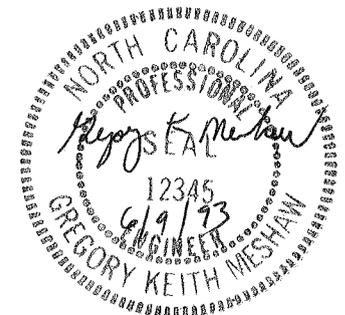

SEDIMENT AND EROSION CONTROL PLAN
Land Clearing and Inert Debris Landfill
Phase II
Fieldcrest Cannon Plant #1
1 Lake Drive
Kannapolis, North Carolina

Prepared For
FIELDCREST CANNON, INC.

Prepared By
ENSCI ENGINEERING GROUP, P.A.



EEG Project No. E001053
June 7, 1993



TABLE OF CONTENTS

	<u>Page</u>
1.0 Project Description	1
1.1 Site Location and Description	1
1.2 Geotechnical Subsurface Investigation	2
1.3 Wetlands and 100-Year Floodplain	2
1.4 Historical or Archaeological Sites	3
1.5 Critical Habitat of Endangered or Threatened Species	4
1.6 Park, Scenic, or Recreation Area Boundaries	4
1.7 Groundwater	4
2.0 Project Scope	5
2.1 Description	5
2.2 Permit Requirements	5
2.3 Projected Land Use	5
3.0 Construction Schedule and Sequence	6
3.1 Construction Schedule	6
3.2 Construction Sequence	6
4.0 Planned Erosion and Sedimentation Control Practices	8
5.0 Maintenance Plan	10

Figures

Appendix A - Drawings and Specifications

Appendix B - Supporting Calculations

Appendix C - Financial Responsibility/Ownership Form and Contact Person

Appendix D - Checklist

Appendix E - Correspondence

1.0 PROJECT DESCRIPTION

1.1 SITE LOCATION AND DESCRIPTION

The Fieldcrest Cannon Plant #1 facility is located at 1 Lake Drive in Cabarrus County, Kannapolis, North Carolina as shown on the Vicinity Map, Figure 1. The LCID landfill is a land clearing and inert debris (LCID) landfill regulated by the North Carolina Solid Waste Management Rules, 15A NCAC 13B .0560 - .0566. The facility has been operating since September, 1992. The disturbed area associated with the Phase I is approximately 10.4 acres. Fieldcrest Cannon, Inc. plans to expand the existing landfill to include approximately 8.5 additional acres. The expanded area, Phase II, is bound on the north by the existing landfill and North Loop Road, by Plant #1 on the south, by a Duke Power Company substation and the existing landfill on the west, and by North Main Street on the east.

The original grade of the expanded landfill slopes sharply from Plant #1 at elevation 808 feet mean sea level (MSL) to elevation 769 feet MSL at the existing tank area. A more moderate angle of repose exists at the embankment west of North Main Street. The original grade varies from elevation 808 feet MSL to elevation 791 feet MSL at the existing parking area.

The LCID Site Plan - Phase II, Drawing 7 of 10, shows the proposed landfill expansion configuration. The limits of the landfill are defined by the following buffer zones.

- A 100 foot buffer is provided between the LCID landfill and the property boundary, defined by the Property Map, Figure 2.
- A 50 foot buffer is maintained between the piped stream, Lumber Yard Drain, and the disposal area.

- Several residential homes are located on the north side of North Loop Road. A minimum 100 foot buffer has been provided between the homes and the landfill boundary.
- A 100 foot buffer has been provided between the plant and the landfill.

1.2 GEOTECHNICAL SUBSURFACE INVESTIGATION

A geotechnical subsurface investigation of the expanded landfill area was performed by ENSCI in December, 1992. The work included installing nineteen soil borings. The soil borings were drilled until the static groundwater table was encountered. Temporary piezometers were set to compile information regarding the static and seasonal high water tables, excavation limits, and direction of groundwater flow.

The subsurface investigation revealed that fill materials encountered consisted primarily of clean fill (disturbed saprolite). Debris, consisting of stone, gravel, concrete, asphalt, brick, and plant material, was observed in minor amounts. A copy of the complete geotechnical report is included as part of the permit submittal package to the North Carolina Solid Waste Management Division.

1.3 WETLANDS AND 100-YEAR FLOODPLAIN

Phase II, the expanded landfill area, is above the headwaters of Lumber Yard Branch. Runoff from the expanded landfill area drains to the Lumber Yard Branch, which flows north-northeast approximately 0.6 miles to Bakers Creek. Bakers Creek flows west approximately 1 mile, where it joins Irish Buffalo Creek, a tributary of the Rocky River.

Lumber Yard Branch is currently piped from Plant #1 to approximately 150 feet south of North Loop Road. In his letter dated August 19, 1992, Appendix E, Mr. Wayne Wright, Regulatory Branch Chief, U.S. Army Corps of Engineers, indicated that Lumber Yard Branch is above the headwaters. Since the branch is above the headwaters, wetlands are not associated with the site.

During a telephone conversation with Ms. Sherry MacQueen on August 11, 1992, Mr. John Dorney, N.C. Division of Environmental Management, indicated that no State Water Quality Certification is required for disturbed areas less than 1/3 acre. The telephone conversation memo is contained in Appendix E.

1.4 HISTORICAL OR ARCHAEOLOGICAL SITES

The North Carolina Department of Cultural Resources, Division of Archives and History indicated in their letter dated February 9, 1993, Appendix E, that there are no known archaeological sites within the proposed project boundary. They stated that based on their present knowledge of the area, it is unlikely that any archaeological resources, eligible for inclusion in the National Register of Historic Places, will be affected by the project construction. They, therefore, recommended that no additional archaeological investigation be conducted in connection with the project. A search was conducted pursuant to Section 106 of the National Historic Preservation Act of 1966 that revealed the following structures of historical or architectural importance within the general area of the project:

Cannon Mill Housing (Kannapolis Mill Village) including G.I. Town and Black Section. These properties were placed on the state study list for potential nomination to the National Register of Historic Places on March 18, 1980.

1.5 CRITICAL HABITAT OF ENDANGERED OR THREATENED SPECIES

In accordance with required siting criteria for LCID landfills, an investigation was conducted by ENSCI Engineering Group personnel to establish that Phase II will not result in the destruction of critical habitat of endangered or threatened species as identified in 50 CFR Part 17. According to Mr. Marshall Ellis, Resource Management Specialist, the Division of Parks and Recreation's Natural Heritage Program has no records of any rare or threatened species or critical habitat in the project area. As indicated in his letter dated March 16, 1993, Appendix E, unless recommended by other state or local agencies, no biological survey is required.

1.6 PARK, SCENIC, OR RECREATION AREA BOUNDARIES

Phase II will not adversely affect any state parks, state trails, registered natural heritage areas, or state recreation areas. According to Mr. Ellis, there are no state parks in either Cabarrus or Rowan County. In addition, the Kannapolis Department of Parks and Recreation indicated that there are no city or county public recreation facilities in the immediate vicinity of the project.

1.7 GROUNDWATER

Excavation and fill activity will be limited to a minimum buffer of four feet above the seasonal high water table as defined in the Geotechnical Subsurface Investigation report prepared by ENSCI Environmental. A total of five groundwater monitoring wells have been installed in the area. Two wells were installed and sampled during the Phase I site investigation. Three additional wells were installed during the Phase II site investigation. The groundwater sampling

test results contained in a report prepared by ENSCI entitled Geotechnical Subsurface Investigation Addendum, are available upon request.

2.0 PROJECT SCOPE

2.1 DESCRIPTION

The purpose of Phase II is to expand the existing LCID landfill as shown on the Site Plan-Phase II, Drawing 7 of 10, to include the tank area and the existing parking area located south southwest of Phase I. The facility is to be operated for the disposal of land clearing waste, inert debris, untreated wood and yard trash. The current operating procedures will be maintained as permitted by the N.C. Solid Waste Management Division with the exception that inert debris will include ash as well as concrete, brick, concrete block, uncontaminated soil, rock and gravel.

2.2 PERMIT REQUIREMENTS

Fieldcrest Cannon, Inc. has been operating a LCID landfill since September, 1992, under the Division of Solid Waste Management, Solid Waste Management rules, 15A NCAC 13B. It is estimated that Phase I will be completed by March, 1994. An extension of the existing permit is requested for Phase II to operate for a maximum of five years.

2.3 PROJECTED LAND USE

After completion of the landfill construction, the area will be seeded and maintained. Proposed future plans for development of the site may include:

- Community recreation areas such as walking trails, softball fields
- Plant parking in the area of the existing parking.

3.0 CONSTRUCTION SCHEDULE AND SEQUENCE

3.1 CONSTRUCTION SCHEDULE

As shown on the LCID Operations Plan-Phase II, Drawing 9 of 10, the following construction schedule is offered for Phase II.

<u>Cell</u>	<u>Start Date</u>	<u>Completion Date</u>
Cell 7	November 1, 1994	February 1, 1995
Cell 8	February 1, 1995	May 1, 1995
Cell 9	May 1, 1995	August 1, 1995
Cell 10	May 1, 1995	May 1, 1997
Cell 11	May 1, 1997	November 1, 1999

Fieldcrest Cannon requests an option to fill cells 10 and 11 as early as November, 1993 to accommodate rerouting the existing Ash Lines.

3.2 CONSTRUCTION SEQUENCE

1. Obtain plan approval to expand the existing landfill from the following:
 - a) N.C. Department of Natural Resources and Community Development, Land Quality Section, (Sedimentation and Erosion Control Plan approval) - Contact person Wes Webb.
 - b) N.C. Department of Environment, Health and Natural Resources, Solid Waste Section, Western Area, LCID Solid Waste Management Permit - Contact person, Janis D. McHarque.

- c) City of Kannapolis approval of plans - contact person Melvin Rape, Public Works Director.
2. As shown on the LCID Demolition Plan-Phase II, Drawing Sheet 6 of 10, remove propane tanks located in Cell 11, demolish warehouses located in Cell 7, relocate power poles, and remove light poles in the parking area as required.
 3. Flag the Phase II construction limits, delineate construction cells, mark monitoring wells. For underground utilities that are to remain in place, delineate 15 feet from the centerline of the pipe as a buffer zone to have beneficial fill only.
 4. Construct perimeter ditches, as shown on the Sediment and Erosion Control Plan-Phase II, Drawing Sheet 8 of 10, to divert upland flow away from the landfill area.
 5. Install silt fence and internal diversion ditches. The existing silt basins will be used during Phase II. Temporary sediment and erosion control measures are to be installed as shown on the Sediment and Erosion Control Plan-Phase II, Drawing Sheet 8 of 10, and in accordance with the Sediment and Erosion Control Specification.
 6. Clear a waste disposal area as needed.
 7. Clear a stockpile area for soils to be used as capping materials.
 8. Complete site clearing for the working cell as specified in the operations plan.
 9. Excavate cells to elevations shown on the Operations Plan-Phase II and the LCID Cross Section-Phase II, drawings. Do not excavate areas designated as beneficial fill areas (BF) or Cells 10 and 11.

10. Deposit material excavated from Cells 7, 8, and 9 in Cells 10 and 11 to provide the required four feet of buffer between the seasonal high water table and the bottom of the fill material. Stockpile excess excavated material around the perimeter of the working face to provide a diversion berm and intermediate cover. Stockpile capping soils in the designated areas.
11. Fill cells as specified in the Operations Plan. Do not fill Cells 10 and 11 until a minimum of four feet of cover has been provided between the seasonal high water table and the bottom of the fill elevation for Lift #1. Construct lifts with a 3:1 embankment slope.
12. Construct a minimum six inch intermediate cover between lifts as designated in the Operations Plan.
13. Upon completion of each cell, cap with one foot of final cover, vegetate, landscape, and mulch.
14. After the site is stabilized, temporary measures will be removed and permanent vegetation applied to distributed areas.

4.0 PLANNED EROSION AND SEDIMENTATION CONTROL PRACTICES

1. Sediment Basin - Sediment basin #3, previously constructed during Phase I, will be used during construction of Phase II. The basin is located to intercept run-off from the active landfill. Additional internal sediment basins may be constructed within individual cell as required.
2. Temporary Gravel Construction Entrance/Exit - Temporary gravel construction entrance roads will be constructed as shown on the plan. Roads will be stabilized

with a 6-8 inches of NC DOT washed #57 stone to prevent erosion and control dust. Temporary internal roads are shown on the site plan, Phase II, but may vary depending on the cell location and field conditions.

