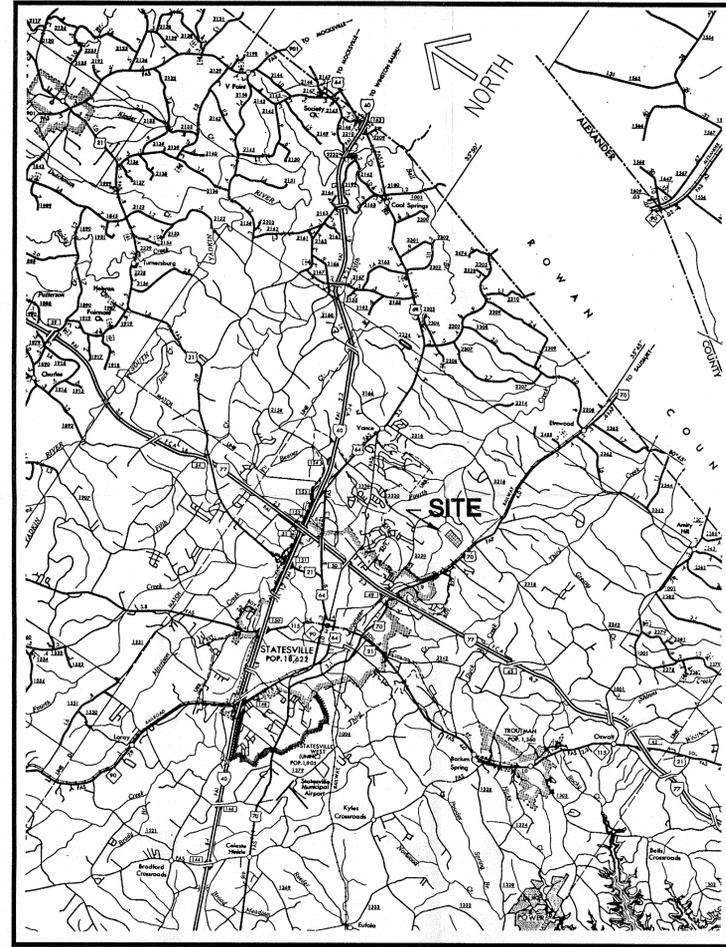
by  *J. Woodie*
Professional Engineer



SCALE:	NTS
DATE:	3/31/06
DRWN. BY:	L. HAMPTON
CHKD. BY:	J. WOODIE
PROJECT NUMBER	G04100
DRAWING NO.	T1
SHEET NO.	1 OF 7

INDEX

SHEET NO.	DRAWING NO.	DESCRIPTION
1	T1	TITLE SHEET
2	T2	INDEX AND VICINITY MAP
3	P1	PROPOSED FILL SEQUENCE 1
4	P2	PROPOSED FILL SEQUENCE 2
5	P3	PROPOSED FILL SEQUENCE 3
6	P4	PROPOSED FILL SEQUENCE 4
7	P5	PROPOSED FILL SEQUENCE 5



VICINITY MAP


Municipal Services
Engineering Company, P.A.
 P.O. BOX 87 GARNER, N.C. 27529 (919) 772-5595
 P.O. BOX 828 MOREHEAD CITY, N.C. 28557 (252) 726-9461

