PRELIMINARY DETERMINATION

PERMIT RENEWAL AND MODIFICATION
The City of Roanoke
P.O. Box 1270
Roanoke, Alabama 36274

Roanoke C/D Landfill
Permit No. 56-02

October 21, 2025

The City of Roanoke has submitted to the Alabama Department of Environmental Management (ADEM) an application to renew and an application to modify the Solid Waste Disposal Facility Permit for the Roanoke C/D Landfill (Permit No. 56-02). The proposed modification would increase the permitted disposal area from 4.17 acres to 8.71 acres. The total permitted acreage of approximately 178 acres would remain the same. The waste stream for the Roanoke C/D Landfill would remain non-putrescible and non-hazardous construction and demolition waste and discarded tires as defined by ADEM Administrative Code r. 335-13-1-.03. The service area for the Roanoke C/D Landfill would remain the City of Roanoke, Alabama. The maximum average daily volume of waste disposed at the Roanoke C/D Landfill would remain 1,000 cubic yards per day.

The Roanoke C/D Landfill is located in Section 9, Township 22 South, Range 12 East in Randolph County, Alabama. The permitted facility consists of approximately 178 acres with 8.71 acres approved for disposal.

The Land Division has determined that the permit applications comply with the applicable requirements of ADEM's Administrative Code Division 335-13 regulations for a construction and demolition landfill.

Technical Contact:

Melissa H. Adornato
Solid Waste Engineering Section
Land Division
(334) 270-5605

Alabama Department of Environmental Management

SOLID WASTE DISPOSAL FACILITY *PERMIT*

PERMITTEE:	**City of Roanoke**
FACILITY NAME:	**Roanoke C/D Landfill**
FACILITY LOCATION:	**The landfill is located in Section 9, Township 22 South, Range 12 East in Randolph County, Alabama. The permitted facility consists of approximately 178 acres with 8.71 acres approved for disposal.**
PERMIT NUMBER:	**56-02**
PERMIT TYPE:	**Construction/Demolition (C/D) Landfill**
WASTE APPROVED FOR DISPOSAL:	**Non-putrescible and non-hazardous construction and demolition waste and discarded tires as defined by ADEM Admin. Code r. 335-13-1-.03.**
APPROVED WASTE VOLUME:	**Maximum Daily Volume of 1,000 cubic yards per day**
APPROVED SERVICE AREA:	**City of Roanoke, Alabama**

In accordance with and subject to the provisions of the Alabama Solid Wastes and Recyclable Materials Management Act, as amended, Code of Alabama 1975, SS 22-27-1 to 22-27-27 ("SWRMMA"), the Alabama Environmental Management Act, as amended, Code of Alabama 1975, SS 22-22A-1 to 22-22A-15, and rules and regulations adopted thereunder, and subject further to the conditions set forth in this permit, the Permittee is hereby authorized to dispose of the above-described solid wastes at the above-described facility location.

ISSUANCE DATE:	**??????????????**
EFFECTIVE DATE:	**??????????????**
EXPIRATION DATE:	**??????????????**

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Alabama Department of Environmental Management

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
SOLID WASTE PERMIT

Permittee:	City of Roanoke P.O. Box 1270 Roanoke, Alabama 36274
Landfill Name:	Roanoke C/D Landfill
Landfill Location:	2736 Country Club Road Roanoke, Alabama Sections 9, Township 22 South, Range 12 East Randolph County
Permit Number:	56-02
Landfill Type:	Construction and Demolition Landfill

Pursuant to the Solid Wastes & Recyclable Materials Management Act, Code of Alabama 1975, §§22-27-1, *et seq*., as amended, and attendant regulations promulgated thereunder by the Alabama Department of Environmental Management (ADEM), this permit is issued to the City of Roanoke (hereinafter called the Permittee), to operate a solid waste disposal facility, known as the Roanoke C/D Landfill.

The Permittee must comply with all terms and conditions of this permit. This permit consists of the conditions set forth herein (including those in any attachments), and the applicable regulations contained in Chapters 335-13-1 through 335-13-16 of the ADEM Administrative Code (hereinafter referred to as the "ADEM Admin. Code"). Rules cited are set forth in this document for the purpose of Permittee reference. Any rule that is cited incorrectly in this document does not constitute grounds for noncompliance on the part of the Permittee. Applicable ADEM Administrative Codes are those that are in effect on the date of issuance of this permit or any revisions approved after permit issuance.

This permit is based on the information submitted to the Department on April 23, 2020, and as amended, for permit renewal, and on October 28, 2024, for permit modification, and as amended, and is known as the Permit Application (hereby incorporated by reference and hereinafter referred to as the Application). Any inaccuracies found in this information could lead to the termination or modification of this permit and potential enforcement action. The Permittee must inform the Department of any deviation from or changes in the information in the Application that would affect the Permittee's ability to comply with the applicable ADEM Admin. Code or permit conditions.

This permit is effective as of **????????????**, and shall remain in effect until **?????????????**, unless suspended or revoked.

_____ _____

Alabama Department of Environmental Management Date Signed

SECTION I. STANDARD CONDITIONS

A. Effect of Permit. The Permittee is allowed to dispose of nonhazardous solid waste in accordance with the conditions of this permit and ADEM Admin. Code 335-13. Issuance of this permit does not convey property rights of any sort or any exclusive privilege, nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of state or local laws or regulations. Except for actions brought under Code of Alabama 1975, §§22-27-1, *et seq*., as amended, compliance with the conditions of this permit shall be deemed to be compliance with applicable requirements in effect as of the date of issuance of this permit and any future revisions.

B. Permit Actions. This permit may be suspended, revoked, or modified for cause. The filing of a request for a permit modification or the notification of planned changes or anticipated noncompliance on the part of the Permittee, and the suspension or revocation does not stay the applicability or enforceability of any permit condition.

C. Severability. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

D. Definitions. For the purpose of this permit, terms used herein shall have the same meaning as those in ADEM Admin. Code 335-13, unless this permit specifically provides otherwise; where terms are not otherwise defined, the meaning associated with such terms shall be as defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

1. "EPA", for purposes of this permit, means the United States Environmental Protection Agency.

2. "Permit Application", for the purposes of this permit, means all permit application forms, design plans, operational plans, closure plans, technical data, reports, specifications, plats, geological and hydrological reports, and other materials which are submitted to the Department in pursuit of a solid waste disposal permit.

E. Duties and Requirements.

1. Duty to Comply. The Permittee must comply with all conditions of this permit except to the extent and for the duration such noncompliance is authorized by a variance granted by the Department. Any permit noncompliance constitutes a violation of Code of Alabama 1975, §§22-27-1, *et seq*., as amended, and is grounds for enforcement action, permit suspension, revocation, modification, and/or denial of a permit renewal application.

2. Duty to Reapply. If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Permittee must apply for and obtain a new permit. The renewal application must be submitted to the Department at least one hundred eighty (180) days before this permit expires.

3. Permit Expiration. This permit and all conditions therein will remain in effect beyond the permit's expiration date if the Permittee has submitted a timely, complete application as required by Section I, Paragraph E, Subparagraph 2, and, through no fault of the Permittee, the Department has not made a final decision regarding the renewal application.

4. Need to Halt or Reduce Activity Not a Defense. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the conditions of this permit.

5. Duty to Mitigate. In the event of noncompliance with this permit, the Permittee shall take all reasonable steps to minimize releases to the environment and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment.

6. Proper Operation and Maintenance. The Permittee shall, at all times, properly operate and maintain all facilities and systems of control (and related appurtenances) that are installed or used by the Permittee to achieve compliance with the conditions of this permit.

7. Duty to Provide Information. If requested, the Permittee shall furnish to the Department, within a reasonable time, any information that the Department may reasonably need to determine whether cause exists for denying, suspending, revoking, or modifying this permit, or to determine compliance with this permit. If requested, the Permittee shall also furnish the Department with copies of records kept as a requirement of this permit.

8. Inspection and Entry. Upon presentation of credentials and other documents as may be required by law, the Permittee shall allow the employees of the Department or their authorized representative to:

   a. Enter at reasonable times the Permittee's premises where the regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit.

   b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit.

   c. Inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit.

   d. Sample or monitor, at reasonable times, any substances or parameters at any location for the purposes of assuring permit compliance or as otherwise authorized by Code of Alabama 1975, §§22-27-1, *et seq*.

9. Monitoring, Corrective Actions, and Records.

   a. Samples and measurements taken for the purpose of monitoring or corrective action shall be representative of the monitored activity. The methods used to obtain representative samples to be analyzed must be the appropriate method from ADEM Admin. Code 335-13-4 or the methods as specified in the Application attached hereto and incorporated by reference. Laboratory methods must be those specified in Standard Methods for the Examination of Water and Wastewater (American Public Health Association, latest edition), Methods for Chemical Analysis of Water and Wastes (EPA-600/4-79-020), Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA Publication SW-846, latest edition), other appropriate EPA methods, or as specified in the Application. All field tests must be conducted using approved EPA test kits and procedures.

   b. The Permittee shall retain records, at the location specified in Section I, Paragraph I, of all monitoring, or corrective action information, including all calibration and maintenance records, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least three years from the date of the sample, measurement, report or record, or for periods elsewhere specified in this permit. These periods may be extended by the request of the Department at any time and are automatically extended during the course of any unresolved enforcement action regarding this facility.

   c. Records of monitoring and corrective action information shall include:

      i. The exact place, date, and time of sampling or measurement.

      ii. The individual(s) and company who performed the sampling or measurements.

      iii. The date(s) analyses were performed.

iv. The individual(s) and company who performed the analyses.

v. The analytical techniques or methods used.

vi. The results of such analyses.

d. The Permittee shall submit all monitoring and corrective action results at the interval specified elsewhere in this permit.

10. Reporting Planned Changes. The Permittee shall notify the Department, in the form of a request for permit modification, at least one hundred twenty (120) days prior to any change in the permitted service area, increase in the waste received, or change in the design or operating procedure as described in this permit, including any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

11. Transfer of Permit. This permit may be transferred to a new owner or operator. All requests for transfer of permits shall be in writing and shall be submitted on forms provided by the Department. Before transferring ownership or operation of the facility during its operating life, the Permittee shall notify the new owner or operator, in writing, of the requirements of this permit.

12. Certification of Construction. Before the Permittee may commence disposal of waste in any new cell or phase:

a. The Permittee must submit a letter to the Department signed by both the Permittee and a professional engineer stating that the facility has been constructed in compliance with the permit.

b. The Department must inspect the constructed cells or phases unless the Permittee is notified that the Department will waive the inspection.

c. The Permittee may not commence disposal activities in any new cells or phases until approval of the new cells or phases is granted by the Department.

13. Noncompliance. The Permittee shall report all instances of noncompliance with the permit at the time noncompliance is discovered.

14. Other Information. If the Permittee becomes aware that information required by the Application was not submitted or was incorrect in the Application or in any report to the Department, the Permittee shall promptly submit such facts or information. In addition, upon request, the Permittee shall furnish to the Department, within a reasonable time, information related to compliance with the permit.

F. Design and Operation of Facility. The Permittee shall maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned sudden or nonsudden release of contaminants (including leachate and explosive gases) to air, soil, groundwater, or surface water, which could threaten human health or the environment.

G. Inspection Requirements.

1. The Permittee shall comply with all requirements of ADEM Admin. Code 335-13-4-.21(1)(b).

2. The Permittee shall conduct random inspections of incoming loads.

3. Records of all inspections shall be included in the operating record.

H. Recordkeeping and Reporting.

1. The Permittee shall maintain a written operating record at the location specified in Section I, Paragraph I. The operating record shall include:

   a. Documentation of inspection and maintenance activities.

   b. Daily Volume reports.

   c. Personnel training documents and records.

   d. Solid/Hazardous Waste Determination Forms for Industrial Wastes, and associated ADEM disposal approval correspondence for industrial waste and special waste.

   e. Groundwater monitoring records, if required.

   f. Explosive gas monitoring records, if required.

   g. Surface water and leachate monitoring records, if required.

   h. Copies of this Permit and the Application.

   i. Copies of all variances granted by the Department, including copies of all approvals of special operating conditions.

2. Quarterly Volume Report. Beginning with the effective date of this permit, the Permittee shall submit, within thirty (30) days after the end of each calendar quarter, a report summarizing the daily waste receipts for the previous (just ended) quarter. Copies of the quarterly reports shall be maintained in the operating record.

3. Monitoring and Corrective Action Reports. The Permittee shall submit reports on all monitoring and corrective action activities conducted pursuant to the requirements of this permit, including, but not limited to, groundwater, surface water, explosive gas, and leachate monitoring. The groundwater monitoring shall be conducted in March of each year, or as directed by the Department, and the reports shall be submitted at least annually, or as directed by the Department. The reports should contain all monitoring results and conclusions from samples and measurements conducted during the sampling period. Explosive gas monitoring must be submitted on a quarterly basis, and the reports should be submitted to the Department and placed in the operating record within thirty (30) days of the monitoring event. Copies of the groundwater and explosive gas monitoring reports shall be maintained in the operating record.

4. Availability, Retention, and Disposition of Records.

   a. All records, including plans, required under this permit or ADEM Admin. Code 335-13 must be furnished upon request and made available at reasonable times for inspection by any officer, employee, or representative of the Department.

   b. All records, including plans, required under this permit or ADEM Admin. Code 335-13 shall be retained by the Permittee for a period of at least three years. The retention period for all records is extended automatically during the course of any unresolved enforcement action regarding the facility, or as requested by the Department.

   c. A copy of records of waste disposal locations and quantities must be submitted to the Department and local land authority upon closure of the facility.

I. Documents to be Maintained by the Permittee. The Permittee shall maintain, at the Roanoke City Hall, the following documents and amendments, revisions, and modifications to these documents until an engineer certifies closure of the permitted landfill:

1. Operating record.

2. Closure Plan.

J. Mailing Location. All reports, notifications, or other submissions which are required by this permit should be sent via signed mail (i.e. certified mail, express mail delivery service, etc.) or hand delivered to:

1. Mailing Address.
Chief, Solid Waste Branch, Land Division
Alabama Department of Environmental Management
P.O. Box 301463
Montgomery, AL 36130-1463

2. Physical Address.
Chief, Solid Waste Branch, Land Division
Alabama Department of Environmental Management
1400 Coliseum Blvd.
Montgomery, Alabama 36110-2400

K. Signatory Requirement. All applications, reports, or information required by this permit, or otherwise submitted to the Department, shall be signed and certified by the owner as follows:

1. If an individual, by the applicant.

2. If a city, county, or other municipality or governmental entity, by the ranking elected official or by a duly authorized representative of that person.

3. If a corporation, organization, or other legal entity, by a principal executive officer, of at least the level of Vice President, or by a duly authorized representative of that person.

L. Confidential Information. The Permittee may claim information submitted as confidential pursuant to ADEM Admin. Code 335-1-1-.06.

M. State Laws and Regulations. Nothing in this permit shall be construed to preclude the initiation of any legal action or to relieve the Permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation.

SECTION II. GENERAL OPERATING CONDITIONS

A. Operation of Facility. The Permittee shall operate and maintain the disposal facility consistent with the Application, this permit, and ADEM Admin. Code 335-13.

B. Open Burning. The Permittee shall not allow open burning without prior written approval from the Department and other appropriate agencies. A burn request should be submitted in writing to the Department outlining why that burn request should be granted. This request should include, but not be limited to, specifically what areas will be utilized, types of waste to be burned, the projected starting and completion dates for the project, and the projected days and hours of operation. The approval, if granted, shall be included in the operating record.

C. Prevention of Unauthorized Disposal. The Permittee shall follow the approved procedures, as provided in the Application, for detecting and preventing the disposal of free liquids, regulated hazardous waste, PCBs, regulated medical waste, and other unauthorized waste streams at the facility.

D. Unauthorized Discharge. The Permittee shall operate the disposal facility in such a manner that there will be no water pollution or unauthorized discharge. Any discharge from the disposal facility or practice thereof may require a National Pollutant Discharge Elimination System permit under the Alabama Water Pollution Control Act.

E. Industrial Waste Disposal. The Permittee shall not dispose of industrial waste at this landfill. Only those wastes listed in Section III, Paragraph B, are allowed for disposal in this landfill.

F. Boundary Markers. The Permittee shall ensure that the facility is identified with a sufficient number of permanent boundary markers that are at least visible from one marker to the next.

G. Certified Operator. The Permittee shall be required to have an operator certified by the Department on-site during hours of operation, in accordance with the requirements of ADEM Admin. Code 335-13-12.

SECTION III. SPECIFIC REQUIREMENTS FOR C/D LANDFILLS

A. Waste Identification and Management.

1. Subject to the terms of this permit, the Permittee may accept for disposal the nonhazardous solid wastes listed in Section III, Paragraph B. Disposal of any other wastes is prohibited, except waste granted a temporary or one time waiver by the Director.

2. The total permitted area for the Roanoke C/D Landfill is approximately 178 acres, with 8.71 acres approved for disposal.

3. The maximum average daily volume of waste disposed at the facility, as contained in the permit Application, shall not exceed 1000 cubic yards/day. Should the average daily volume exceed this value by 20% or 100 tons/day, whichever is less, for two (2) consecutive quarters, the Permittee shall be required to modify the permit in accordance with ADEM Admin. Code 335-13-5-.06(2)(b)2. An increase in maximum average daily volume shall not be approved by the Department unless the Permittee has received local approval for the increased maximum average daily volume. The average daily volume shall be computed as specified by ADEM Admin. Code 335-13-4-.23(2)(f).

B. Waste Streams. The Permittee may accept for disposal non-putrescible and non-hazardous construction and demolition waste and discarded tires as defined by ADEM Admin. Code 335-13-1-.03.

C. Service Area. The service area for this landfill, as contained in the Application, is the City of Roanoke, Alabama, and Randolph County, Alabama.

D. Waste Placement, Compaction, and Cover. All waste shall be confined to an area as small as possible within a single working face and placed onto an appropriate slope not to exceed 4 to 1 (25%) or as otherwise approved by the Department. All waste shall be spread in layers two feet or less in thickness and thoroughly compacted weekly with adequate landfill equipment prior to placing additional layers of waste or placing the weekly cover. A minimum of six inches of compacted earth or other alternative cover material approved by the Department and listed in Section VIII shall be added at the conclusion of each week's operation. These are minimum requirements for waste placement, compaction, and cover unless a variance is granted in Section VIII.

E. Liner Requirements. At this time, the Permittee shall not be required to install a liner system. The bottom of the construction and demolition waste shall be a minimum of five (5) feet above the highest measured groundwater level as determined by ADEM Admin. Code 335-13-4-.11(2)(a).

F. Security. The Permittee shall provide artificial and/or natural barriers, which prevent entry of unauthorized vehicular traffic to the facility.

G. All Weather Access Roads. The Permittee shall provide an all-weather access road to the dumping face that is wide enough to allow passage of collection vehicles.

H. Adverse Weather Disposal. The Permittee shall provide for disposal activities in adverse weather conditions.

I. Personnel. The Permittee shall maintain adequate personnel to ensure continued and smooth operation of the facility.

J. Environmental Monitoring and Treatment Structures. The Permittee shall provide protection and proper maintenance of environmental monitoring and treatment structures.

K. Vector Control. The Permittee shall provide for vector control as required by ADEM Admin. Code 335-13.

L. Bulk or Noncontainerized Liquid Waste. The Permittee shall not dispose of bulk or noncontainerized liquid waste, or containers capable of holding liquids, unless the conditions of ADEM Admin. Code 335-13-4-.23(1)(j) are met.

M. Empty Containers. Empty containers larger than 10 gallons in size must be rendered unsuitable for holding liquids prior to disposal in the landfill unless otherwise approved by the Department.

N. Other Requirements. ADEM may enhance or reduce any requirements for operating and maintaining the landfill as deemed necessary by the Land Division.

O. Other Permits. The Permittee shall operate the landfill according to this and any other applicable permits.

P. Scavenging and Salvaging Operations. The Permittee shall prevent scavenging and salvaging operations, except as part of a controlled recycling effort. Any recycling operation must be in accordance with plans submitted and approved by the Department.

Q. Signs. If the landfill is available to the public or commercial haulers, the Permittee shall provide a sign outlining instructions for use of the site. The sign shall be posted and have the information required by ADEM Admin. Code 335-13-4-.23(1)(f).

R. Litter Control. The Permittee shall control litter.

S. Fire Control. The Permittee shall provide fire control measures.

SECTION IV. GROUNDWATER MONITORING REQUIREMENTS

A. **Groundwater monitoring is required at this landfill due to a closed sanitary landfill located inside the facility boundary.** The Permittee shall install and/or maintain a groundwater monitoring system as specified below and in accordance with ADEM Admin. Code 335-13.

1. The permittee shall maintain the groundwater monitoring wells identified in Table IV.1. at the locations specified in the Application and any other groundwater monitoring wells which are added (Section IV, Paragraph A, Subparagraph 3) during the active life and the post-closure care period.

2. The Permittee shall maintain groundwater monitoring well MW-1 as the background groundwater monitoring well for the entire facility.

3. The Permittee shall install and maintain additional groundwater monitoring wells as necessary to assess changes in the rate and extent of any plume of contamination or as otherwise deemed necessary to maintain compliance with ADEM Admin. Code 335-13.

4. Prior to installing any additional groundwater monitoring wells, the Permittee shall submit a plan to the Department with a permit modification request specifying the design, location, and installation of any additional monitoring wells. This plan shall be submitted at least one hundred twenty (120) days prior to the installation which, at a minimum, shall include:

   a. Well construction techniques including proposed casing depths, proposed total depth, and proposed screened interval of well(s);

   b. Well development method(s);

   c. A complete analysis of well construction materials;

   d. A schedule of implementation for construction; and

   e. Provisions for determining the lithologic characteristics, hydraulic conductivity, and grain-size distribution for the applicable aquifer unit(s) at the location of the new well(s).

B. Groundwater Monitoring Requirements.

1. The Permittee shall determine the groundwater surface elevation at each monitoring well and piezometer identified in Table IV.1. each time the well or piezometer is sampled and at least semi-annually throughout the active life and post-closure care period.

2. The Permittee shall determine the groundwater flow rate and direction in the first zone of saturation at least annually or each time groundwater is sampled and submitted as required by ADEM Admin. Code 335-13.

3. Prior to the initial receipt of waste at the facility, the Permittee shall sample and analyze for the parameters listed in Appendix I of ADEM Admin. Code 335-13-4, and/or any other parameters specified by the Department in Table IV. 2, in all monitoring wells identified in Section IV, Paragraph A, Subparagraph 2, to establish background water quality and/or as directed by ADEM Admin. Code 335-13-4-.27(2)(j) and ADEM Admin. Code 335-13-4-.27(2)(a)(1).

4. The Permittee shall sample and analyze all monitoring wells identified in Table IV.1 for the parameters listed in Appendix I of ADEM Admin. Code 335-13-4, and/or any other parameters specified by the Department in Table IV.3, on a semi-annual basis throughout the active life of the facility and the post-closure care period in accordance with ADEM Admin. Code 335-13-4-.27(3). Sampling shall be conducted during March and September of each year, beginning with the effective date of this permit. The records and results of this sampling and analysis activity shall be submitted to Department within ninety (90) days of the date of sampling. The records and results of this sampling and analysis activity shall be submitted to the Department within sixty (90) days of the date of sampling.

5. In addition to the requirements of Section IV, Paragraph B, Subparagraphs 1, 2, 3, and 4, the Permittee shall record water levels, mean sea level elevation measuring point, depth to water, and the results of field tests for pH and specific conductance at the time of sampling for each well.

C. Sampling and Analysis Procedures. The Permittee shall use the following techniques and procedures when obtaining and analyzing samples from the groundwater monitoring wells described in Section IV, Paragraph A, to provide a reliable indication of the quality of the groundwater.

1. Samples shall be collected, preserved, and shipped (when shipped off-site for analysis) in accordance with the procedures specified in the Application. Monitoring wells shall be bailed or pumped to

remove at least four times the well volume of water. Slow recharge wells shall be bailed until dry. Wells shall be allowed to recharge prior to sampling.

2. Samples shall be analyzed according to the procedures specified of the Application, Standard Methods for the Examination of Water and Wastewater (American Public Health Association, latest edition), Methods for Chemical Analysis of Water and Wastes (EPA-600/4-79-020), Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA Publication SW-846, latest edition), or other appropriate methods approved by this Department. All field tests must be conducted using approved EPA test kits and procedures.

3. Samples shall be tracked and controlled using the chain-of-custody and QA/QC procedures specified of the Application.

4. **The Permittee is approved for interwell statistical analysis.**

D. Recordkeeping and Reporting Requirements.

1. Recording of Results. For each sample and/or measurement taken pursuant to the requirements of this permit, the Permittee shall record the information required by Section I, Paragraph E, Subparagraph 9c.

2. Recordkeeping. Records and results of all groundwater monitoring, sampling, and analysis activities conducted pursuant to the requirements of this permit shall be included in the operating record required by Section I, Paragraph I, Subparagraph 1.

E. Permit Modification. If at any time the Permittee or the Department determines that the groundwater monitoring system no longer satisfies the requirements of ADEM Admin. Code 335-13-4-.14 or Section IV, Paragraph A, of this permit, the Permittee must, within one hundred twenty (120) days, submit an application for a permit modification to make any necessary and/or appropriate changes to the system.

TABLE IV.1.
GROUNDWATER MONITORING WELLS.

Monitoring Well Number	Top of Casing (feet msl)	Part Monitoring
UPGRADIENT/BACKGROUND MONITORING WELLS		
MW-1	888.13	Closed Sanitary Landfill
DOWNGRADIENT MONITORING WELLS		
MW-2	849.32	Closed Sanitary Landfill
MW-3	836.30	Closed Sanitary Landfill
MW-4	836.24	Closed Sanitary Landfill
MW-5	846.72	Closed Sanitary Landfill

*ft-bls = Depth in feet below land surface

TABLE IV.2.
BACKGROUND GROUNDWATER MONITORING.

NOTE: The parameters in this Table are those listed in Appendix I of ADEM Admin. Code 335-13-4.

NOTE: The Permittee shall conduct a minimum of four independent sampling events as the initial sampling event and analyze for the parameters listed above in order to establish background water quality. Following the four independent events, the Permittee can submit a request, with justification, for the deletion of or change in these parameters.

TABLE IV.3.
SEMI-ANNUAL GROUNDWATER MONITORING PARAMETERS.

NOTE: The parameters to be monitored for in this Table are those listed in Appendix I of ADEM Admin. Code 335-13-4 and/or any other waste stream specific parameters.

SECTION V. GAS MONITORING REQUIREMENTS.

The permittee must install and maintain an explosive gas monitoring system in accordance with ADEM Admin. Code 335-13.

SECTION VI. SURFACE WATER MANAGEMENT REQUIREMENTS.

The permittee shall construct and maintain run-on and run-off control structures. Any discharges from drainage control structures shall be permitted through a discharge permit issued by the ADEM Water Division.

SECTION VII. CLOSURE AND POST-CLOSURE REQUIREMENTS.

The Permittee shall close the landfill and perform post-closure care of the landfill in accordance with ADEM Admin. Code 335-13.

A. Final Cover. The Permittee shall grade final soil cover such that surface water does not pond over the permitted area as specified in the Application. The final cover system shall comply with ADEM Admin. Code 335-13.

B. Vegetative Cover. The Permittee shall establish a vegetative or other appropriate cover, as approved by the Department, within 90 days after completion of final grading requirements in the Application. Preparation of a vegetative cover shall include, but not be limited to, the placement of seed, fertilizer, mulch, and water.

C. Notice of Intent. The Permittee shall place in the operating record and notify the Department of their intent to close the landfill prior to beginning closure.

D. Completion of Closure Activities. The Permittee must complete closure activities of each landfill unit in accordance with the Closure Plan within one hundred eighty (180) days of the last known receipt of waste.

E. Certification of Closure. Following closure of each unit, the Permittee must submit to the Department a certification, signed by a registered professional engineer, verifying the closure has been completed according to the Closure Plan.

F. Post-Closure Care Period. Post-closure care activities shall be conducted after closure of each unit throughout the life of this permit and continuing for a period of a minimum of thirty (30) years following closure of the facility. The Department may shorten or extend the post-closure care period applicable to the solid waste disposal facility.

G. Post-Closure Maintenance. The Permittee shall provide post-closure maintenance of the facility to include regularly scheduled inspections. This shall include maintenance of the cover, vegetation, monitoring devices and pollution control equipment, and correction of other deficiencies that may be observed by the Department. Monitoring requirements shall continue throughout the post-closure period as determined by the Department unless all waste is removed and no unpermitted discharge to waters of the State have occurred.

H. Post-Closure Use of Property. The Permittee shall ensure that post-closure use of the property never be allowed to disturb the integrity of the final cover, liner, or any other component of the containment system. This shall preclude the growing of deep-rooted vegetation on the closed area.

I. Certification of Post-Closure. Following post-closure of each unit, the Permittee must submit to the Department a certification, signed by a registered professional engineer, verifying the post-closure has been completed according to the Post-Closure Plan.

J. Recording Instruments. The Permittee must provide documentation of compliance with the requirements of the Uniform Environmental Covenants Program in ADEM Admin. Code 335-5 and shall execute the following:

1. Record a notation onto the land deed within ninety (90) days from the certification of closure. This notation shall state that the land has been used as a solid waste disposal facility, the name of the Permittee, type of disposal activity, location of the disposal facility, and beginning and closure dates of the disposal activity.

2. File the covenant at the courthouse where the land deed is held within thirty (30) days of receipt of the covenant signed by ADEM's Land Division Chief.

3. The Permittee shall submit a certified copy of the recording instrument to ADEM within one hundred twenty (120) days after permit expiration, revocation, or as directed by ADEM as described in the Application.