3. Land Grading and Excavation - Heavy grading will be required to excavate the cells prior to landfill construction. The excavation limits will be a minimum of 4 feet above the seasonal high water table as shown on the landfill cross section drawings. No excavation will be allowed in the beneficial fill areas or in Cells 10 and 11.
4. Silt Fence - Silt fence will be installed at the perimeter of the working cell on the down gradient side and as shown on the Sediment and Erosion Control Plan-II.
5. Stone Perimeter Ditch - A stone perimeter ditch will be constructed to divert runoff from the landfill area. Locations are shown on the expansion plan Sediment and Erosion Control Plan-Phase II, Drawing Sheet 8 of 10.
6. Grass-Lined Swales - Temporary grass lined swales will be constructed on top of the cells to divert run-off from the cell slope.
7. Seeding and Mulching - Surface stabilization will be accomplished with vegetation and mulch as specified in the Sedimentation and Erosion Control Specification ENS1000, Appendix A.
8. Dust Control - Special attention will be given to fugitive dust control when ash is being transported and filled. Trucks transporting ash will be covered. The ash will be deposited in 8 to 12 inch lifts, moisture conditioned and compacted to control dust. In areas of land clearing and inert debris fill, a water truck will be

used to sprinkle the surface of the landfill to control dust. Trucks leaving the site will be required to pass through a wheel wash facility prior to entering public roads.

5.0 MAINTENANCE PLAN

1. All erosion and sediment control practices will be checked for stability and operation following every runoff-producing rainfall or at least once every week. Any needed repairs will be made immediately to maintain all practices as designed.
2. Sediment basins will be cleaned out when the level of sediment reaches 1.0 foot below the top of the weir. Gravel will be cleaned or replaced when the sediment pool no longer drains properly. The sediment basins will be reconstructed a minimum of every two years, or as required.
3. Sediment will be removed from behind the silt fence when it becomes about six inches deep at the fence. Sediment will be placed in the landfill, spread and compacted. The sediment fence will be repaired as necessary to maintain a barrier.
4. All seeded areas will be fertilized, reseeded as necessary, and mulched according to specifications to maintain a vigorous, dense vegetative cover.

5. Settlement of the site, with specific attention to vertical differential settling, will be monitored. If settlement occurs causing surface water to pool, the area will be filled with additional cover material and smoothed to match surrounding contours.

ENSCI ENGINEERING GROUP, P.A.



Sherry B. MacQueen
Project Engineer

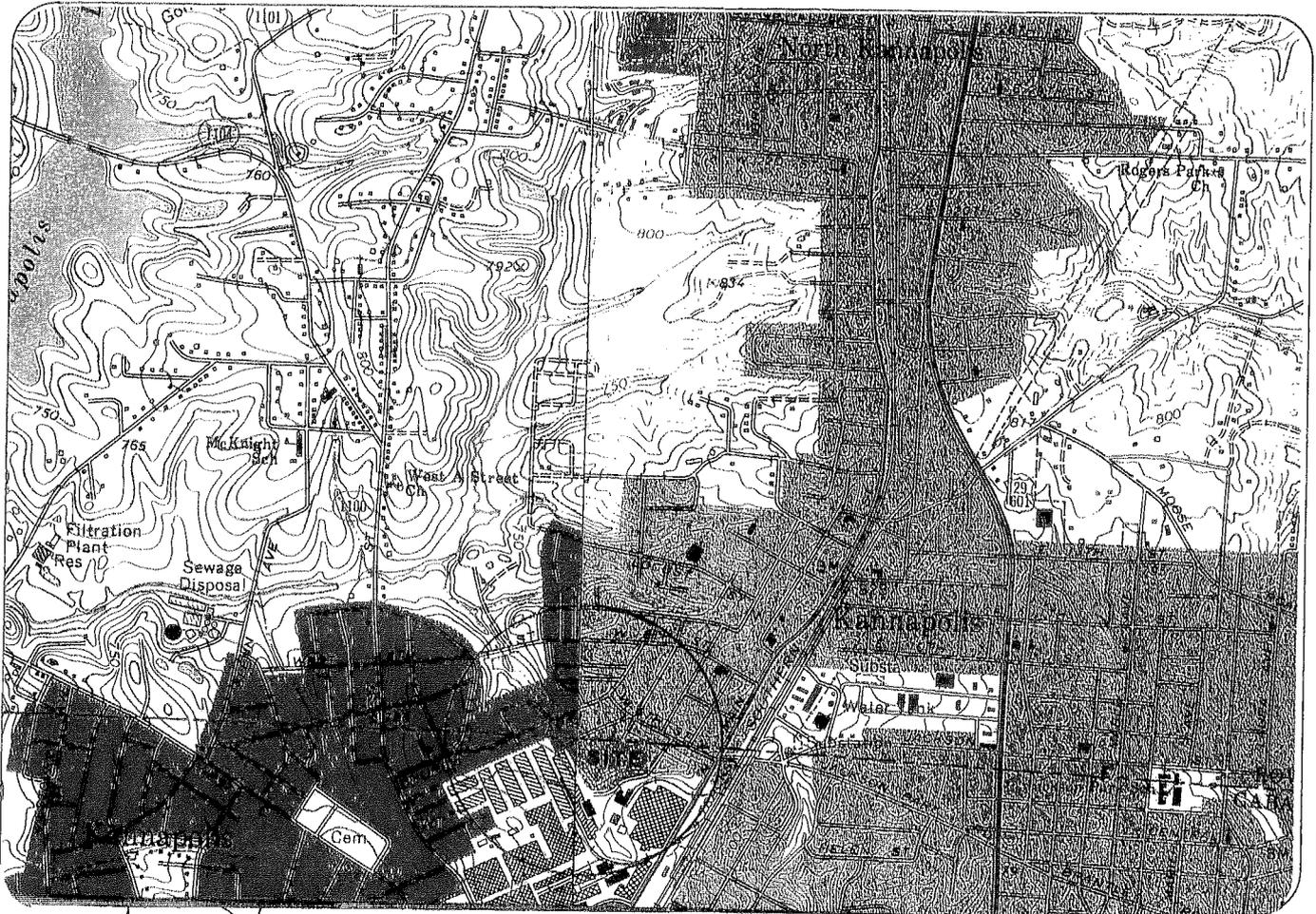
FIGURES

Figure 1 - Vicinity Map

Figure 2 - Property Map

TOPOGRAPHICAL MAP

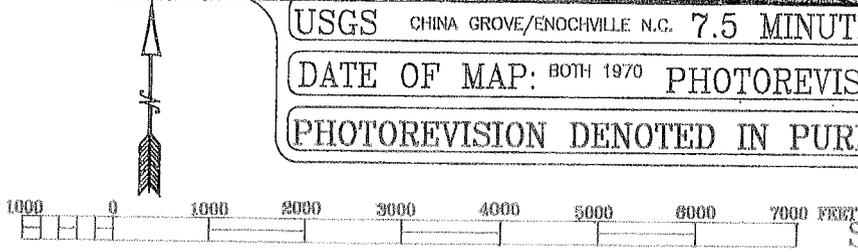
FIELDCREST CANNON
KANNAPOLIS, NORTH CAROLINA



USGS CHINA GROVE/ENOCHVILLE N.C. 7.5 MINUTE QUADRANGLE

DATE OF MAP: BOTH 1970 PHOTOREVISION DATE: CG: 1970 E: N/A

PHOTOREVISION DENOTED IN PURPLE (COLOR MAPS ONLY)



SCALE 1:24000

ROAD CLASSIFICATION

- | | | | |
|------------------|-------|------------------|---|
| HEAVY-DUTY | ===== | U.S. ROUTE | □ |
| MEDIUM-DUTY | ----- | STATE ROUTE | ○ |
| LIGHT-DUTY | ----- | INTERSTATE ROUTE | ⊖ |
| FOOT TRAIL | ----- | | |
| WGN & JEEP TRACK | ----- | | |
| UNIMPROVED ROAD | ===== | | |



FOR: FIELDCREST CANNON CITY: KANNAPOLIS
STATE: NORTH CAROLINA

TITLE: TOPOGRAPHIC MAP

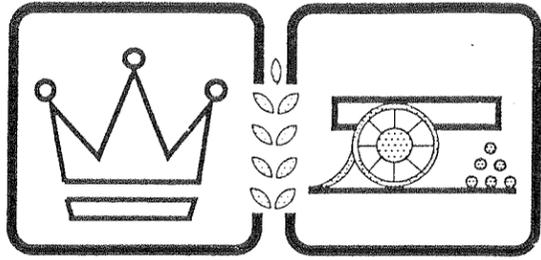
SCALE: 1" = 2000'	DWN BY: DJ	FIGURE: 1
DATE: 8/5/92	DWG NAME: USGS-1	CK BY: SS
		JOB #: H92058

APPENDIX A
DRAWINGS AND SPECIFICATIONS

Drawings 1 through 5 were previously transmitted with Phase I. The following drawings have been prepared for Phase II with the exception of the revised Sections and Details Sheet 5 of 10.

<u>Drawing Sheet</u>	<u>Title</u>
5 of 10	Sections and Details
6 of 10	Site Demolition Plan - Phase II
7 of 10	Site Plan - Phase II
8 of 10	Sediment and Erosion Control Plan - Phase II
9 of 10	Operations Plan - Phase II
10 of 10	Cross Sections - Phase II

<u>Specification Number</u>	<u>Title</u>
ENS1000	Sediment and Erosion Control Specification



FIELDCREST CANNON INC.

EDEN, NORTH CAROLINA

• KANNAPOLIS, NORTH CAROLINA

INDEX OF SHEETS

PHASE I

1 OF 5	DEMOLITION LANDFILL SITE PLAN - PHASE I
2 OF 5	DEMOLITION LANDFILL SEDIMENT AND EROSION CONTROL PLAN - PHASE I
3 OF 5	OPERATIONS PLAN - PLAN VIEW - PHASE I
4 OF 5	OPERATIONS PLAN - SECTION VIEWS - PHASE I
5 OF 5	LAND CLEARING AND INERT DEBRIS LANDFILL DETAILS AND SECTIONS - PHASE II

PHASE II

6 OF 10	LAND CLEARING AND INERT DEBRIS LANDFILL SITE DEMOLITION PLAN - PHASE II
7 OF 10	LAND CLEARING AND INERT DEBRIS LANDFILL SITE PLAN - PHASE II
8 OF 10	LAND CLEARING AND INERT DEBRIS LANDFILL SEDIMENT AND EROSION CONTROL PLAN - PHASE II
9 OF 10	LAND CLEARING AND INERT DEBRIS LANDFILL OPERATIONS PLAN - PHASE II
10 OF 10	LAND CLEARING AND INERT DEBRIS LANDFILL OPERATIONS PLAN CROSS SECTIONS - PHASE II