**CONSTRUCTION AND DEMOLITION
 LANDFILL FACILITY
 IREDELL COUNTY
 NORTH CAROLINA**

DATE	BY	REV.	DESCRIPTION

OPERATION PLANS - PHASE 3
INDEX AND VICINITY MAP

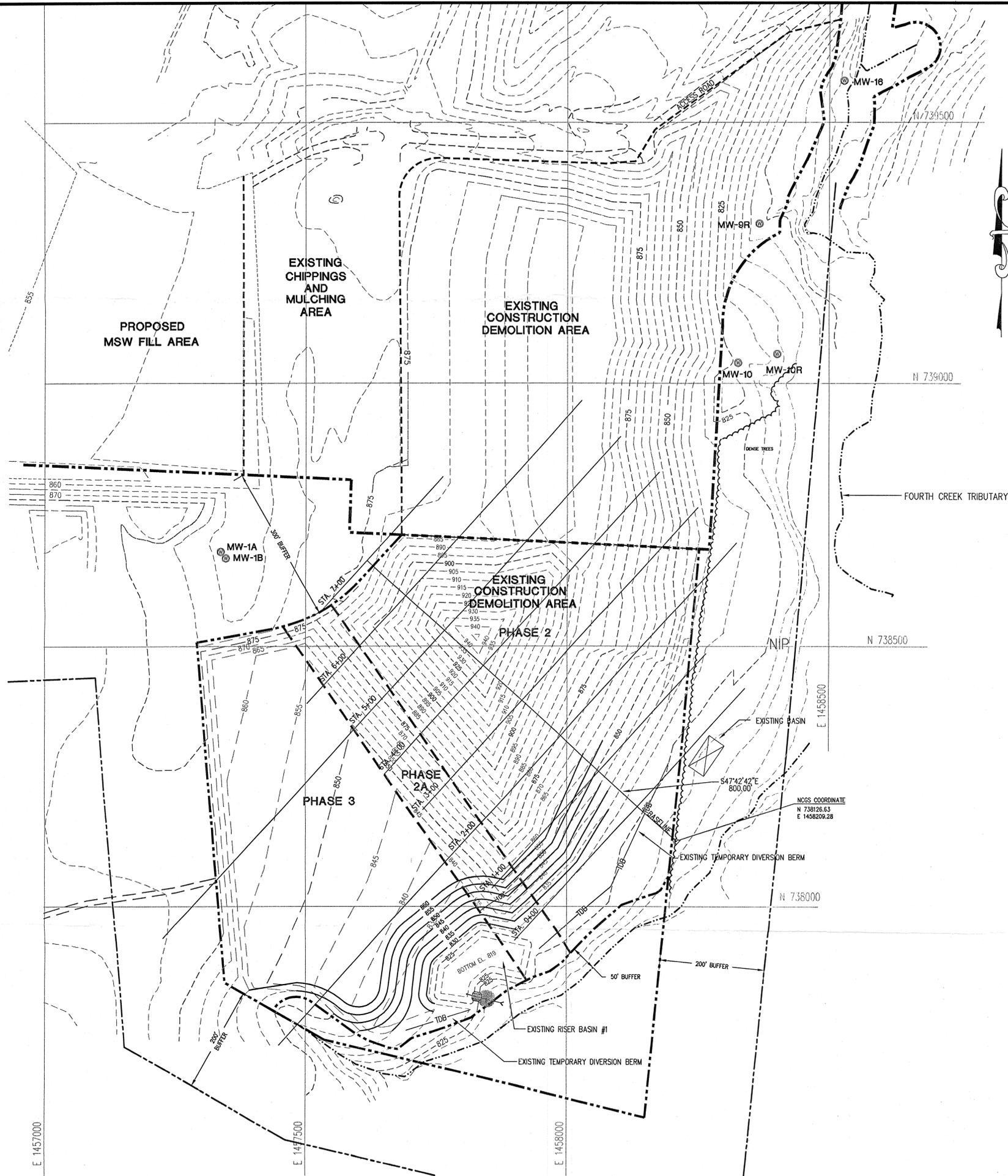
SCALE:	1:1
DATE:	3/31/06
DRWN. BY:	L. HAMPTON
CHKD. BY:	J. WOODIE
PROJECT NUMBER	G04100
DRAWING NO.	T2
SHEET NO.	2 OF 7



P:\SolidWaste\G04100-irede\OPERATION\dwg\OPERATION\04100-P02.dwg, 4/5/2006 2:17:51 PM, lch

LEGEND:

- 875--- EXISTING CONTOURS
- 875--- PROPOSED CONTOURS
- --- BUFFERS
- --- PHASE LINE
- --- PROPERTY LINE
- --- DRAINAGE FEATURE
- --- TDB
- --- EXISTING TEMPORARY DIVERSION BERM
- ⊙ MW-1B EXISTING MONITORING WELL



Municipal Engineering Services

Engineering Company, P.A.