K. Removal of Waste. If the Permittee, or any other person(s), wishes to remove waste, waste residues, or any liner or contaminated soils, the owner must request and receive prior approval from the Department.

SECTION VIII. VARIANCES.

There are no approved variances for the Roanoke C/D Landfill.

Any variance granted by the Department may be terminated by the Department whenever the Department finds, after notice to the petitioner, that the petitioner is in violation of any requirement, condition, schedule, limitation, or any other provision of the variance, or that operation under the variance does not meet the minimum requirements established by state and federal laws and regulations or is unreasonably threatening the public health.

Permit No. 56-02 Renewal

Application

RECEIVED
APR 29 2020
LAND DIVISION

PERMIT APPLICATION
SOLID WASTE DISPOSAL FACILITY
CONSTRUCTION/DEMOLITION LANDFILL
ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

(Submit in Triplicate)

The following application, with all required attachments, must be submitted before the Department will begin its review.

SECTION I:

LANDFILL ACTION:

_____ New Application

_X_ Renewal Application, Permit Number 56-02

_____ Modification Application, Permit Number _____

LANDFILL NAME: CITY OF ROANOKE

LANDFILL ADDRESS (MAILING): P.O. BOX 1270
ROANOKE, AL 36274

LANDFILL ADDRESS (PHYSICAL): 2736 COUNTRY CLUB ROAD
ROANOKE, AL 36274

SECTION II:

APPLICANT/PERMITTEE:

NAME: CITY OF ROANOKE

ADDRESS: P.O. BOX 1270

TELEPHONE: 334-863-4129

If applicant/permittee is a Corporation, please list officers:

SECTION III:

LANDFILL OPERATOR:

Name: (1) SEE ATTACHMENT (2) _____

Address: _____ _____

_____ _____

_____ _____

Telephone: _____ _____

SECTION IV:

CONTACT PERSON(S):

Name: (1) NICK JOHNSON (2) PATRICIA TRUITT

Address: P.O. BOX 1270 CITY CLERK

ROANOKE, AL 36274 P.O. BOX 1270

_____ ROANOKE, AL 36274

Telephone: 334-863-7666 334-863-4129

SECTION V:

LANDOWNER(S):

Name: (1) CITY OF ROANOKE (2) _____

Address: P.O. BOX 1270 _____

ROANOKE, AL 36274 _____

_____ _____

Telephone: 334-863-4129 _____

Attach copy of agreement from landowner giving permission to use site for disposal if landowner is different from applicant.

SECTION VI:

ADJACENT LANDOWNER(S):

a. Submit a list of all adjacent landowners including name and current mailing address

b. Submit a drawing/map identifying the proposed disposal site and the properties of all adjacent landowners listed in "a" above.

SECTION VII:

LOCAL APPROVAL: NO Required (Yes or No)

_____ Date Received if needed (attach copy of resolution and proof of publishing public notice)

SECTION VIII:

WASTE DESCRIPTION:

a. Describe and list all waste streams/types to be accepted at landfill:

C&D, TIRES

b. List proposed service area (geographic area or location(s)):

CITY OF ROANOKE

c. What is the maximum daily volume of waste to be received at the landfill? (Select One)

_____ tons per day 1000 cubic yards per day

SECTION IX:

SITE DESCRIPTION:

a. Attach location map with the site clearly identified. Acceptable maps include a USGS 7.5 or 15 minute series, a county highway map published by the Alabama Department of Transportation.

b. Location:

County: RANDOLPH

Part: _____ of Section(s): 9

Township(s): 22 Range(s): 12-E

c. Attach legal property description and boundary plat of the permitted area and disposal area prepared and signed by a licensed land surveyor.

d. Size of permitted area: 178 acres

e. Size of disposal area: 4.17 acres

SECTION X:

This Section is to be completed by the applicants/permittees. A copy of all concurrence letters must be attached to this application upon submittal to the Department.

Location Standards: (Rule 335-13-4-.01(1)

a. Is the landfill located in the 100-year flood plain? (need to have flood plain map)

NO: X YES: ____

b. Does the proposed landfill disposal area:

(1.) Jeopardize the continued existence of endangered or threatened species protected under the Endangered Species Act of 1973?

NO: X YES: ___(Attach letter from U.S. Dept. of Interior or Alabama Fish and Wildlife)

(2.) Result in the destruction or adverse modification of critical habitats protected under the Endangered Species Act of 1973?

NO: X YES: ___ (Attach letter from U.S. Dept. of Interior or Alabama Fish and Wildlife)

c. Is the proposed landfill located in a zone of active faults, seismic impact zones and unstable areas?

NO: X YES: ____

(If YES then all required seismic studies should be submitted to the Department.)

d. Is the proposed landfill located in an area that is archaeologically sensitive?

NO: X YES: ____ (Attach letter from State Historic Preservation Officer)

Water Quality Standards (Rule 335-13-4-.01(2):
(ADEM Water Division should be contacted to determine if permit is required)

a. Will the proposed landfill discharge pollutants to waters of the State in violation of requirements of the National Pollutant Discharge Elimination System (NPDES) Permit?

NO: X YES: ____

b. Will the proposed landfill violate any requirement of an area wide or Statewide water quality plan that has been approved under the Alabama Water Pollution Control Act?

NO: X YES: ____

c. Will any part of the landfill, including buffer zone, be located in wetlands, beaches, dunes?

NO: X YES: ____

d. Will solid waste be disposed in any location which will significantly degrade wetlands, beaches, or dunes?

NO: X YES: ____

e. Will the proposed landfill be located outside the boundaries of the coastal area? (If not, then all demonstrations should be submitted to the Department for review.)

NO: X YES: ____

Groundwater Elevations:

Has a minimum five-foot separation between the floor of the disposal cell and the groundwater been established? NO: ____ YES: X

SECTION XI:

GENERAL COMMENTS:

All materials listed in Rules 335-13-4-.12 to 335-13-4-.17, Rules 335-13-4-.19 to 335-13-4-.20, and Rule 335-13-4-.23 shall be kept at the landfill office along with a copy of the engineering drawings which must be submitted to the Department for review.

The applicant/permittee is responsible for obtaining a copy of the Division 13 regulations and complying with all Rules related to construction/demolition landfill units.

SECTION XII:

CERTIFICATION OF LOCAL GOVERNMENT APPROVAL:

Upon submittal of this application, we the undersigned certify that local approval has been obtained from CITY OF ROANOKE (city/county). Evidence of this local approval is contained in documents which are on file at the permit applicant's business address.

CERTIFICATION OF COMPLIANCE:

Upon submittal of this application, we the undersigned certify that this document and all attachments submitted are to the best of our knowledge and belief, true, accurate, and complete. We also understand that if any of the material certified to above has not been received, or is not complete or is not accurate, that shall be grounds for the Department to revoke the landfill permit if issued.

SIGNATURE (Responsible official of permit applicant): _____ TITLE: SUPERINTENDENT

NICK JOHNSON DATE: 04/20/2020
(please print or type name)

SIGNATURE (Certifying Engineer): _____ TITLE: COUNTY ENGINEER

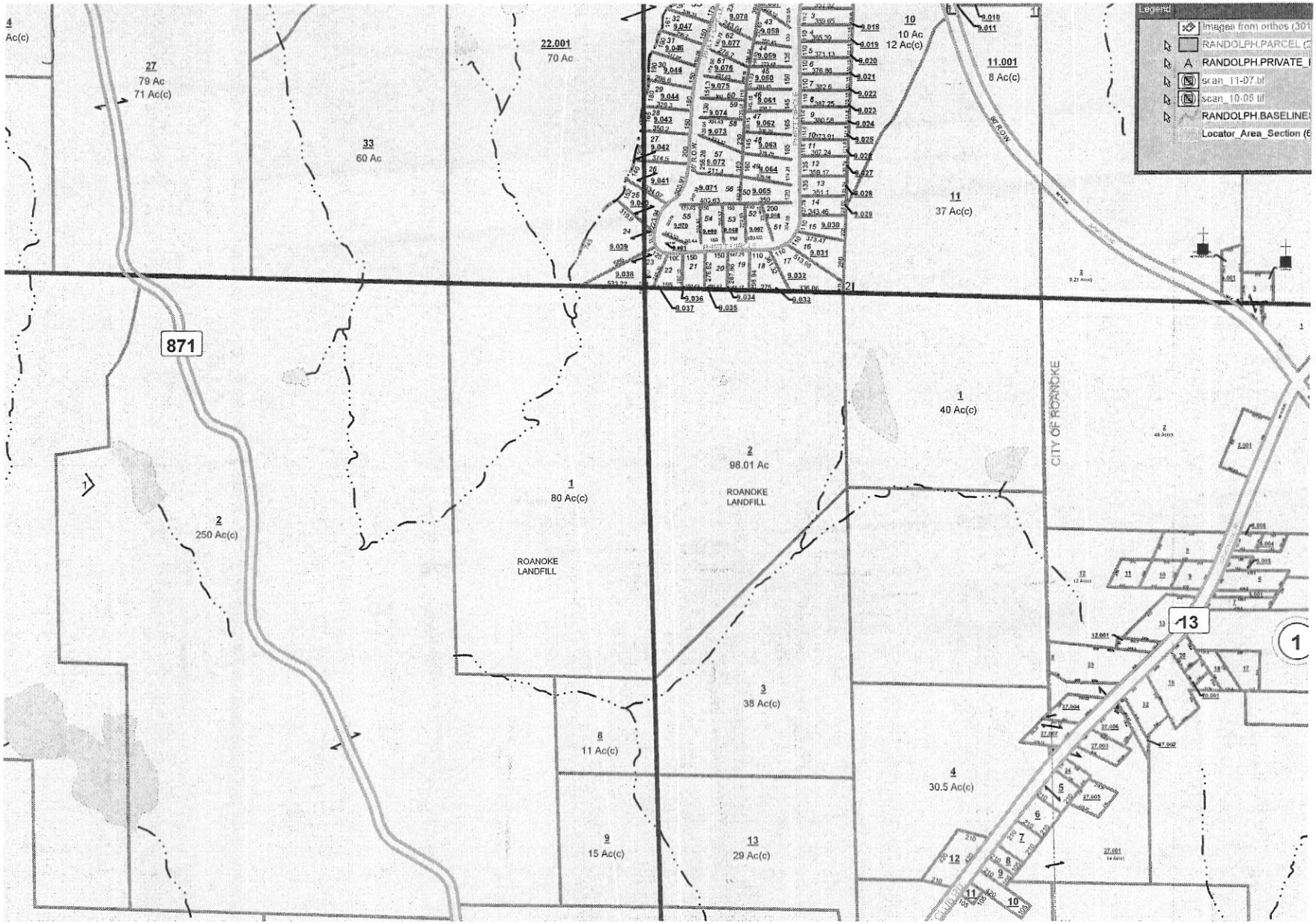
BURREL C. JONES DATE: 04/20/2020
(please print or type name)

FIRM: _____ STAMP OR SEAL:

ALABAMA PROFESSIONAL ENGINEER AND LAND SURVEYOR REGISTERED NO. 15294 BURREL C. JONES

Abutters
Roanoke CD Landfill
Tax Parcels

Parcel 11	Phillip Murphy 749 Wylie Industrial Boulevard Roanoke, AL 36274
Parcel 1	Robert A Joiner 2528 Country Club Road Roanoke, AL 36274
Parcel 3, 8	Jonathan Stokes 4807 McAlpine Farm Road Charlotte, NC 28226
Parcel 2	Edgar Stevenson 1101 County Road 871 Roanoke, AL 36274
Parcel 33	Patrick Curry P.O. Box 418 LaGrange, GA 30241
Parcel 22.001	Danny Hall 778 Louina Road Roanoke, AL 36274
Parcel 9.038	Marilyn Fincher P.O. Box 411 Roanoke, AL 36274
Parcel 9.036, 9.037	Raymond Johnson 690 Rhett Circle Roanoke, AL 36274
Parcel 9.034, 9.035	First Bank of Alabama P.O. Box 207 Wedowee, AL 36278
Parcel 9.033	Betty Ann Phillips 790 Rhett Circle Roanoke, AL 36274
Parcel 9.032	Joseph Ridley 1459 Tana Lane Gambrills, MD 21054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CITY OF ROANOKE
ROANOKE LANDFILL
ROANOKE LANDFILL
22.001
70 Ac
27
79 Ac
71 Ac(c)
33
60 Ac
10
10 Ac
12 Ac(c)
11.001
8 Ac(c)
11
37 Ac(c)
1
40 Ac(c)
2
98.01 Ac
1
80 Ac(c)
2
250 Ac(c)
3
38 Ac(c)
8
11 Ac(c)
4
30.5 Ac(c)
9
15 Ac(c)
13
29 Ac(c)

Landfill Operators

Name: James N Johnson

Address: 525 Randolph Street

Roanoke, AL 36274

Operator #: LFOP00747

Telephone: (334) -338-4240

Name: Bobby R Boyd

Address: 5901 Louina Road

Roanoke, AL 36274

Operator #: LFOP00287

Telephone: (334) -863-7045

Name: Stanley R Frye

Address: 321 Pine Valley Dr

Roanoke, AL 36274

Operator #: LFOP00746

Telephone: (334) -863-7363

Name: Tevin M Holley

Address: 824 Strozier Street

Roanoke, AL 36274

Operator #: LFOP00831

Telephone: (334) -338-0952

Name: Kenneth D Rollins

Address: 335 Fincher Road

Roanoke, AL 36274

Operator #: LFOP00785

Telephone: (256)-276-9476

STATE OF ALABAMA

Alabama Department of Environmental Management

This is to certify that

Bobby R Boyd

has met the requirements and is duly certified as a

C/D & Ind LANDFILL OPERATOR

Operator No. LFOP00287 Expires 10/14/2020

ADEM

SIGNATURE OF OPERATOR

STATE OF ALABAMA

Alabama Department of Environmental Management

This is to certify that

Stanley R Frye

has met the requirements and is duly certified as a

C/D & Ind LANDFILL OPERATOR

Operator No. LFOP00746 Expires 01/14/2022

ADEM

SIGNATURE OF OPERATOR

STATE OF ALABAMA

Alabama Department of Environmental Management

This is to certify that

James N Johnson

has met the requirements and is duly certified as a

C/D & Ind LANDFILL OPERATOR

Operator No. LFOP00747 Expires 01/14/2022

ADEM

SIGNATURE OF OPERATOR

STATE OF ALABAMA

Alabama Department of Environmental Management

This is to certify that

Tevin M Holley

has met the requirements and is duly certified as a

C/D & Ind LANDFILL OPERATOR

Operator No. LFOP00831 Expires 02/14/2023

ADEM

SIGNATURE OF OPERATOR

STATE OF ALABAMA

Alabama Department of Environmental Management

This is to certify that

Kenneth D Rollins

has met the requirements and is duly certified as a

C/D & Ind LANDFILL OPERATOR

Operator No. LFOP00785 Expires 07/14/2022

ADEM

SIGNATURE OF OPERATOR

Received
AUG 04 2022
Land Division

PERMIT APPLICATION
SOLID WASTE DISPOSAL FACILITY
CONSTRUCTION/DEMOLITION LANDFILL
ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

(Submit in Triplicate)

The following application, with all required attachments, must be submitted before the Department will begin its review.

SECTION I:

LANDFILL ACTION:

_____ New Application

X Renewal Application, Permit Number 56-02

_____ Modification Application, Permit Number _____

LANDFILL NAME: CITY OF ROANOKE

LANDFILL ADDRESS (MAILING): P.O. BOX 1270
ROANOKE, AL 36274

LANDFILL ADDRESS (PHYSICAL): 2736 COUNTRY CLUB ROAD
ROANOKE, AL 36274

SECTION II:

APPLICANT/PERMITTEE:

NAME: CITY OF ROANOKE

ADDRESS: P.O. BOX 1270

TELEPHONE: 334-863-4129

If applicant/permittee is a Corporation, please list officers:

SECTION III:

LANDFILL OPERATOR:

Name:	(1) SEE ATTACHMENT	(2)
Address:		
Telephone:		

SECTION IV:

CONTACT PERSON(S):

Name:	(1) NICK JOHNSON	(2) PATRICIA TRUITT
Address:	P.O. BOX 1270	CITY CLERK
	ROANOKE, AL 36274	P.O. BOX 1270
		ROANOKE, AL 36274
Telephone:	334-863-7666	334-863-4129

SECTION V:

LANDOWNER(S):

Name:	(1) CITY OF ROANOKE	(2)
Address:	P.O. BOX 1270	
	ROANOKE, AL 36274	
Telephone:	334-863-4129	

Attach copy of agreement from landowner giving permission to use site for disposal if landowner is different from applicant.

SECTION VI:

ADJACENT LANDOWNER(S):

a. **Submit a list of all adjacent landowners including name and current mailing address**

b. **Submit a drawing/map identifying the proposed disposal site and the properties of all adjacent landowners listed in "a" above.**

SECTION VII:

LOCAL APPROVAL: NO **Required (Yes or No)**

_____ **Date Received if needed (attach copy of resolution and proof of publishing public notice)**

SECTION VIII:

WASTE DESCRIPTION:

a. Describe and list all waste streams/types to be accepted at landfill:

C&D, TIRES

b. List proposed service area (geographic area or location(s)):

CITY OF ROANOKE

c. What is the maximum daily volume of waste to be received at the landfill? (Select One)

_____ tons per day 1000 cubic yards per day

SECTION IX:

SITE DESCRIPTION:

a. Attach location map with the site clearly identified. Acceptable maps include a USGS 7.5 or 15 minute series, a county highway map published by the Alabama Department of Transportation.

b. Location:

County: RANDOLPH

Part: _____ of Section(s): 9

Township(s): 22 Range(s): 12-E

c. Attach legal property description and boundary plat of the permitted area and disposal area prepared and signed by a licensed land surveyor.

d. Size of permitted area: 178 acres

e. Size of disposal area: 4.17 acres

SECTION X:

This Section is to be completed by the applicants/permittees. A copy of all concurrence letters must be attached to this application upon submittal to the Department.

Location Standards: (Rule 335-13-4-.01(1)

a. Is the landfill located in the 100-year flood plain? (need to have flood plain map)

NO: X YES: ____

b. Does the proposed landfill disposal area:

(1.) Jeopardize the continued existence of endangered or threatened species protected under the Endangered Species Act of 1973?

NO: X YES: ___(Attach letter from U.S. Dept. of Interior or Alabama Fish and Wildlife)

(2.) Result in the destruction or adverse modification of critical habitats protected under the Endangered Species Act of 1973?

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c. Is the proposed landfill located in a zone of active faults, seismic impact zones and unstable areas?

NO: X YES: ____

(If YES then all required seismic studies should be submitted to the Department.)

d. Is the proposed landfill located in an area that is archaeologically sensitive?

NO: X YES: ____ (Attach letter from State Historic Preservation Officer)

Water Quality Standards (Rule 335-13-4-.01(2):
(ADEM Water Division should be contacted to determine if permit is required)

a. Will the proposed landfill discharge pollutants to waters of the State in violation of requirements of the National Pollutant Discharge Elimination System (NPDES) Permit?

NO: X YES: ____

b. Will the proposed landfill violate any requirement of an area wide or Statewide water quality plan that has been approved under the Alabama Water Pollution Control Act?

NO: X YES: ____

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NO: X YES: ____

d. Will solid waste be disposed in any location which will significantly degrade wetlands, beaches, or dunes?

NO: X YES: ____

e. Will the proposed landfill be located outside the boundaries of the coastal area? (If not, then all demonstrations should be submitted to the Department for review.)

NO: X YES: ____

Groundwater Elevations:

Has a minimum five-foot separation between the floor of the disposal cell and the groundwater been established? NO: ____ YES: X

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GENERAL COMMENTS:

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Upon submittal of this application, we the undersigned certify that local approval has been obtained from CITY OF ROANOKE (city/county). Evidence of this local approval is contained in documents which are on file at the permit applicant's business address.

CERTIFICATION OF COMPLIANCE:

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SIGNATURE (Responsible official of permit applicant): _____ TITLE: SUPERINTENDENT

NICK JOHNSON DATE: 04/20/2020
(please print or type name)

SIGNATURE (Certifying Engineer): _____ TITLE: COUNTY ENGINEER

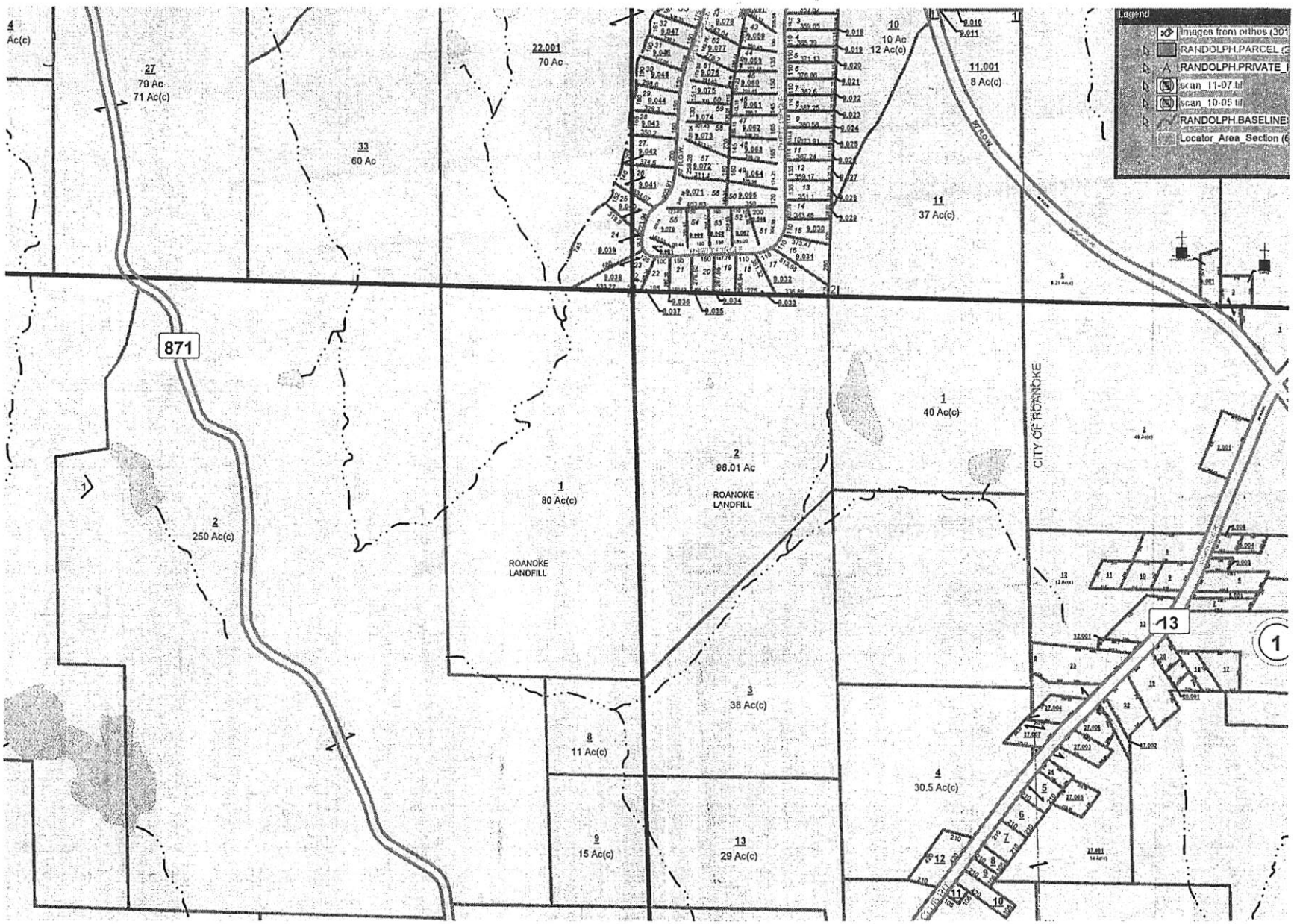
BURREL C. JONES DATE: 04/20/2020
(please print or type name)

FIRM: _____ STAMP OR SEAL:

ALABAMA PROFESSIONAL ENGINEER REGISTERED NO. 15284 LAND SURVEYOR BURREL C. JONES

Abutters
Roanoke CD Landfill
Tax Parcels

Parcel 11	Phillip Murphy 749 Wylie Industrial Boulevard Roanoke, AL 36274
Parcel 1	Robert A Joiner 2528 Country Club Road Roanoke, AL 36274
Parcel 3, 8	Jonathan Stokes 4807 McAlpine Farm Road Charlotte, NC 28226
Parcel 2	Edgar Stevenson 1101 County Road 871 Roanoke, AL 36274
Parcel 33	Patrick Curry P.O. Box 418 LaGrange, GA 30241
Parcel 22.001	Danny Hall 778 Louina Road Roanoke, AL 36274
Parcel 9.038	Marilyn Fincher P.O. Box 411 Roanoke, AL 36274
Parcel 9.036, 9.037	Raymond Johnson 690 Rhett Circle Roanoke, AL 36274
Parcel 9.034, 9.035	First Bank of Alabama P.O. Box 207 Wedowee, AL 36278
Parcel 9.033	Betty Ann Phillips 790 Rhett Circle Roanoke, AL 36274
Parcel 9.032	Joseph Ridley 1459 Tana Lane Gambrills, MD 21054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71 Ac(c)
33
60 Ac
22.001
70 Ac
10
10 Ac
12 Ac(c)
11.001
8 Ac(c)
11
37 Ac(c)
871
1
40 Ac(c)
2
98.01 Ac
ROANOKE
LANDFILL
1
80 Ac(c)
ROANOKE
LANDFILL
2
250 Ac(c)
CITY OF ROANOKE
13
1
3
38 Ac(c)
8
11 Ac(c)
4
30.5 Ac(c)
9
15 Ac(c)
13
29 Ac(c)

Landfill Operators

Name: James N Johnson

Address: 525 Randolph Street

Roanoke, AL 36274

Operator #: LFOP00747

Telephone: (334) -338-4240

Name: Bobby R Boyd

Address: 5901 Louina Road

Roanoke, AL 36274

Operator #: LFOP00287

Telephone: (334) -863-7045

Name: Stanley R Frye

Address: 321 Pine Valley Dr

Roanoke, AL 36274

Operator #: LFOP00746

Telephone: (334) -863-7363

Name: Tevin M Holley

Address: 824 Strozier Street

Roanoke, AL 36274

Operator #: LFOP00831

Telephone: (334) -338-0952

Name: Kenneth D Rollins

Address: 335 Fincher Road

Roanoke, AL 36274

Operator #: LFOP00785

Telephone: (256)-276-9476

STATE OF ALABAMA

Alabama Department of Environmental Management

This is to certify that

Bobby R Boyd

has met the requirements and is duly certified as a

C/D & Ind LANDFILL OPERATOR

Operator No. LFOP00287 Expires 10/14/2020

ADEM

SIGNATURE OF OPERATOR

STATE OF ALABAMA

Alabama Department of Environmental Management

This is to certify that

Stanley R Frye

has met the requirements and is duly certified as a

C/D & Ind LANDFILL OPERATOR

Operator No. LFOP00746 Expires 01/14/2022

ADEM

SIGNATURE OF OPERATOR

STATE OF ALABAMA

Alabama Department of Environmental Management

This is to certify that

James N Johnson

has met the requirements and is duly certified as a

C/D & Ind LANDFILL OPERATOR

Operator No. LFOP00747 Expires 01/14/2022

ADEM

SIGNATURE OF OPERATOR

STATE OF ALABAMA

Alabama Department of Environmental Management

This is to certify that

Tevin M Holley

has met the requirements and is duly certified as a

C/D & Ind LANDFILL OPERATOR

Operator No. LFOP00831 Expires 02/14/2023

ADEM

SIGNATURE OF OPERATOR

STATE OF ALABAMA

Alabama Department of Environmental Management

This is to certify that

Kenneth D Rollins

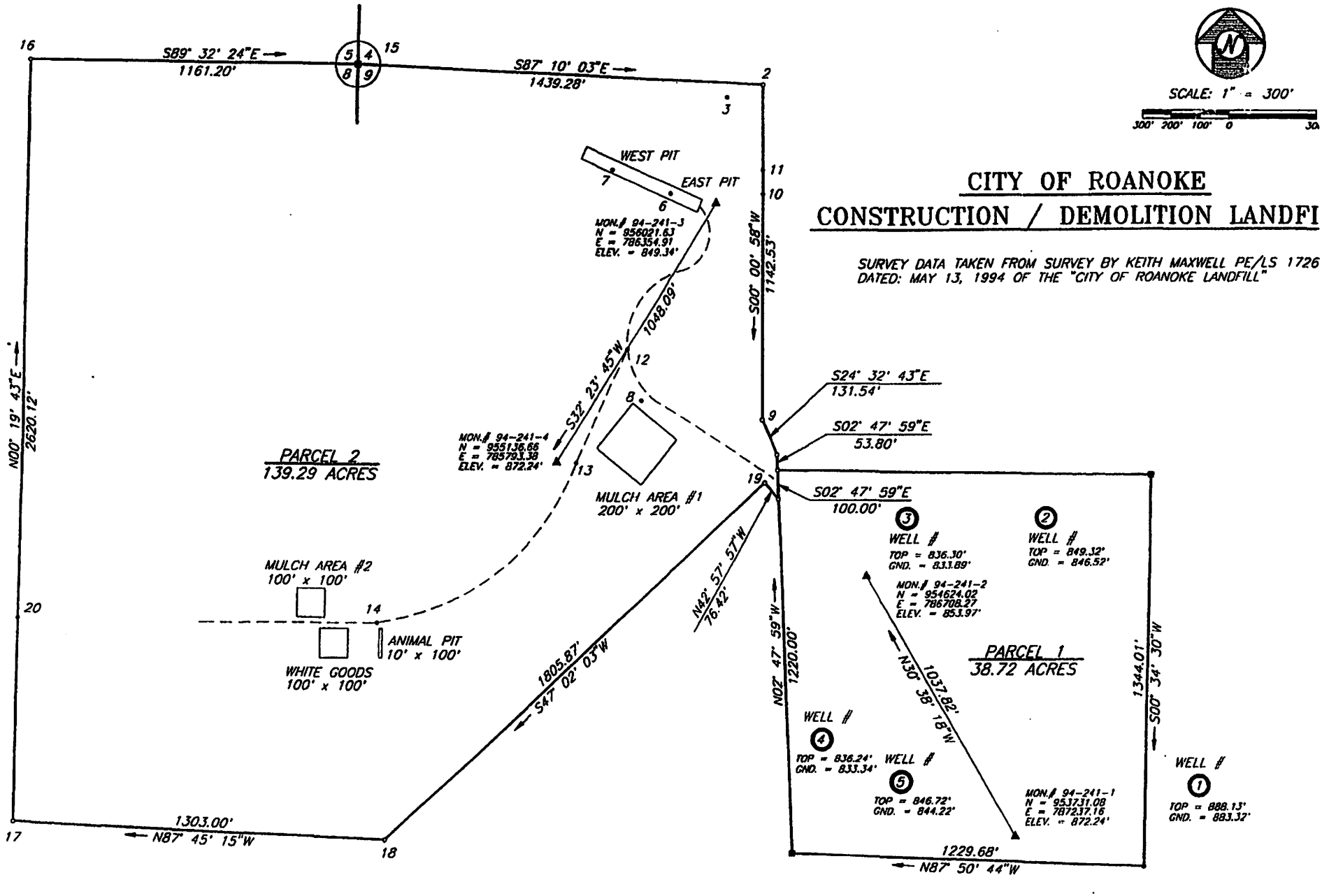
has met the requirements and is duly certified as a