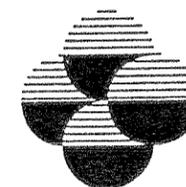
REFERENCE SPECIFICATIONS

PHASE I

FIELDCREST CANNON, INC.
SEDIMENT AND EROSION CONTROL
ENS1000

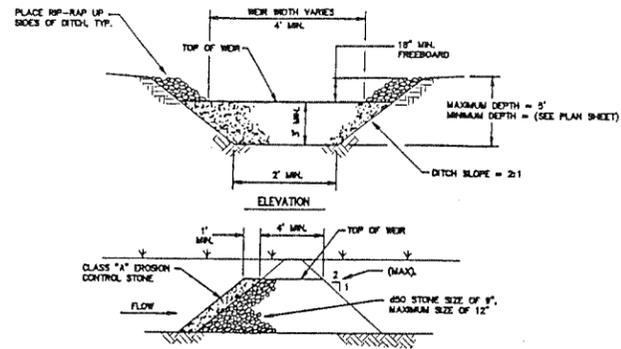
PHASE II

FIELDCREST CANNON, INC.
SEDIMENT AND EROSION CONTROL
ENS1000

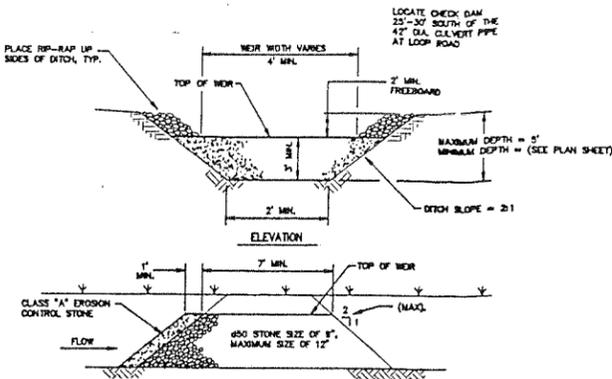


ENSOI®

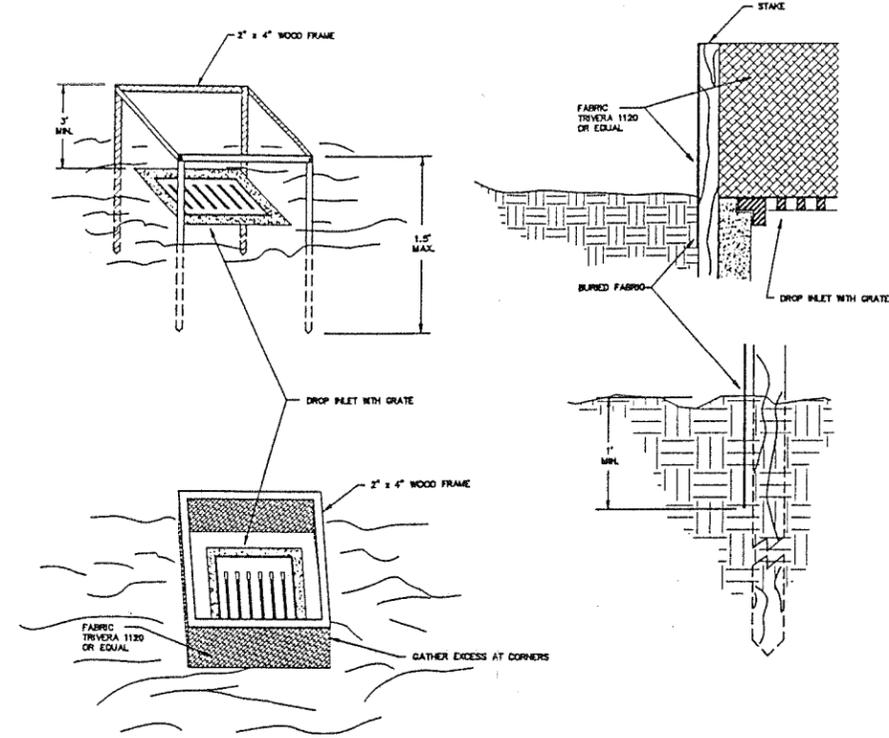
ENGINEERING GROUP, P.A.



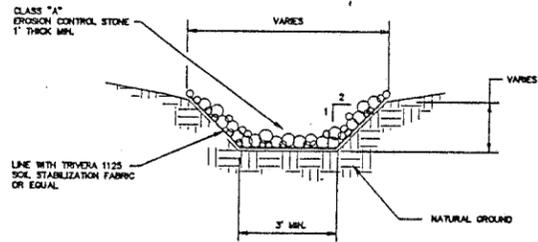
SECTION
1
 2,8
 TEMPORARY SEDIMENT TRAP
 NOT TO SCALE



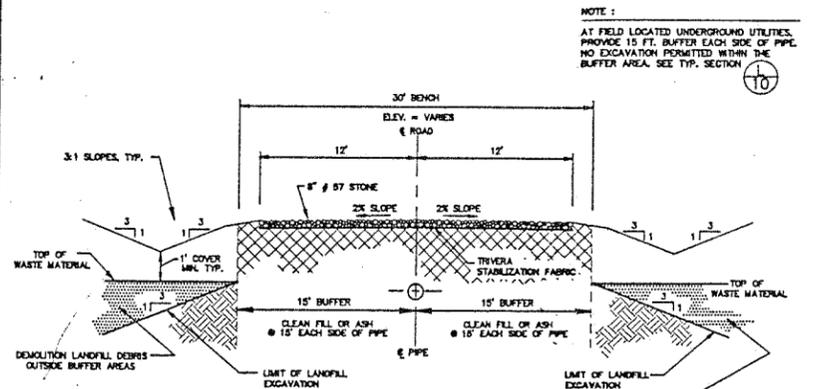
SECTION
2
 2,8
 TEMPORARY ROCK CHECK DAM @ LOOP RD.
 NOT TO SCALE



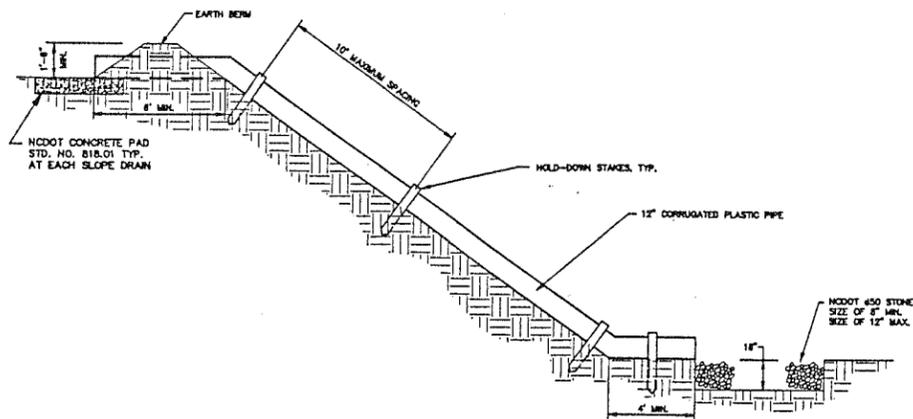
7
 2,8
 INLET PROTECTION
 NOT TO SCALE



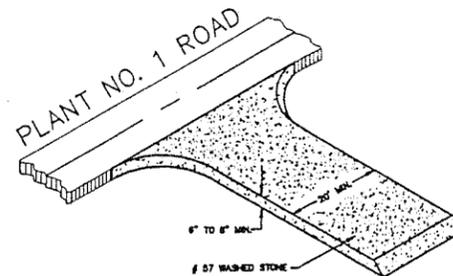
3
 2,8
 TYPICAL STONE DITCH DETAIL
 NOT TO SCALE



4
 8
 TYPICAL ROADWAY DETAIL @ GAS LINE
 NOT TO SCALE



5
 2,8
 TEMPORARY SLOPE DRAIN @ ACTIVE CELL
 NOT TO SCALE



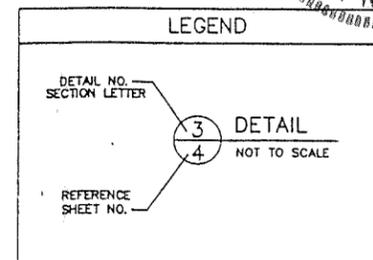
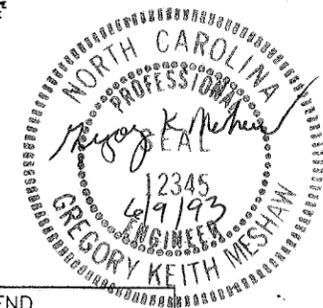
6
 2,8
 ACCESS ROAD
 NOT TO SCALE

REVISIONS: (9/14/92)

1. DETAIL NO. 1 CHANGE SIDE SLOPES TO 2:1
2. DETAIL NO. 2 CHANGE SIDE SLOPE TO 2:1
3. ADD DETAIL NO. 8 ROCK CHECK DAM 8' WIDE WITH 2:1 SIDE SLOPES AND 2' WEIR DEPTH AS RECOMMENDED BY WES WEIR-LAND QUALITY
4. ADD INLET PROTECTION DETAIL NO. 7

REVISIONS: (4/2/93)

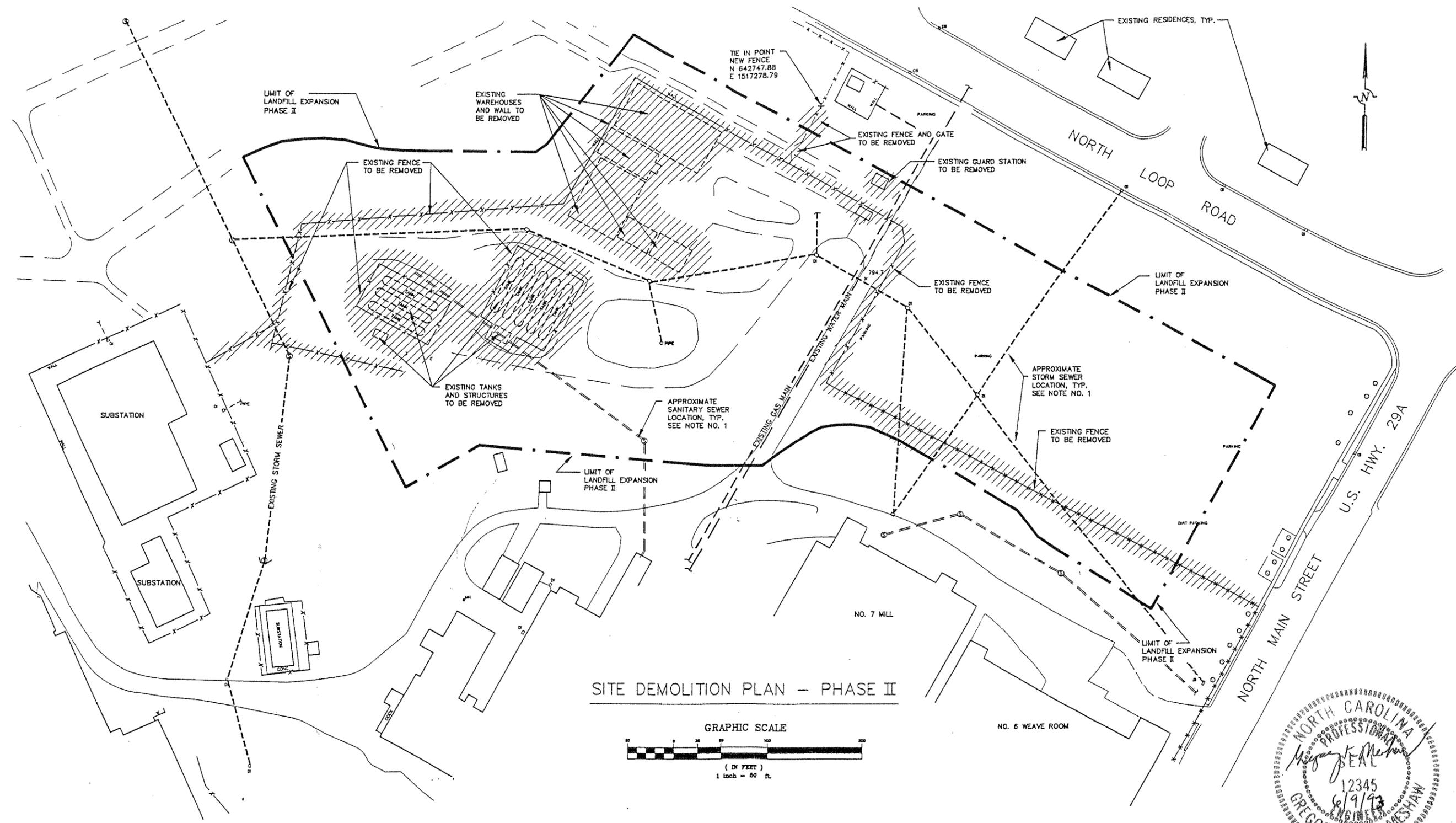
1. DETAIL NO. 4 SHOW UNDERGROUND PIPE LOCATION AND 21\"/>