P.O. BOX 87 GARNER, N.C. 27529
 (919) 772-3366

P.O. BOX 828 MOREHEAD CITY, N.C. 28567
 (252) 726-4461

**CONSTRUCTION AND DEMOLITION
 LANDFILL FACILITY
 IREDELL COUNTY
 NORTH CAROLINA**

DATE	BY	REV.	DESCRIPTION

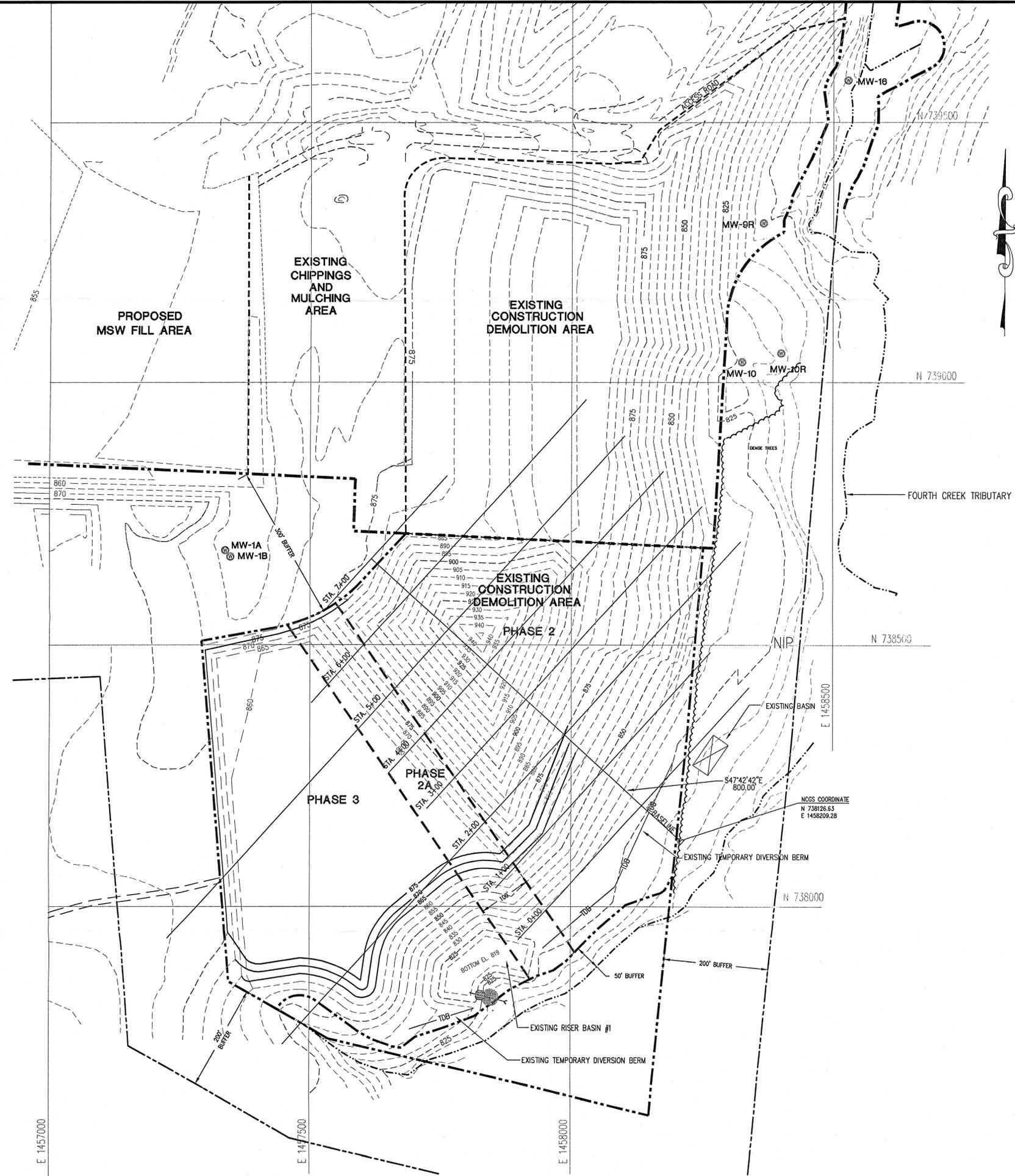
**OPERATION PLANS - PHASE 3
 PROPOSED FILL SEQUENCE 1**