C/D & Ind LANDFILL OPERATOR

Operator No. LFOP00785 Expires 07/14/2022

ADEM

SIGNATURE OF OPERATOR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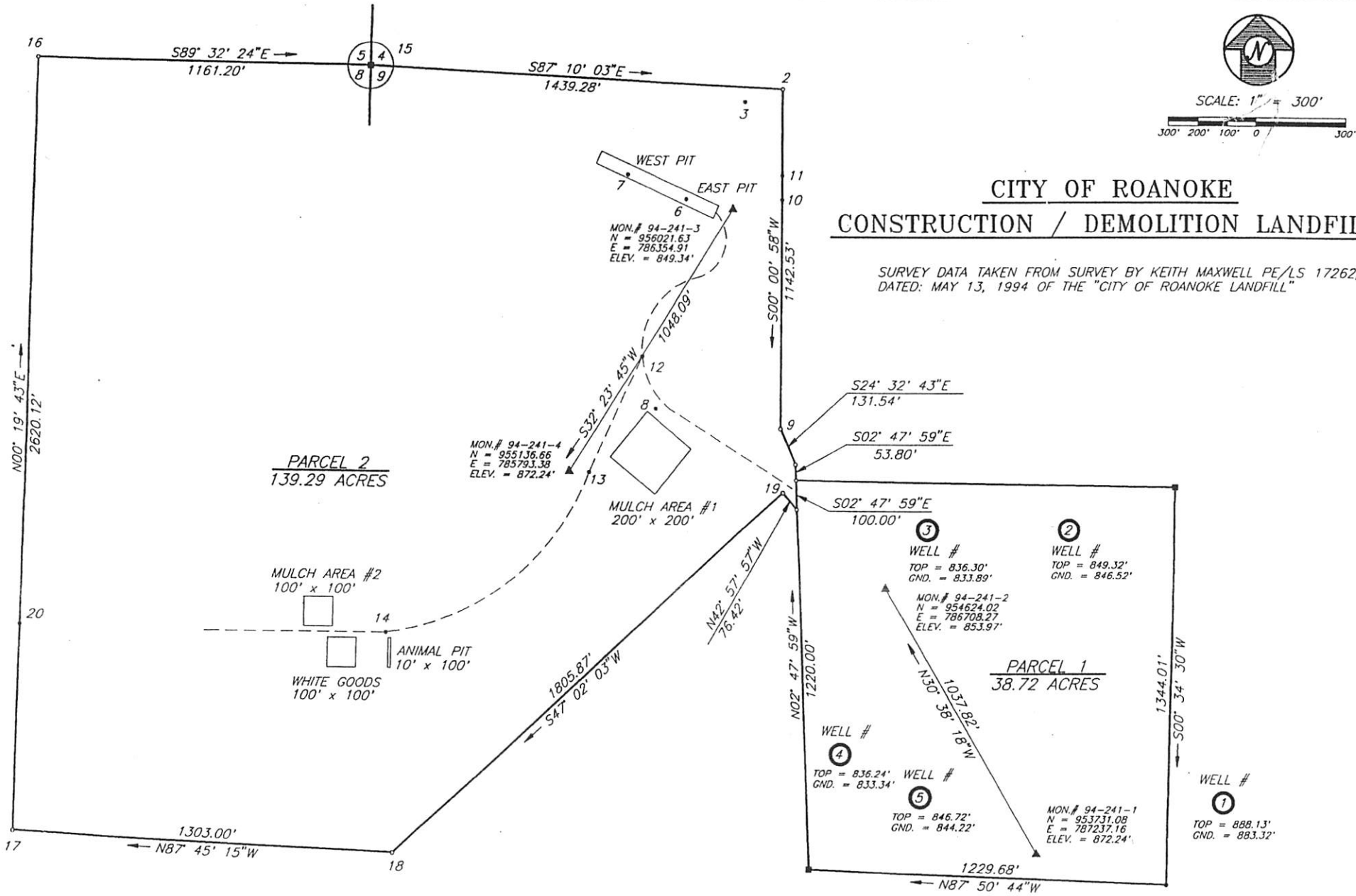
300' 200' 100' 0
CITY OF ROANOKE
CONSTRUCTION / DEMOLITION LANDFI
SURVEY DATA TAKEN FROM SURVEY BY KEITH MAXWELL PE/LS 1726
DATED: MAY 13, 1994 OF THE "CITY OF ROANOKE LANDFILL"
S89° 32' 24"E
1161.20'
S87° 10' 03"E
1439.28'
S00° 00' 56"W
1142.53'
N00° 19' 43"E
2620.12'
WEST PIT
EAST PIT
MON.# 94-241-3
N = 956021.63
E = 786354.91
ELEV. = 849.34'
1048.09'
S32° 23' 45"W
MON.# 94-241-4
N = 955136.66
E = 785793.38
ELEV. = 872.24'
PARCEL 2
139.29 ACRES
MULCH AREA #1
200' x 200'
S24° 32' 43"E
131.54'
S02° 47' 59"E
53.80'
S02° 47' 59"E
100.00'
MULCH AREA #2
100' x 100'
ANIMAL PIT
10' x 100'
WHITE GOODS
100' x 100'
N42° 57' 57"W
76.42'
1805.87'
S47° 02' 03"W
1303.00'
N87° 45' 15"W
N02° 47' 59"W
1220.00'
WELL #3
TOP = 836.30'
GND. = 833.89'
WELL #2
TOP = 849.32'
GND. = 846.52'
MON.# 94-241-2
N = 954624.02
E = 786708.27
ELEV. = 853.97'
PARCEL 1
38.72 ACRES
N30° 38' 18"W
1037.82'
S00° 34' 30"W
1344.01'
WELL #4
TOP = 836.24'
GND. = 833.34'
WELL #5
TOP = 846.72'
GND. = 844.22'
MON.# 94-241-1
N = 953731.08
E = 787217.16
ELEV. = 872.24'
WELL #1
TOP = 888.13'
GND. = 883.32'
1229.68'
N87° 50' 44"W
AUGUST 29,



AUGUST 29, 1997

THE STATE OF ALABAMA,

.....RANDOLPH..... County.

LEWIS H. HAMNER, JR.
ATTORNEY AT LAW
ROANOKE, ALABAMA

Know All Men By These Presents:

That we, J. P. Phillips and wife, Mary Will C. Phillips; and Leon Phillips and wife, Eunice M. Phillips,

for and in consideration of the sum of ..... Dollars to us in hand paid by The City of Roanoke, Alabama, a municipal corporation, the receipt whereof we do hereby acknowledge, have GRANTED, BARGAINED and SOLD and by these presents do hereby GRANT, SELL and CONVEY unto the said The City of Roanoke, Alabama, a municipal corporation, hereinafter called the grantee, its successors ~~heirs~~ and assigns, the following described Real Estate, situated in the County of Randolph and State of Alabama, to-wit:

The East Half of the Northeast Quarter (E½ of NE¼) of Section 8, Township 22, Range 12; the Northwest Quarter of the Northwest Quarter (NW¼ of NW¼), the North Half of the Southwest Quarter of the Northwest Quarter (N½ of SW¼ of NW¼), and the Southeast Quarter of the Northwest Quarter (SE¼ of NW¼) of Section 9, Township 22, Range 12, all in Randolph County, Alabama, and containing 180 acres, more or less, and said property being formerly a part of the W. S. Kirk Estate and known as the "White & Awbrey Place", together with all additions and improvements thereon, and being the same property conveyed to the within grantors J. P. Phillips and Leon Phillips by warranty deed from Lesa K. Overstreet dated April 11, 1958, recorded in Deed Record 75, pages 221-222, in the Office of the Judge of Probate of Randolph County, Alabama.

To Have and to Hold the foregranted premises to the said grantee its successors ~~heirs~~ and assigns FOREVER. And we do covenant with the said grantee its successors ~~heirs~~ and assigns, that we are lawfully seized in fee simple of the aforementioned premises; that they are free from all encumbrance; that we have a good right to sell and convey the same to the said grantee its successors ~~heirs~~ and assigns, and that we will WARRANT AND DEFEND the premises to the said grantee its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, we have hereunto set our hands and seals this the 8th day of June in the year of our Lord One Thousand Nine Hundred and Seventy-nine (1979).

Signed, Sealed and Delivered in Presence of

J. P. Phillips (L. S.)

Mary Will C. Phillips (L. S.)

Leon Phillips (L. S.)

Eunice M. Phillips (L. S.)

BOOK 122 PAGE 749

B. Jones

CITY OF ROANOKE C & D LANDFILL
RANDOLPH COUNTY, ALABAMA
HYDROGEOLOGIC EVALUATION

PREPARED FOR

CITY OF ROANOKE
ROANOKE, AL

PREPARED BY

SOUTHERN ENVIRONMENTAL RESOURCES, INC.
101 MARKET PLACE SUITE 300
MONTGOMERY, AL 36117

MAY 14, 1999

Southern Environmental Resources, Inc.

May 25, 1999

Mr. Russell Kelly
Solid Waste Branch
Alabama Department of Environmental Management
1751 W.L. Dickinson Drive
Montgomery, AL 36109-2608

Dear Mr. Kelly:

In compliance with ADEM Administrative Code, Division 13, 335-13-4-.11 through 335-13-4-.14, three copies of the report "Hydrogeologic Evaluation is submitted on behalf of the City of Roanoke proposed C & D landfill, Randolph County, Alabama. The report includes geology and hydrogeology of the area, potentiometric data, and groundwater flow direction.

If you have any questions concerning this report of need additional information, please contact Dale Case with Southern Environmental Resources, Inc. at 334-279-6666.

Sincerely,

Dale Case

Dale Case
Hydrogeologist, PG #804
Southern Environmental Resources, Inc.

Post Office Box 3195 ■ 2835 Zelda Road ■ Montgomery, AL 36109 ■ Phone: 334.279.6666 ■ Fax: 270.5983

CERTIFICATION PAGE

I Certify that I am a Certified Geologist experienced in hydrogeological investigations. The investigation described in this report was performed by a Geologist(s) experienced in hydrogeologic investigations. The information submitted herein, to the best of my knowledge and belief, is true, accurate, and complete.

Signature

Dale S. Case
Certified Geologist

5/24/99
Date

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3.0 TOPOGRAPHY

4.0 SOILS

5.0 GEOLOGY

6.0 HYDROGEOLOGY

7.0 CONCLUSIONS

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APPENDIX 4: SOIL BORING LOGS

1.0 INTRODUCTION

The City of Roanoke, Randolph County, has proposed the development of a construction and demolition (C & D) landfill. A hydrogeologic evaluation was performed on April 22, 1999. The evaluation consists of drilling three piezometers on the site to determine depth to groundwater and to evaluate geologic materials at the site.

2.0 LOCATION

The property under consideration is located in the northwest one- quarter of the northwest one- quarter of Section 9 of Township 22 South, Range 12 East in Randolph County, Alabama, and consists of approximately 38 acres.

3.0 TOPOGRAPHY

A review of the USGS Topographic map for the site in Section 9 in T22S, R12E indicates that elevations range from 780 feet to 865 feet above sea level. Total relief at the site is approximately 85 feet with a slope of approximately 10.0%. The site's topography can be described as moderately rolling.

Surface water drains to the northwest and south into tributaries of Red Caty Creek. The City of Roanoke has used the soils at the proposed site for various projects over the years, thus the present topography may not match the USGS Topographic map's gradients and slopes.

4.0 SOILS

The soils at the proposed site are the Appling- Cecil- Wedowee series with the Wedowee (WdC3, WdD3) and the Cecil (CeD3, CeC3) being the most predominant. The Ochlockonee fine sandy loam, a local alluvium, is also present at the site. This soil sequence is described as moderately deep to shallow well- drained soils that formed over bedrock on broad ridges. The Wedowee series is a gravelly sandy clay loam with a 6% to 15% slope and severely eroded. The Appling and Cecil series is described as a gravelly clay loam with a 6% to 15% slope and also severely eroded. The parent material

for each soil type is granite, gneiss, schist, and basic rocks. However, the soils at the proposed site have been used by the City of Roanoke for various projects, and the overlying soils have been stripped away in most areas of the site.

5.0 GEOLOGY

The City of Roanoke is underlain by high- grade metamorphic rocks of Precambrian to Paleozoic Age. The proposed C & D landfill site is located within the Rock Mills Granite Gneiss of the Dadeville Complex. The Rock Mills Granite Gneiss is a coarse to medium- grained biotite granite gneiss with thick bands of epidote and thin, small amphibolite bodies.

Three boreholes were drilled with an auger at the proposed site to a depth ranging from 24 feet to 34 feet. The character of the soils at the site consists of mottled sandy silt clays and silt clays ranging in color from red brown, light brown and green- tan with weathered bedrock stringers (clasts of biotite gneiss). Bedrock was encountered while drilling Piezometer-1 (PZ-1) at a depth of 24 feet, whereas PZ-2 and PZ-3 encountered no auger refusal and were set at 30 feet and 34 feet, respectively.

6.0 HYDROGEOLOGY

Regionally the site lies above an area that is not considered a major aquifer due to the low yields of groundwater in the metamorphic Dadeville Complex. The Dadeville Complex is not used as a municipal water supply due to the small yields. The movement of groundwater in this region is controlled by topography, the character and thickness of the clay layers, and by the fracture features of the bedrock.

Borehole data concludes that most groundwater at the site is in the form of saturated sandy clays located adjacently overlying the gneiss bedrock. The drilling of Piezometer-1 (PZ-1) yielded saturated clay at 24 feet, PZ-2 at 26 feet, and PZ-3 at 24 feet. Measurements conducted on April 28, 1999 yielded water levels of 9.3 feet below ground surface (BGS) for PZ-1, 21.95 feet (BGS) for PZ-2, and 23.0 feet (BGS) for PZ-3. The data from the three piezometers suggests that groundwater flow is generally southwest at a gradient of 0.014 ft/ft.

7.0 CONCLUSIONS

1. The site is not located within any major aquifer recharge or discharge zone.

2. Geology at the proposed site consists of thick impermeable clay units overlying the Precambrian to Paleozoic Rock Mills Granite Gneiss bedrock.

3. Groundwater was determined to range from 9.3 feet to 23.0 feet below ground surface.

4. Groundwater flows to the southwest with a gradient of 0.014 ft/ft.

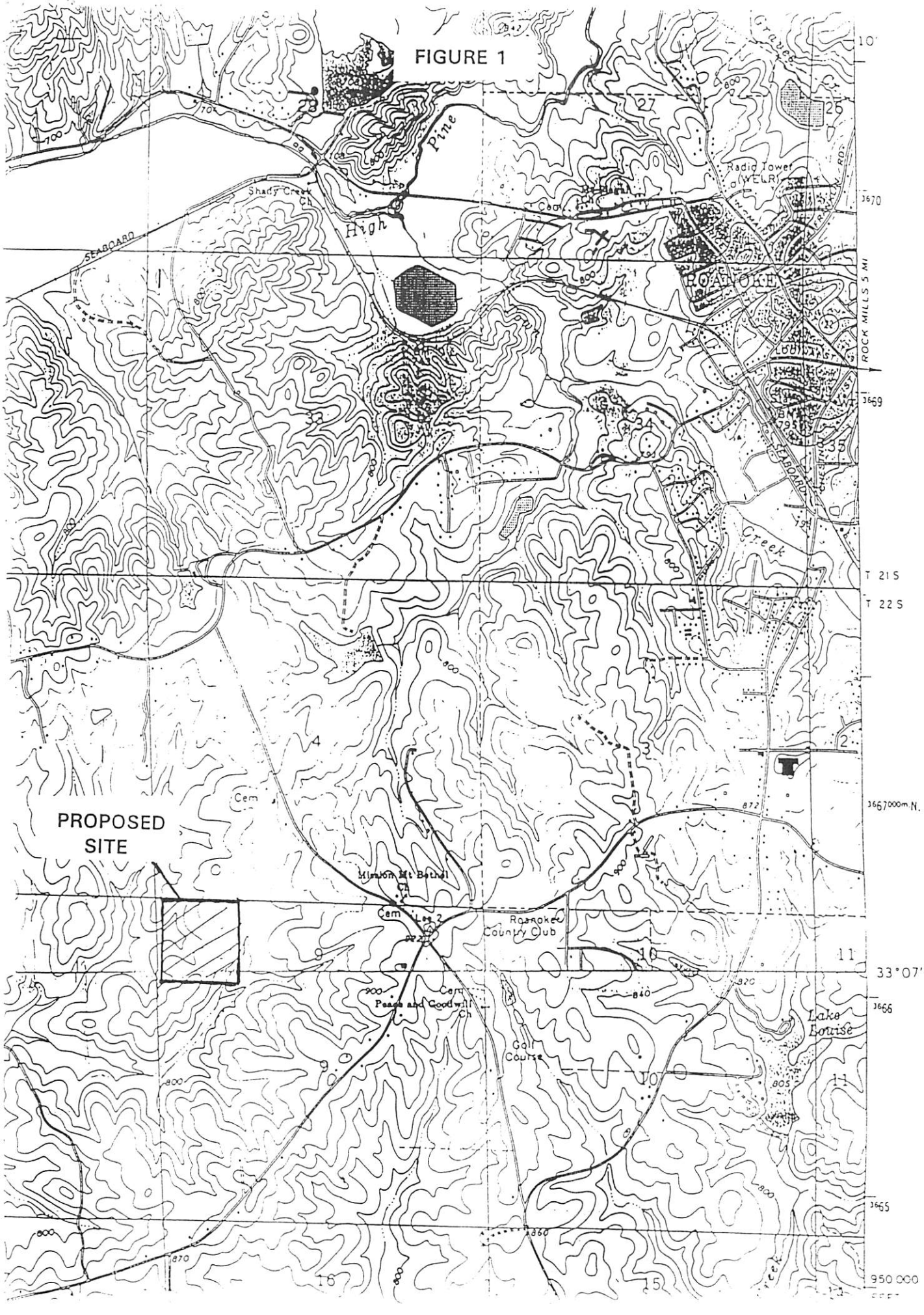
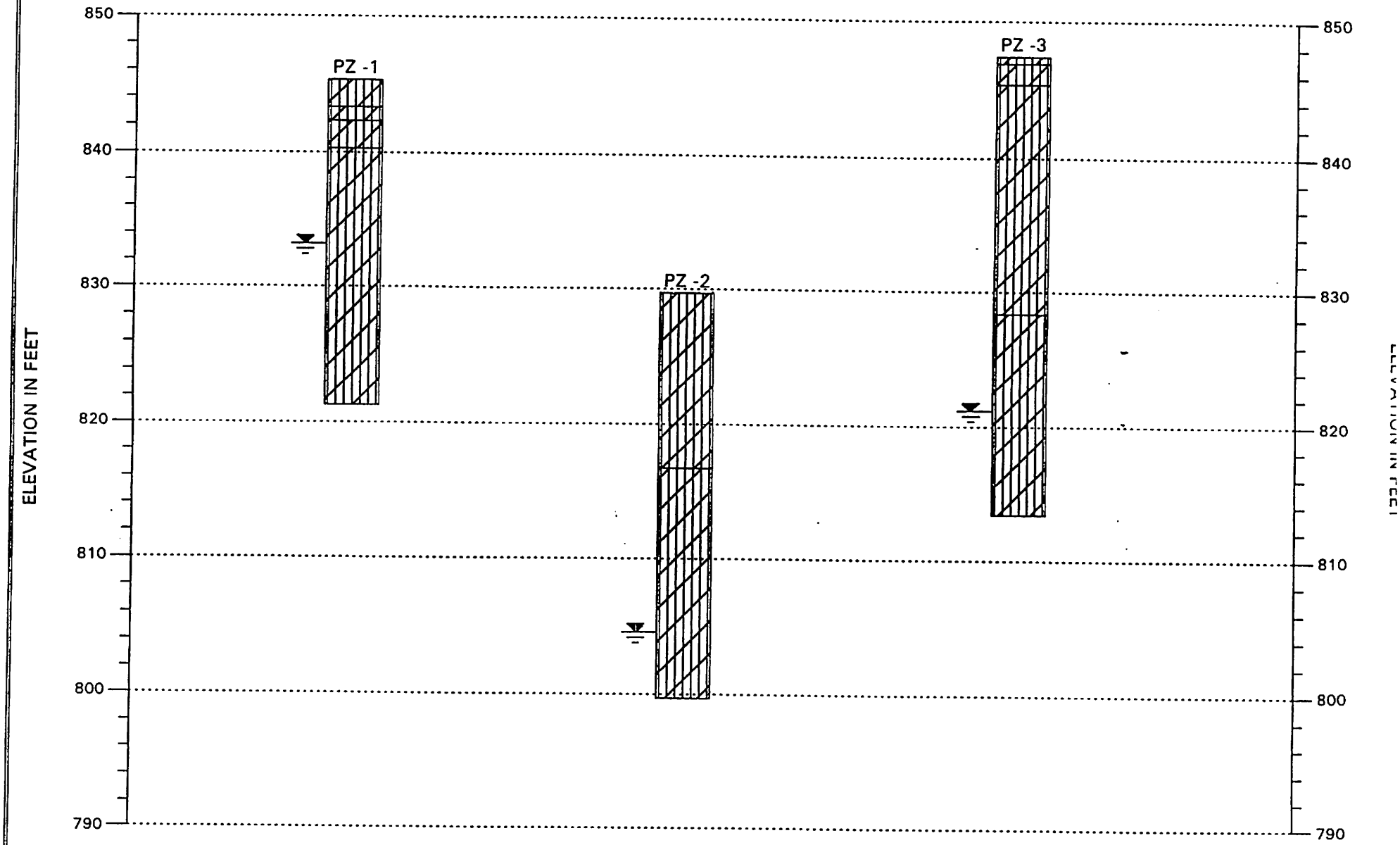


FIGURE 1
PROPOSED SITE
Pine
High
Shady Creek Ch
SEABOARD
ROANOKE
Radio Tower (WELR)
Cem
Creek
Cem
Minkton Mt Bethel Ch
Cem
Roanoke Country Club
Cem
Peace and Goodwill Ch
Golf Course
Lake Louise
ROCK MILLS 5 MI
T 21 S
T 22 S
3667000m N.
33°07'30"
950 000

TABLE OF PIEZOMETER ELEVATIONS AND WATER LEVELS

PIEZOMETER	SURFACE ELEVATION	WELLHEAD ELEVATION	WATER LEVEL ON 4/28/99	DEPTH TO WATER FROM TOP OF CASING
PZ-1	842.48	845.29	833.18	12.1
PZ-2	826.68	829.69	804.73	25.1
PZ-3	844.69	847.42	821.69	26.2

SOIL BORING CROSS SECTION
ROANOKE C & D



Strata symbols

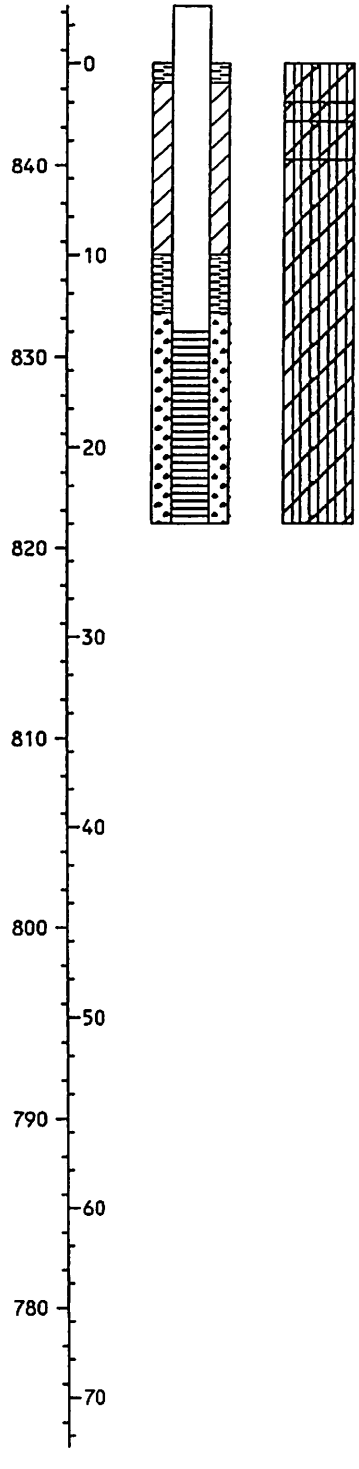
Silty low plasticity clay

SOIL BORING LOG

BORING PZ -1

PROJECT: ROANOKE C & D
PROJECT LOCATION: ROANOKE, RANDOLPH CTY, AL
DATE DRILLED: 4/22/99
WATER LEVEL: 833.18

JOB No:
METHOD: AUGER
ELEVATION: 845.29
DRILLER: QUALITY ASSURANCE DRILL

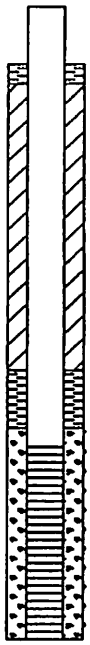
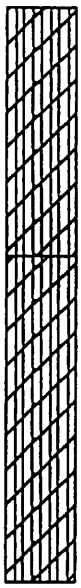


ELEVATION/ DEPTH	WELL DETAIL	SOIL SYMBOLS SAMPLER SYMBOLS AND "N" VALUE	USCS	DESCRIPTION	OVA DATA ppm	PERM. (K) cm/sec
			CL-ML	RED BROWN SANDY SILT CLAY		
			CL-ML	LIGHT TAN SANDY SILT CLAY		
			CL-ML	LIGHT BROWN SANDY SILT CLAY		
			CL-ML	LIGHT BROWN SILT CLAY W/ REGOLITH CLASTS		

SOIL BORING LOG

BORING PZ -2

PROJECT: ROANOKE C & D
JOB No:
PROJECT LOCATION: ROANOKE, RANDOLPH CTY, AL
METHOD: AUGER
DATE DRILLED: 4/22/99
ELEVATION: 829.69
WATER LEVEL: 804.73
DRILLER: QUALITY ASSURANCE DRILL

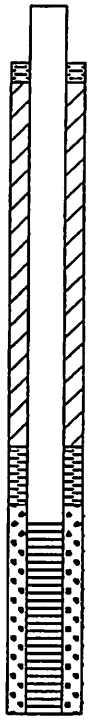
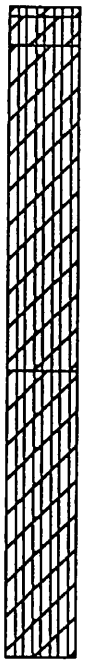
ELEVATION/ DEPTH	WELL DETAIL	SOIL SYMBOLS SAMPLER SYMBOLS AND "N" VALUE	USCS	DESCRIPTION	OVA DATA ppm	PERM. (K) cm/sec
830 – 0			CL-ML	RED BROWN SILT CLAY W/ GREY-TAN MOTTLED CLAY STRINGERS		
820 – 10			CL-ML	BROWN SILT CLAY		
810 – 20						
800 – 30						
790 – 40						
780 – 50						
770 – 60						
760 – 70						