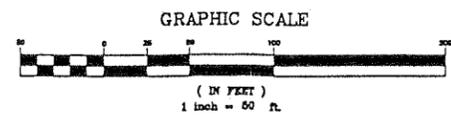
REVISIONS	
NO.	DATE

DATE: MARCH, 1993
DRAWN BY: PLW
CHECKED BY: SEM/GKM

SCALE
AS NOTED
PROJECT NO.
E001053
SHEET NO.
6 OF 10
DRAWING NO.
CANNON/DEMOPH2



SITE DEMOLITION PLAN - PHASE II

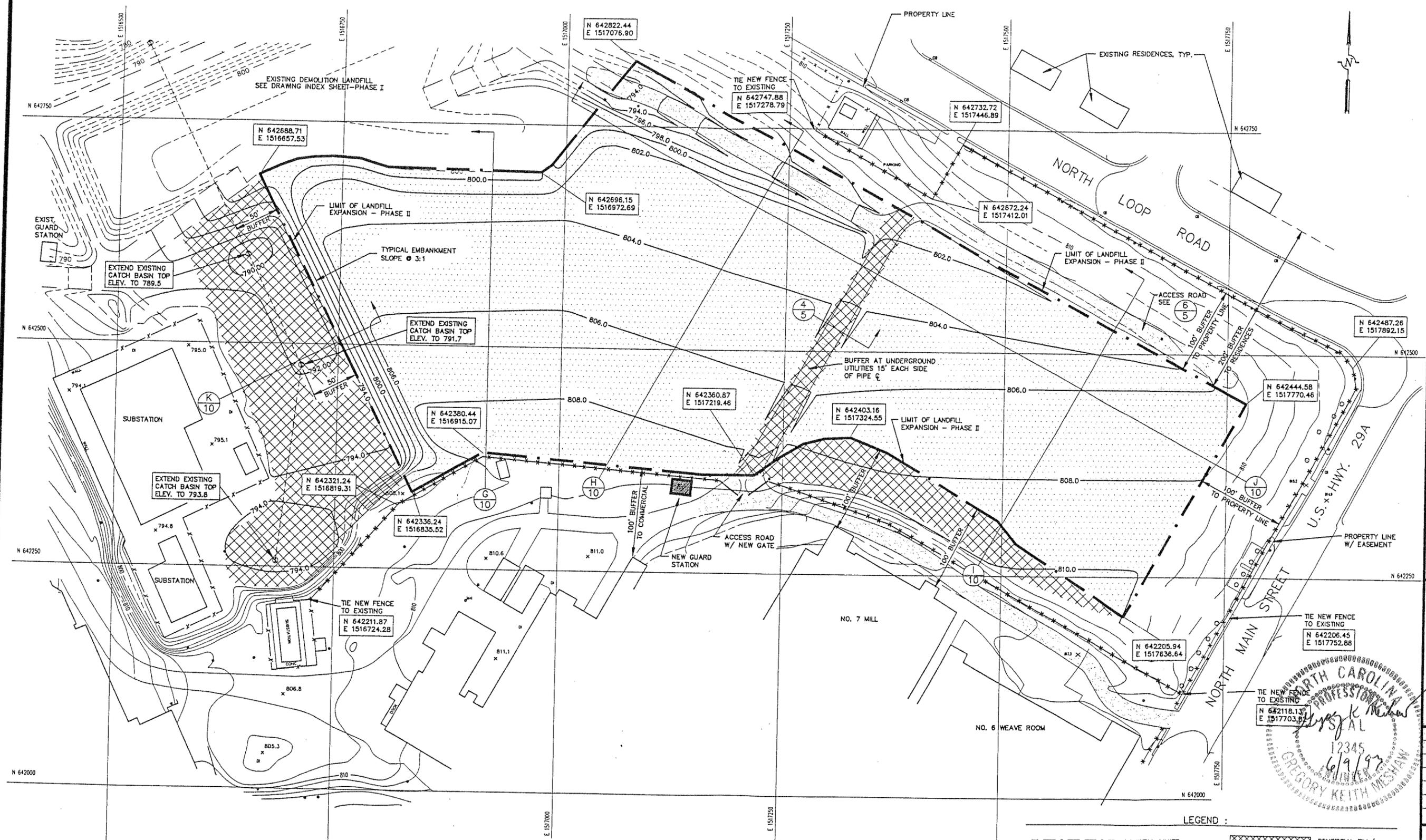


NOTES :

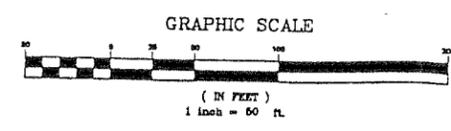
- FIELD VERIFY LOCATION OF ALL UNDERGROUND PIPING. RELOCATION TO BE FIELD DETERMINED. ALL REMAINING PIPING TO HAVE 15' BUFFER OF BENEFICIAL FILL FROM CENTERLINE (EACH SIDE).
- RELOCATE EXISTING LIGHT POLES AS REQUIRED PRIOR TO EXCAVATING.

LEGEND :

- LANDFILL LIMITS
- x-x-x-x- EXISTING FENCE
- - - - - EXISTING STORM SEWER
- - - - - EXISTING SANITARY SEWER
- o DROP INLET
- /// FEATURE TO BE REMOVED



SITE PLAN - PHASE II



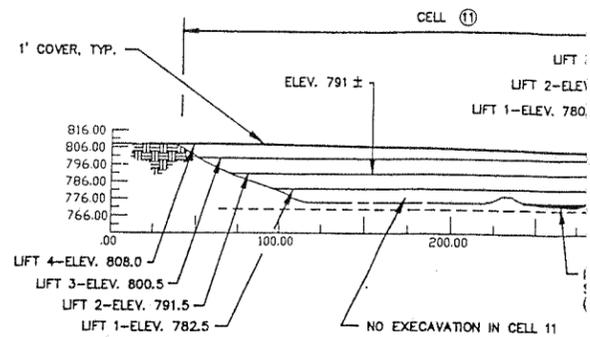
LEGEND :

--- --	LANDFILL LIMITS	[Cross-hatched box]	BENEFICIAL FILL/ CLEAN FILL ONLY
-x-x-x-x-	NEW FENCE	[Stippled box]	LAND CLEARING AND INERT DEBRIS
-x-x-x-x-	EXISTING FENCE	[Dotted box]	ALL SEASON ROADWAY
-x-x-x-x-	GATE	[Circle with 10]	SECTION
— 810.0 —	CONTOUR ELEV.	[Circle with 10]	REFERENCE SHEET NO.
•	SPOT ELEV.		

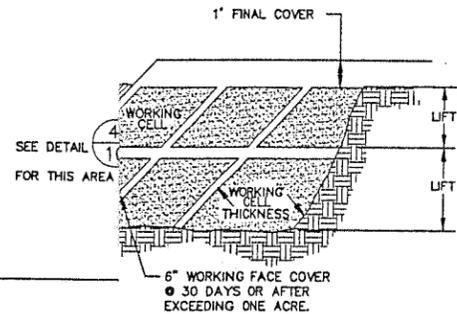


REVISIONS	
NO.	DATE

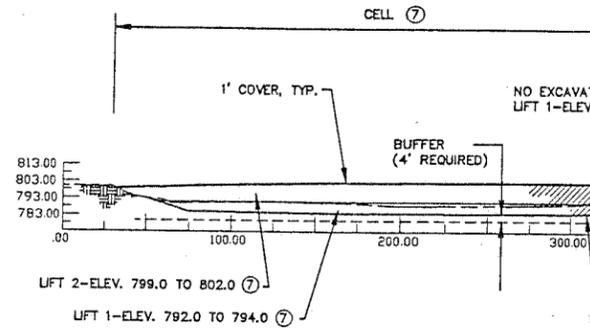
DATE: MARCH, 1993
DRAWN BY: PLW
CHECKED BY: SBM/GKM
SCALE AS NOTED
PROJECT NO. E001053
SHEET NO. 7 OF 10
DRAWING NO. CANNON/SITEPH2



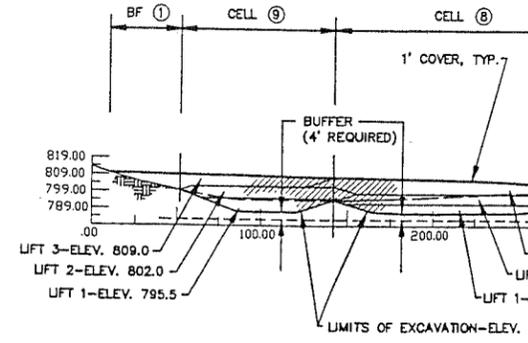
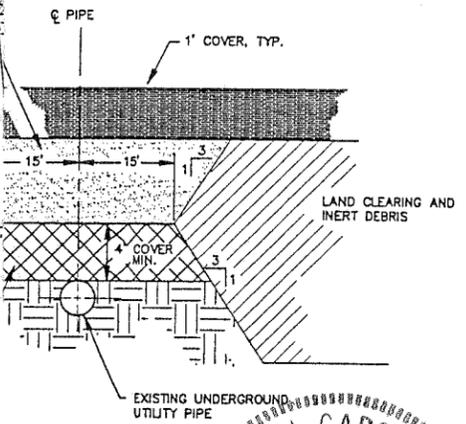
G
7,8,9 SECTION THROUGH
SCALE: VERT. 1"=10'
HORZ. 1"=50'



OF CELL CONSTRUCTION



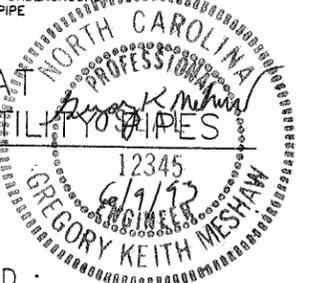
J
7,8,9 SECTION
SCALE: VERT. 1"=10'
HORZ. 1"=50'



I
7,8,9 SECTION THROUGH CEL
SCALE: VERT. 1"=10'
HORZ. 1"=50'

DETAIL A
GROUND UTILITY PIPES
SCALE

- LEGEND:**
- BENEFICIAL FILL MATERIAL
 - LAND CLEARING & INERT DEBRIS
 - 1' COVER
 - EXISTING GRADE
 - BUFFER MATERIAL 4' FROM (SHWT)
 - SEASONAL HIGH WATER TABLE (SHWT)
- ELEV. 797.0 FEET ABOVE MEAN SEA LEVEL



FIELDCREST CANNON, INC.
1 Lake Drive
Kannapolis, North Carolina 28081

DESCRIPTION	
LAND CLEARING & INERT DEBRIS	
LANDFILL OPERATIONS PLAN	
CROSS SECTIONS - PHASE II	

REVISIONS	
NO.	DATE

DATE: MARCH, 1993
DRAWN BY: PLW
CHECKED BY: SBM/GKM
SCALE AS NOTED
PROJECT NO. E001053
SHEET NO. 10 OF 10
DRAWING NO. CANNON/SEC2

**LAND CLEARING AND INERT DEBRIS LANDFILL -
PHASE II
SPECIFICATION ENS1000
Fieldcrest Cannon Plant #1
1 Lake Drive
Kannapolis, North Carolina 28081**

**Prepared For
FIELDCREST CANNON, INC.**

**Prepared By
ENSCI ENGINEERING GROUP, P.A.**



**EEG Project No. E001053
April 7, 1993**

TABLE OF CONTENTS

	<u>Page</u>
1.0 General	
1.1 Scope of Work	1
2.0 Sedimentation and Erosion Control	
2.1 Silt Check Dams and Sediment Basins	2
2.2 Silt Fence	3
2.3 Seeding and Mulching	5
3.0 Earthwork	
3.1 Clearing and Grubbing	9
3.2 Excavation	11

1.0 GENERAL

1.1 SCOPE OF WORK

This specification includes, but is not limited to, work required to operate and construct a Land Clearing and Inert Debris (LCID) landfill as defined by the following design drawings. Sheets 1 through 5 were previously issued for Phase I operation. Revised Sheet 5 and Sheets 6 through 10 are being issued for Phase II.

<u>Drawing Sheet</u>	<u>Title</u>
1 of 10	Demolition Landfill Site Plan
2 of 10	Erosion and Sediment Control Plan
3 of 10	Demolition Landfill Operations Plan
4 of 10	Demolition Landfill Sections
5 of 10	Details and Sections
6 of 10	Demolition Plan - Phase II
7 of 10	Site Plan - Phase II
8 of 10	Erosion and Sediment Control Plan - Phase II
9 of 10	Operations Plan - Phase II
10 of 10	Cross Sections - Phase II

2.0 EROSION CONTROL (NCDOT - DIVISION 8)

Sedimentation and erosion control shall comply with the design drawings listed above, the Sediment and Erosion Control Plans - Phase I and II and the Operations Plans - Phase I and II.

2.1 SILT CHECK DAMS AND SEDIMENT BASINS

The work covered by this section consists of the construction, maintenance, and removal of physical barriers placed in ditches or swales to reduce water velocity and trap sediment.

The quantity of silt check dams to be constructed will be affected by the actual conditions which occur during the construction of the project. The quantity of silt check dams may be increased, decreased, or eliminated entirely at the direction of the Engineer. Such variations in quantity will not be considered as alterations in the details of construction or a change in the character of the work.

Sediment Traps and Basins will be located as shown of the design drawings.

Materials

Materials shall consist of stone as shown on the Details and Sections Drawing Sheet 5 of 10.

Material for rock silt check dams shall be stone for erosion control, Class A or B as designated on the detail sheet.

Stone for erosion control shall meet the requirements of North Carolina Department of Transportation Division 10, Article 1042.

Construction

The owner will construct silt check dams and sediment traps as shown on the plans. The structures shall be constructed at such time as indicated in the Sediment and Erosion Control Plan.

Maintenance and Removal

The owner will maintain the silt check dams, and remove and dispose of silt accumulations at the check dams in accordance with the plan.

2.2 SILT FENCE

Description

The work covered by this section consists of furnishing, installing, maintaining, and removing a water permeable filter type of fence for the purpose of removing suspended particles from the water passing through it.