SCALE: 1" = 100'
 DATE: 7/19/05
 DRWN. BY: L. HAMPTON
 CHKD. BY: J. WOODIE
 PROJECT NUMBER: G04100
 DRAWING NO. P1 SHEET NO. 3 OF 7



LEGEND:

- 875--- EXISTING CONTOURS
- - - - - 875 PROPOSED CONTOURS
- ==== BUFFERS
- PHASE LINE
- PROPERTY LINE
- DRAINAGE FEATURE
- TDB EXISTING TEMPORARY DIVERSION BERM
- ⊙ MW-1B EXISTING MONITORING WELL



Municipal Services

Engineering Company, P.A.

P.O. BOX 87 GARNER, N.C. 27626 (919) 772-5983
 P.O. BOX 828 MOREHEAD CITY, N.C. 28557 (252) 726-3481

**CONSTRUCTION AND DEMOLITION
 LANDFILL FACILITY
 IREDELL COUNTY
 NORTH CAROLINA**

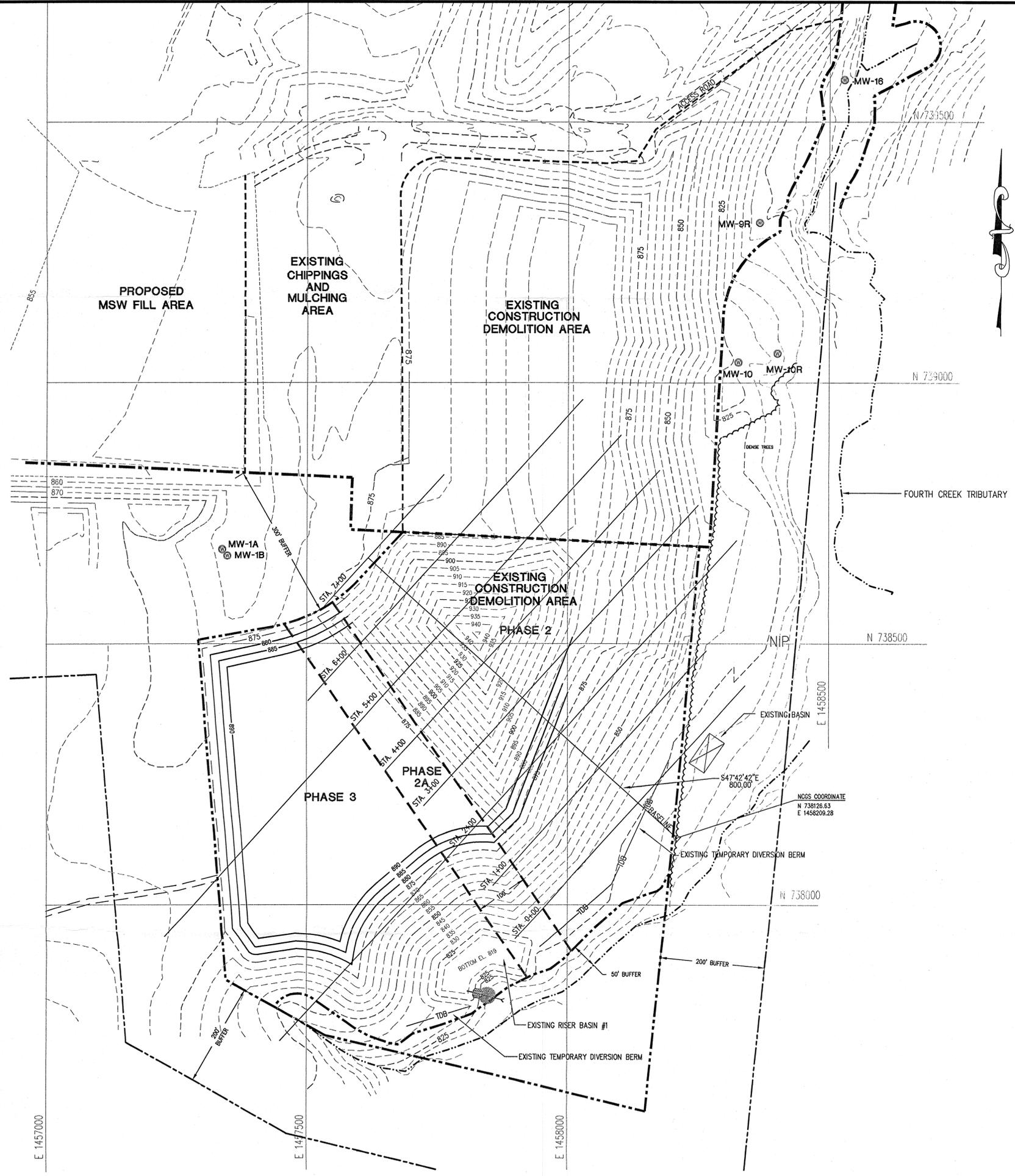
DATE	BY	REV.	DESCRIPTION

**OPERATION PLANS - PHASE 3
 PROPOSED FILL SEQUENCE 2**

SCALE: 1" = 100'
 DATE: 4/5/06