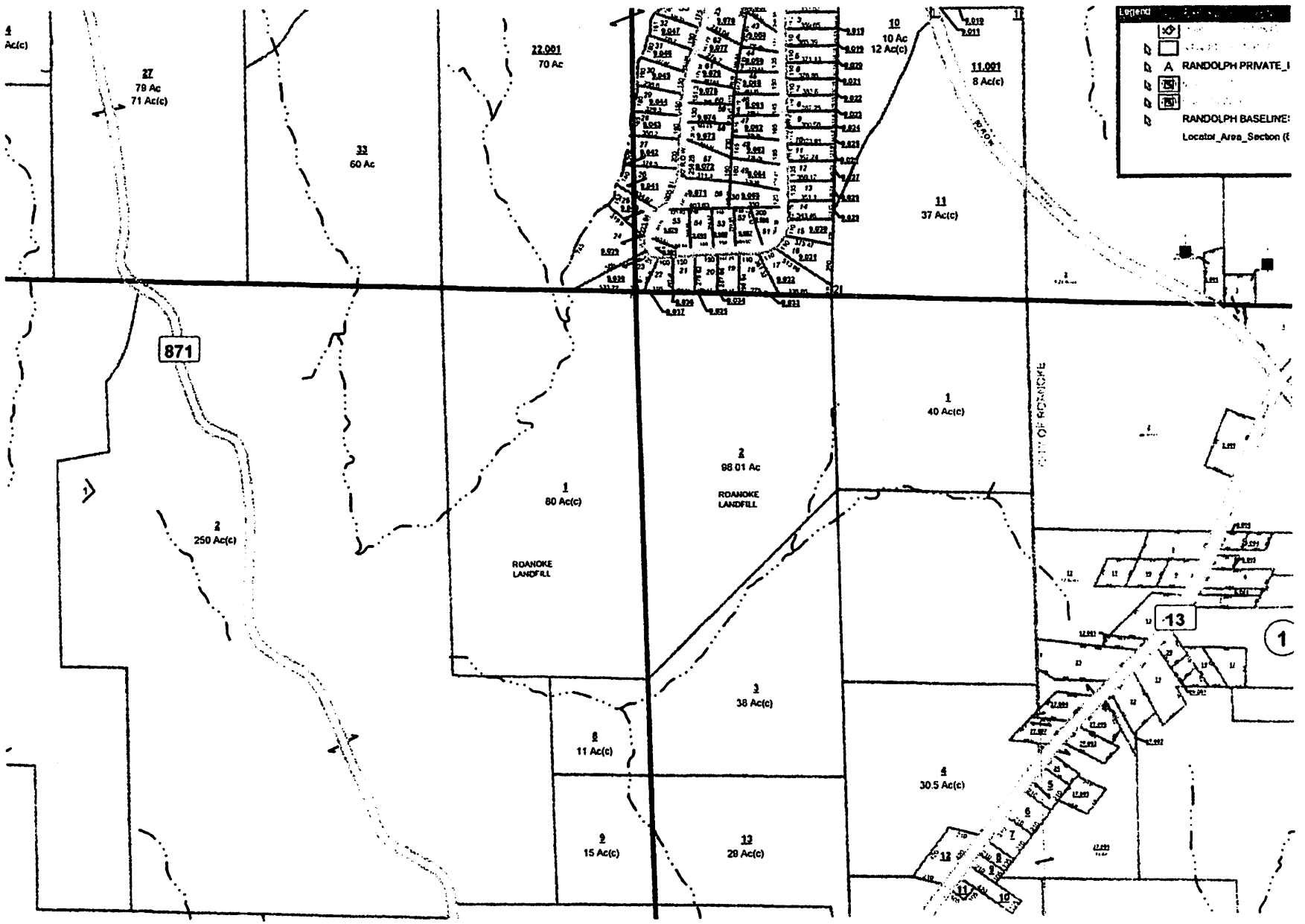
SOIL BORING LOG

BORING PZ -3

PROJECT: ROANOKE C & D
PROJECT LOCATION: ROANOKE, RANDOLPH CTY, AL
DATE DRILLED: 4/22/99
WATER LEVEL: 821.69

JOB No:
METHOD: AUGER
ELEVATION: 847.42
DRILLER: QUALITY ASSURANCE DRILL

ELEVATION/ DEPTH	WELL DETAIL	SOIL SYMBOLS SAMPLER SYMBOLS AND "N" VALUE	USCS	DESCRIPTION	OVA DATA ppm	PERM. (K) cm/sec
850 / 0			CL-ML	PINK SANDY CLAY		
			CL-ML	BROWN SANDY SILT CLAY		
			CL-ML	RED BROWN SILT CLAY		
840 / 10						
830 / 20			CL-ML	LIGHT BROWN SILT CLAY		
820 / 30						
810 / 40						
800 / 50						
790 / 60						
780 / 70						


Legend
A RANDOLPH PRIVATE_I
RANDOLPH BASELINE
Locator_Area_Section (
4
Ac(c)
27
78 Ac
71 Ac(c)
33
60 Ac
22.001
70 Ac
10
10 Ac
12 Ac(c)
11.001
8 Ac(c)
11
37 Ac(c)
871
1
40 Ac(c)
2
98.01 Ac
ROANOKE
LANDFILL
1
80 Ac(c)
2
250 Ac(c)
ROANOKE
LANDFILL
CITY OF ROANOKE
13
1
3
38 Ac(c)
8
11 Ac(c)
4
30.5 Ac(c)
9
15 Ac(c)
13
29 Ac(c)

Abutters
Roanoke CD Landfill
Tax Parcels

Parcel 11	Denney Family Trust, LLC 1901 Tyus Carrollton Road Carrollton, GA 30117
Parcel 1	Robert A. Joiner 2528 Country Club Road Roanoke, AL 36274
Parcels 3, 8	Robert Stokes 3020 Katherine Valley Road Decatur, GA 30032
Parcel 2	Edgar Stevenson 1101 County Road 871 Roanoke, AL 36274
Parcel 33	Winnie Baker 801 Old West Point Road LaGrange, GA 30240
Parcel 22.001	Danny Hall 778 Louina Road Roanoke, AL 36274
Parcels 9.038, 9.037, 9.036, 9.034, 9.033	Tommy Fincher P.O. Box 411 Roanoke, AL 36274
Parcel 9.035	Michael Bryant 746 Rhett Circle Roanoke, AL 36274
Parcel 9.032	Gary Clark 3938 County Road 49 Wadley, AL 36276

ENDANGERED SPECIES ASSESSMENT AND WETLAND DELINEATION AT A PROPOSED LANDFILL IN ROANOKE, ALABAMA

Prepared for:

City of Roanoke
Roanoke, AL

Prepared by:

Environmental Resource Analysts, INC
Auburn Technology Park
2975 Brown Court
Auburn, Alabama 36830

Joseph Freda, Ph.D.
Project Director

6/2/99
Date

ERA Report Number 132

1.0 INTRODUCTION

Environmental Resource Analysts (ERA) was contracted by The City of Roanoke to conduct a wetland delineation and endangered species survey at a proposed Landfill in Roanoke (Randolph County), Alabama. The location of the study area is illustrated in Figure 1.

2.0 METHODS

2.1 Wetland Delineation

The wetlands delineation study was conducted on April 19, 1999 according to the 1987 Army Corp Engineers wetlands delineation manual (ACE 1987). The "on site", routine determination method for areas greater than 5 acres was employed. The objective was to identify and map potential jurisdictional wetlands. Jurisdictional wetlands exhibit 3 characteristics: 1) Hydric Soil, 2) Hydrophytic Vegetation, 3) Wetland Hydrology. Soil color was determined with the use of a Munsell soil color charts (Munsell Color 1990). Plants were identified by ERA personnel according to Radford et al. (1968) and Brown and Kirkman (1990). The depth of the water table was determined by digging a standard soil pit.

2.2 Endangered Species Survey

The site was surveyed for its general habitat characteristics and a determination was made if suitable habitat existed within the property which might support species listed as threatened or endangered by the U.S. Fish and Wildlife Service. The U.S. Fish and Wildlife Service specifically requested a survey for a species of threatened plant: Little Amphianthus (*Amphianthus pusillus*).

3.0 RESULTS

3.1 General Description

The project area encompasses approximately 139 acres and is adjacent, and to the west, of the existing Roanoke Landfill. The northeast portion of the site has been stripped of all vegetation and topsoil down to the clay substrate. The central portion of the site is hilly and dominated by a mixed pine-deciduous forest including white oak, sweetgum, hickory, loblolly pine, yellow popular, dogwood, and azalea. Caty Creek boarders the northwest, and an un-named tributary of Caty Creek boarders the south and southeast sides of the site.

3.2 Wetland Delineation

No wetlands were observed within the boundaries of the study site. The two tributaries were contained within steep banks ranging from 3 to 10 feet. No evidence of flooding was observed. The

flood plains adjacent to the tributaries were dry and well drained with the water table greater than 16" in depth. The vegetation on the flood plains was also not typical of local wetlands. Species observed include yellow popular, sweetgum, cherry, dogwood, and poison ivy. The Randolph County Soil Survey (USDA 1967) illustrates the Cn and Mt mapping unit for the flood plain of the two tributaries (Figure 2). The Cn mapping unit is composed primarily of Chewacla soil which is a moderately well drained silt loam. The Mt mapping unit is composed primarily of the Mantachie soil which is a moderately well drained fine sandy loam. We observed a dark brown (2.5 YR 4/6) soil throughout the flood plain which is consistent with the descriptions for both soil types. Mantachie soil is not listed as a hydric soil on the National list of Hydric Soils (USDA 1991). Chewacla Soil is listed as a hydric soil, but only in areas of frequent flooding and we observed no evidence of flooding.

3.3 Endangered Species Survey

No endangered or threatened species were observed during the course of this survey.

Within Alabama, the little amphianthus is found in Chambers and Randolph Counties. It is listed as threatened by the U.S. Fish and Wildlife Service. This plant is a very small (1-2") aquatic species which inhabits shallow pools on granite outcrops. No granite or other rock outcrops were observed within the study site. Therefore no potential habitat for the little amphianthus was observed.

4.0 LITERATURE CITED

ACE. 1987. Corps of Engineers wetlands delineation manual. Dept. Army, U.S. Army Corps of Engineers, Washington, DC, 20314-1000.

Brown, C.L. and L.K. Kirkman. 1990. Trees of Georgia and Adjacent States. Timber Press, Portland OR. 292 pp.

Munsell Color. 1990. Munsell Soil Color Charts. Kollmorgen Corp. Baltimore, MD.

Radford, A.E., H.E. Ahles, and C. R. Bell. 1968. Manual of Vascular Flora of the Carolinas. The University of North Carolina Press. Chapel Hill, NC. 1183 pp.

USDA. 1967. Soil Survey of Randolph County.

USDA. 1991. Hydric Soils of the United States.

ENVIRONMENTAL RESOURCE ANALYSTS, INC.
Auburn Technology Park • 2975 Brown Court • Auburn, AL 36830
Tel. (334) 502-3444 • Fax (334) 502-3444 • email: eralab@aol.com

June 2, 1999

Mr. Art Hosey
U.S. Army Corps of Engineers
Regulatory Branch
Attn OP/SA
P.O. Box 2288
Mobile, AL 36628-0001

Dear Mr. Hosey,

My firm has been contracted by the City of Roanoke to assist them in the environmental assessment of a proposed C&D landfill in Roanoke, Alabama. I have enclosed a copy of the report describing our wetland delineation and endangered species survey.

I would appreciate if you would review our report and notify me if you concur with our findings. Your letter of concurrence is required for the landfill permit application to ADEM. This request is not a notification for proposed filling activity.

Sincerely,

Joseph Freda, Ph.D.
Director

cc: Burrel C. Jones, PE

Figure 1. The location of the study site illustrated on a USGS topographic map (Roanoke West & Milltown Quadrangles).

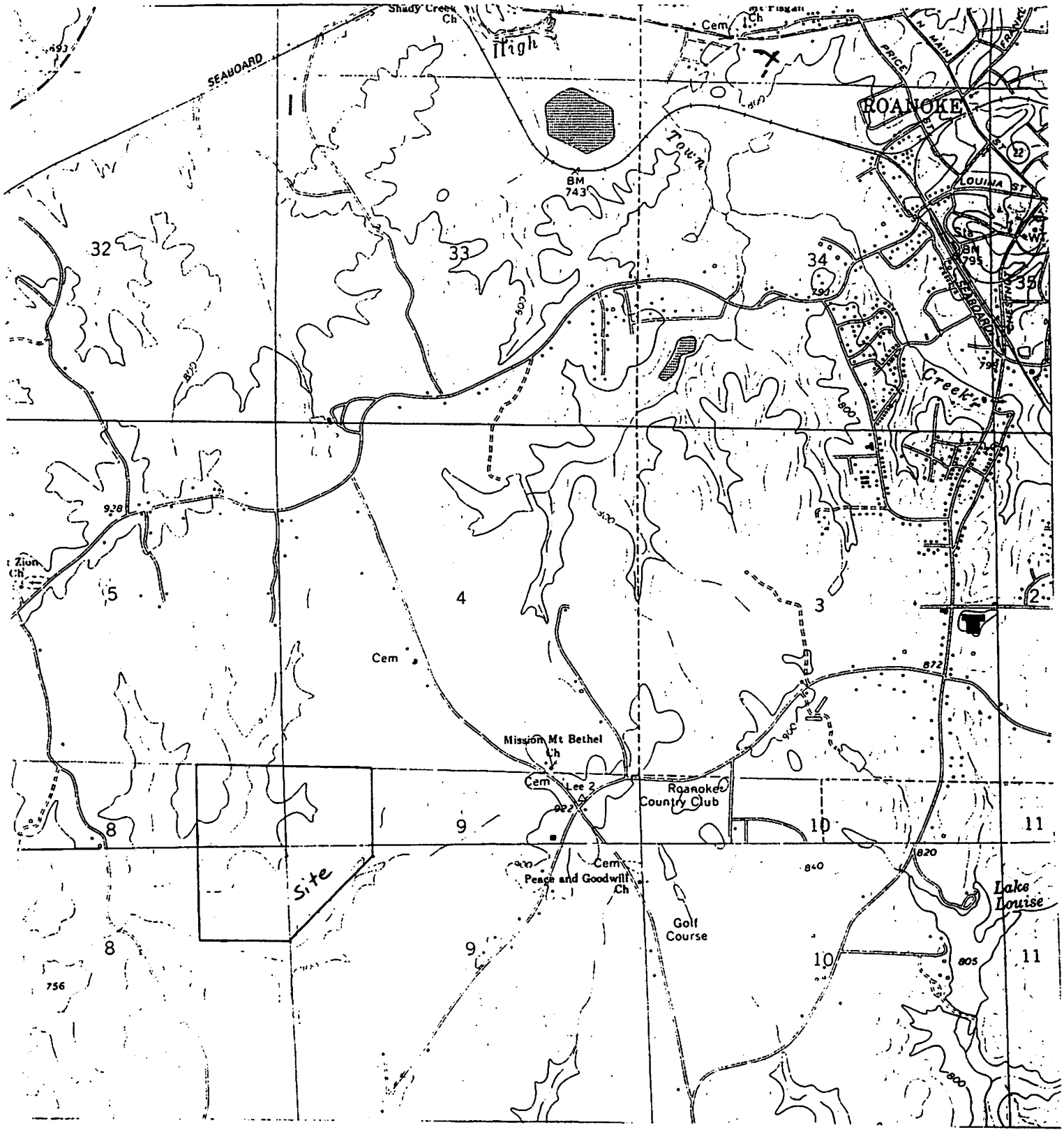


Figure 2 Soil survey map of the study site (USDA 1967).

ENVIRONMENTAL RESOURCE ANALYSTS, INC.
Auburn Technology Park • 2975 Brown Court • Auburn, AL 36830
Tel. (334) 502-3444 • Fax (334) 502-3444 • email: eralab@aol.com

6/02/99

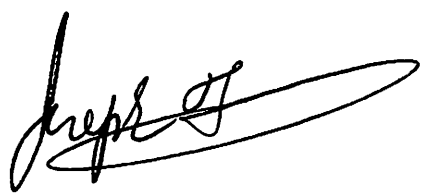
Mr. Larry Goldman
U.S. Fish and Wildlife Service
P.O. Drawer 1190
Daphne, AL 36526

Dear Mr. Goldman,
I have been contracted by the City of Roanoke to assist them with the environmental site assessment of a Proposed C&D landfill in Roanoke, AL. I have enclosed a report of my survey findings.

I would appreciate if you could inform us of the potential for any adverse impacts on threatened or endangered species, or their critical habitat.

Please call if you need additional information. Thank you.

Sincerely,



Joseph Freda, Ph.D.

cc. : Burrel C. Jones, PE

HARMON ENGINEERING & CONTRACTING CO., INC.

ENGINEERING · CONTRACTING · ENVIRONMENTAL MANAGEMENT
13376 C. L. TORBERT JR. PARKWAY · LAFAYETTE, ALABAMA 36862
PHONE: 334-864-9135 FAX: 334-864-8046
e-mail: info@he-inc.co

January 31st, 2023

Attn: Melissa H. Adornato, Wesley Tucker, & Jared Kelly
Alabama Department of Environmental Management
Land Division
Solid Waste Branch
Solid Waste Engineering Section
Phone (334) 270-5605
P.O. Box 301463
Montgomery, Alabama 36130-1463

Received
FEB 01 2023
Land Division

RE: ROANOKE C/D LANDFILL & SANITARY LANDFILL (CLOSED)
2736 COUNTRY CLUB ROAD
ROANOKE, RANDOLPH COUNTY, ALABAMA
FACILITY ID NO. 56-02 & 56-02R
HARMON JOB NO. 703-24-23

Mrs. Adornato:

In reference to the letter received by the City of Roanoke, dated September 21st, 2022, Harmon Engineering and Contracting Co., Inc. (Harmon) has been tasked by the City of Roanoke with providing the required documentation to complete the application for the renewal of the permit for the Roanoke Construction/Demolition Landfill - Permit No. 56-02 and the Closed Roanoke Sanitary Landfill – Permit No. 56-02R. The original letter from ADEM has been attached to this document for reference.

On September 22nd, 2022, a meeting was held at the Roanoke C/D Landfill to certify Trench 6a to receive waste. Attendance at this meeting were Nick Johnson, Street Department Supervisor for the City of Roanoke, Austin Harmon of Harmon Engineering & Contracting Company, Inc., Hunter Baker, and Melissa Adornato of the Solid Waste Engineering Section of the Solid Waste Branch of ADEM. During this meeting, the groundwater monitoring plan, explosive gas plan, and the closure/post-closure plan were noted as missing documents that would be required for permit renewal. Nick Johnson informed Harmon and the ADEM representatives that these plans could not be found in the city records. Since this meeting, Nick Johnson is no longer an employee of the City of Roanoke and Harmon has received approval to recreate these documents.

In our background research of the Roanoke facility, some of the required documentation has been discovered. For clarity, the Roanoke facility is made up of 2 separate landfills. The existing Roanoke C/D Landfill under Permit No. 56-02 is located on Parcel 2 of the property. This is the active landfill for the City of Roanoke. The second landfill is the Roanoke Sanitary Landfill Permit No. 56-02R located on Parcel 1 of this property. This landfill is currently in the Post- Closure Period.

In our background research, the Closure/Post-Closure Plan for the Roanoke Sanitary Landfill Permit Number 56-02R and Drawings prepared by Roy F Weston Inc. (Weston Inc.) were discovered. According to this plan, the Roanoke Sanitary Landfill was closed on April 8th, 1994. In addition to this Closure/Post-Closure Plan, correspondence between ADEM and Weston Inc. regarding the Closure/Post Closure Plan were also located. These plans and correspondences are attached to this document for your records. One key revision was located and is attached to this document as Final Closure/Post Closure Plan Revision I. This includes the addition of Appendix C Explosive Gas Monitoring Plan that we felt was critical to the Closure/Post Closure Plan. These plans were created for the Roanoke Sanitary Landfill Permit Number 56-02R and appear to be the approved plans. There are no records of any updates or changes to this plan in the information available to us. From the records available and to the best of our knowledge, this plan has been implemented for the Roanoke Sanitary Landfill.

Harmon has started the process of preparing a Closure/Post Closure Plan for the Roanoke C/D Landfill Permit No. 56-02. This plan will include a gas monitoring plan, a map of both existing landfill area, the details for the permanent all-weather road, and the location of the gas monitoring wells for each landfill. We do not anticipate any additional plans to be required for the closed sanitary landfill.

Sincerely,
HARMON ENGINEERING & CONTRACTING CO., INC.

Austin Harmon

Austin Harmon
EIT/Project Manager

CC: Jill Patterson
Tim Jacobs
Keith Richardson
Amanda Davis
Allen Tucker

Attachments: ADEM Permit Renewal Application Letter Dated September 21st, 2022

ADEM Review of Application and Approval Letter Dated June 14th, 1995

ClosurePost-Closure Plan for the Roanoke Sanitary Landfill Permit Number 56-02R

ClosurePost-Closure Plan for the Roanoke Sanitary Landfill Permit Number 56-02R Drawings

Final ClosurePost Closure Plan Revision I

LANCE R. LEFLEUR
DIRECTOR

KAY IVEY
GOVERNOR

Alabama Department of Environmental Management
adem.alabama.gov

1400 Coliseum Blvd. 36110-2400 ■ Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7700 ■ FAX (334) 271-7950

September 21, 2022

Mr. Nick Johnson
Roanoke Construction/Demolition Landfill
P.O. Box 1270
Roanoke, AL 36274

RE: Permit Renewal Application
Roanoke Construction/Demolition Landfill
Permit No. 56-02

Dear Mr. Johnson:

The Department has completed the review of the permit renewal application for Roanoke Construction/Demolition Landfill. After review, it has been determined that the following plans, reports, and documentation are needed to complete the application:

1. A groundwater monitoring plan in accordance with ADEM Admin. Code r. 335-13-5-.02(2)(a)2(i) and subsequently Rules 335-13-5-.02(1)(a)4, 335-13-4-.14(1)(c), and 335-13-4-.27(2)(g)1(ii) and as outlined in the Alabama Groundwater Monitoring Reporting Guidance for Solid Waste Facilities provided on the ADEM website: (http://adem.alabama.gov/programs/land/landforms/ALGWMonitoringReportGuidanceMarch2011.pdf);

2. A gas monitoring plan, in accordance with ADEM Admin. Code r. 335-13-5-.02(2)(a)2(i) and subsequently Rules 335-13-5-.02(1)(a)4 and 335-13-4-.16(2)(c);

3. A map of the landfill area that includes the location of the sediment pond as specified under ADEM Admin. Code r. 335-13-4-.13(2)(e);

4. Details of plans for permanent all weather access roads in accordance with ADEM Admin. Code r. 335-13-4-.13(2)(g);

5. A map of the property showing the location of all explosive gas wells and/or monitoring points as specified under ADEM Admin. Code r. 335-13-4-.13(2)(l);

6. A closure/post-closure plan as outlined in ADEM Admin. Code r. 335-13-5-.02(2)(a)2(i) and subsequently Rules 335-13-5-.02(1)(a)4 and 335-13-4-.20(1) and (2).

Birmingham Branch
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Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Branch
2715 Sandlin Road, S.W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)

Mobile Branch
2204 Perimeter Road
Mobile, AL 36615-1131
(251) 450-3400
(251) 479-2593 (FAX)

Mobile-Coastal
4171 Commanders Drive
Mobile, AL 36615-1421
(251) 432-6533
(251) 432-6598 (FAX)

After this aforementioned information has been submitted, the Department will reevaluate the permit renewal application. If you have any questions, please contact Melissa H. Adornato of the Solid Waste Engineering Section at melissa.adornato@adem.alabama.gov or (334) 270-5605.

Sincerely,

Jared Kelly, Chief
Solid Waste Engineering Section
Land Division

JK/mha

ADEM

ALABAMA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Fob James, Jr.
Governor

John M. Smith, Director

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June 14, 1995

Honorable Betty Ziglar
Mayor
City of Roanoke
P. O. Box 432
Roanoke, AL 36274

Re: Review of Application Information
Proposed Modification and Renewal
Solid Waste Disposal Permit
Roanoke Sanitary Landfill/56-02R

Dear Mayor Ziglar:

In July 1994, the Department received the Roy F. Weston, Inc. submittal of the Closure/Post-Closure Plan for Roanoke's sanitary landfill, and a partial application for the modification of the facility to an industrial landfill. The Closure/Post-Closure Plan was reviewed and, except for the two items in our letter of February 9, 1995, approved by this office. The review of the application information was delayed due to our workload and a question about considering the modification of the permit for an industrial or a construction/demolition landfill.

Following the receipt of the application information, we submitted a request to ADEM's Groundwater Branch for its review of the proposed modification/downgrade to an industrial landfill. Based on subsequent directions that we were to review the information or site for the downgrade to an C/D landfill, we changed our request and Mr. Hicks responded with an evaluation checklist on February 17, 1995. (Copy enclosed.) Later, with directions to again consider the application for an industrial landfill permit, we resubmitted our request to the Groundwater Branch and Mr. Hicks responded in a memo of May 26, 1995 A copy of the memo is enclosed for your information and consideration.

As mentioned above, the information that has been submitted is only a partial application. On the other hand, some of the information submitted for the closure plan, monitoring well system, etc. may serve as part of the application, since the application should also be for the continuation of the on-going activities at the closed portion of the facility, such as groundwater and gas monitoring.

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There are two major components to the application, the siting criteria, including geological and hydrogeological information, and the design and operational plans. Mr. Hicks' memo lists some of the additional siting or hydrogeological requirements, and others are mentioned below. The Weston letter of July 14, 1994 briefly addressed some of the requirements for the operations but, for the most part, the statement on Page 4 of the Weston letter, that "Weston has been retained by the City of Roanoke to develop the ... plans ...", explains that the plans are yet to be submitted.

Based on a review of the July 1994 and other available information, the following are the comments which we find appropriate, or the additional actions or requirements which will be necessary in order to complete the application:

1. The Weston letter of July 1994 (Page 4) states that "The landfill will comply with the requirements for an NPDES permit." ADEM's Water Division should be contacted regarding the requirements or a permit for the construction and/or operation of the facility. Mr. Claude McDonald should be contacted at 334-271-7788 for the proposed construction activities and Mr. Bruce Garrett should be contacted at 334-271-7945 regarding a specific or general NPDES permit.

2. As Mr. Hicks mentioned in his memo, the available information is questionable and the City should submit additional information which would satisfactorily demonstrate the depth to bedrock and groundwater. That is, the City should, as necessary, install additional piezometers, conduct a boring program, etc., and submit a geologic cross section, a potentiometric surface map, and/or other data which would demonstrate that the bottom elevation of the liner, or the waste for an unlined unit, would be a minimum of five feet above bedrock or the seasonal high groundwater table, in accordance with 335-13-4-.01(4)(a).

3. Some of the design and operational aspects of the application requirements are mentioned in the Weston letter of July 1994, but very little of the information or plans required by 335-13-4-.12 have been provided. It is assumed that the Boundary Survey (Sheet 3), which was submitted with the Closure/Post-Closure Plan, meets the requirement of 335-13-4-.12(5), but Mr. Hicks mentions some inconsistency in the boundary descriptions, and the four phases/areas of development should be accurately defined if plans are to be submitted as each phase is developed or permitted.

4. As stated above and as Mr. Hicks pointed out in his memo, additional information is required in order to evaluate the site or the plans for the proposed expansion area. However, other information or plans will also be necessary in order to meet the requirements of 335-13-4-.14, i.e., to further determine or define the groundwater regime and determine if the plans are satisfactory for the monitoring and protection of the site and the surrounding area. That is, in addition to accurately determining the groundwater table in the proposed expansion area(s), the permeability of the soil should be determined, a water well survey should be conducted, and a proposed groundwater well/system and analysis plan should be submitted. Also, since the wells for the closed sanitary portion of the facility would be included in the modified and renewed permit, the actual construction details, parameters, plans, etc. for these wells should be submitted as a part of the application.

5. A gas monitoring plan, which was included in the Closure/Post-Closure Plan, was approved for the sanitary portion of the facility, but this plan should be included in the application for the repermitting of the facility. Also, a plan should be submitted for the expansion area(s), or the existing plan should be revised to include this area(s).

6. Based on the information we have, the City should propose a liner and leachate collection system(s) for the expansion or industrial waste disposal area(s), and/or provide further data, definitions, or explanations of the waste streams in order to clearly show or demonstrate that a liner or collection system would not be necessary. We will base our consideration of the proposed system(s), or the possibility of not requiring a liner and collection system, on the specific wastes that would be disposed, and the factors at the site, or other parts of the plans, which may have some effect on insuring that the groundwater and public health would be protected.

7. As mentioned in the initial part of this letter, it is understood that Weston would develop design and operational plans. These "plans" should include the plans or information required by 335-13-4-.01, -.17, -.19, -.20, -.21, -.23, -.26, -.27, and -.29, as well as any of the other plans or information mentioned above, or appropriate or proposed for the facility. As a checklist of the requirements for the application, a "total" list, i.e., the list we have titled "THE FOLLOWING MUST BE ADDRESSED", is enclosed. A blank copy of the two page Solid Waste Application form is also enclosed, in case some of the information should be revised.

Please submit the additional information for our consideration, or accomplish the necessary requirements and submit a complete application, as soon as practicable. If the information or complete application cannot be submitted by August 21, 1995, please explain the reason for the delay and provide an expected submittal date.

If you have any questions about this letter, the requirements for the application, or other matters regarding the repermitting of the facility, please contact Bill Wood at 334-271-7767.