The quantity of temporary silt fence to be installed will be affected by the actual conditions which occur during the construction of the project. The quantity of temporary silt fence may be increased or decreased as required by field conditions.

Materials

(A) Posts:

Either wood posts or steel posts may be used. Wood posts shall be a minimum of 6 feet long, at least 3 inches in diameter, and straight enough to provide a fence without noticeable misalignment. Steel posts shall be at least 5 feet in length, approximately 1 3/8 inches wide measured parallel to the fence, and have a minimum weight of 1.25 lb/ft of length. The post shall be equipped with an anchor plate having a minimum area of 14.0 square inches, and shall have a means of retaining wire and fabric in the desired position without displacement.

(B) Woven Wire Fence:

Wire fence fabric shall be at least 32 inches high, and shall have at least 6 horizontal wires. Vertical wires shall be spaced 12 inches apart. The top and bottom wires shall be at least 10 gage. All other wires shall be at least 12½ gage.

(C) Filter Fabric:

Filter fabric shall meet the requirements of Section 1056 for Type 3 engineering fabric, Class A or B.

Silt fence which incorporates filter fabric meeting the requirements of Section 1056 but which fails to perform in an acceptable manner shall be replaced with silt fence which is capable of acceptable performance.

(D) Wire Staples:

Wire staples shall be a No. 9 staple and shall be at least 1½ inches long.

Installation

The owner will install temporary silt fence as shown on the plans. The silt fence shall be constructed at the locations shown on the plans and at other locations directed by the Engineer.

Class B synthetic filter fabric may be used without the woven wire fence fabric backing, subject to the following conditions:

1. Post spacing is reduced to a maximum of 6 feet.
2. The proposed fabric has been approved by the Engineer as being suitable for use without the woven wire fence fabric backing.

3. Fence posts shall be inclined toward the runoff source at an angle of not more than 20° from vertical.

Posts shall be installed so that no more than 3 feet of the post shall protrude above the ground. Filter fabric shall be attached to the wire fence fabric by wire or other acceptable means. The filter fabric shall be installed in such a manner that a minimum overlap of 18 inches is provided at all splice joints.

At the time of installation, the fabric will be rejected if it has defects, rips, holes, flaws, deterioration, or damage incurred during manufacture, transportation or storage.

Maintenance and Removal

The owner will maintain the silt fence until the project is complete or until the fence is removed, and shall remove and dispose of silt accumulations at the silt fence. Filter fabric will be removed and replaced whenever it has deteriorated or clogged to such extent that it reduces the effectiveness of the silt fence or as specified in the Sediment and Erosion Control Plan.

2.3 SEEDING AND MULCHING (NCDOT - DIVISION 8)

The work covered by this section consists of preparing seedbeds; furnishing, placing, and covering limestone, fertilizer and seed; compacting seedbeds; furnishing, placing and securing mulch; mowing; and other operations necessary for the permanent establishment of grasses and legumes from seed on shoulders, slopes, ditches, or other areas; all in accordance with these specifications.

Seeding and mulching shall be performed on all earth areas disturbed by construction.

The owner will adapt operations to variations in weather or soil conditions as necessary for the successful establishment and growth of the grasses or legumes.

Materials

All materials shall meet the requirements of North Carolina Department of Transportation Division 10 shown below:

- Fertilizer Article 1060-1
- Limestone Article 1060-2
- Seed Article 1060-3
- Mulch for erosion control Article 1060-4

Seedbed Preparation

The soil shall be scarified or otherwise loosened to a depth of not less than 5 inches except as otherwise specified. The top 2 to 3 inches of soil shall be worked into an acceptable seedbed by the use of soil pulverizers, drags or harrow, or by other approved methods.

Where applicable, preparation of seedbed will include but not be limited to the spreading of 6 inches of topsoil to the area to be seeded.

Seedbed preparation within 2 feet of the edge of any pavement shall be limited to a depth of 2 to 3 inches.

Applying and Covering Limestone, Fertilizer, and Seed

Seasonal limitations for seeding operations; the kinds and grades of fertilizers; the kinds of seed; and the rates of application of limestone, fertilizer, and seed shall be as stated in the

application schedule.

Limestone, fertilizer, and seed shall be applied within 24 hours after completion of seedbed preparation unless directed otherwise.

Limestone may be applied as a part of the seedbed preparation provided it is immediately worked into the soil. Otherwise, lime and fertilizer shall be spread uniformly over the prepared seedbed at the specified rate and then harrowed, raked, or otherwise thoroughly worked or mixed into the seedbed.

Seed shall be distributed uniformly over the seedbed at the required rate of application and immediately harrowed, dragged, raked, or worked so as to cover the seed with a sufficient layer of soil. If two or more kinds of seed are to be used which require different depths of coverage, they shall be sown separately.

Immediately after seed has been properly covered, the seedbed shall be compacted in the manner and degree approved by the Owner.

Application Schedule

The kinds of seed and the rates of application of seed, fertilizer, and lime shall be as stated below. During periods of overlapping dates, the kinds of seed to be used shall be determined by the Owner.

All rates are in Pounds Per Acre

Top of Landfill and Temporary Seeding Areas

February 15 - May 15

120 lb. Rye Grain

750 lb. Fertilizer

2000 lb. Lime

May 15 - August 30

40 lb. German Millet

1200 lb. Fertilizer

2000 lb Lime

September 1 - February 15

40 lb. Rye Grain

70 lb. KY 31 Tall Fescue

1000 lb. Fertilizer or Equivalent

2000 lb. Lime

Landfill Embankment Slopes - Permanent

20 lb. Crown vetch

750 lb. Fertilizer

2000 lb. Lime

Fertilizer shall be 10-10-10 grade with not more than 400 pounds per ton potential acidity.

Mulching

All seeded areas shall be mulched unless otherwise directed. Grain straw may be used as mulch at any time of the year.

Mulch shall be applied within 24 hours after completion of seeding unless otherwise directed. Care shall be exercised to prevent displacement of soil or seed or other damage to the seeded area during the mulching operations. Mulch shall be uniformly spread by hand or by approved mechanical spreaders or blowers. An acceptable application will be that which will allow some sunlight to penetrate and air to circulate but partially shade the ground, reduce erosion and conserve soil moisture.

Mulch shall be held in place by a sufficient amount of asphalt or other approved binding material to assure that the mulch is properly held in place. The rate and method of application of binding material shall be approved by the Owner.

Sufficient precautions shall be taken to prevent mulch from entering drainage structures through displacement by wind, water, or other causes; and any blockage to drainage facilities which may occur shall be removed.

3.0 EARTHWORK (NCDOT - DIVISION 2)

3.1 CLEARING AND GRUBBING

The work of clearing shall consist of the cutting, removal, and satisfactory disposal of all vegetation and debris. The work of grubbing shall consist of the removal and satisfactory disposal of all vegetation and surface debris.

The work of clearing and grubbing shall also include the removal of tiles and tile particles. This material shall be disposed of in a designated area of the existing tile stockpile.

This work shall also be performed in accordance with the Site Safety Plan.

As a part of the work of clearing and grubbing, the owner will be required to perform the following:

1. Ensure that all construction permits and encroachment agreements have been obtained prior to starting work. These documents should be kept on site during construction.
2. Complete clearing and grubbing sufficiently in advance of grading operations to prevent any of the debris from the clearing and grubbing operations from interfering with the excavation operations.
3. Provisions should be made to intercept groundwater from springs or seepage planes. Underdrain trenches should be cut and filled with highly permeable aggregate with perforated pipe wherever moisture is likely to collect.
4. Perform temporary or permanent erosion control work in compliance with the Sedimentation and Erosion Control Plan, Appendix A, to cause a minimum of soil erosion. Vegetation resulting from clearing and grubbing shall be used to construct brush barriers and silt check dams to aid in erosion control when called for by the plans.

Clearing

The work of clearing shall be performed within the limits of construction established on the plans.

The Engineer will designate all areas of growth or individual trees which are to be preserved due to their desirability for landscape or erosion control purposes. When the trees to be preserved are located within the construction limits, they will be so shown on the plans.

Grubbing

The work of grubbing shall be performed on all areas cleared unless specified by the Engineer.

1. All brush, roots, stumps, tree laps, timber not reserved by the property owner, and other vegetation, shall be disposed of within the landfill area.
2. No burning will be permitted within the landfill. When the vegetation is disposed of by burning off site, all burning shall be in compliance with all local, state, and federal laws, ordinances, and regulations. The securing of necessary burning permits shall be the responsibility of the owner. All burning shall be under the constant care of competent watchmen. Burning shall be thorough and shall not be permitted to smolder and result in dense smoke.
3. Within the areas between construction limits and the limits of clearing and grubbing, all holes and other depressions shall be filled, and the area brought to sufficiently uniform contour.

3.2 EXCAVATION

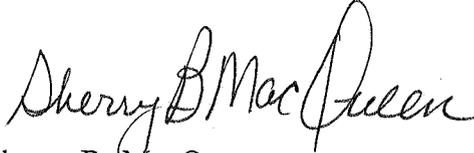
The work covered by this section consists of the excavation, placement, and compaction or satisfactory disposal of all materials encountered within the construction limits.

All excavation shall be in conformity with the lines, grades, and cross sections shown on the plans. No excavation will be allowed in areas of beneficial fill, or in Cells 10 and 11.

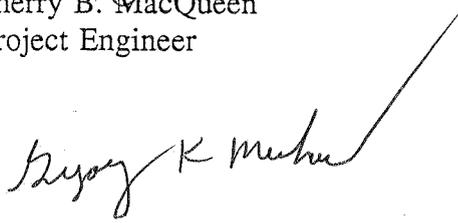
Equipment Proposed:

Equipment used in performing the grading operation shall be of such weight, size, and capacity to efficiently remove the excavation and construct embankments, subgrades, or shoulders without causing instability or displacement of the underlying or adjacent materials. Proposed Equipment is listed in the Landfill Operations Plan.

ENSCI ENGINEERING GROUP, P.A.



Sherry B. MacQueen
Project Engineer



Gregory K. Meshaw, P.E.
Director of Engineering Services

APPENDIX B
SUPPORTING CALCULATIONS

THE DRAINAGE SYSTEM FOR THE SETTLING BASIN @ NORTH LOOP ROAD IS NOT ALTERED BY PHASE II CONSTRUCTION. THEREFORE, THE CALCULATIONS SUBMITTED WITH PHASE I SHOULD BE REFERED TO FOR THE TOTAL WATERSHED FLOW AND DESIGN VALUES

PHASE II :

THE PERIMETER DITCHES ARE DESIGNED FOR THE TOTAL AREA BETWEEN THE LANDFILL AND THE FOLLOWING BOUNDARY:

$$\begin{aligned} \text{NORTH LOOP ROAD } (70 \times 440) + (120 \times 34) &= 34,880 \\ \text{MAIN STREET } 100 \times 420 &= 42,000 \text{ SF} \\ \text{PHASE I - LANDFILL } 146 \times 100 &= 14,000 \text{ SF} \\ \text{TOTAL} &= 90,880 / 43560 = 2.08 \end{aligned}$$

$$\begin{aligned} Q_{\text{MAX PERIMETER}} &= 0.7 (7) 2.08 \\ &= 10.2 \text{ cfs.} \end{aligned}$$

INTERNAL DITCHES ARE DESIGNED FOR THE TOTAL AREA WITHIN THE LANDFILL

$$Q_{\text{MAX INTERIOR}} = 0.7 (7) (8.5) = 41.65 \text{ cfs}$$

MAN-MADE CHANNELS

PURPOSE:

To calculate, for a trapezoidal channel, either the flow depth, flowrate, channel bottom width, channel side slope, channel slope or roughness coefficient knowing the other five variables. The channel becomes a rectangular channel if its side slope is zero and triangular if its bottom width is zero.

REQUIRED DATA:

1. VARIABLE TO BE SOLVED.
Based on the variable selected, the remaining five variables listed below.
2. FLOW DEPTH (IN FEET).
3. FLOWRATE (IN CFS).
4. CHANNEL BOTTOM WIDTH (IN FEET).
5. CHANNEL SIDE SLOPE (AVERAGE RUN/RISE).
6. CHANNEL SLOPE (FEET/FOOT).
7. MANNING'S ROUGHNESS COEFFICIENT (N).