 DRWN. BY: L. HAMPTON
 CHKD. BY: J. WOODIE
 PROJECT NUMBER: **G04100**
 DRAWING NO. **P2** SHEET NO. **4 OF 7**



- LEGEND:**
- 875--- EXISTING CONTOURS
 - 875--- PROPOSED CONTOURS
 - --- BUFFERS
 - --- PHASE LINE
 - --- PROPERTY LINE
 - --- DRAINAGE FEATURE
 - TDB- EXISTING TEMPORARY DIVERSION BERM
 - ⊙ MW-1B EXISTING MONITORING WELL



**CONSTRUCTION AND DEMOLITION
LANDFILL FACILITY
IREDELL COUNTY
NORTH CAROLINA**

DATE	BY	REV.	DESCRIPTION

OPERATION PLANS - PHASE 3
PROPOSED FILL SEQUENCE 3

SCALE: 1" = 100'

DATE: 4/5/06

DRWN. BY: L. HAMPTON

CHKD. BY: J. WOODIE

PROJECT NUMBER: G04100

DRAWING NO. SHEET NO.
P3 5 OF 7



Municipal Services

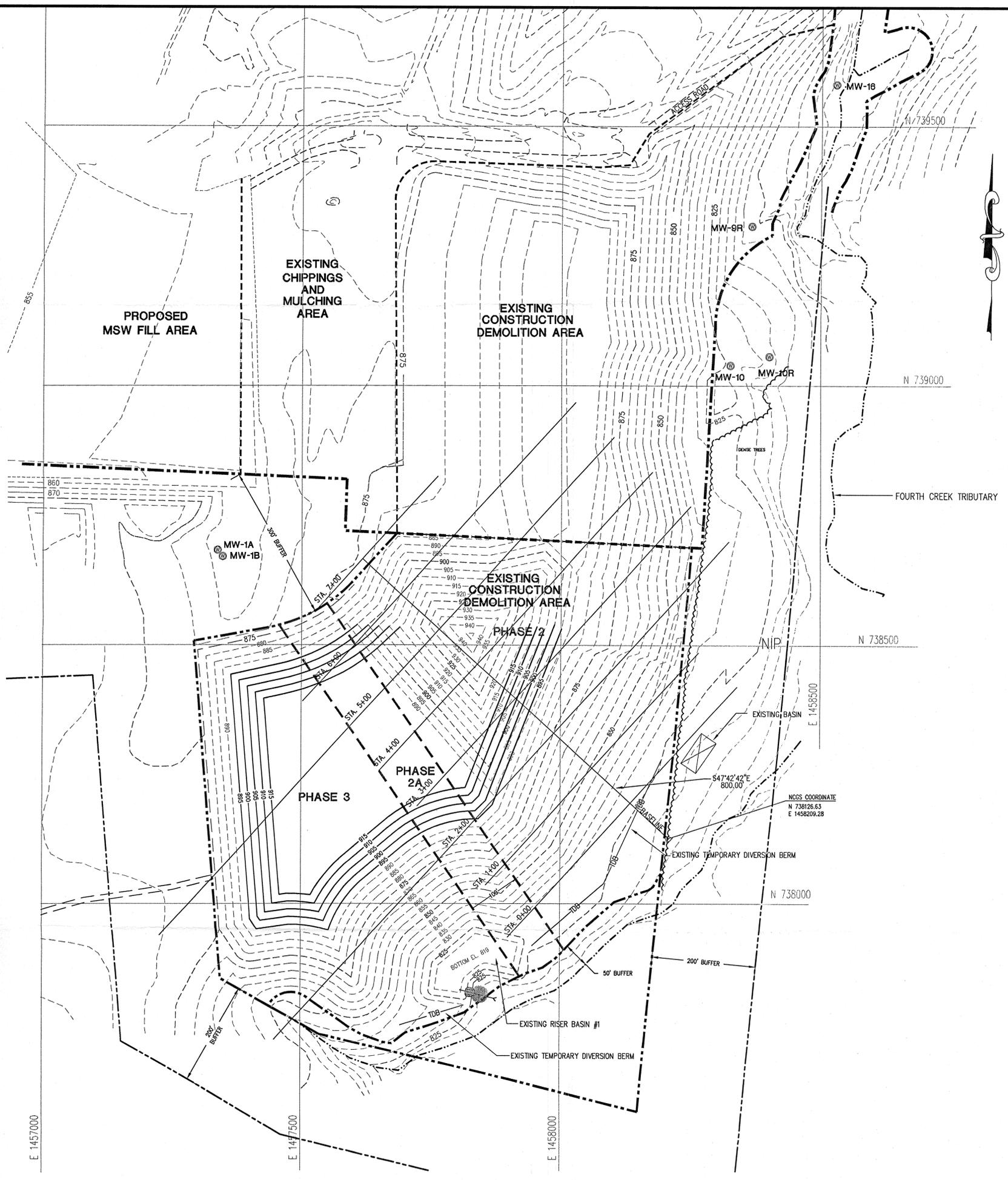
Engineering Company, P.A.