Sincerely,

Wm. Gerald Hardy, Chief
Engineering Services Branch
Land Division

SECTION CHIEF

DIVISION CHIEF

WGH/BW/rp:SWTECH#1931

Enclosures

c/e: Mr. Dewayne Smith
Roy F. Weston, Inc.
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Mr. Dempsey Garrett
City of Roanoke
Route 4, Box 33 AA
Roanoke, AL 36274

c: Mr. Russell Kelly, Chief
Solid Waste Branch
Land Division

Mr. Ron Hicks
Groundwater Branch
Water Division

File: Randolph Co/Prop. Mod&Renewal/Roanoke SLF/56-02R

WESTON Work Order No. 10129-002-001

JUL 27 1994

CLOSURE/POST-CLOSURE PLAN FOR THE ROANOKE SANITARY LANDFILL PERMIT NUMBER 56-02R

Prepared For:

THE CITY OF ROANOKE
P.O. BOX 432
ROANOKE, ALABAMA 36274

JULY 1994

Prepared By:

ROY F. WESTON, INC.
1635 Pumphrey Avenue
Auburn, AL 36830

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APPENDICES

APPENDIX A - Legal Property Description

APPENDIX B - Quality Assurance/Quality Control Program

1.0 INTRODUCTION

This document has been prepared for the City of Roanoke to address the closure and post closure care requirements established by the Alabama Department of Environmental Management (ADEM) Administrative Code, Division 13 Solid Waste Program, Chapter 4, Rule .20 (ADEM Rule 335-13-4-.20) and the Environmental Protection Agency's (EPA) Solid Waste Disposal Facility Criteria, Section 40 of the Code of Federal Regulations (CFR) Part 258.60(a) for the Roanoke Sanitary Landfill (Permit No. 56-02R) located southwest of the City of Roanoke, Alabama. This closure/post-closure plan should be used in conjunction with the Closure/Post-Closure Plans prepared by Roy F. Weston, Inc. dated July 1994 hereafter referred to as the Plans. All updates and approved modifications to the Plans are incorporated by reference.

2.0 SITE DESCRIPTION

The Roanoke Sanitary Landfill is located in Randolph County, Alabama and consists of two parcels of land, (approximately 178.01 acres) located in Sections 8 and 9, Township 22 South, Range 12 East. The legal property description for each parcel is provided in Appendix A. Parcel one consists of approximately 38.72 acres and was used as a sanitary landfill. Parcel two consists of approximately 139.29 acres and will be developed as an industrial landfill. A permit application for the industrial landfill is currently being prepared. The City of Roanoke began landfilling operations in April 1982 using a trench and fill method for the disposal of solid waste and an area fill method for the disposal of inert waste. The landfill ceased operations and closed on 8 April 1994.

3.0 FINAL COVER SYSTEM

The final cap constructed on the areas of the landfill that have received solid waste shall consist of two distinct soil layers: 1) an infiltration layer and 2) an erosion layer. Each layer is described separately in the following paragraphs;

- Infiltration Layer - The infiltration layer will be constructed in 4 to 6 inch lifts using native soils meeting specified criteria for infiltration layer soil cover materials. Each lift will be constructed to achieve a permeability of less than or equal to 1×10^{-5} cm/sec. Lifts will be constructed as needed to obtain a total compacted thickness of a minimum of 18 inches.

- Erosion Layer - The erosion layer will be a minimum of six inches thick and will be constructed using on-site top soil materials capable of sustaining a suitable vegetative cover. The type of vegetative cover established will be dependent upon the time of year the erosion layer is constructed. Therefore, the City of Roanoke will determine the appropriate species and mixture of grass seeds that will be used to establish the vegetative cover.

The final cap will be graded in a manner to prevent surface water from ponding on the landfill. The minimum and maximum final grades will be 5% and 25%, respectively. On slopes longer that 25 feet, a 20 foot wide horizontal bench will be constructed for every 20 feet rise in

elevation. The final contours for the Roanoke Sanitary Landfill are shown on the final grading plan included as Sheet 4 of 6 of the Plans.

4.0 MAXIMUM INVENTORY OF WASTE

An estimate of the maximum inventory of waste was obtained by comparing pre-development topographical maps of the site location with the existing landfill topography. pre-development topographical information was obtained from drawings supplied by the City of Roanoke. The existing topographical information was obtained by aerial photographs taken in June 1993. The approximate waste inventory located at the Roanoke Sanitary Landfill is estimated at 450,000 cubic yards.

5.0 LANDFILL CLOSURE ACTIVITIES

The Roanoke Sanitary Landfill (Parcel 1) was closed on 8 April 1994. Closure activities are currently being completed. Construction of the final cap will be completed by 9 October 1995.

A Quality Assurance/Quality Control (QA/AC) program will be implemented to ensure the proper construction of the final cap. The QA/QC program that will be used is included as Appendix B.

The personnel building and equipment shed will be used for the industrial landfill (Parcel 2). Access to the landfill will be restricted by a lockable gate at the entrance of the access road to the landfill.

A sign will be installed at the entrance road to the landfill. The sign will state that the sanitary landfill is closed and will identify the nearest permitted disposal facility. Additional information that will be displayed on the sign shall include:

- Name of the sanitary landfill
- Name and address of the operating authority
- Name and address of a contact person for the operating authority
- Date the landfill was closed

The City of Roanoke will dispose of sanitary waste in a permitted Subtitle D Landfill. Construction and demolition debris and industrial solid waste will be disposed of the industrial landfill.

6.0 LAND DEED NOTATION

Within 90 days after the landfill has been closed in accordance with the closure requirements, the City of Roanoke will record all the necessary information on the land deed for the Roanoke Sanitary Landfill. The notation on the land deed will in perpetuity, notify any potential purchaser of the property that Parcel 1 has been used as a sanitary landfill. The notation on the land deed will include the following information.

- Use of the land is restricted to activities that will not disturb the integrity of the final cap or any other component of the containment system, or function of the monitoring systems.

- The location and dimensions of the disposal facility with respect to permanently surveyed benchmarks and section corners will be on a plat prepared and sealed by a Land Surveyor registered in the State of Alabama.

- A prominently displayed note which states:

  Name of Permittee: City of Roanoke
  Facility Type: Sanitary Landfill
  Beginning Date of Operation: April 1982
  Closure Date of Landfill: 8 April 1994

- A certification by an Engineer or Land Surveyor, registered in the State of Alabama, that all closure requirements required by the Alabama Department of Environmental (ADEM) Administrative Code, Division 13 Solid Waste Program, Chapter 4, Rule .20 (335-13-4-.20) have been completed.

Within 120 days after completion of closure activities, a certified copy of the land deed will be submitted to ADEM.

7.0 LAND DEED NOTATION REMOVAL

The City of Roanoke reserves the right to request approval from ADEM to remove all waste, waste residues and any contaminated soils, if any, from the Roanoke Sanitary Landfill. If all waste, waste residues and contaminated soils, if any, are removed, The City of Roanoke will request permission to remove the notation from the land deed.

8.0 POST-CLOSURE USE OF THE PROPERTY

The post closure activities and/or operations at the landfill will be limited to activities and/or operations that will not disturb or compromise the integrity of the final cap or damage the groundwater monitoring system and surface water control structures. The 38.72 acres (Parcel 1) used as a sanitary landfill will be left as an open field. The existing access road will be used to access the industrial landfill.

9.0 POST-CLOSURE CARE

The City of Roanoke will conduct post-closure care of the Roanoke Sanitary Landfill as required by ADEM Rule 335-13-4-.20. The City of Roanoke will conduct a site inspection of the landfill on a quarterly basis and/or after heavy periods of rainfall for the first year, and annually thereafter. During each site inspection, the inspector will:

- Evaluate the integrity of the final cap and the general condition of the landfill. Areas where erosion, ponding and surface cracks have occurred will be identified and denoted on a site plan.

- Identify areas where leachate is present, if any.

- Inspect access control structures, groundwater monitoring wells and surface water control structures for damage.

- Identify any additional waste that has been deposited since the landfill has been closed. If additional waste has been deposited, it will be removed and disposed of in a permitted landfill.

After each site inspection, the inspector will prepare an inspection report summarizing the results of the inspection. The inspection report will contain the following information:

- Inspectors name.

- Date of the inspection.

- A description of any deficiencies and/or defects identified in the final cap.

- A description and/or recommendation of the corrective measures needed to re-establish the integrity of the final cap.

- The location of leachate, if any.

A copy of the inspection report will be kept on file by the City of Roanoke. After each inspection, the City of Roanoke will initiate the work required to correct any deficiencies in the final cap that were identified during the site inspection.

The City of Roanoke will maintain the integrity of the final cap by making repairs as necessary to correct any defects caused by settling, subsidence, erosion, etc. The defects in the final cap will be corrected as follows:

- Eroded areas and surface cracks in the infiltration layer will be filled in six inch lifts with a suitable soil material and compacted to achieve a permeability of less than or equal to permeability of the surrounding cap material.

- Eroded areas and surface cracks in the erosion layer will be filled with a suitable soil material and the vegetative cover will be re-established.

- Areas which provide for ponding of surface water will be filled with a suitable soil material, graded in order to tie in with existing contours, and the vegetative cover will be re-established.

- Areas where the vegetative cover is insufficient will be reseeded. Fertilizer, mulch and water will be provided as necessary to promote vigorous plant growth.

10.0 GROUNDWATER MONITORING

The City of Roanoke will conduct groundwater monitoring on a semi-annual basis as specified in its permit for a period of five years. After five years and at each five year interval thereafter, the City of Roanoke will provide to ADEM an analysis of the groundwater monitoring data and a recommendation as to the next five year post-closure care procedures. Groundwater samples will be collected during the months of March and September and will be analyzed for the following parameters.

pH	Specific Conductance
Chloride	Total Organic Carbon (TOC)
Iron	Cadmium
Chromium	Arsenic
Lead	Mercury
Selenium	Sulfate
Nitrate	Chlorides
Volatile Scan	

11.0 EXPLOSIVE GAS MONITORING

Explosive gas monitoring will be conducted on a yearly basis in accordance with the Explosive Gas Monitoring Plan. After five years and at each five year interval thereafter, the City of Roanoke will provide to ADEM an analysis of the explosive gas monitoring data and a recommendation as to the next five year post-closure care procedures.

12.0 SURFACE WATER DISCHARGES

The type and frequency of sampling analysis to be conducted and the reporting for post-closure surface water discharges will be in accordance with applicable National Pollutant Discharge Elimination Systems permit for surface water discharges. On-site drainage structures are designed to carry incident precipitation away from the disposal area to minimize erosion, sedimentation and the generation of leachate.

APPENDIX A

LEGAL PROPERTY DESCRIPTION AND BOUNDARY SURVEY PLAT

LEGAL DESCRIPTIONS - CITY OF ROANOKE LANDFILL PROPERTY

STATE OF ALABAMA
RANDOLPH COUNTY

PARCEL 1 : Beginning at a found concrete monument locally accepted as the Southwest corner of the Southeast 1/4 of the Northwest 1/4 of Section 9, Township-22-South, Range-12-East, Randolph County, Alabama; thence run North 02°47'59" West, a distance of 1220.00 feet to an iron pin; thence continue North 02°47'59" West, a distance of 100.00 feet to an iron pin; thence South 89°05'31" East a distance of 1306.94 feet to a found concrete monument at a fence corner; thence South 00°34'30" West, a distance of 1344.01 feet to a found 2" open top iron; thence North 87°50'44" West, a distance of 1229.68 feet to the Point of Beginning, containing 38.72 acres, more or less, and lying in the Southeast 1/4 of the Northwest 1/4 of Section 9, Township-22-South, Range-12-East, Randolph County, Alabama.

PARCEL 2: Commencing at a found concrete monument locally accepted as the Northwest Corner of Section 9, Township 22-South, Range-12-East, Randolph County, Alabama; thence run South 87°10'03" East, a distance of 1439.28 feet to an iron pin set at a fence corner; thence South 00°00'58" West, a distance of 1142.53 feet to an iron pin set at a fence corner; thence South 24°32'43" East, a distance of 131.54 feet to an iron pin set at a fence corner; thence South 02°47'59" East, a distance of 53.80 feet to an iron pin; thence South 02°47'59" East, a distance of 100.00 feet to an iron pin; thence North 42°57'57" West, a distance of 76.42 feet to an iron pin; thence South 47°02'03" West, a distance of 1805.87 feet to an iron pin set at a fence corner; thence North 87°45'15" West, a distance of 1303.00 feet to an iron pin set at a fence corner; thence North 00°19'43" East, a distance of 2620.12 feet to an iron pin set at a fence corner; thence South 89°32'24" East, a distance of 1161.20 feet to the Point of Beginning, containing 139.29 Acres, more or less, and lying part in Section 8 and part in Section 9, Township-22-South, Range-12-East, Randolph County, Alabama.

Subject to all rights-of-way, easements and restrictions which exist as a matter of record or exist de facto. It being the intention of this survey and description to reference that land described according to Deed Book 122, Page 749 located in the Office of the Probate Judge, Randolph County, Alabama, except for a correction made concerning the Northwest half (diagonal) of the Southwest 1/4 of the Northwest 1/4 of Section 9.

APPENDIX B

QUALITY ASSURANCE/QUALITY CONTROL PROGRAM

APPENDIX B

FINAL COVER INSTALLATION QUALITY ASSURANCE PLAN

1. GENERAL.

1.1. GENERAL: This Section describes techniques to be performed by an independent quality assurance (QA) organization to provide assurance that the final cover for the Roanoke Sanitary Landfill will meet regulatory requirements. The QA organization will perform testing of the existing cover soils, borrow pit testing, field testing of soils after placement, and inspection of final contour. Cover material selection, testing, placement, and construction quality control shall be preformed by the Contractor.

1.1.1. Cover Requirements: The final cover system shall be comprised of an erosion layer underlain by an infiltration layer as follows:

1.1.1.1. Infiltration layer shall be comprised of a minimum of 18-inches of earthen material designed to minimize infiltration. The infiltration layer shall be comprised of suitable soils placed in a manner to achieve a permeability of less than $1x10^{-5}$ centimeters per second.

1.1.1.2. Erosion layer shall consist of a minimum of 6-inches of earthen material that is capable of sustaining native plant growth.

1.1.2. Scope of Work: The QA organization shall be responsible for ensuring the final cover was installed to meet regulatory requirements. The QA organization shall perform the following:

1.1.2.1. Evaluate areas where an existing cover exists and determine the suitability of the cover.

1.1.2.2. Perform borrow pit soil testing to evaluate suitability of soils to be used for final cover infiltration layer construction.

1.1.2.3. Perform field testing to evaluate proper placement of borrow pit soils used for final cover infiltration layer construction.

1.1.2.4. Verify requirements for thickness of final cover (infiltration layer and erosion layer soils) are met.

1.1.2.5. Verify that final cover slope and bench requirements are met.

1.1.2.6. Make recommendations for correction of deficiencies noted.

1.2. APPLICABLE PUBLICATION: The publications listed below form a part of this specification to the extent referenced. The publications are referred in the text by the basic designation only.

1.2.1 American Society for Testing and Materials (ASTM) Publications:

D422 Particle-Size Analysis of Soils.

D698 Moisture-Density Relations of Soils Using 5.5-lb Rammer and 12-in. Drop.

D1556 Standard Test Method for Density of Soil in Place By the Sand-Cone Method

D1557 Moisture-Density Relations of Soils and Soil aggregate Mixtures Using 10-lb Rammer and 18-in. Drop.

D1587 Practice for Thin-walled Sampling of Soils.

D2216 Method for Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures.

D2922 Density of Soil using Nuclear Methods (Shallow Depth).

D4318 Liquid and Plastic Limit of Soils.

D4220 Practices for Preserving and Transporting Soil Samples.

1.3. QUALITY ASSURANCE:

1.3.1. The Contractor responsible for final cover construction shall retain the services of a commercial geotechnical inspection and testing company (Soil Engineer) to perform required soil tests and construction monitoring. The Soil Engineer will function as the independent QA organization for issues involving final cover construction.

1.3.2. The Soil Engineer will specify the type and use of equipment as required to achieve the final placement soil properties specified.

1.3.3. Any work that fails to meet specified test requirements shall be repaired, or removed and replaced, and retested as necessary to meet requirements.

1.4. SUBMITTALS:

1.4.1. The Soil Engineer shall provide certification that the landfill cap was constructed in accordance with the Closure Plan.

2. PRODUCTS:

2.1. COMPACTION EQUIPMENT. Equipment used shall maximize compactive energy and remolding capability of the soil. Select compaction equipment with footed rollers capable of penetrating the entire lift thickness. Weight per linear foot along the drum surface, or the compact stress on the tip of the roller foot, shall be as recommended by the Soil Engineer.

3. EXECUTION:

3.1. GENERAL: Soil placement shall be required to achieve final grade. Soils used for contouring shall meet the requirements for suitable infiltration layer soils outlined in Table 3.1. The upper 18-inches of the infiltration layer soils shall be placed and tested as described in this Section. A topsoil shall be placed over the infiltration layer, and all disturbed soil areas shall be grassed.

3.2. INFILTRATION LAYER MATERIAL INSTALLATION: A minimum 18-inch thick layer of soils with a hydraulic conductivity of $1x10^{-5}$ centimeters per second or less shall be placed as the infiltration layer. Soil placement shall be performed as specified by the Soil Engineer. Unless otherwise specified, the following guidelines shall be used for placement of infiltration layer soils.

3.2.1. Moisture Content: Soil moisture shall be adjusted to within plus or minus 2 percent of target moisture content prior to being placed. Final moisture content adjustment can be made after the soil is put in place and before it is compacted.

3.2.2. Lift Thickness: Lift thickness shall not exceed six inches (compacted thickness).

3.2.3. Bonding Between Lifts: Successive lists shall be blended with the previous lifts. Prior to placement of new lift materials, scarify the surface of the previous lift using a disc. Soil shall be broken up sufficiently to assure complete blending.

3.2.4. Protection of Completed Lift: All holes made in the soil liner shall be sealed. Include sealing of holes made for QC/QA testing.

3.3. INFILTRATION LAYER CONSTRUCTION INSPECTION: Construction inspection shall be performed by the Soil Engineer. Provide full-time inspection of soil excavation in the borrow area, and soil placement in the fill areas.

3.3.1. Borrow Area Observation: Provide continuous classification of excavated soil in the borrow area. Unsuitable materials shall not be moved to the fill area. Ensure borrow source testing is provided as specified, or more often if required by a change in soil type.

3.3.2. Fill Area Observation: Provide continuous inspection of soil placement activities. Monitor fill soil for deleterious or other unsuitable material. Observe lift thickness, and ensure that the required number of passes are made over each lift with the specified compaction equipment. Once the soil cover is in place, ensure measures have been taken

to protect each lift of soil from desiccation, freezing, or other damaging forces. The Soil Engineer shall reject any work or materials that will compromise the integrity of the final cover.

3.4. INFILTRATION LAYER TESTING REQUIREMENTS: Testing required by this Section shall be performed by the Soil Engineer. Testing shall be performed on the materials used in construction of the infiltration layer, and on each completed lift of the final cover. Testing shall be completed prior to placement of erosion layer topsoil.

3.4.1. Material Testing: Perform tests as specified for materials to be used in construction of the infiltration layer of the final cover. Refer to Table 3.2 for summary of specified testing frequencies.

3.4.2. Selection of Random Sample Test Location: Grid area to be tested with 10 times as many grids as samples to be taken. Use a random number generator to select grid locations for sampling.

3.4.3. Testing Conditions: Ensure that conditions of the tested samples match the field conditions as closely as possible.

3.4.4. Borrow Pit Testing: Perform tests as specified on soils selected for final cover infiltration layer materials.

3.4.4.1. Grain Size Distribution: Determine the percentage of fine-grained, sand, gravel, and cobbles present in the borrow pit materials. Determine the grain size distribution using ASTM Method D422. Perform one test per 1,000 cubic yards of borrow materials.

3.4.4.2. Moisture Content: Moisture content shall be determined using ASTM D2216, or other method calibrated against ASTM D2216. Perform one test per 1,000 cubic yards of borrow materials. In addition, perform a minimum of two tests per day per type of material or source of material being placed during stable weather conditions. During unstable weather, tests shall be made as dictated by local conditions and approved by the Soil Engineer.

3.4.4.3. Atterberg Limits: Determine the liquid and plastic limits of a soil with ASTM Method D4318. Perform one test per 5,000 cubic yards of borrow materials.

3.4.4.4. Moisture-Density Compaction Curve: Determine the moisture content verses density relationship using the ASTM Method 698 or ASTM Method 1557, depending on the recommendations of the Soil Engineer. Perform one test per 5,000 cubic yards of borrow material. In addition, perform one test per type of material or source of material being placed.

3.4.4.5. Hydraulic Conductivity of Lab-Compacted Soil: Using the specimens remolded during the moisture-density compaction curve determination, perform a laboratory permeability test. Perform one test per 10,000 cubic yards of borrow material.

In addition, perform one test per type of material or source of material being placed.

3.4.5. Final Cover Infiltration Layer Field Test Requirements: Perform tests as specified on completed lift soils. Refer to Table 3.1 for required soil properties and Table 3.2 for summary of specified testing frequencies.

3.4.5.1. Dry Density: Determine in-place dry density using ASTM Methods D3017 (nuclear method), or ASTM Method D4643 (drive ring method). These methods, if used, should be calibrated against the ASTM Method D1556 (sand cone method). Alternatively, the sand cone method can be used directly. Perform five tests per acre per lift for in-place final cover infiltration layer material. At least one test should be performed each day soil is placed and compacted.

3.4.5.2. Moisture Content: Determine the soil moisture content of in-place soils using ASTM Method D2216, as noted in this Section. Perform five tests per acre per lift for in-place final cover infiltration layer material being placed during stable weather conditions. During unstable weather, tests shall be made as dictated by local conditions and approved by the Soil Engineer. At least one test should be performed each day soil is compacted.

3.4.6. Existing Infiltration Layer Field Test Requirements: Existing soil cover in areas of the final cover infiltration layer that will not require filling and grading shall be evaluated to determine cover thickness and soil properties.

3.4.6.1. Sampling: Perform soil sampling using split-spoon sampling apparatus. Samples shall be collected at a frequency of five (5) per acre. Samples shall be collected in a random manner over the affected area. Refer to Table 3.2 for summary of specified testing frequency.

3.4.6.2. Thickness: Each sample shall be evaluated to determine the thickness of the final cover infiltration layer. An infiltration layer less than 18-inches in thickness shall require placement of additional infiltration layer soils in accordance with this Section.

3.4.6.3. Soil Analysis: Submit the split-spoon soil samples for analysis to determine the suitability of existing soils for use as an infiltration layer. Soils shall meet the requirements for suitable final cover infiltration layer soils as described in Table 3.1 for the parameters identified below:

a. Grain Size Distribution

b. Atterberg Limits

3.5. EROSION LAYER: An erosion layer shall be placed to cover all final cover soil area. The erosion layer shall consist of topsoil and a vegetative cover, placed to match the grade of the subbase infiltration layer. Erosion layer placement shall be performed as specified by the

Soil Engineer. Unless otherwise specified, the following guidelines shall be used for placement of the erosion layer.

3.5.1. Topsoil: Place a 6-inch layer of soils suitable to support vegetation. Prior to placement pulverize subgrade to a depth of 2 inches by disking or plowing for the bonding of topsoil with the subsoil. Topsoil shall then be uniformly spread, graded, and compacted to the thickness, elevations, and slopes shown. The surface shall be left free of irregularities.

3.5.2. Seeding: Sow and establish an acceptable growth of grasses from seeds of the specified seed mixes designated for use. Seeding shall include ground preparation, sowing seed, application of fertilizers, application of mulch, watering, and installation of erosion controls necessary to establish a vegetative cover. Select, provide and install seeding in accordance with the construction details as outlined in the State of Alabama Highway Department manual of Standard Specifications for Highway Construction.

TABLE A.1
SOIL PROPERTIES

SOIL MATERIAL PROPERTY	CRITERIA
Fines Content	Greater Than 30% (passing 200 sieve)
Plasticity Index	PI = between $\geq$10% and $\leq$40%
Gravel Content	Less than 30% (by weight)
Particle Size	Almost no particles $\geq$ 1 to 2 inches.
Moisture Content	Target moisture is 2% wet of optimum
Dry Density	$\geq$ 95% of Max Standard Proctor or $\geq$ 90% of Modified Proctor

TABLE A.2
FREQUENCY OF TESTING

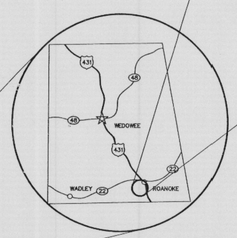
ITEM	TESTING	FREQUENCY
Clay Borrow Source Testing	Grain Size	5,000 cubic yards
	Moisture	5,000 cubic yards
	Atterberg limits	10,000 cubic yards
	Moisture-Density curve	10,000 cubic yards
	Lab permeability (remolded)	10,000 cubic yards
Clay Cover Testing During Construction	Density	5 tests/acre/lift
	Permeability	1 test/acre/lift

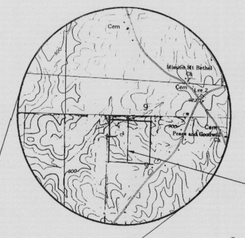
Notes:
Due to variability of soil fill materials, a small percentage of tests that fail to meet specifications (outliers) may be permitted at the discretion of the soil engineer.

CLOSURE / POST-CLOSURE PLAN
FOR THE
ROANOKE SANITARY LANDFILL
(PERMIT NO. 56-02R)

ROANOKE, ALABAMA
JULY 1994

WESTON®
MANAGERS DESIGNERS/CONSULTANTS





SITE LOCATION MAP

ROANOKE SANITARY LANDFILL

RANDOLPH COUNTY MAP

SITE OWNED AND OPERATED BY:

CITY OF ROANOKE
P.O. BOX 432
ROANOKE, ALABAMA 36274
(205) 863-4129

PREPARED BY:

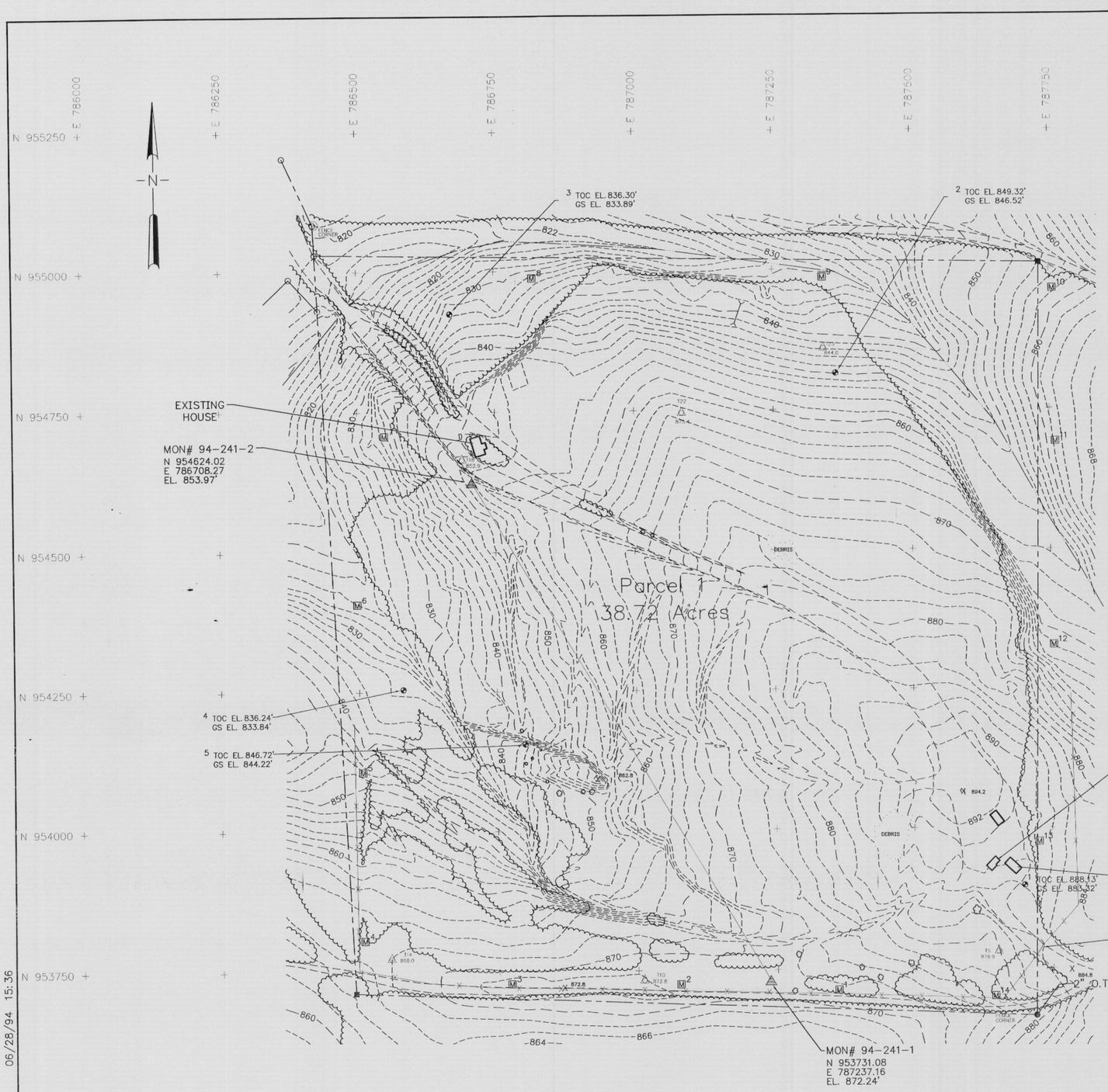
ROY F. WESTON, INC.
1635 PUMPHREY AVENUE
AUBURN, ALABAMA 36830
(205) 826-6100

DRAWING INDEX

SHEET NO.	DWG. NO.	DESCRIPTION
1	56-02R-C.1	COVER SHEET, LOCATION MAP AND DRAWING INDEX
2	56-02R-C.2	EXISTING LANDFILL CONDITIONS AND GENERAL LEGEND
3	56-02R-C.3	BOUNDARY SURVEY AND LEGAL PROPERTY DESCRIPTION
4	56-02R-C.4	FINAL GRADING AND STORMWATER MANAGEMENT PLAN
5	56-02R-C.5	LANDFILL CROSS SECTIONS
6	56-02R-C.6	SEDIMENT AND EROSION CONTROL DETAILS

CLOSURE/POST-CLOSURE PLAN

C:\ROAN.DWG



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EXIST.DWG

ABBREVIATIONS

CFS	CUBIC FEET PER SECOND
CMC	CORRUGATED METAL CULVERT
EL.	ELEVATION
FT.	FEET
FPS	FEET PER SECOND
GS	GROUND SURFACE
H.P.	HIGH POINT
IN.	INCHES
IPF	IRON PIN FOUND
MAX.	MAXIMUM
MIN.	MINIMUM
MON.	MONUMENT
N.T.S.	NOT TO SCALE
NO.	NUMBER
#	NUMBER
O.C.	ON CENTER
TOC	TOP OF CASING
TYP.	TYPICAL

GENERAL LEGEND

M# TOC EL. 451.2' GS EL. 448.9'	EXISTING GROUNDWATER MONITORING WELL
M#	EXPLOSIVE GAS MONITORING WELL
▲	CONTROL MONUMENT
■	CONCRETE MONUMENT FOUND
●	IRON PIN FOUND
o	IRON PIN SET
	EXISTING PAVED ROAD
	EXISTING TEMPORARY ACCESS ROAD
x217.2	SPOT ELEVATION
722 △ 875.4	HORIZONTAL AND VERTICAL CONTROL POINT FOR TOPOGRAPHIC MAPPING
	VEGETATION
	EXISTING STORMWATER PIPE CULVERT
200	EXISTING CONTOUR
200	FINAL CONTOUR
	EXISTING LANDFILL BOUNDARY
5%	SLOPE
	DIRECTION OF FLOW
	RIP RAP LINED CHANNEL
	GRASS LINED CHANNEL
	WATER SURFACE ELEVATION
A 1 42	SECTION CALLOUT SHEET WHERE SECTION IS LOCATED SHEET WHERE SECTION IS CUT

NOTES:

1. THE PERMITTIED BOUNDARY OF THE ROANOKE SANITARY LANDFILL CONSISTS OF APPROXIMATELY 178.01 ACRES. THE PERMITTED LANDFILL AREA IS DIVIDED INTO TWO SEPARATE PARCELS (SEE BOUNDARY SURVEY AND LEGAL PROPERTY DESCRIPTION ON SHEET 3 OF 6). PARCEL 1 CONSISTS OF APPROXIMATELY 38.72 ACRES AND WAS USED FOR THE SANITARY LANDFILL. PARCEL 2 CONSISTS OF APPROXIMATELY 139.29 ACRES AND WILL BE DEVELOPED AS AN INDUSTRIAL LANDFILL. THIS CLOSURE/POST-CLOSURE PLAN ADDRESSES THE AREA USED AS A SANITARY LANDFILL (PARCEL 1).
2. THE SITE MAP WAS OBTAINED FROM THE FOLLOWING UNITED STATES GEOLOGICAL SURVEY, QUADRANGLE, 7.5 MINUTE SERIES TOPOGRAPHIC MAPS:

   MILLTOWN, ALABAMA (1969)
   FIVE POINTS, ALABAMA (1968, PHOTOREVISED 1983)
   ROANOKE WEST, ALABAMA (1969, PHOTOREVISED 1983)
   ROANOKE EAST, ALABAMA (1969, PHOTOREVISED 1983)
3. THE BOUNDARY SURVEY AND LEGAL PROPERTY DESCRIPTION WAS PREPARED BY MR. KIETH MAXWELL OF MAXWELL ENGINEERING AND LAND SURVEYING, P.O. BOX 230, AUBURN, ALABAMA 36830.
4. EXISTING CONTOURS WERE OBTAINED BY AERIAL PHOTOGRAPHY PROVIDED BY SOUTHERN RESOURCES MAPPING CORPORATION. AERIAL PHOTOGRAPHS OF THE LANDFILL WERE TAKEN ON 7 JUNE 1993.
5. THE LOCATION OF THE EXPLOSIVE GAS MONITORING WELLS AREA APPROXIMATE.