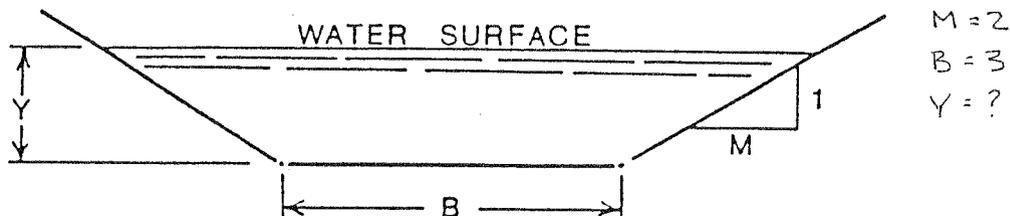
PROGRAM EXECUTION:

The program begins by prompting the user for item 1 and all but one of items 2 through 7. After the entries have been made the program calculates the result of the variable selected and displays it and the following other information:

- A Flow area in square feet.
- P Wetted perimeter in feet.
- V Average flow velocity in feet per second.
- F Froude Number and flow regime.

Obviously some of the variables can only be solved by trial and error. If a solution is not determined in 50 trials then the program displays that message. Only unrealistic situations take more than 50 trials.

Illustration Of Critical Dimensions



MAN-MADE CHANNELS - PERIMETER DITCHES
 See Details and Sections Sheet for detail

3
2,8

VARIABLES LIST:

Y - FLOW DEPTH B - CHANNEL BOTTOM WIDTH S - CHANNEL SLOPE
 Q - FLOWRATE M - CHANNEL SIDE SLOPE N - CHANNEL ROUGHNESS

VARIABLE TO BE SOLVED (Y, Q, B, M, S OR N) ? Y

Q (CFS) ? 2.08
 B (FT) ? 3
 M (FT/FT) ? 2
 S (FT/FT) ? .04
 N (FT^{1/6}) ? .068

RESULTS
 =====
 Y= 0.32 FT
 A= 1.16 SF
 P= 4.43 FT
 V= 1.79 FPS
 F= 0.60 SUB-CRITICAL FLOW

VELOCITY 1.79 OK
 Slope .04 OK ↑ min. 0.01 check

<Shift> <Prt Sc> print <Return> repeat <Space Bar> back to menu

MAN-MADE CHANNELS

VARIABLES LIST:

Y - FLOW DEPTH B - CHANNEL BOTTOM WIDTH S - CHANNEL SLOPE
 Q - FLOWRATE M - CHANNEL SIDE SLOPE N - CHANNEL ROUGHNESS

VARIABLE TO BE SOLVED (Y, Q, B, M, S OR N) ? Y

Q (CFS) ? 2.08
 B (FT) ? 3
 M (FT/FT) ? 2
 S (FT/FT) ? .01
 N (FT^{1/6}) ? .068

RESULTS
 =====
 Y= 0.47 FT
 A= 1.87 SF
 P= 5.12 FT
 V= 1.11 FPS
 F= 0.32 SUB-CRITICAL FLOW

MIN slope OK

<Shift> <Prt Sc> print <Return> repeat <Space Bar> back to menu

MAN-MADE CHANNELS

VARIABLES LIST:

Y - FLOW DEPTH B - CHANNEL BOTTOM WIDTH S - CHANNEL SLOPE
Q - FLOWRATE M - CHANNEL SIDE SLOPE N - CHANNEL ROUGHNESS

VARIABLE TO BE SOLVED (Y, Q, B, M, S OR N) ? Y

		RESULTS	
		=====	
(CFS) ? 41.65		Y=	2.20 FT
B (FT) ? 3		A=	16.27 SF
M (FT/FT) ? 2		P=	12.84 FT
(FT/FT) ? .01		V=	2.56 FPS
n (FT ^{1/6}) ? .068		F=	0.38 SUB-CRITICAL FLOW

Shift> <Prt Sc> print <Return> repeat <Space Bar> back to menu

MAN-MADE CHANNELS

VARIABLES LIST:

Y - FLOW DEPTH B - CHANNEL BOTTOM WIDTH S - CHANNEL SLOPE
Q - FLOWRATE M - CHANNEL SIDE SLOPE N - CHANNEL ROUGHNESS

VARIABLE TO BE SOLVED (Y, Q, B, M, S OR N) ? Y

		RESULTS	
		=====	
(CFS) ? 41.65		Y=	1.58 FT
(FT) ? 3		A=	9.74 SF
M (FT/FT) ? 2		P=	10.07 FT
(FT/FT) ? .04		V=	4.28 FPS
(FT ^{1/6}) ? .068		F=	0.74 SUB-CRITICAL FLOW

Shift> <Prt Sc> print <Return> repeat <Space Bar> back to menu

MAN-MADE CHANNELS

VARIABLES LIST:

MAN-MADE CHANNELS

VARIABLES LIST:

Y - FLOW DEPTH B - CHANNEL BOTTOM WIDTH S - CHANNEL SLOPE
Q - FLOWRATE M - CHANNEL SIDE SLOPE N - CHANNEL ROUGHNESS

VARIABLE TO BE SOLVED (Y, Q, B, M, S OR N) ? Y

Q (CFS) ? 41.65		RESULTS	
B (FT) ? 3		=====	
M (FT/FT) ? 2		Y=	1.26 FT
S (FT/FT) ? .1		A=	6.96 SF
N (FT ^{1/6}) ? .068		P=	8.64 FT
		V=	5.98 FPS
		F=	1.13 SUPER-CRITICAL FLOW

Slopes should be kept to .06 ft/ft for sub critical flow

<Left> <Prt Sc> print <Return> repeat <Space Bar> back to menu

MAN-MADE CHANNELS

VARIABLES LIST:

Y - FLOW DEPTH B - CHANNEL BOTTOM WIDTH S - CHANNEL SLOPE
Q - FLOWRATE M - CHANNEL SIDE SLOPE N - CHANNEL ROUGHNESS

VARIABLE TO BE SOLVED (Y, Q, B, M, S OR N) ? Y

Q (CFS) ? 41.65		RESULTS	
B (FT) ? 3		=====	
M (FT/FT) ? 2		Y=	0.88 FT
S (FT/FT) ? .4		A=	4.21 SF
N (FT ^{1/6}) ? .068		P=	6.95 FT
		V=	9.89 FPS
		F=	2.17 SUPER-CRITICAL FLOW

<Left> <Prt Sc> print <Return> repeat <Space Bar> back to menu

MAN-MADE CHANNELS - Internal Ditches
Total Flow condition . worse case

VARIABLES LIST:

Y - FLOW DEPTH B - CHANNEL BOTTOM WIDTH S - CHANNEL SLOPE
Q - FLOWRATE M - CHANNEL SIDE SLOPE N - CHANNEL ROUGHNESS

VARIABLE TO BE SOLVED (Y, Q, B, M, S OR N) ? Y

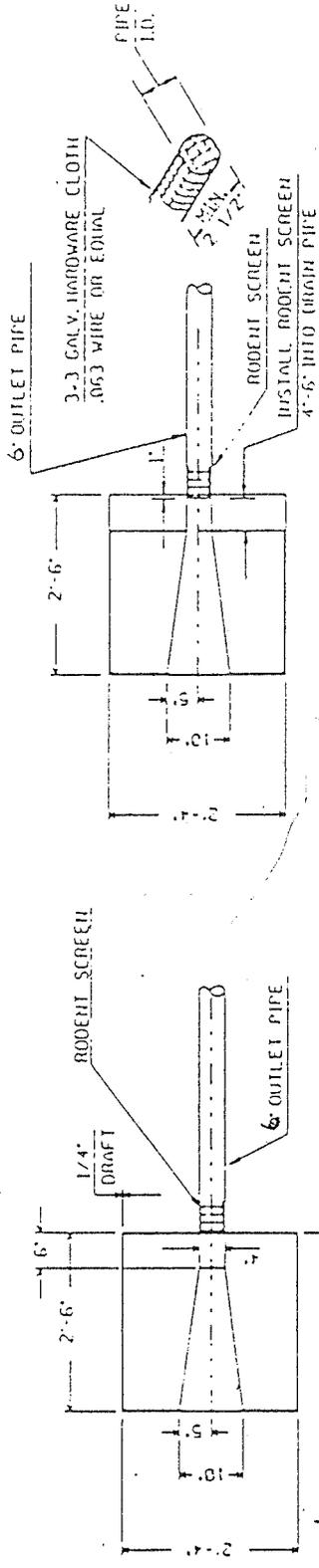
I (CFS) ? 41.65
B (FT) ? 3
M (FT/FT) ? 2
S (FT/FT) ? .06
N (FT^{1/6}) ? .068

RESULTS

=====

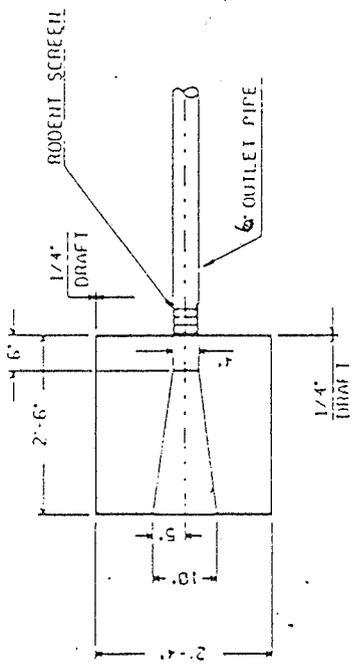
Y=	1.43 FT
A=	8.39 SF
P=	9.40 FT
V=	4.96 FPS
F=	0.89 SUB-CRITICAL FLOW

Shift> <Prt Sc> print <Return> repeat <Space Bar> back to menu

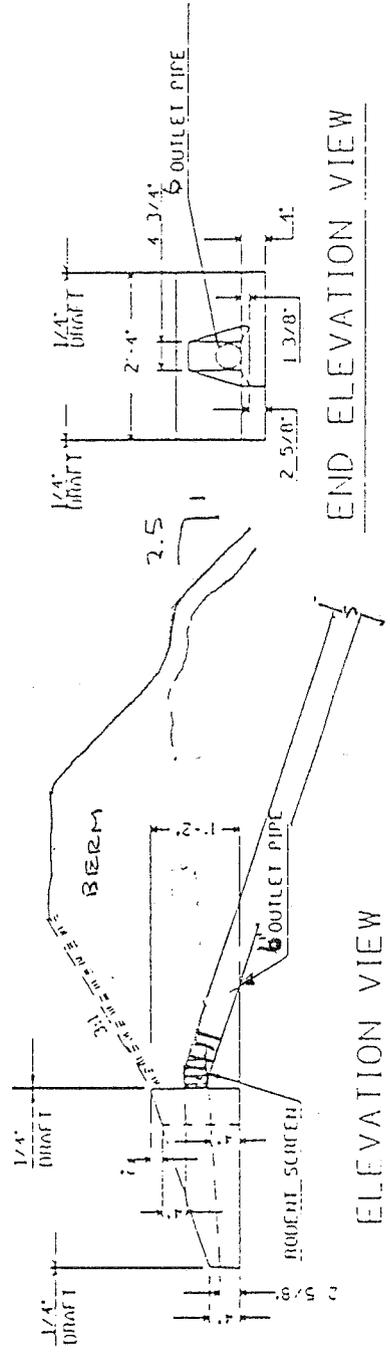


TOP VIEW

PARTIAL DETAIL OF
RODENT SCREEN



PLAN VIEW



END ELEVATION VIEW

NO	DATE	DESCRIPTION
	11-19-91	NEW STANDARD

THE CONCRETE PAD CONSISTS OF 0.137 CUBIC YARDS OF CLASS 'B' CONCRETE; HOWEVER, PAYMENT FOR CONCRETE PAD IS AS FOLLOWS: CONCRETE PAD FOR SHOULDER DRAIN OUTLET EACH

STANDARD FOR CONCRETE PADS
SUBSURFACE AND SHOULDER DRAIN INSTALLATION
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
RALEIGH, N.C.