P.O. BOX 87 GARNER, N.C. 27628
(610) 772-5393

P.O. BOX 828 MOREHEAD CITY, N.C. 28557
(252) 726-9481

P:\SolidWaste\g04100-iredell\C&D Ph 3-construction\04100-P05.dwg, 5/4/2006 9:51:32 AM, lch

- LEGEND:**
- 875--- EXISTING CONTOURS
 - - - - -875- - - - - PROPOSED CONTOURS
 - --- --- BUFFERS
 - --- --- PHASE LINE
 - --- --- PROPERTY LINE
 - --- --- DRAINAGE FEATURE
 - - - - -TDB- - - - - EXISTING TEMPORARY DIVERSION BERM
 - ⊙ MW-1B EXISTING MONITORING WELL



Municipal Services

Engineering Company, P.A.

P.O. BOX 97 GARNER, N.C. 27529
(919) 772-5993

P.O. BOX 828 MOREHEAD CITY, N.C. 28557
(252) 726-9467

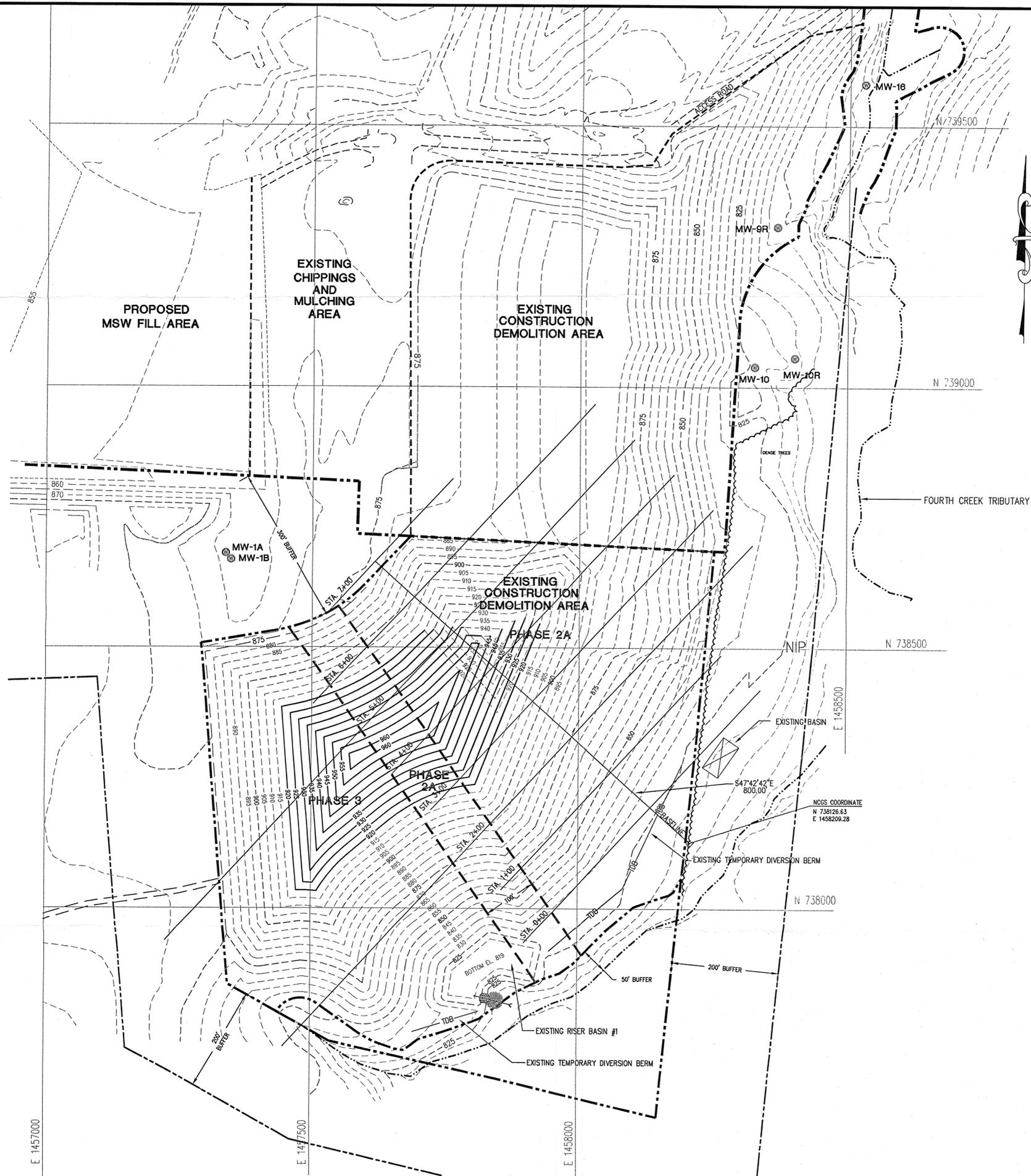
**CONSTRUCTION AND DEMOLITION
LANDFILL FACILITY
IREDELL COUNTY
NORTH CAROLINA**

DATE	BY	REV.	DESCRIPTION				
OPERATION PLANS - PHASE 3 PROPOSED FILL SEQUENCE 4							
SCALE: 1" = 100'							