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

WESTON MANAGERS DESIGNERS/CONSULTANTS ALABAMA AUBURN

ALABAMA REGISTERED NO. 19880 PROFESSIONAL ENGINEER KLIPPS DEWAYNE

	DATE	ISSUED FOR	DATE

CHECKED	DATE
DES. ENG. C. NORRIS	7/14/94
ENG. APPR. D. SMITH	7/14/94
PROJ. MGR. D. SMITH	7/14/94
DRAWN BY T. TOLBERT	7/14/94

CLIENT
CITY OF ROANOKE
P.O. BOX 432
ROANOKE, ALABAMA 36274

PROJECT TITLE
CLOSURE/POST-CLOSURE PLAN
FOR ROANOKE
SANITARY LANDFILL
(PERMIT NO. 56-02R)
ROANOKE, ALABAMA

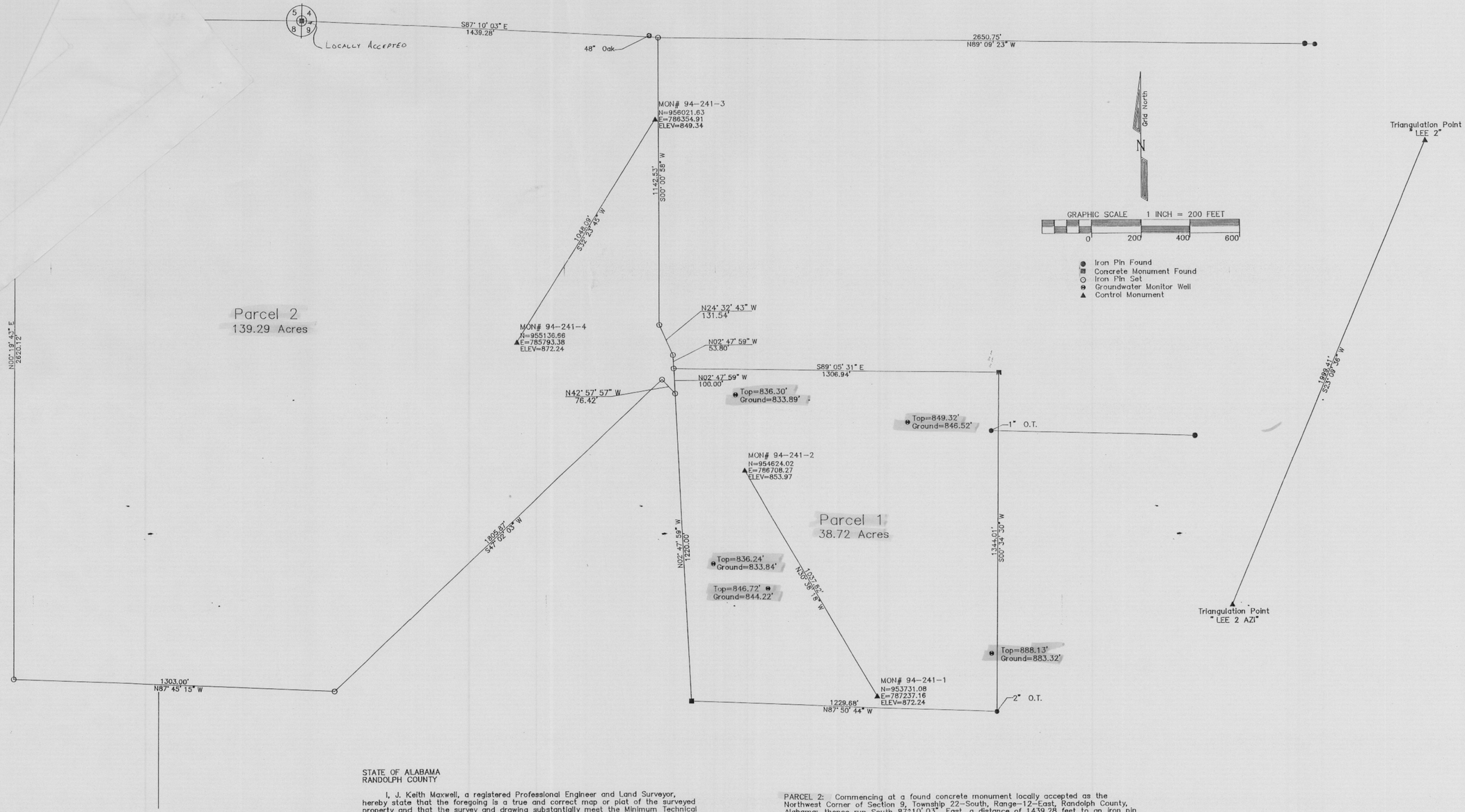
DRAWING TITLE
EXISTING LANDFILL CONDITIONS AND GENERAL LEGEND

W.O. NUMBER 10129-002-001
DWG. NUMBER 56-02R-C.2
SHEET 2 OF 6

NO.	DATE	APPR.	REVISION

Boundary Survey For

CITY OF ROANOKE LANDFILL



STATE OF ALABAMA
RANDOLPH COUNTY

I, J. Keith Maxwell, a registered Professional Engineer and Land Surveyor, hereby state that the foregoing is a true and correct map or plat of the surveyed property and that the survey and drawing substantially meet the Minimum Technical Standards for the Practice of Land Surveying in the State of Alabama. Being more particularly described as follows:

PARCEL 1 : Beginning at a found concrete monument locally accepted as the Southwest corner of the Southeast 1/4 of the Northwest 1/4 of Section 9, Township-22-South, Range-12-East, Randolph County, Alabama; thence run North 02°47' 59" West, a distance of 1220.00 feet to an iron pin; thence continue North 02°47' 59" West, a distance of 100.00 feet to an iron pin; thence South 89°05' 31" East a distance of 1306.94 feet to a found concrete monument at a fence corner; thence South 00°34' 30" West, a distance of 1344.01 feet to a found 2" open top iron; thence North 87°50' 44" West, a distance of 1229.68 feet to the Point of Beginning, containing 38.72 acres, more or less, and lying in the Southeast 1/4 of the Northwest 1/4 of Section 9, Township-22-South, Range-12-East, Randolph County, Alabama.

PARCEL 2: Commencing at a found concrete monument locally accepted as the Northwest Corner of Section 9, Township 22-South, Range-12-East, Randolph County, Alabama; thence run South 87°10' 03" East, a distance of 1439.28 feet to an iron pin set at a fence corner; thence South 00°00' 58" West, a distance of 1142.53 feet to an iron pin set at a fence corner; thence South 24°32' 43" East, a distance of 131.54 feet to an iron pin set at a fence corner; thence South 02°47' 59" East, a distance of 53.80 feet to an iron pin; thence South 02°47' 59" East, a distance of 100.00 feet to an iron pin; thence North 42°57' 57" West, a distance of 76.42 feet to an iron pin; thence South 47°02' 03" West, a distance of 1805.87 feet to an iron pin set at a fence corner; thence North 87°45' 15" West, a distance of 1303.00 feet to an iron pin set at a fence corner; thence North 00°19' 43" East, a distance of 2620.12 feet to an iron pin set at a fence corner; thence South 89°32' 24" East, a distance of 1161.20 feet to the Point of Beginning, containing 139.29 Acres, more or less, and lying part in Section 8 and part in Section 9, Township-22-South, Range-12-East, Randolph County, Alabama.

Subject to all rights-of-way, easements and restrictions which exist as a matter of record or exist de facto. It being the intention of this survey and description to reference that land described according to Deed Book 122, Page 749 located in the Office of the Probate Judge, Randolph County, Alabama, except for a correction made concerning the Northwest half (diagonal) of the Southwest 1/4 of the Northwest 1/4 of Section 9.

This survey may not be reproduced without written consent. Only embossed sealed and signed copies are valid. Surveyor did not locate any improvements on the property other than those shown on this plat. All bearings are referenced to Grid North. (Alabama East State Plane Coordinate System)

WESTON
AUBURN ALABAMA

DRAWING TITLE
BOUNDARY SURVEY AND
LEGAL PROPERTY DESCRIPTION

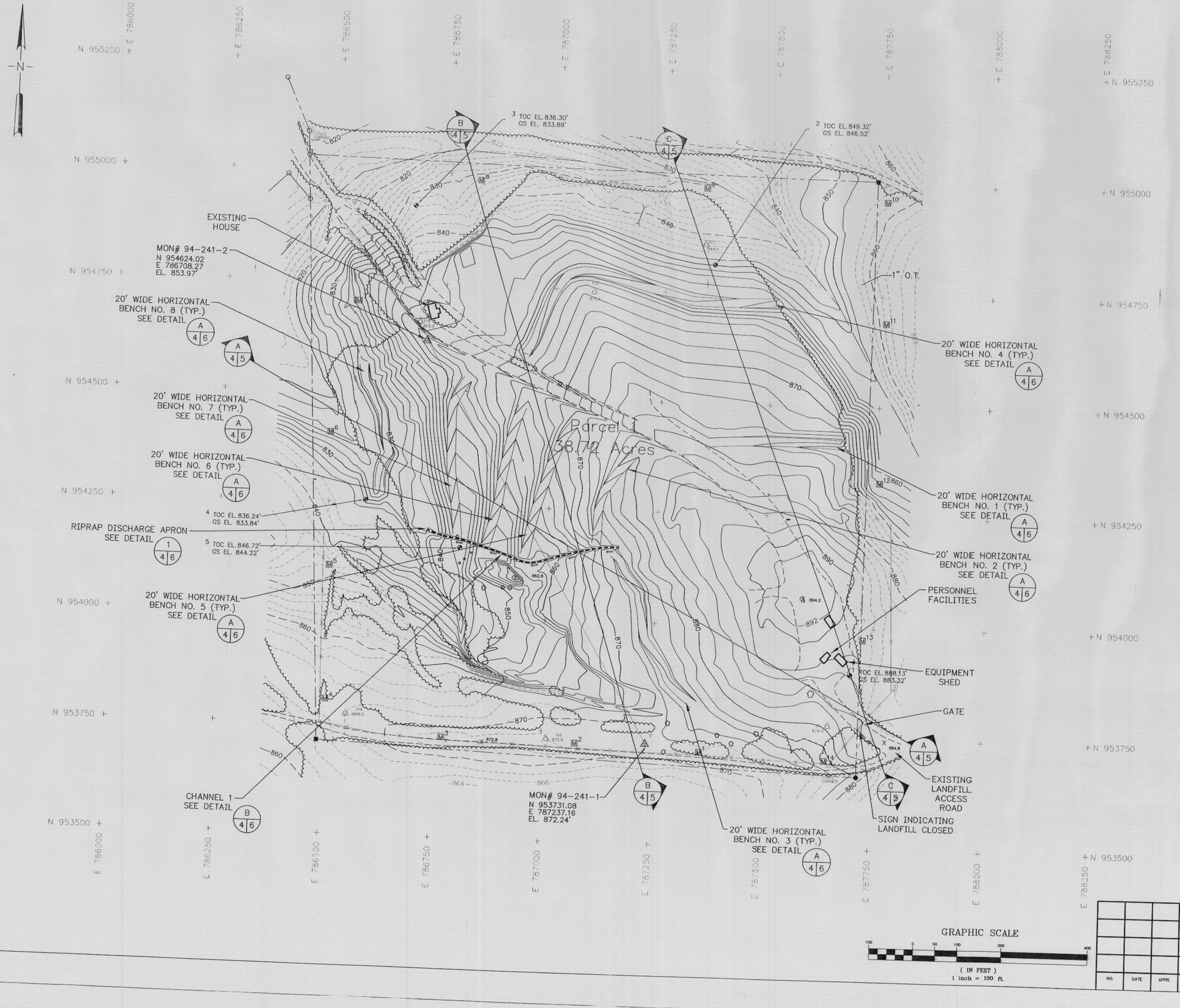
W.O. NUMBER 10129-002-001
DWG. NUMBER 56-02R-C.3
SHEET 3 OF 6

D-S-94-241

J. KEITH MAXWELL PE/LS No. 17262
MAXWELL ENGINEERING AND
LAND SURVEYING, INC.
P. O. BOX 230 (205)826-9540
AUBURN, ALABAMA 36831-0230

Boundary Survey
Roanoke Landfill

Drawn By: JM | Scale: 1" = 200' | File Name: roanoke.pro | Date: May 13, 1994



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FINAL.DWG

WESTON DESIGNERS/CONSULTANTS MANAGERS
AUBURN ALABAMA

ALABAMA REGISTERED ENGINEER WAYNE SMITH NO. 12869

	DATE	ISSUED FOR	DATE
DES. ENG. C. NORRIS	7/14/94	ISSUED FOR	DATE
ENG. APPR. D. SMITH	7/14/94	ISSUED FOR	DATE
PROJ. MGR. D. SMITH	7/14/94	ISSUED FOR	DATE
DRAWN BY T. TOLBERT	7/14/94	ISSUED FOR	DATE

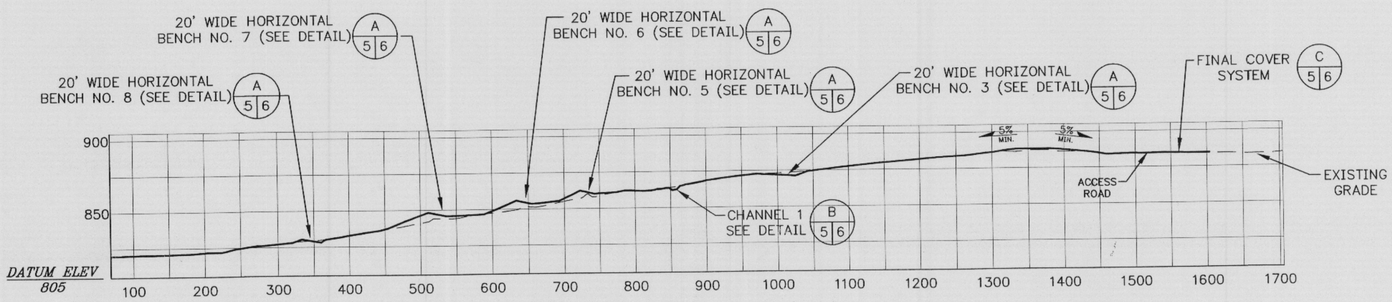
CLIENT: CITY OF ROANOKE
P.O. BOX 432
ROANOKE, ALABAMA 36274

PROJECT TITLE: CLOSURE/POST-CLOSURE PLAN FOR ROANOKE SANITARY LANDFILL (PERMIT NO. 56-02R) ROANOKE, ALABAMA

DRAWING TITLE: FINAL GRADING AND STORMWATER MANAGEMENT PLAN

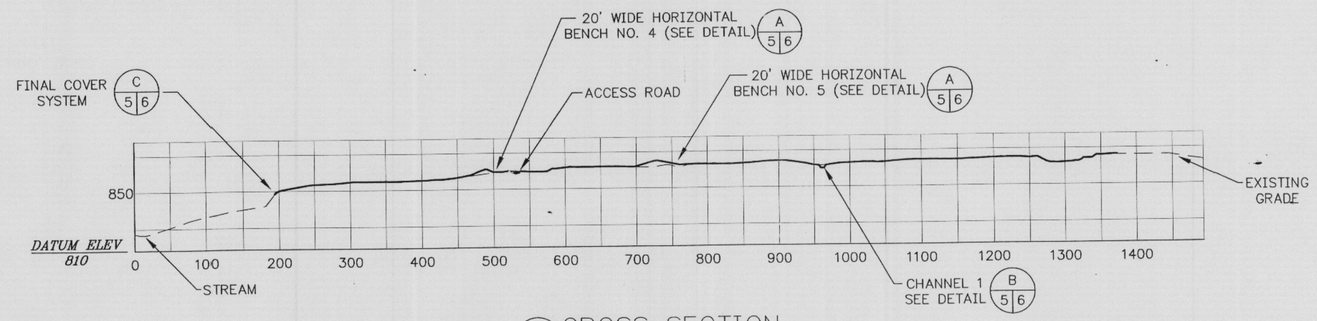
NO.	DATE	APPR.	REVISION

W.O. NUMBER: 10129-002-001
DWG. NUMBER: 56-02R-C.4
SHEET: 4 OF 6



A 4|5 CROSS SECTION

HORRIZONTAL SCALE: 1"=100.00'
VERTICAL SCALE: 1"=20.00'



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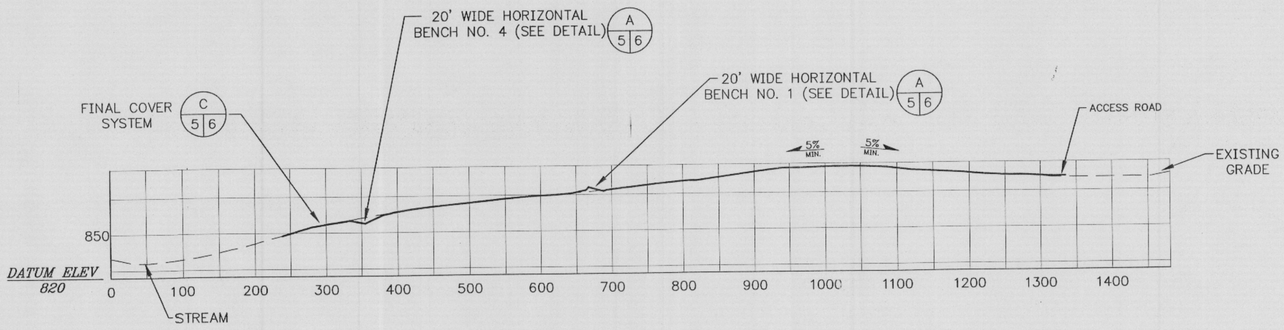

C 4|5 CROSS SECTION

HORRIZONTAL SCALE: 1"=100.00'
VERTICAL SCALE: 1"=20.00'

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

WESTON DESIGNERS/CONSULTANTS MANAGERS ALABAMA AUBURN

ALABAMA REGISTERED NO. 19689 PROFESSIONAL ENGINEER DEWAYNE SMITH

ISSUED FOR	DATE
ISSUED FOR	DATE
ISSUED FOR	DATE
ISSUED FOR	DATE
ISSUED FOR	DATE

CHECKED	DATE
DES. ENG. C. NORRIS	7/14/94
ENG. APPR. D. SMITH	7/14/94
PROJ. MGR. D. SMITH	7/14/94
DRAWN BY T. TOLBERT	7/14/94

CLIENT
CITY OF ROANOKE
P.O. BOX 432
ROANOKE, ALABAMA 36274

PROJECT TITLE
CLOSURE/POST-CLOSURE PLAN
FOR ROANOKE
SANITARY LANDFILL
(PERMIT NO. 56-02R)
ROANOKE, ALABAMA

DRAWING TITLE
LANDFILL CROSS SECTIONS

NO.	DATE	APPR.	REVISION

W.O. NUMBER 10129-002-001
DWG. NUMBER 56-02R-C.5
SHEET 5 OF 6

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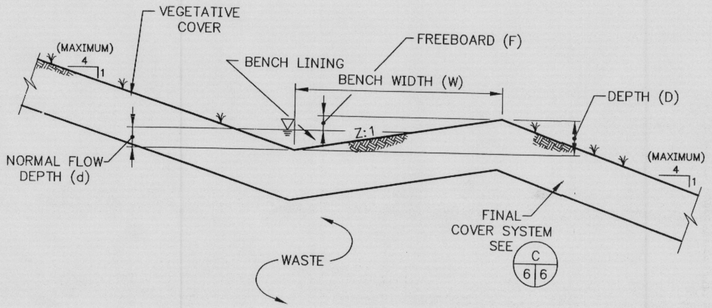
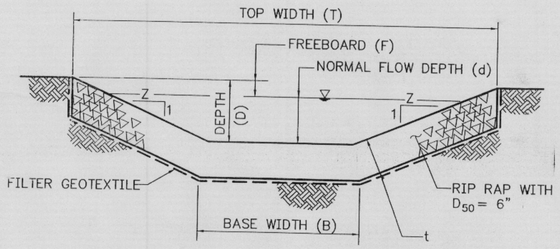
SECTIONS.DWG



BENCH	DESIGN FLOW (CFS)	BENCH DIMENSIONS				FLOW CHARACTERISTICS			BENCH LINING	BENCH LENGTH (FT)
		SLOPE (FT/FT)	D (FT)	W (FT)	Z (FT)	d (FT)	F (FT)	V (FPS)		
1	3	.01	2	20	10	.5	1.5	1.68	GRASS	320
2	5	.04	2	20	10	.47	1.53	3.21	GRASS	290
3	6	.01	2	20	10	.65	1.37	1.96	GRASS	400
4	11	.01	2	20	10	.82	1.18	2.33	GRASS	700
5	3	.04	2	20	10	.39	1.61	2.83	GRASS	380
6	3	.04	2	20	10	.39	1.61	2.83	GRASS	380
7	4	.035	2	20	10	.44	1.56	2.89	GRASS	390
8	4.5	.01	2	20	10	.59	1.41	1.86	GRASS	240

A 4|6 5 TYPICAL FINAL COVER DRAINAGE TERRACE CROSS SECTION

N.T.S.



CHANNEL	DESIGN FLOW (CFS)	CHANNEL DIMENSIONS					FLOW CHARACTERISTICS			RIPRAP	CHANNEL LENGTH (FT)	RIPRAP LENGTH (FT)
		BED SLOPE (FT/FT)	T (FT)	D (FT)	B (FT)	Z	d (FT)	F (FT)	VELOCITY (FPS)	t (IN)		
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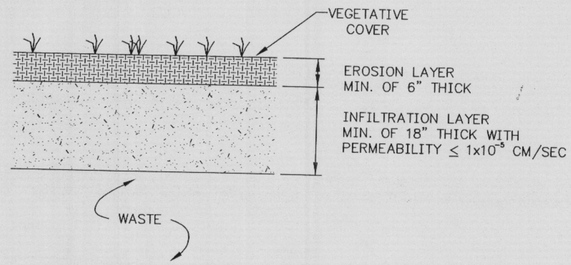
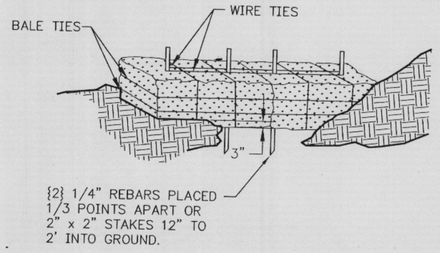
B 4|6 5 TYPICAL LINED CHANNEL SECTION

N.T.S.



C 4|6 5 6 TYPICAL CROSS SECTION OF FINAL COVER

N.T.S.



HAYBALE CHECKDAM DETAIL

N.T.S.

1. SEDIMENT AND EROSION CONTROL MEASURES WILL BE AS FOLLOWS:

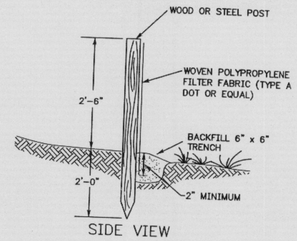
   A. RAPID ESTABLISHMENT OF VEGETATION.

   B. USE OF HAY BALE BERMS AND/OR SILT FENCES, DOWN GRADIENT OF ANY TEMPORARY STOCKPILES.

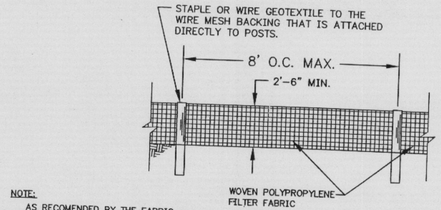
   C. USE OF HAY BALE BERMS AND/OR SILT FENCES AROUND CATCH BASINS AND AT INTERVALS ALONG GRASSED WATERWAYS, UNTIL SUCH TIME AS PERMANENT VEGETATION IS ESTABLISHED.

   D USE OF SILT FENCES BELOW DISTURBED AREAS AND BELOW STOCK PILE AREAS.

2. DRAINAGE STRUCTURES AND APPURTENANCES WILL BE ROUTINELY INSPECTED AND CLEANED TO ASSURE THAT SEDIMENTATION DOES NOT INTERFERE WITH FREE FLOW CONDITIONS.



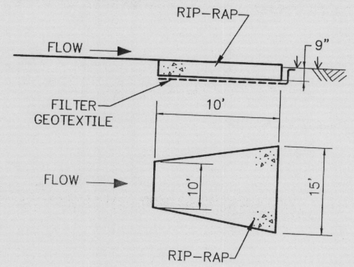
SIDE VIEW



NOTE:
AS RECOMENDED BY THE FABRIC MANUFACTURER, ATTACH GEOTEXTILE TO THE WIRE MESH BACKING THAT IS ATTACHED DIRECTLY TO THE POSTS.

WOVEN FABRIC SILT FENCE DETAIL

N.T.S.



1 4|6 RIP RAP APRON

N.T.S.

WESTON DESIGNERS/CONSULTANTS MANAGERS — AUBURN, ALABAMA

REGISTERED PROFESSIONAL ENGINEER — ALABAMA — WAYNE SMITH — TENNESSEE — NO. 19837

	DATE	ISSUED FOR
	7/14/94	ISSUED FOR
	7/14/94	ISSUED FOR
	7/14/94	ISSUED FOR
	7/14/94	ISSUED FOR

CHECKED
DES. ENG. C. NORRIS
ENG. APPR. D. SMITH
PROJ. MGR. D. SMITH
DRAWN BY: T. TOLBERT

CLIENT: CITY OF ROANOKE, P.O. BOX 432, ROANOKE, ALABAMA 36274

PROJECT TITLE: CLOSURE/POST-CLOSURE PLAN FOR ROANOKE SANITARY LANDFILL (PERMIT NO. 56-02R) ROANOKE, ALABAMA

DRAWING TITLE: SEDIMENT AND EROSION CONTROL DETAILS

NO.	DATE	APPR.	REVISION

W.O. NUMBER 10129-002-001
DWG. NUMBER 56-02R-C.6
SHEET 6 OF 6

07/07/94 13:38
DTERO.DWG

ROY F. WESTON, INC.
1635 PUMPHREY AVE.
AUBURN, AL 36830
PHONE: (205) 826-6100
FAX: (205) 826-8232

RECEIVED
FEB 06 1995
ADEM
LAND DIVISION

1 February 1995

Mr. Gerald Hardy, Chief
Engineering Services Branch, Land Division
P.O. Box 301463
Montgomery, AL 36130-1463

Work Order No. 10129-002-001

Re: Final Closure/Post-Closure Plan (Revision 1)
Roanoke Sanitary Landfill
Permit No. 56-02R

Dear Mr. Hardy:

We recently received you comments concerning the Department's review of the Closure/Post Closure Plan prepared for the Roanoke Sanitary Landfill. Following is an item by item response to ADEM's review comments.