CALCULATIONS

TEMPORARY SEDIMENT BASIN CALCULATIONS

$A_1 = 45,700 \text{ FT}^2$
 $= 1.05 \text{ ACRES}$

BASIN 1 LOCATED NORTH OF
LANDFILL & WEST OF CREEK

$A_2 = 97,043 \text{ FT}^2$
 2.23 ACRES

BASIN 2 LOCATED NORTH OF
LANDFILL & EAST OF CREEK

$A_3 = 106,640$
 2.45 ACRES

BASIN 3 LOCATED SOUTH OF
LANDFILL NEXT TO TANK YARD

PEAK RUNOFF 10 YR STORM

$Q = C I A$

$C = .4$ CLAY
GRASS W/COVER
ACRES MIN IN/HR
 $t_c = 45$ I₁ = 7

$Q_1 = (.4)(7)(1.05) = 2.9 \text{ cfs}$

$A_1 = 1.05$

$Q_2 = (.4)(7)(2.23) = 6.2 \text{ cfs}$

$A_2 = 2.23$ $t_c = 45$ I₂ = 7

$Q_3 = (.4)(7)(2.45) = 6.8 \text{ cfs}$

$A_3 = 2.45$ $t_c = 45$ I₃ = 7

Use with Areas < 5 ACRES

REQUIRED SURFACE AREA = 0.01 Q
(SA)

ACTUAL SURFACE AREA

$SA_1 = .01(2.9) = 0.029$ 1263 ft² → 25x50 = 1250 ft² OK

$SA_2 = .01(6.2) = 0.062$ 2700 ft² 36x72 = 2592 ft² OK

$SA_3 = .01(6.8) = 0.068$ 2962 ft² 38x76 = 2888 ft² OK

REQUIRED BASIN SHAPE
2:1 LENGTH TO WIDTH

REQUIRED STORAGE VOLUME (SV)

1800 ft³/ACRE

$SV_1 = 1800 \times 1.05 = 1,890 \text{ ft}^3$

W	L	Depth (min)
25	50	1.5'
36	72	1.5
38	76	1.5

$SV_2 = 1800 \times 2.23 = 4,014 \text{ ft}^3$

$SV_3 = 1800 \times 2.45 = 4,410 \text{ ft}^3$

BASINS WILL BE CONSTRUCTED WITH DEPTH OF 3 FT (AVE)
HEIGHT WITH MAXIMUM 3' HEIGHT OF DAM

Weir length and depth—Keep the spillway weir at least 4 ft long and sized to pass the peak discharge of the 10-yr storm (Figure 6.60a). A maximum flow depth of 1 ft, a minimum freeboard of 0.5 ft, and maximum side slopes of 2:1 are recommended. Weir length may be selected from Table 6.60a shown for most site locations in North Carolina.

Table 6.60a
Design of Spillways

Drainage Area (acres)	Weir Length ¹ (ft)
1	4.0
2	6.0
3	8.0
4	10.0
5	12.0

¹Dimensions shown are minimum

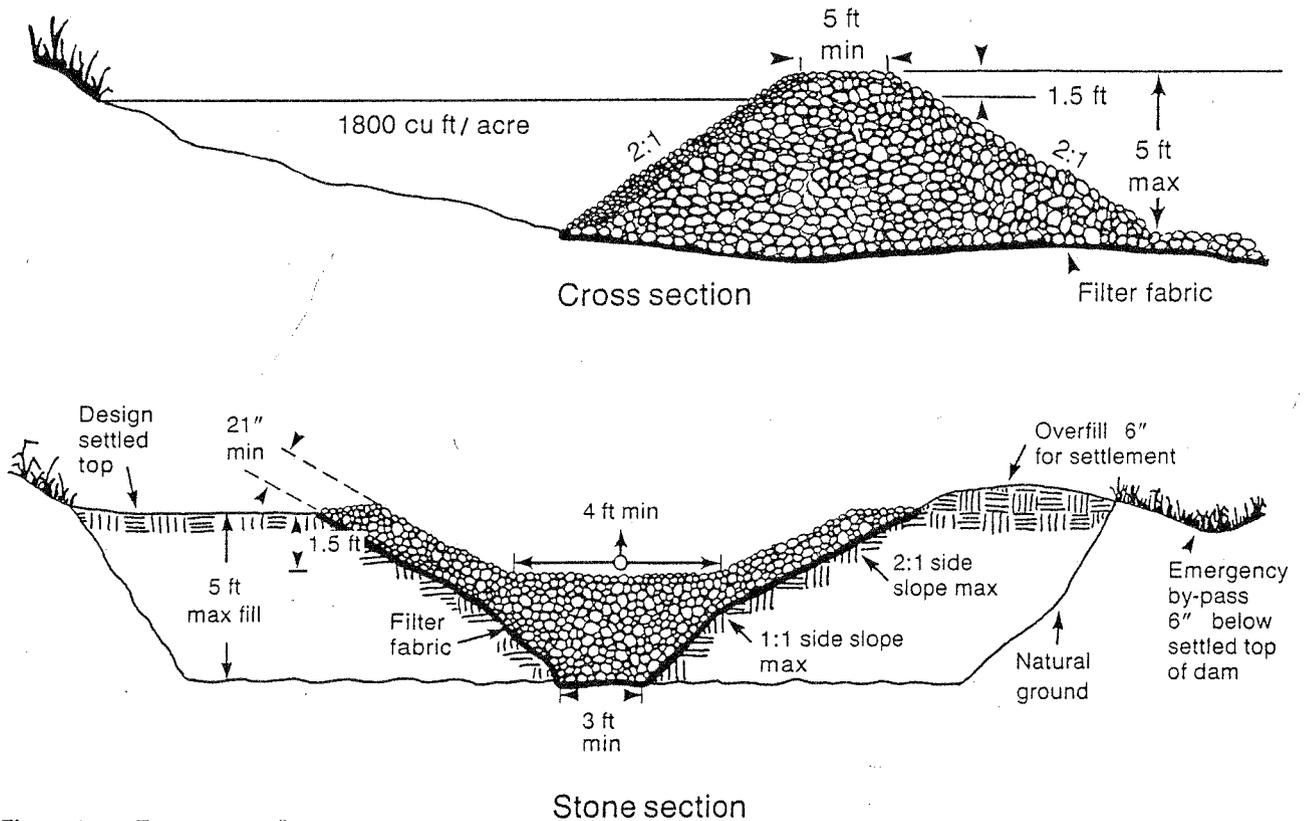


Figure 6.60a Temporary sediment trap.

REQUIRED WEIR LENGTH WL

WL₁ = 4.0 FE

WL₂ = 7.0 FE

WL₃ = 7.0 FE

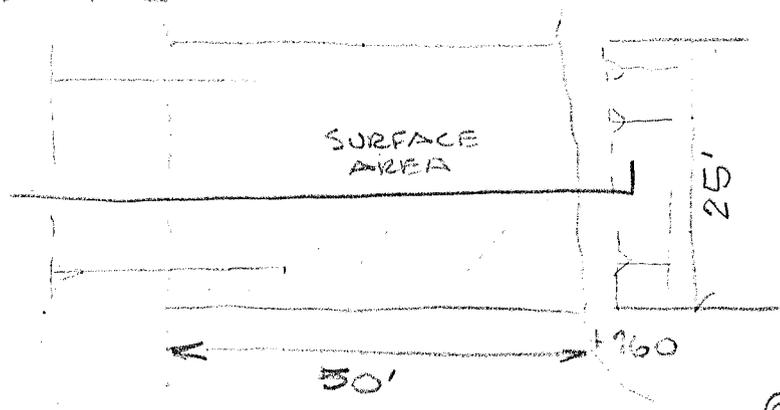
TABLE 6.60 ABOVE
BASIN DIMEN

BASIN 1 50 LONG 35' WIDE

BASIN 2 72 LONG 36' WIDE

BASIN 3 76 LONG 38' WIDE

BASIN #1

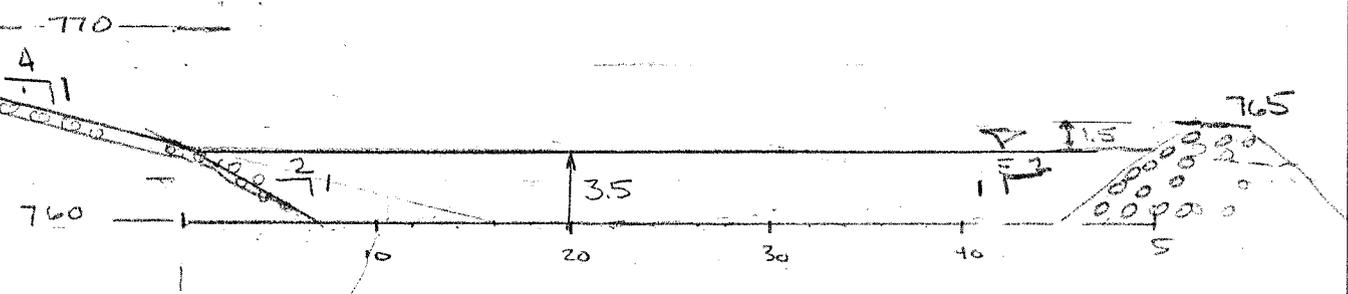


TRY 25 X 50
ON SLOPED SURFACE

SURFACE AREA
25 X 50' W/ 3.5' DEPTH

Volume @ 2:1 slope
@ 3.5' deep
X Section Area = $7(3.5) + 36(3.5)$
= 150.5

@ 2'
X sec $4(2) + 42(2) = 92$ ft²



BASIN 2 & 3 ARE ON FLAT SLOPE ∴ DIMENSIONS ALLOW REQUIRED VOLUMES.

Actual Storage Volumes

SV₁ $150.5 \times 25 = 3,762.5$ ft³ > 1,890 ft³ req. OK
@ 2' deep $92 \times 25 = 2,300$ > 1,890 OK USE 2'

SV₂ $36 \times 72 \times 3.5 = 9,072$ > 4,014 REQ
@ 2' deep $36 \times 72 \times 2 = 5,184$ > 4,014 REQ OK
@ 1.5' deep $36 \times 72 \times 1.5 = 3,888$ < 4,014 USE 2'

SV₃ $38 \times 76 \times 3.5 = 10,108$ > 4,410 REQ
@ 2' deep $38 \times 76 \times 2 = 5,776$ > 4,410 REQ USE 2'
@ 1.5' deep $38 \times 76 \times 1.5 = 4,332$ < 4,410

ACTUAL BASIN SIZE				Weir
BASIN 1	L = 50'	W = 25'	D = 2.0'	4'
BASIN 2	L = 72	W = 36'	D = 2.0'	7'
BASIN 3	L = 76	W = 38	D = 2.0'	7'

PIPE SIZE @ DITCHES $Q = 6.8$ max $D = 16 \sqrt{\frac{6.8(.013)}{1.48}} = 10'' \rightarrow$ use 12" ϕ
n = .013 plastic
n = .12 concrete
UNDER ACCESS ROADS REP

10 SHEETS
 10 SHEETS
 42.389 200 SHEETS 5 SQUARE
 11/10/08

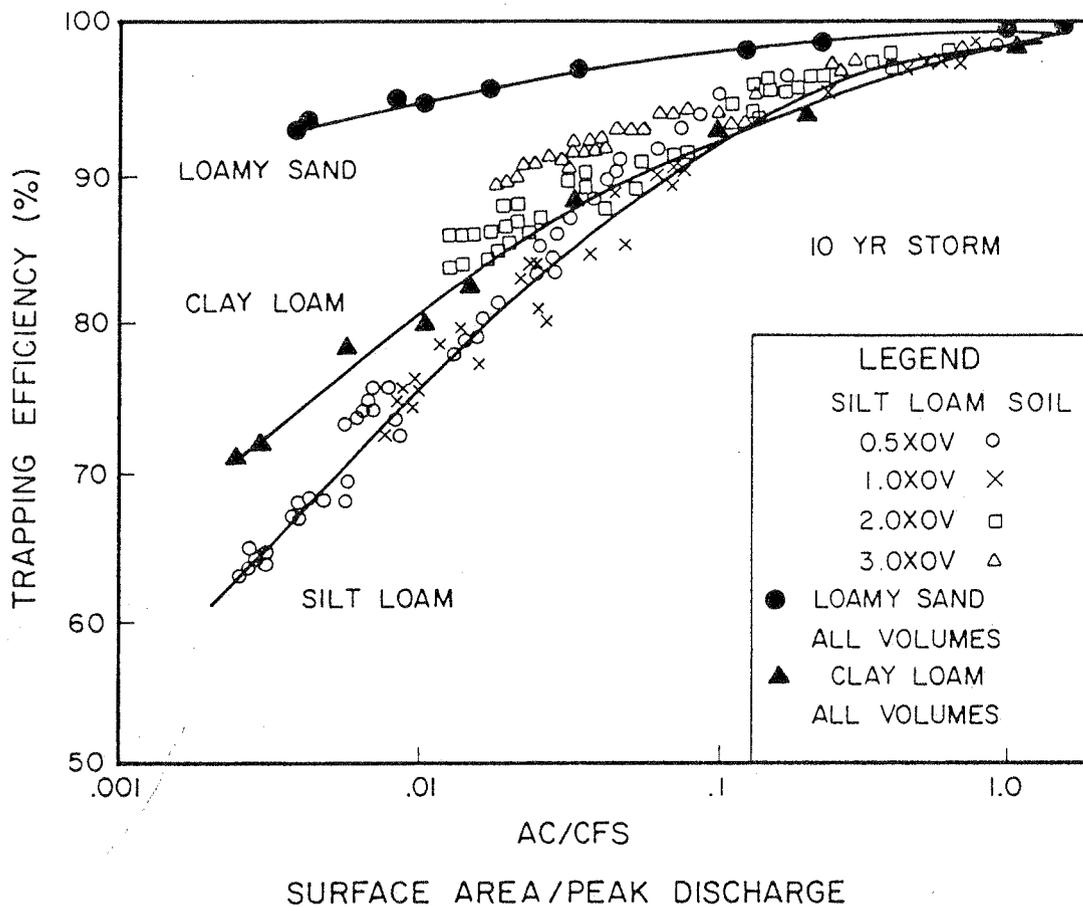


Figure 6.61a Graph showing the relationship between the ratio of surface area to peak inflow rate and trap efficiency. (source: Barfield and Clar)

Soil Conservation Service Practice Standard Ponds Code No. 378 provides criteria for design of permanent ponds.