DATE: 4/5/06							
DRWN. BY: L. HAMPTON							
CHKD. BY: J. WOODIE							
PROJECT NUMBER G04100							
DRAWING NO. P4	SHEET NO. 6 OF 7						



LEGEND:

- 875--- EXISTING CONTOURS
- - -875- - PROPOSED CONTOURS
- --- BUFFERS
- - - - PHASE LINE
- - - - PROPERTY LINE
- - - - DRAINAGE FEATURE
- - - - TDB EXISTING TEMPORARY DIVERSION BERM
- ⊙ MW-1B EXISTING MONITORING WELL



Municipal Services

Engineering Company, P.A.

P.O. BOX 87 GARNER, N.C. 27829
(919) 772-5383

P.O. BOX 828 MOREHEAD CITY, N.C. 28557
(252) 726-9481

**CONSTRUCTION AND DEMOLITION
LANDFILL FACILITY
IREDELL COUNTY
NORTH CAROLINA**

DATE	BY	REV.	DESCRIPTION				
OPERATION PLANS - PHASE 3 PROPOSED FILL SEQUENCE 5							
SCALE: 1" = 100'							
DATE: 4/5/06							
DRWN. BY: L. HAMPTON							
CHKD. BY: J. WOODIE							
PROJECT NUMBER							
G04100							
DRAWING NO. P5				SHEET NO. 7 OF 7			