Comment 1) *A few small areas appear to have slopes less than 5% or more than 25%. These areas of the cover should be scrutinized during the closure and post-closure inspections in order to insure that ponding or erosion is not occurring or will not occur.*

Response: **During construction of the final cover system, slopes will not be less than 5% or greater than 25%. Slopes will be verified by the contractor during construction.**

Comment 2) *On Page 2 under Landfill Closure Activities, it is stated that " Construction of the final cap will be completed by 9 october 1995". All closure activities should have been completed by October 9, 1994.*

Response: **The City of Roanoke is in the process of constructing the final cover for the landfill. This sentence will be inserted into Page 2.**

Comment 3) *The plan proposes to conduct inspections annually after the first year of post-closure care. These inspections should, at a minimum, be conducted semi-annually and after heavy periods of rain for the second and third years.*

Response: **The plan will be modified to reflect this requirement.**

Comment 4) *Mr Narramore's letter of September 26, 1994 requested additional information about the groundwater monitoring wells. This information, i.e., the construction schematics and/or the respective ground level and top of casing elevations, screened interval, depth, etc., should be provided in the Closure/Post-Closure Plan.*

Response: **The development of the information required to adequately address this issue was outside WESTON's current scope. Additional investigations and information will be required before this comment can be addressed.**

Comment 5) *The proposed Explosive Gas Monitoring Plan which was included as Appendix B of the Draft Closure/Post Closure Plan submitted in January should have been included in this July Closure/Post-Closure Plan. The September 1993 gas plan is acceptable, except that it should include the following:*

A. State if permanent monitoring structures are or will be installed, and provide a sketch of the structures if applicable. (Note: 335-13-4-.16(6)(d)3. requires that " A minimum depth of six feet must be obtained for permanent monitoring structures and four feet when using the bar hole punch method".)

B. Report the concentration of explosive gas at each point monitored as a percentage of the lower explosive limit (LEL) and as a percentage of gas by volume.

C. As part of the Corrective Actions, include ADEM as an agency to inform immediately if an excessive concentration is detected.

Response: These comments have been incorporated into the Plan.

Comment 6) *Under Surface Water Discharges, it is stated that"...drainage structures are designed ... to minimize erosion, sedimentation, and..." However, no sedimentation ponds or settlement basins were proposed. This is acceptable, but ponds and/or other structures may be required if the proposed structures are inadequate.*

Response: No response necessary

Enclosed please find the revised sections of the Closure/Post-Closure Plan that addresses ADEM's review comments. The revised sections shall be incorporated into the Closure/Post-Closure Plan dated July, 1994.

If you have any questions, please call Chris Norris or me at (205) 826-6100.

Very truly yours,

ROY F. WESTON, INC.

Dewayne Smith, P.E.
Project Manager

Enclosure

rf

cc: FILE Communications 2.0

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6.0	Land Deed Notation	3
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APPENDICES

APPENDIX A - Legal Property Description

APPENDIX B - Quality Assurance/Quality Control Program

APPENDIX C - Explosive Gas Monitoring Plan

elevation. The final contours for the Roanoke Sanitary Landfill are shown on the final grading plan on Sheet 4 of 6 in the Plans.

4.0 MAXIMUM INVENTORY OF WASTE

An estimate of the maximum inventory of waste was obtained by comparing pre-development topographical maps of the site location with the existing landfill topography. Topographical information for the site before development was obtained from drawings supplied by the City of Roanoke. The existing topographical information was obtained by aerial photographs taken in June 1993. The approximate waste inventory located at the Roanoke sanitary landfill is 450,000 cubic yards.

5.0 LANDFILL CLOSURE ACTIVITIES

The Roanoke sanitary landfill (Parcel 1) was closed on 8 April 1994. The City of Roanoke is in the process of constructing the final cover for the landfill.

A Quality Assurance/Quality Control (QA/AC) program will be implemented to ensure the proper construction of the final cap. The QA/QC program that will be used is included as Appendix B.

The personnel building and equipment shed will be used for the industrial landfill (Parcel 2). Access to the landfill will be restricted by a lockable gate at the entrance of the access road to the landfill.

A sign will be installed at the entrance road to the landfill. The sign will state that the sanitary landfill is closed and will identify the nearest permitted disposal facility. Additional information that will be displayed on the sign shall include:

- Name of the sanitary landfill
- Name and address of the operating authority
- Name and address of a contact person for the operating authority
- Date the landfill was closed

The City of Roanoke will dispose of sanitary waste in a permitted Subtitle D Landfill. Construction and demolition debris and industrial solid waste will be disposed of in the industrial landfill.

6.0 LAND DEED NOTATION

Within 90 days after the landfill has been closed in accordance with the closure requirements, the City of Roanoke will record all the necessary information on the land deed for the Roanoke sanitary landfill. The notation on the land deed will in perpetuity, notify any potential purchaser of the property that Parcel 1 has been used as a sanitary landfill. The notation on the land deed will include the following information.

- Use of the land is restricted to activities that will not disturb the integrity of the final cap or any other component of the containment system, or function of the monitoring systems.

- The location and dimensions of the disposal facility with respect to permanently surveyed benchmarks and section corners will be on a plat prepared and sealed by a Land Surveyor registered in the State of Alabama.

- A prominently displayed note which states:

  Name of Permittee: City of Roanoke
  Facility Type: Sanitary Landfill
  Beginning Date of Operation: April 1982
  Closure Date of Landfill: 8 April 1994

- A certification by an Engineer or Land Surveyor, registered in the State of Alabama, that all closure requirements required by the Alabama Department of Environmental (ADEM) Administrative Code, Division 13 Solid Waste Program, Chapter 4, Rule .20 (335-13-4-.20) have been completed.

Within 120 days after completion of closure activities, a certified copy of the land deed will be submitted to ADEM.

7.0 LAND DEED NOTATION REMOVAL

The City of Roanoke reserves the right to request approval from ADEM to remove all waste, waste residues and any contaminated soils, if any, from the Roanoke Sanitary Landfill. If all waste, waste residues and contaminated soils, if any, are removed, The City of Roanoke will request permission to remove the notation from the land deed.

8.0 POST-CLOSURE USE OF THE PROPERTY

The post closure activities and/or operations at the landfill will be limited to activities and/or operations that will not disturb or compromise the integrity of the final cap or damage the groundwater monitoring system and surface water control structures. The 38.72 acres (Parcel 1) used as a sanitary landfill will be left as an open field. The existing access road will be used to access the industrial landfill.

9.0 POST-CLOSURE CARE

The City of Roanoke will conduct post-closure care of the Roanoke Sanitary Landfill as required by ADEM Rule 335-13-4-.20. The City of Roanoke will conduct a site inspection of the landfill on a quarterly basis and/or after heavy periods of rainfall for the first year. During the second and third year, inspections will be conducted semi-annually and after periods of heavy rain. After the third year, inspections will be annually. During each site inspection, the inspector will:

to protect each lift of soil from desiccation, freezing, or other damaging forces. The Soil Engineer shall reject any work or materials that will compromise the integrity of the final cover.

3.4. INFILTRATION LAYER TESTING REQUIREMENTS: Testing required by this Section shall be performed by the Soil Engineer. Testing shall be performed on the materials used in construction of the infiltration layer, and on each completed lift of the final cover. Testing shall be completed prior to placement of erosion layer topsoil.

3.4.1. Material Testing: Perform tests as specified for materials to be used in construction of the infiltration layer of the final cover. Refer to Table 3.2 for summary of specified testing frequencies.

3.4.2. Selection of Random Sample Test Location: Grid area to be tested with 10 times as many grids as samples to be taken. Use a random number generator to select grid locations for sampling.

3.4.3. Testing Conditions: Ensure that conditions of the tested samples match the field conditions as closely as possible.

3.4.4. Borrow Pit Testing: Perform tests as specified on soils selected for final cover infiltration layer materials.

3.4.4.1. Grain Size Distribution: Determine the percentage of fine-grained, sand, gravel, and cobbles present in the borrow pit materials. Determine the grain size distribution using ASTM Method D422. Perform one test per 5,000 cubic yards of borrow materials.

3.4.4.2. Moisture Content: Moisture content shall be determined using ASTM D2216, or other method calibrated against ASTM D2216. Perform one test per 5,000 cubic yards of borrow materials. In addition, perform a minimum of two tests per day per type of material or source of material being placed during stable weather conditions. During unstable weather, tests shall be made as dictated by local conditions and approved by the Soil Engineer.

3.4.4.3. Atterberg Limits: Determine the liquid and plastic limits of a soil with ASTM Method D4318. Perform one test per 10,000 cubic yards of borrow materials.

3.4.4.4. Moisture-Density Compaction Curve: Determine the moisture content verses density relationship using the ASTM Method 698 or ASTM Method 1557, depending on the recommendations of the Soil Engineer. Perform one test per 10,000 cubic yards of borrow material. In addition, perform one test per type of material or source of material being placed.

3.4.4.5. Hydraulic Conductivity of Lab-Compacted Soil: Using the specimens remolded during the moisture-density compaction curve determination, perform a laboratory permeability test. Perform one test per 10,000 cubic yards of borrow material.

APPENDIX C

EXPLOSIVE GAS MONITORING PLAN

EXPLOSIVE GAS MONITORING PLAN

1.0 INTRODUCTION

This document has been prepared for the City of Roanoke to address the explosive gas monitoring requirements established by the Alabama Department of Environmental Management (ADEM) Administrative Code, Division 13 Solid Waste Program, Chapter 4, Rule .16 (335-13-4-.16) for the Roanoke Sanitary Landfill (Permit No. 56-02R) located southwest of Roanoke, Alabama.

2.0 EXPLOSIVE GAS MONITORING PROCEDURES

Explosive gas concentrations will be measured along the boundary of the landfill at the monitoring points identified on the site plan included as Attachment A. There are several dwellings and structures located within 1000 feet of the landfill boundary. Since previous monitoring results have not exceed acceptable limits or indicated the presence of explosive gases, the monitoring points along the landfill boundary are spaced at an approximate distance of 300 feet. If explosive gas concentrations exceed acceptable limits, the City of Roanoke will install additional monitoring points.

In order to measure the maximum levels of explosive gas concentrations, explosive gas monitoring will be performed on days when the barometric pressure is relatively low. Explosive gas concentrations will be monitored using the procedures outlined below:

1. Explosive gas concentrations will be measured using a portable combustible gas indicator (CGI). The portable CGI will have an dual indicator which displays the concentration of explosive gases as a percentage of the lower explosive limit (LEL) and as a percentage of gas by volume. The portable CGI will be calibrated prior to each monitoring event.

2. Explosive gas concentrations will be measured and recorded for each monitoring point. Each monitoring point will be uncapped and the probe of the portable CGI will be inserted into the well. A reading of explosive gas concentrations will be taken. After the readings have been taken, the well will be re-capped.

3. All readings will be recorded on the Explosive Gas Monitoring Form. A site plan showing the location of each monitoring point will accompany the Explosive Gas Monitoring Form. The information that will be collected for each monitoring point includes:

    - Name if individual conducting explosive gas monitoring;
    - Date and time of monitoring;
    - Monitoring point identification number;
    - Concentration of explosive gases in %LEL and % of gas by volume;
    - Weather conditions for that day

4. Steps 1 through 3 will be repeated for each monitoring point.

5. In addition to the monitoring points identified on the site plan, explosive gas concentrations will be evaluated in other areas that show signs of or have the potential for explosive gas migration. These areas include:

   - Areas where vegetation shows signs of distress or bare spots.
   - Areas that suggest possible routes for explosive gas migration such as structures, pipe culverts, etc.

   Explosive gas concentrations will be measured using the same method used at the monitoring points.

6. Upon completing explosive gas monitoring, a copy of the Explosive Gas Monitoring Form will be submitted to ADEM.

3.0 EXPLOSIVE GAS MONITORING FREQUENCY

Explosive gas monitoring will be conducted annually or as required by ADEM.

4.0 MAXIMUM PERMISSIBLE GAS LEVELS

At the landfill boundary	LEL
In facility structures	25% LEL

5.0 CORRECTIVE ACTIONS

If a reading in excess of the LEL is detected at the landfill boundary or 25% of LEL is detected in facility structures is obtained, the City of Roanoke will immediately take the following corrective actions.

1. Notify the following agencies and inform them of the potential dangers at the landfill.

   - City of Roanoke Police Department
     Phone (205) 863-2121
   - City of Roanoke Fire Department
     Phone (205) 863-2222
   - Alabama Department of Environmental Management (ADEM)
     Phone (334) 271-7726

2. Restrict access to the landfill. Mechanical equipment and machinery will not be allowed to operate within 1,000 feet of the landfill boundary.

3. Offer to check explosive gas concentrations in each dwelling or structure located with in 1000 feet of the landfill boundary.

4. Take any additional steps to ensure the protection of human health and property.

5. The City of Roanoke will prepare a remedial plan for mitigation of explosive gas, and submit it to ADEM within 14 days after excessive explosive gas levels are detected.

6. After receiving ADEM's approval of the remedial plan, the City of Roanoke will immediately implement the remedial plan.

Roanoke Sanitary Landfill: 56-02R

RANDOLPH COUNTY :ROANOKE SANITARY LANDFILL

Explosive Gas Monitoring Form

Permit No. 56-02R

REPORTING PERIOD _____

FACILITY CONTACT:

Name: _____
Title: _____
Company: _____
Address: _____
_____
Telephone: _____
Fax:

SAMPLER INFORMATION:

Name: _____
Title: _____
Company: _____
Address: _____
_____
Telephone: _____
Fax:

WEATHER INFORMATION:

Temperature: _____
Barometric Pressure: _____
Comments: _____
_____
_____
_____

Monitoring Point	Explosive Gas Concentration				COMMENTS
	Date	Time	CGI Reading 0-100%		
			LEL	VOLUME	

INSTRUMENT:

_____
_____
_____
_____

NOTES:

_____
_____
_____
_____

Samplers Signature: _____
Date: _____

PAGE _____ OF _____

HARMON ENGINEERING & CONTRACTING CO., INC.

ENGINEERING · CONTRACTING · ENVIRONMENTAL MANAGEMENT
13376 C. L. TORBERT JR. PARKWAY · LAFAYETTE, ALABAMA 36862
PHONE: 334-864-9135 FAX: 334-864-8046
e-mail: info@he-inc.co

February 19th, 2023

Received
MAR 15 2023
Land Division

Attn: Melissa H. Adornato
Alabama Department of Environmental Management
Land Division Solid Waste Branch
Solid Waste Engineering Section
Phone (334) 270-5605
P.O. Box 301463
Montgomery, Alabama 36130-1463

RE: ROANOKE C/D LANDFILL & SANITARY LANDFILL (CLOSED)
2736 COUNTRY CLUB ROAD
ROANOKE, RANDOLPH COUNTY, ALABAMA
FACILITY ID NO. 56-02 & 56-02R
HARMON JOB NO. 703-24-23

Mrs. Adornato:

In response to two separate letters from ADEM dated July 14th, 2022 and September 21st, 2022, Harmon Engineering and Contracting has been working with the City of Roanoke to complete their renewal application for the City of Roanoke C/D Landfill. The ADEM letters appear to apply to both the City of Roanoke C/D landfill Permit No. 56-02 and the City of Roanoke Sanitary Landfill Permit 56-02R(Closed). Since these landfills have separate requirements, our letter will attempt to clarify relevance. We have conducted a file search of the ADEM e-file and any relevant documents are attached.

ADEM Letter Dated September 21, 2022:

1. A groundwater monitoring plan in accordance with ADEM Admin. Coder. 335-13-5-.02(2)(a)2(i) and subsequently Rules 335-13-5-.02(l)(a)4, 335-13-4-.14(1)(c), and 335- 13-4-.27(2)(g)l(ii) and as outlined in the Alabama Groundwater Monitoring Reporting Guidance for Solid Waste Facilities provided on the ADEM website:

- An addendum to the GWMP for the Sanitary Landfill Closure/Post Closure Plan prepared by Roy F. Weston Inc., dated July 1994 is attached to this letter.

2. A gas monitoring plan, in accordance with ADEM Admin. Code r. 335-13-5-.02(2)(a)2(i) and subsequently Rules 335-13-5-.02(l)(a)4 and 335-13-4-.16(2)(c);

- A gas monitoring plan for the C/D Landfill has been included in the Closure/Post-

Closure Plan prepared by Harmon Engineering and Contracting dated January 30th, 2023.

- A gas monitoring plan for the Sanitary Landfill is included in the Closure/Post Closure Plan prepared by Roy F. Weston Inc., dated July 1994.

3. A map of the landfill area that includes the location of the sediment pond as specified under ADEM Admin. Coder. 335-13-4-.13(2)(e);

- A map of the existing conditions as of February 14th, 2023, including the sediment pond is included in the Permit Renewal Site Plan drawings.

4. Details of plans for permanent all weather access roads in accordance with ADEM Admin. Coder. 335-l 3-4-.13(2)(g);

- A permanent all weather access road has been added to the Closure/Post-Closure Drawings for the C/D Landfill.

5. A map of the property showing the location of all explosive gas wells and/or monitoring points as specified under ADEM Admin. Coder. 335-13-4-.13(2)(1);

- The location of each piezometer well and gas monitor well have been added to the Closure/Post-Closure Drawings for the C/D Landfill.

6. A closure/post-closure plan as outlined in ADEM Admin. Code r. 335-l 3-5-.02(2)(a)2(i) and subsequently Rules 335-13-5-.02(1)(a)4 and 335-13-4-.20(1) and (2).

- The Closure/Post-Closure Plan prepared by Harmon Engineering and Contracting, dated January 30th, 2023, has been completed and is submitted for the active City of Roanoke C/D Landfill Permit No. 56-02.
- The Closure/Post-Closure Plan prepared by Roy F. Weston Inc., dated July 1994, has been submitted for the closed City of Roanoke Sanitary Landfill Permit No. 56-02R.

ADEM Letter Dated July 14, 2022:

- Any current variances (both the requests for those variances and ADEM's approval response letters).
  - The City of Roanoke files and the ADEM e-file have been searched and no documentation of variances were located.

- A copy of the original local approval and any subsequent local approvals relevant to current operations.
  - The original local approval can be found on page 8 of the Construction/Demolition Landfill Permit Application attached to this letter. The current local approval is attached to this letter as a separate document.

- Any siting requests and approvals relevant to current operations.
  - The City of Roanoke files and the ADEM e-file have been searched and no documentation of request or approval relevant to current operations were located.

- The hydrogeological evaluation relevant to current operations.
  - The hydrogeological evaluation relevant to current operations can be found attached to the Construction/Demolition Landfill Permit Application that is submitted with this letter.

- Storm water runoff calculations used to size sediment ponds relevant to current operations.
  - A map of the existing conditions including the sediment pond are included in the Closure/Post-Closure Drawings. Calculations have been run on the existing conditions because the pre-development conditions are unavailable. These calculations are attached in a separate letter to ADEM.

- The liner and leachate QA/QC plan relevant to current operations and statement of where the leachate goes after it leaves the facility.
  - A liner and leachate QA/QC plan is not relevant to the City of Roanoke's C/D Landfill, per:
    - ADEM Admin. Coder. 335- l 3-1-.03(79); Leachate - any liquid, including any soluble, suspended, or miscible components in the liquid, that has percolated through or emerged from solid waste other than construction/demolition waste and or rubbish.

- The most recent operations plan as well as any additional modifications made since the last operations plan was written, including waste screening procedures.
  - The City of Roanoke files and the ADEM e-file have been searched and no documentation relevant to current operations or any modifications were located. An operations plan for the C/D Landfill has been prepared by Harmon Engineering and Contracting dated February 28th, 2023.

- The most recent gas monitoring plan as well as any modifications made since the last gas monitoring plan was written.
  - The gas monitoring plan for the C/D Landfill has been included in the Closure/Post-Closure Plan prepared by Harmon Engineering and Contracting dated January 30th, 2023.
  - The gas monitoring plan for the Sanitary Landfill has been included in Closure/Post Closure Plan prepared by Roy F. Weston Inc., dated July 1994.

- The most recent closure plan as well as any modifications made since the last closure plan was written.
  - The Closure/Post-Closure Plan prepared by Harmon Engineering and Contracting, dated January 30th, 2023, has been completed and submitted with this letter for the active City of Roanoke C/D Landfill Permit No. 56-02.
  - The Closure/Post-Closure Plan prepared by Roy F. Weston Inc., dated July 1994, and an addendum to the GWMP prepared by Harmon Engineering and Contracting dated February 23rd, 2023 has been submitted for the closed City of Roanoke Sanitary Landfill Permit No. 56-02R.

- The most recent groundwater monitoring plan as well as any modifications made since the last groundwater monitoring plan. The plan should follow the outline provided in the Alabama Groundwater Monitoring Reporting Guidance for Solid Waste Facilities provided on the ADEM website:
  - An addendum to the GWMP for the Sanitary Landfill Closure/Post Closure Plan prepared by Roy F. Weston Inc., dated July 1994 is attached to this letter.

- The cell certification and subsequent approval letter from ADEM for the current cell waste is being disposed in.
  - Certification for Trench 6A was dated 9/30/2022; pre-disposal letter from ADEM for this trench was dated 10/21/2022.

- The most recent permit drawings relevant to site operations.
  - Certification for Trench 6A was dated 9/30/2022 included drawings has been previously submitted. Additional drawings have been drafted for the Closure/Post-Closure Plan prepared by Harmon Engineering and Contracting, dated January 30th, 2023.

- Boundary plat and legal property description prepared, signed, and sealed by a land surveyor of the permitted facility boundary and permitted disposal area of the facility.
  - The Boundary plat and legal property description relevant to current operations can be found attached to the Construction/Demolition Landfill Permit Application. This plat and legal description include Parcel 1 for the Closed Sanitary Landfill and Parcel 2 for the active C/D Landfill.

Sincerely,
HARMON ENGINEERING & CONTRACTING CO., INC.

Austin Harmon

Austin Harmon
EIT/Project Manager

CC: Jill Patterson

Tim Jacobs

Keith Richardson

Amanda Davis

Allen Tucker

GENERAL OPERATING PLAN

FOR

ROANOKE C/D LANDFILL

ROANOKE, ALABAMA

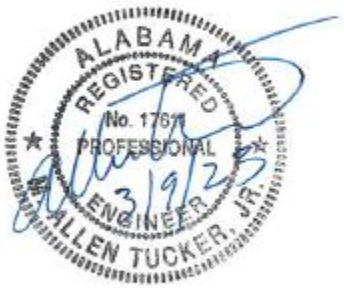
ADEM PERMIT NO. 56-02

OWNER

CITY OF ROANOKE, ALABAMA

HARMON JOB NO. 703-24-23

February 28, 2023



Engineer:

HARMON ENGINEERING & CONTRACTING CO., INC.
13376 C.L. TORBERT JR. PARKWAY
LAFAYETTE, ALABAMA 36862
info@he-inc.co

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1.0 GENERAL OPERATING CONDITIONS

1.1 PURPOSE

This document contains the general operating plans for the City of Roanoke C/D Landfill (Permit No. 56-02) and has been prepared as a guideline for the daily and weekly operations and maintenance procedures performed by the landfill operators. Landfill operators must be certified by ADEM and be familiar with all operational requirements outlined in this plan and the facilities permit. A trained landfill operator must be on site during hours of operation to supervise daily operations of this landfill. This general operating plan is prepared in accordance with the Alabama Department of Environmental Management (ADEM) requirements for the City of Roanoke C/D Landfill permit. The City of Roanoke must operate and maintain this facility to the standards of the permit and ADEM guidelines. This plan should be used to properly operate this facility so as to protect human health and the environment.

1.2 ORIGIN OF WASTE

Local approval has been granted to the City of Roanoke to allow the site to accept waste from the City of Roanoke and Randolph County, Alabama. The City of Roanoke solid waste service is the only entity currently allowed to use this C/D Landfill.

1.3 ACCEPTABLE WASTE

Waste accepted at this facility shall be strictly controlled so as to allow only waste stipulated on the permit or waste approved by ADEM. The City or Roanoke C/D Landfill may accept non-putrescible and non-hazardous construction waste and rubbish as defined by ADEM Rule 335-13-1.03, and discarded tires. Disposal of any other waste is prohibited without being granted a temporary or one time waiver by ADEM.

1.4 RESTRICTED WASTE

Restricted waste will not be accepted at the City of Roanoke C/D landfill. Restricted waste includes, but is not limited to, free liquids, regulated hazardous waste, PCB’s, and medical waste. In addition, bulk or non-containerized liquid and containers capable of holding liquids are not

acceptable at this landfill. The City of Roanoke will not accept or dispose of industrial waste. This facility will not dispose of any liquid waste or containers larger than 10 gallons. Empty containers larger than 10 gallons will be rendered unsuitable to contain any liquid prior to disposal in the landfill.

1.5 OPEN BURNING

Open burning of solid waste shall not occur at the landfill without written approval from ADEM. A burn request will be submitted to ADEM by the City of Roanoke and will include:

1) Specific area of the landfill to be utilized.
2) Type of waste to be burned.
3) Projected start date of burning.
4) Projected completion date of burning.
5) Projected days and hours of operation.

1.6 UNAUTHORIZED DISCHARGES

The City of Roanoke will operate and maintain the disposal facility so that neither water pollution nor unauthorized discharges will occur. Discharges for this facility may require a National Pollutant Discharge Elimination System permit under the Alabama Water Pollutant Control Act.

1.7 PERMITTED AREAS AND VOLUMES

The City of Roanoke C/D Landfill is approximately 178 acres and has 4.17 acres of approved disposal area. The disposal area will be clearly defined by a sufficient number of permanent boundary markers at are visible from one marker to the next marker. The City of Roanoke is limited to a maximum waste disposal volume of 1000 cubic yards per day and shall be placed within the approved disposal area.

1.8 WASTE PLACEMENT, COMPACTION, AND COVER

Daily waste shall be consolidated to as small an area as possible while not exceeding a 4 to 1 slope and maintaining an appropriate layer thickness. All waste shall be thoroughly spread in layers two feet or less in thickness and compacted daily with adequate landfill equipment prior to

placing additional layers of waste or placing the weekly cover. The weekly cover will consist of a minimum of six inches of compacted earth over all existing waste to control vectors, fire, odors, blown litter and scavenging. If the weekly cover is insufficient to control the previously listed items, the City of Roanoke will provide additional preventative measures approved by ADEM.

1.9 ACCESS CONTROL STRUCTURES

The disposal facility will be adequately secured to prevent entry except when a landfill operator is on site. A security gate exists at the main entrance into the facility and will remain locked except when city personnel are on site. This disposal site is not accessible to the public or commercial haulers and therefore no signage outlining the usage of this disposal site is required. Vehicular access to the property will be restricted by gates, fencing, dense vegetation, and the existing topography.

1.10 ADVERSE WEATHER OPERATIONS

An all-weather access road, constructed of a 6 inch thick granular base, will be provided to the working face of the landfill allowing landfill equipment to access the disposal area during adverse weather conditions.

1.11 MONITORING STRUCTURES

All monitoring structures will be protected from damage or disturbance of any kind by keeping the structure clearly visible and free of dense vegetation. All monitoring structures will be marked in such a way that they are easily identifiable by landfill personal. The monitoring structures will be inspected by landfill personnel on a semiannual basis to ensure that they remain in sufficient working order. If any structure(s) is/are found to not be in sufficient working order, the City of Roanoke will notify ADEM with a written request to repair or replace the monitoring structure.

1.12 LANDFILL PERSONNEL

All landfill operations will be supervised by the landfill manager and an adequate number of trained personnel will be provided to ensure safe and proper operation of the site.

1.13 INSPECTIONS, RECORDS, AND REPORTS

Inspections for this landfill will comply with any applicable ADEM guidelines. The City of Roanoke will conduct random inspections of any incoming waste and document accordingly in the landfill operating records. The operating records will include:

1) Documentation of any inspections or maintenance;
2) All daily volume reports;
3) Personnel records and training documents;
4) Any Solid/Hazardous Waste Determination forms for industrial waste;
5) Any ADEM disposal approval correspondence for special waste;
6) Groundwater monitoring reports;
7) Explosive gas monitoring records;
8) Surface water and leachate monitoring records;
9) Copies of the general operating plan as well as the permit application and issued permit;
10) Copies of any variances or special operating conditions approved by ADEM;

Quarterly waste volume reports will be submitted to ADEM within 30 days after the end of each calendar quarter. These quarterly reports will be maintained within the operating records.

Any monitoring reports or corrective action reports will be submitted to ADEM. These reports must contain all monitoring results and conclusions. Groundwater monitoring will be conducted annually and should be submitted to ADEM within the remaining calendar year of the monitoring event. Explosive gas monitoring will be conducted quarterly, and the reports will be submitted to ADEM within 30 days of the monitoring event.