Design Criteria Drainage areas—Limit drainage areas to 100 acres.

Design basin life—Ensure a design basin life of 3 years or less.

Dam height—Limit dam height to 15 ft. Dams 15 ft or higher and with storage volume of 10 acre-ft or more are governed by the N.C. Dam Safety Act. Height of a dam is measured from the top of the dam to the lowest point at the downstream toe. Volume is measured to the top of the dam.

Basin locations— Select areas that:

- provide capacity for storage of sediment from as much of the planned disturbed area as practical;
- exclude runoff from undisturbed areas, where practical;
- provide access for sediment removal throughout the life of the project;

APPENDIX C

FINANCIAL RESPONSIBILITY/OWNERSHIP FORM AND CONTACT PERSON

**FINANCIAL RESPONSIBILITY/OWNERSHIP FORM
SEDIMENTATION POLLUTION CONTROL ACT**

No person may initiate any land-disturbing activity on one or more contiguous acres as covered by the Act before this form and an acceptable erosion and sedimentation control plan have been completed and approved by the Land Quality Section, N.C. Department of Environment, Health, and Natural Resources. (Please type or print and, if question is not applicable, place N/A in the blank.)

Part A.

1. Project Name Fieldcrest Cannon, Inc. - Land Clearing and Inert Debris Landfill
Phase II
2. Location of land-disturbing activity: County Cabarrus, City _____
or Township Kannapolis, and Highway / Street 29A / Main Street
3. Approximate date land-disturbing activity will be commenced: September 1, 1994
4. Purpose of development (residential, commercial, industrial, etc.): Industrial Landfill
5. Total acreage disturbed or uncovered (including off-site borrow and waste areas): 8.5
6. Amount of fee enclosed \$ 190.00
7. Has an erosion and sedimentation control plan been filed? Yes No _____
8. Person to contact should sediment control issues arise during land-disturbing activity.
Name Roger Settlemeier Telephone 704-939-2493
9. Landowner (s) of Record (Use blank page to list additional owners.):
Fieldcrest Cannon, Inc.
Name (s) _____
Post Office Box 107 _____
Current Mailing Address Current Street Address
Kannapolis, North Carolina 28082 _____
City State Zip City State Zip
10. Recorded in Deed Book No. 609 Page No. 525

Part B.

1. Person (s) or firms (s) who are financially responsible for this land-disturbing activity (Use the blank page to list additional persons or firms):
Fieldcrest Cannon, Inc.
Name of Person (s) or Firm (s) _____
Post Office Box 107 _____
Mailing Address Street Address
Kannapolis, North Carolina 28082 _____
City State Zip City State Zip
Telephone 704-939-2000 Telephone _____

Notarized, completed Financial Responsibility/Ownership Form attached.

Contact person for resolution of erosion control problems during site construction is:

Mr. David Honeycutt
Service and Maintenance Manager
Fieldcrest Cannon, Inc.
1 Lake Drive
Kannapolis, North Carolina 28081
Phone Number 1-704-939-2768

APPENDIX D

CHECKLIST

PROJECT NAME FIELDCREST CANNON, INC.

N.C. DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES
LAND QUALITY SECTION

PRELIMINARY REVIEW CHECKLIST EROSION & SEDIMENTATION CONTROL PLAN

To expedite the approval process a cursory review of your submitted Erosion Control Plan has been made and has shown the need for additional information as specified below. Upon receipt of the required information, a detailed review of the plan will be made and an approval or disapproval will be issued.

- Notarized, completed Financial Responsibility/Ownership Form
- Location map adequate to allow on-site inspection
- Seeding and mulching specifications, both temporary and permanent, including rate of application
- Details of all structural erosion control measures
- Engineering design calculations for:
 - Culverts and/or storm drainage system
 - Sediment basins, pits, check dams
 - Energy dissipators at stormwater outlets
 - Ditches, swales or diversions
 - Other _____
- Sequence of construction activity with emphasis on minimizing erosion control problems
- Site drawings with adequate topographic detail and all erosion control measures located
- N/A Locations and proposed treatments of off-site borrow or waste areas
- Narrative description of project and erosion control plan objectives
- Name, address, and phone number of person to handle resolution of erosion control problems on the site during construction
- Other _____
- _____
- _____

APPENDIX E
CORRESPONDENCE



DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS

P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

IN REPLY REFER TO

August 19, 1992

RECEIVED
AUG 24 1992

Regulatory Branch

Action ID. 199203204 and Nationwide Permit No. 26
(Headwaters and Isolated Waters)

Sherry

Mr. Evander H. Rowell
Fieldcrest Cannon Mills
Post Office Box 107
Kannapolis, North Carolina 28082

Dear Mr. Rowell:

Thank you for your inquiry of July 23, 1992, regarding your plans to culvert and fill approximately 780 linear feet of Lumber Yard Branch, a headwaters tributary to Bakers Branch, at an industrial site near the intersection of Main Street and North Loop Road at Kannapolis, Cabarrus County, North Carolina. The project site was reviewed by my staff on July 29, 1992 at which time we confirmed that the proposed work would impact approximately .16 acres of stream bed and bank.

For the purposes of the Corps of Engineers' Regulatory Program, Title 33, Code of Federal Regulations (CFR), Part 330.6, published in the Federal Register on November 22, 1991, lists nationwide permits. Authorization was provided, pursuant to Section 404 of the Clean Water Act, for discharges of dredged or fill material into headwaters and isolated waters provided:

- a. the discharge does not cause the loss of more than 10 acres of waters of the United States;
- b. the permittee notifies the District Engineer if the discharge would cause the loss of waters of the United States greater than one acre in accordance with the "Notification" general condition. For discharges in special aquatic sites, including wetlands, the notification must also include a delineation of affected specific aquatic sites, including wetlands; and
- c. the discharge, including all attendant features, both temporary and permanent, is part of a single and complete project.

Your work is authorized by this nationwide permit provided it is accomplished in strict accordance with the enclosed conditions. This nationwide permit does not relieve you of the responsibility to obtain any required State or local approval. You should contact Mr. John Dorney, NC Division of Environmental Management, at telephone (919) 733-1786 regarding the need for a State Water Quality Certification.

This verification will be valid for 2 years from the date of this letter unless the nationwide authorization is modified, reissued, or revoked. Also, this verification will remain valid for the 2 years if, during that period, the nationwide permit authorization is reissued without modification or the activity complies with any subsequent modification of the nationwide permit authorization. If during the 2 years, the nationwide permit authorization expires or is suspended or revoked, such that the activity would no longer comply with the terms and conditions of the nationwide permit, activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon the nationwide permit will remain authorized provided the activity is completed within 12 months of the date of the nationwide permit's expiration, modification or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend, or revoke the authorization.

Questions or comments may be addressed to Mr. Steven Lund, Asheville Field Office, Regulatory Branch, telephone (704) 259-0857.

Sincerely,

G. Wayne Wright
Chief, Regulatory Branch

Enclosure

Copies Furnished (without enclosure):

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

Mr. John Dorney
Water Quality Section
Division of Environmental Management
North Carolina Department of
Environment, Health and
Natural Resources
Post Office Box 27687
Raleigh, North Carolina 27611-7687

✓ Ms. Sherry MacQueen
Applied Environmental Services
Post Office Box 80275
Raleigh, North Carolina 27623-0275



State of North Carolina
Department of Environment, Health, and Natural Resources
512 North Salisbury Street • Raleigh, North Carolina 27604

James B. Hunt, Jr., Governor

March 16, 1993

Jonathan B. Howes, Secretary

Ms. Sherry MacQueen
Applied Environmental Services, Inc.
8809 Running Oak Drive
Raleigh, NC 27613

SUBJECT: Fieldcrest Cannon Landfill Facility, Cabarrus County

Dear Ms. MacQueen:

In response to your inquiry of March 1, 1993 requesting information on potential environmental impacts arising from the proposed Fieldcrest Cannon landfill facility in Kannapolis, the Division of Parks and Recreation has the following comments:

- 1) This project will not affect any state parks, state trails, registered natural heritage areas, or state recreation areas.
- 2) The Kannapolis Department of Parks and Recreation has informed us that there are no city or county public recreation facilities in the immediate vicinity of the project.
- 3) The Division's Natural Heritage Program has no records of any rare or threatened species or critical habitat in the project area. However, we have no records of systematic biological surveys of the area, so we cannot be entirely certain that no rare or endangered species are present. If comments from other state or local agencies involved in this review indicate the presence of rare species or critical habitat, then we recommend that a biological survey be conducted to ensure that no state or federally listed species are subjected to adverse impacts.

Thank you for the opportunity to comment on this project; if you have any additional questions, please call me at 919-733-7795.

Sincerely,

Marshall Ellis

Marshall Ellis
Resource Management Specialist
Division of Parks and Recreation

/me



North Carolina Department of Cultural Resources

James B. Hunt, Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
William S. Price, Jr., Director

February 9, 1993

Talmadge Lee Gerald, Jr.
Applied Environmental Services, Inc.
8809 Running Oak Drive
Raleigh, NC 27613

Re: D. L. Site, Kannapolis (E001504X), Cabarrus County,
ER 93-8087

Dear Mr. Gerald:

Thank you for your letter of January 21, 1993, concerning the above project.

There are no known archaeological sites within the proposed project area. Based on our present knowledge of the area, it is unlikely that any archaeological resources which may be eligible for inclusion in the National Register of Historic Places will be affected by the project construction. We, therefore, recommend that no archaeological investigation be conducted in connection with this project.

We have conducted a search of our maps and files and have located the following structures of historical or architectural importance within the general area of the project:

Cannon Mill Housing (Kannapolis Mill Village) including G.I. Town and Black Section. These properties were placed on the state study list for potential nomination to the National Register of Historic Places on March 13, 1980. (See enclosed map.)

The above comments are made pursuant to Section 106 of the National Historic Preservation Act of 1966 and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

Sincerely,

A handwritten signature in cursive script that reads "David Brook".

David Brook
Deputy State Historic Preservation Officer

DB:slw

Enclosure

cc: Rowan County Historic Properties Commission

TELEPHONE CONVERSATION

Mr. Steve Lund
U.S. Army Corps of Engineers
RE: Construction Permit for
piping the creek

Fieldcrest Cannon, Inc.
E124841
S. B. MacQueen
August 11, 1992

- Corps of Engineers visited the site.
- Construction work to pipe Lumber Yard Branch can be done under a Nationwide 26 Permit.
- There are no adjacent wetlands, therefore, no 404 impact to the channel.
- Based on a 6' channel width they estimated 7,000 sq. ft. of impacted area. Since this is less than a third of an acre, it will probably require no additional approval from the State. Mr. Lund recommended that we contact Mr. John Dorney to confirm that the work can be done under a general certification.

John Dorney - NC Division of Environmental Management
RE: Construction, Nationwide 26

(919) 733-1786

No permit required with less than 1/3 acre.

Lumber Yard Branch - 6' wide channel approximately 7,000 sq. ft.

We are proceeding with preparation of an erosion control plan. We have contacted the Land Quality Section on a previous job. Mr. Dorney was contacted. He said that if the Corps of Engineers authorizes construction under Nationwide 26 and no wetlands are involved and the creek is less than 1/3 acre, construction can be done under NC General Certification.

Called 8:45 but Mr. Dorney was in a meeting; he will return my call.

Mr. Dorney returned my call. He indicated that we can proceed with installation of the pipe since the creek is less than 1/3 acre and we have a Nationwide 26 Permit. The State does not require any permit - the work will be done under a general certification. If we need written confirmation, we should write to his office requesting it.