EXISTING CONDITIONS AND SITE PLAN

SCALE: 1" = 50'-0"

LEGEND:

- PIEZOMETER WELL BOUNDARY LINES
- EXISTING ELEVATIONS 2011
- TRENCH BOUNDARIES
- EXISTING ELEVATIONS 2023
- CLASS A OR CPOP SILT FENCE
- GAS MONITORING WELL

PROJECT NOTES:

1. SITE AREA = 178 ACRES
2. SITE PERMITTED DISPOSAL AREA = 4.17 ACRES
3. SOLID WASTE DISPOSAL FACILITY PERMIT NUMBER 56-02.
4. CURRENT LAND USE: NON-HAZARDOUS CONSTRUCTION AND DEMOLITION WASTE
5. FACILITY LOCATION: SECTION 9, TOWNSHIP 22 SOUTH, RANGE 12
6. THIS PARCEL IS NOT IN THE FLOOD PLAIN AS SHOWN ON FIRM COMMUNITY PANEL NUMBER 01111C0410D EFF. 4/18/2011.

REFERENCES:

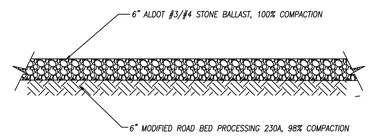
SURVEY: TOPOGRAPHIC MAP CITY OF ROANOKE DATED 19 AUGUST 2011
BURREL C JONES, PE/LS, AL PLS NO. 15294

BOUNDARY SURVEY: BOUNDARY SURVEY ROANOKE LANDFILL DATED MAY 13TH, 1994
J. KEITH MAXWELL, PE/LS, NO. 17262

TOPO SURVEY: EXISTING ELEVATIONS 2023 FROM ONSITE SURVEY
AUSTIN HARMON, 2/14/2023

SITE NOTES:

1. GAS MONITORING WELLS ARE APPROXIMATELY LOCATED.
2. THE ALL WEATHER ACCESS ROAD WILL BE A 6" ALDOT #3/#4 STONE DRIVE . TO ALLOW ACCESS TO THE DISPOSAL AREA AT ALL TIMES.
3. EROSION CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES.



NOTES:
1. ALL MATERIALS AND METHODS OF PLACEMENT SHALL CONFORM TO ALDOT STANDARDS SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2022 EDITION
2. CONTRACTOR SHALL COORDINATE WITH OWNER'S GEOTECHNICAL ENGINEER FOR COMPACTION TESTING.

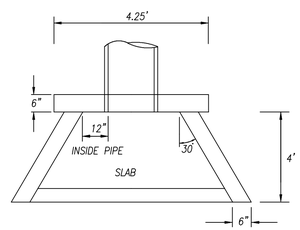
ALL WEATHER ACCESS ROAD DETAIL

N.T.S.

NOTE: HEADWALL SHALL BE PRE-CAST REINFORCED CONCRETE

WINGED HEADWALL ELEVATION

N.T.S.



WINGED HEADWALL PLAN

N.T.S.

GRAPHIC SCALE
1"=50'-0"
50' 0 50 100FT.

HARMON ENGINEERING & CONTRACTING CO., INC.
ENGINEERING · CONTRACTING · ENVIRONMENTAL MANAGEMENT
13367 C.L. Torbert, Jr. Parkway / Lafayette, Alabama 36862
(334) 864-9135 / FAX (334) 864-8046

REVISIONS:

NO:	DATE:	BY:	DESCRIPTION:

PERMIT RENEWAL SITE PLAN
CITY OF ROANOKE C/D LANDFILL

CITY OF ROANOKE
ROANOKE, AL

DRAWN: AWH
CHECKED:
FILENAME: TECHNICAL FILES/703-24 CITY OF ROANOKE LANDFILL.DWG
DATE: 2/14/2023
PROJECT: 703-24-23
SCALE: 1" = 50'-0"
FIGURE: C1.0

CLOSURE/POST-CLOSURE CONSTRUCTION PLAN

SCALE: 1" = 50'-0"

LEGEND:

- CLOSURE CONTOURS
- EXISTING ELEVATIONS 2011
- TRENCH BOUNDARIES
- GMW — GAS MONITORING WELL

REFERENCES:

SURVEY: TOPOGRAPHIC MAP CITY OF ROANOKE DATED 19 AUGUST 2011
BURREL C JONES, PE/LS, AL PLS NO. 15294

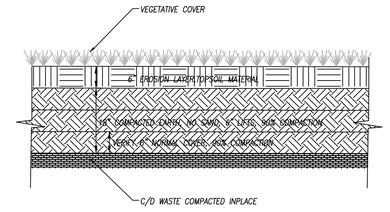
BOUNDARY SURVEY: BOUNDARY SURVEY ROANOKE LANDFILL DATED MAY 13TH, 1994
J. KEITH MAXWELL, PE/LS, NO. 17262

TOPO SURVEY: EXISTING ELEVATIONS 2023 FROM ONSITE SURVEY
AUSTIN HARMON, 2/14/2023

MONITORING WELL LOCATIONS: GPS, NONREFERENCED
AUSTIN HARMON, 2/7/2023 & 2/14/2023

SITE NOTES:

1. CLOSURE CONTOURS INCLUDE 18" OF INFILTRATION LAYER AND 6" OF EROSION LAYER MEETING THE CRITERIA LAYED OUT IN THE CLOSURE/POST-CLOSURE PLAN PREPARED BY HARMON ENGINNERING AND CONTRACTING, DATED JANUARY 30TH, 2023.



NOTES:
1. *ALL MATERIALS AND METHODS OF PLACEMENT SHALL CONFORM TO ALDOT STANDARDS SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2022 EDITION*
2. *CONTRACTOR SHALL COORDINATE WITH OWNER'S GEOTECHNICAL ENGINEER FOR COMPACTION TESTING.*

TYPICAL FINAL COVER DETAIL

N.T.S.

GRAPHIC SCALE
1"=50'-0"
50' 0 50 100FT.

HARMON ENGINEERING & CONTRACTING CO., INC.
ENGINEERING · CONTRACTING · ENVIRONMENTAL MANAGEMENT
13367 C.L. Torbert, Jr. Parkway / Lafayette, Alabama 36862
(334) 864-9135 / FAX (334) 864-8846

REVISIONS:

NO:	DATE:	BY:	DESCRIPTION:

PERMIT RENEWAL CLOSURE PLAN
CITY OF ROANOKE C/D LANDFILL

CITY OF ROANOKE
ROANOKE, AL

DRAWN: AWH
CHECKED:
FILENAME: TECHNICAL FILES/703-24 CITY OF ROANOKE LANDFILL.DWG
DATE: 2/14/2023
PROJECT: 703-24-23
SCALE: 1" = 50'-0"
FIGURE: C2.0

HARMON ENGINEERING & CONTRACTING CO., INC.

ENGINEERING · CONTRACTING · ENVIRONMENTAL MANAGEMENT
13376 C. L. TORBERT JR. PARKWAY · LAFAYETTE, ALABAMA 36862
PHONE: 334-864-9135 FAX: 334-864-8046
e-mail: info@he-inc.co

February 19th, 2023

Attn: Melissa H. Adornato
Alabama Department of Environmental Management
Land Division Solid Waste Branch
Solid Waste Engineering Section
Phone (334) 270-5605
P.O. Box 301463
Montgomery, Alabama 36130-1463

RE: ROANOKE C/D LANDFILL
2736 COUNTRY CLUB ROAD
ROANOKE, RANDOLPH COUNTY, ALABAMA
FACILITY ID NO. 56-02
HARMON JOB NO. 703-24-23

Mrs. Adornato:

Harmon Engineering and Contracting has preformed stormwater runoff calculations for the City of Roanoke C/D Landfill and included these calculations in this letter. Harmon has determined that an additional 15" overflow pipe, at least 1' below the spillway, is required to meet ADEM requirements. This pipe location has been added to the Permit Renewal Site Plan.

Sincerely,
HARMON ENGINEERING & CONTRACTING CO., INC.

Austin Harmon

Austin Harmon
EIT/Project Manager

CC: Allen Tucker

		Runoff Calculations (SCS Method)														
Area (mi^2)		Area (sf)	acre													
0.018718147		521,832	11.98													
	Step 1															
	Pre CN															
	Area (ac)	CN														
Grassed	37	71														
	Post CN															
	Area (ac)	CN														
Impervious	0	95	0													
Wooded	0	70	0													
Grassed	37	71	2627.0													
Weighted Avg	37		71.0													
					TR55 Manual Exhibit 4-III											
0.2S (Ia)	0.8S	CN	P (in) 24hr		Storm	Q (in)	Runoff Volume	Ia/p	qu(csm/in) from graph		Q, CFS					
0.816901408	3.268	71.0	6.72		25yr	3.48898167	151722	0.12156271	350		22.85755					
S																
4.084507042																
Size Orifice																
Q=Ca(2gh)^.5																
Calculated Discharge (Q)	22.86															
Cooeff discharge (C)	0.96					a=Q/(Ca(2gh)^.5)				d=2*((a/pi)^1/2)						
Pipe area (a)	?	solve for d using area			=	a	1.32687627	sq ft	Pipe Diameter Required (d)	15.59738175	inches					
Gravity (g)	32.2															
Pond Depth (h)	5									Q=Ca(2gh)^.5				Q(Calculated)-Q (Existing)		
						EXISTING PIPE	12	inches	depth =5'	Q (CFS)	13.52287	REQUIRED (CFS)		9.33		
						PLANNED PIPING	15	inches	depth =1'	PROVIDED (CFS)		9.44939165				

JILL PATTERSON
MAYOR
AMANDA DAVIS
CITY CLERK

CITY OF ROANOKE
POST OFFICE BOX 1270
ROANOKE, ALBAMA 36274

PHONE: (334) 863-4129 • FAX: (334) 863-2137
CITY@ROANOKEALABAMA.ORG

COUNCIL MEMBERS:
KESA M. JOHNSTON
TOMMY RUSHTON
MIKE PARMER
JOHN FRANK HOUSTON
TAMMI HOLLEY
MAYOR PROTEM

March 14, 2023

CERTIFICATION OF LOCAL GOVERNMENT APPROVAL:

Upon submittal of this application, we the undersigned certify that local approval has been obtained from the City of Roanoke. Evidence of this local approval is contained in documents which are on file at the permit applicant's business address.

CERTIFICATION OF COMPLIANCE:

Upon submittal of this application, we the undersigned certify that this document and all attachments submitted are to the best of our knowledge and belief, true, accurate, and complete. We also understand that if any of the material certified to above has not been received, or is not complete or is not accurate, that shall be grounds for the Department to revoke the landfill permit if issued.

SIGNATURE (Responsible official of permit applicant): Keith Richardson TITLE: Superintendent

Keith Richardson DATE: March 14, 2023
(please print or type name)

SIGNATURE (Certifying Engineer): Allen Tucker TITLE: Engineer

Allen Tucker DATE: March 14, 2023
(please print or type name)

FIRM: Harmon Engineering STAMP OR SEAL:

CLOSURE/POST-CLOSURE PLAN

FOR

ROANOKE C/D LANDFILL

ROANOKE, ALABAMA

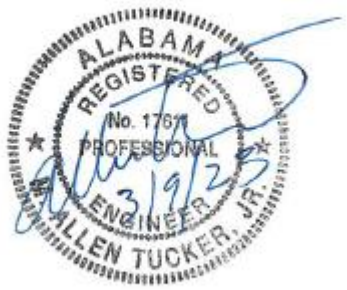
ADEM PERMIT NO. 56-02

OWNER

CITY OF ROANOKE, ALABAMA

HARMON JOB NO. 703-24-23

JANUARY 30TH, 2023



Engineer:

HARMON ENGINEERING & CONTRACTING CO., INC.
13376 C.L. TORBERT JR. PARKWAY
LAFAYETTE, ALABAMA 36862
info@he-inc.co

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APPENDICES

Appendix A Legal Property Description & Boundary Survey Plat

Appendix B Quality Assurance/Quality Control Program

Appendix C Schedule for Closure Activities

1.0 INTRODUCTION

This document has been prepared for the City of Roanoke to address the closure and post closure care requirements established by the Alabama Department of Environmental Management (ADEM) Administrative Code, Division 13 Solid Waste Program, Chapter 4, Rule .20, ADEM Rule 335-13-4-.20, for the Roanoke Construction/Demolition (C/D) Landfill (Permit No. 56-02) located southwest of the City of Roanoke, Alabama. This Closure/Post- Closure Plans has been prepared by Harmon Engineering and Contracting Co., Inc. (Harmon). A separate Closure/Post-Closure Plan was previously prepared by Roy F. Weston Inc., dated July 1994, for the City of Roanoke Sanitary Landfill Permit No. 56-02R, which is closed.

2.0 SITE DESCRIPTION

The Roanoke C/D Landfill is located in Randolph County, Alabama and consists of one parcel of land, (approximately 139.29 acres) located in Sections 9, Township 22 South, Range 12 East, Parcel 2. The legal property description of the property is provided in Appendix A. The City of Roanoke began landfilling operations in 1999 using a trench and fill method for the disposal of solid waste and an area fill method for the disposal of inert waste. The landfill is currently in operations and is not scheduled to be closed.

The Roanoke Sanitary Landfill (closed) is located in Randolph County, Alabama and consists of one parcels of land, (approximately 38.72 acres) located in Sections 8, Township 22 South, Range 12 East, Parcel 1. The landfill ceased operations and closed on April 8TH, 1994.

3.0 FINAL COVER SYSTEM

The final cap constructed on the areas of the landfill that have received solid waste shall consist of two distinct soil layers: 1) an infiltration layer and 2) an erosion layer. Each layer is described separately in the following paragraphs;

- Infiltration Layer - The infiltration layer will be constructed in 6 inch lifts to a minimum of 18 inches in depth. The infiltration layer will be constructed of earthen material excluding sand.

- Erosion Layer - The erosion layer will be a minimum of 6 inches thick and be made of topsoil materials capable of sustaining a native plant growth. The type of vegetative cover established will be dependent by the City of Roanoke. Deep rooted vegetation (vegetation with roots that grow deeper than 6 inches) are prohibited. The City or Roanoke shall determine the

appropriate species and mixture of grass seeds, mulch, and fertilizer to establish the vegetative cover. Watering and Maintenance may be required to establish vegetative cover.

The final cover will be graded in a manner to prevent surface water from ponding on the landfill. The minimum and maximum final grades will be 5% and 25%, respectively. On slopes longer than 25 feet, a 20-foot-wide horizontal bench will be constructed for every 20 feet rise in elevation. The final surface grade for the Roanoke C/D Landfill are shown on Sheet C2.0 of the Closure/ Post Closure Drawings.

4.0 MAXIMUM COVER REQUIRED AND INVENTORY OF WASTE

An estimate of the largest area to require final cover for the Roanoke C/D Landfill is Trench 5 and 6 combined. These trenches cover a total footprint of approximately 50,000 SF.

The Roanoke C/D Landfill inventory of waste was obtained by comparing certified trench bottom elevations provided by Burrel Jones, Alabama Registered PE/LS No. 15294, dated June 20th 1999. The approximate waste inventory located at the Roanoke C/D Landfill currently is estimated at 26,000 cubic yards.

5.0 LANDFILL CLOSURE ACTIVITIES

The Roanoke C/D Landfill has no current plans for being closed.

A Quality Assurance/Quality Control (QA/ AC) program will be implemented to ensure the proper construction of the final cap. The QA/QC program that will be used is included in Appendix B.

A schedule for Closure Activities will be implemented to ensure a timely closure of the landfill unit. This schedule can be found in Appendix C.

Access to the landfill will be restricted by a lockable gate at the entrance of the access road to the landfill.

A sign will be installed at the entrance road to the landfill. The sign will state that it is closed and will identify the nearest permitted disposal facility. Additional information that will be displayed on the sign shall include:

- Name of the C/D landfill;
- Name and address of the operating authority;
- Name and address of a contact person for the operating authority;
- Date the landfill was closed;

6.0 LAND DEED NOTATION

Within 90 days after the landfill has been closed in accordance with the closure requirements, the City of Roanoke will record all the necessary information on the land deed for the Roanoke C/D Landfill. The notation on the land deed will in perpetuity, notify any potential purchaser of the property that Parcel 2 has been used as a C/D landfill. The notation on the land deed will include the following information.

- The land has been used as a solid waste disposal facility landfill unit.
- Use of the land is restricted to activities that will not disturb the integrity of the final cover, any other component of the containment system, or function of the monitoring systems.
- The location and dimensions of the disposal facility with respect to permanently surveyed benchmarks and section comers will be on a plat prepared and sealed by a Land Surveyor registered in the State of Alabama.
- A prominently displayed note which states:
    - Name of Permittee: City of Roanoke Facility Type: C/D Landfill
      Beginning Date of Operation: 1995 and Closure Date of Landfill: TO BE NOTED
- A certification by an Engineer or Land Surveyor, registered in the State of Alabama, that all closure requirements required by the Alabama Department of Environmental (ADEM) Administrative Code, Division 13 Solid Waste Program, Chapter 4, Rule .20 (335-13-4-.20) have been completed.

Within 120 days after completion of closure activities, a certified copy of the land deed will be submitted to ADEM.

7.0 LAND DEED NOTATION REMOVAL

The City of Roanoke reserves the right to request approval from ADEM to remove all waste, waste residues and any contaminated soils, if any, from the Roanoke C/D Landfill. If all waste, waste residues and contaminated soils, if any, are removed, The City of Roanoke will request permission to remove the notation from the land deed.

8.0 POST-CLOSURE USE OF THE PROPERTY

The post closure activities and/or operations at the landfill will be limited to activities and/or operations that will not disturb or compromise the integrity of the final cover or damage the gas monitoring system, piezometer wells, or surface water control structures. The closed C/D landfill area will be used as an open field. The existing access road will be used to access other areas of the property. Grass will be maintained by fertilization if required, mowing, or grazing.

9.0 POST-CLOSURE CARE

The City of Roanoke will conduct post-closure care of the Roanoke C/D Landfill as required by ADEM Rule 335-13-4-.20. Post-Closure Care must be conducted for a minimum 30 years, unless ADEM approves an increase or decrease in the length of post closure to maintain the environment and human health. The City of Roanoke will conduct a site inspection of the landfill on a quarterly basis and/or after heavy periods of rainfall for the three years following closure, and annually thereafter. During each site inspection, the inspector will:

- Evaluate the integrity of the final cover and the general condition of the landfill. Areas where erosion, ponding and surface cracks have occurred will be identified and denoted on a site plan.
- Identify areas where exposed waste is present, if any.
- Inspect access control structures, gas monitoring wells, piezometer wells, and surface water control structures for damage.
- Identify any additional waste that has been deposited since the landfill has been closed. If additional waste has been deposited, it will be removed and disposed of in a permitted landfill.

After each site inspection, the inspector will prepare an inspection report summarizing the results of the inspection. The inspection report will contain the following information:

- Inspectors name;
- Date of the inspection;
- A description of any deficiencies and/or defects identified in the final cover;
- A description and/or recommendation of the corrective measures needed to re- establish the integrity of the final cover;
- The location of exposed waste, if any;

A copy of the inspection report will be kept on file by the City of Roanoke. After each inspection, the City of Roanoke will initiate the work required to correct any deficiencies in the final cover that were identified during the site inspection.

The City of Roanoke will maintain the integrity of the final cover by making repairs as necessary to correct any defects caused by settling, subsidence, erosion, etc. The defects in the final cover will be corrected as follows:

- Eroded areas and surface cracks in the infiltration layer will be filled in six inch lifts with a suitable soil material and compacted to achieve a permeability of less than or equal to permeability of the surrounding cover material.
- Eroded areas and surface cracks in the erosion layer will be filled with a suitable soil material and the vegetative cover will be re-established.
- Areas which provide for ponding of surface water will be filled with a suitable soil material, graded in order to tie in with existing contours, and the vegetative cover will be re-established.
- Areas where the vegetative cover is insufficient will be reseeded. Fertilizer, mulch, and watering will be provided as necessary to promote vigorous plant growth.

10.0 EXPLOSIVE GAS MONITORING

Explosive gas monitoring will be conducted on a yearly basis, during the active life of this C/D landfill, in accordance with this Explosive Gas Monitoring Plan. The City of Roanoke will provide to ADEM an analysis of the explosive gas monitoring data. Once this landfill has been placed into Closure, the explosive gas monitoring will occur yearly for the duration of the 30 years of closure. The City of Roanoke will provide to ADEM an analysis of the explosive gas monitoring data throughout this closure/post closure.

10.1 INTRODUCTION

This explosive gas monitoring plan has been prepared for the City of Roanoke to address the explosive gas monitoring requirements established by the Alabama Department of Environmental Management (ADEM) Administrative Code, Division 13 Solid Waste Program, Chapter 4, Rule .16 (335-13-4-.16) for the Roanoke C/D Landfill.

10.2 EXPLOSIVE GAS MONITORING PROCEDURES

Explosive gas concentrations will be measured along the boundary of the C/D landfill at the monitoring points identified on the site plan included in sheet C1.0 of the Closure/Post Closure Drawings. Existing monitoring points along the landfill boundary are spaced at an approximately

300 feet apart. If explosive gas concentrations exceed acceptable limits, the City of Roanoke may be required to install additional monitoring points.

Explosive gas concentrations will be monitored using the procedures outlined below:

1. Explosive gas concentrations will be measured using a portable combustible gas indicator (CGI). The portable CGI will have a dual indicator which displays the concentration of explosive gases as a percentage of the lower explosive limit (LEL) and as a percentage of gas by volume. The portable CGI will be calibrated prior to each monitoring event.

2. Explosive gas concentrations will be measured and recorded for each monitoring point. Each monitoring point will be uncapped and the probe of the portable CGI will be inserted into the well. A reading of explosive gas concentrations will be taken. After the readings have been taken, the well will be re-capped.

3. All readings will be recorded on the Explosive Gas Monitoring Form. A site plan showing the location of each monitoring point will accompany the Explosive Gas Monitoring Form. The information that will be collected for each monitoring point includes:

- Name and contact information of individual conducting explosive gas monitoring;
- Date and time of monitoring;
- Monitoring point identification number;
- Concentration of explosive gases in %LEL and % of gas by volume at ground elevation;
- Concentration of explosive gases in %LEL and % of gas by volume at 6 ft below ground elevation;
- Weather conditions for that day;

4. Steps 1 through 3 will be repeated for each monitoring point.

5. In addition to the monitoring points identified on the site plan, explosive gas concentrations will be evaluated in other areas that show signs of or have the potential for explosive gas migration. These areas include:

- Areas where vegetation shows signs of distress or bare spots.
- Areas that suggest possible routes for explosive gas migration such as structures, pipe culverts, etc.

Explosive gas concentrations will be measured using the same method used at the monitoring points.

6. Upon completing explosive gas monitoring, a copy of the Explosive Gas Monitoring Form will be submitted to ADEM within 30 days of the monitoring event, unless explosive gas limits are exceeded. See section 10.5 below for action if explosive gas limits are exceeded.

10.3 EXPLOSIVE GAS MONITORING FREQUENCY

Explosive gas monitoring will be conducted annually or as required by ADEM.

10.4 MAXIMUM PERMISSIBLE GAS LEVELS

The maximum lower explosive limit (LEL) shall not exceed 25%.

10.5 CORRECTIVE ACTIONS

If a reading in excess of 25% of LEL is detected at a monitoring point the following procedure should be followed.

1. A bar-punch will be used to measure LEL in all directions around the gas monitoring point, at 10 foot intervals, until the LEL is less than 25%. Field notes will be used to document the locations of where the bar-punch LEL readings were taken. Bar-Punch LEL readings are taken at a depth of approximately 4-ft below ground surface.

2. The sampling technician will notify the City of Roanoke, who will immediately take the following corrective actions.

i. Notify the following agencies and inform them of the potential dangers at the landfill.
   a. City of Roanoke Police Department Phone (334) 863-2878
   b. City of Roanoke Fire Department Phone (334) 863-2222
   c. Alabama Department of Environmental Management (ADEM) Land Division Phone (334) 271-7730

ii. Restrict access to the landfill. Mechanical equipment and machinery will not be allowed to operate within 1,000 feet of the landfill boundary.

iii. Offer to check explosive gas concentrations in each dwelling or structure located within 1000 feet of the landfill boundary.

iv. Take any additional steps to ensure the protection of human health and property.

v. Within 7 days of the incident the City of Roanoke will place in the operating record of the facility the excessive explosive gas levels and the immediate action taken to protect human health.

vi. The City of Roanoke will prepare a remedial plan for mitigation of explosive gas and submit it to ADEM within 20 days after excessive explosive gas levels are detected.

vii. After receiving ADEM's approval of the remedial plan, the City of Roanoke will immediately implement the remedial plan.

11.0 SURFACE WATER DISCHARGES

A run-off control system shall be installed for the active and closed sections of the C/D landfill areas. This control system shall collect and control the peak discharge from a 24-hr-25 year storm. The control system will remove sediment prior to release onto adjacent properties. Drainage way to this control system will be designed to carry incident precipitation away from the existing disposal area to minimize leachate and erosion.

APPENDIX A

LEGAL PROPERTY DESCRIPTION AND BOUNDARY SURVEY PLAT

APPENDIX A

LEGAL DESCRIPTIONS - CITY OP ROANOKE LANDFILL PROPERTY

STATE OP ALABAMA

RANDOLPH COUNTY

City Of Roanoke Sanitary Landfill Permit No. 56-02R Closed.

> PARCEL 1 : See Closure/Post-Closure Plan prepared by Roy F. Weston Inc., dated July 1994, for the City of Roanoke Sanitary Landfill.

City Of Roanoke C/D Landfill Permit No. 56-02 Active.

> PARCEL 2: Commencing at a found concrete monument locally accepted as the Northwest Corner of Section 9, Township 22-South, Range-12-East, Randolph County, Alabama: thence run South 87º10'03" East, a distance of 1439.28 feet to an iron pin set at a fence corner; thence South 00º00'58" West, a distance of 1142.53 feet to an iron pin set at a fence corner: thence South 24º32'43" East, a distance of 131.54 feet to an iron pin set at a fence corner: thence South 02º47'59" East, a distance of 53.80 feet to an iron pin: thence South 02º47'59" East, a distance of 100.00 feet to an iron pin; thence North 42º57'57" West, a distance of 76.42 feet to an iron pin; thence South 47 º 02'03" West, a distance of 1805.87 feet to an iron pin set at a fence corner; thence North 97 º 45'15" West, a distance of 1303.00 feet to an iron pin set at a fence corner: thence North 00 º 19'43" East, a distance of 2620.12 feet to an iron pin set at a fence corner: thence South 99 º 32'24" East, a distance of 1161.20 feet to the Point of Beginning, containing 139.29 Acres, more or less, and lying part in Section 8 and part in Section 9, Township-22-South, Range-12-East, Randolph County, Alabama.

Subject to all rights-of-way, easements and restrictions which exist as a matter of record or exist de facto. It being the intention of this survey and description to reference that land described according to Deed Book 122, Page 749 located in the Office of the Probate Judge, Randolph County, Alabama, except for a correction made concerning the Northwest half (diagonal) of the Southwest 1/4 of the Northwest 1/4 of Section 9.

APPENDIX A

SEE ATTACHED BOUNDARY PLAT

APPENDIX B

QUAILTY ASSURANCE/ QUAILTY CONTROL PROGRAM

APPENDIX B

FINAL COVER INSTALLATION QUALITY ASSURANCE PLAN

I) GENERAL: This Section describes techniques to be performed by an independent quality assurance (QA) organization to provide assurance that the final cover for the Roanoke C/D Landfill will meet regulatory requirements. The QA organization will perform testing of the existing cover soils, borrow pit testing, field testing of soils after placement, and inspection of final contour. Cover material selection, testing, placement, and construction quality control shall be performed by the Contractor.

1) Cover Requirements: The final cover system shall be comprised of an erosion layer underlain by an infiltration layer as follows:

   (a) Infiltration layer shall be comprised of a minimum of 18-inches of earthen material designed to minimize infiltration. The infiltration layer shall be comprised of compacted earthen material.
   (b) Erosion layer shall consist of a minimum of 6-inches of earthen material that is capable of sustaining native plant growth.

2) Scope of Work: The QA organization shall be responsible for ensuring the final cover was installed to meet regulatory requirements. The QA organization shall perform the following:

   (a) Evaluate areas where an existing cover exists and determine the suitability of the cover.
   (b) Observe borrow pit soil to evaluate suitability of soils to be used for final cover infiltration layer construction.
   (c) Perform field testing to evaluate proper placement of borrow pit soils used for final cover infiltration layer construction.
   (d) Verify requirements for thickness of final cover (infiltration layer and erosion layer soils) are met.
   (e) Verify that final cover slope and bench requirements are met.
   (f) Make recommendations for correction of deficiencies noted.

II) QUALITY ASSURANCE:

1) The Contractor responsible for final cover construction shall retain the services of a commercial geotechnical inspection and testing company (Soil Engineer) to perform required soil tests and construction monitoring. The Soil Engineer will function as the independent QA organization for issues involving final cover construction.
2) The Soil Engineer will specify the type and use of equipment as required to achieve the final placement soil properties specified.

3) Any work that fails to meet specified test requirements shall be repaired, or removed and replaced, and retested as necessary to meet requirements.

III) SUBMITTALS:

1) The Soil Engineer shall provide certification to the City or Roanoke and to ADEM that the landfill cap was constructed in accordance with the Closure Plan.

IV). GENERAL: Soil placement shall be required to achieve final grade. Final Contours shown on the Closure/Post-Closure Drawings Prepared by Harmon include installing 18 inches of infiltration layer composed of compacted earthen material excluding sand and 6 inches of earthen material capable of sustaining native plant growth.

1) Lift Thickness Observation: Lift thickness shall not exceed six inches (compacted thickness).
2) Completed Lift Observation: All holes made in the soil liner shall be sealed. Include sealing of holes made for QC/QA testing.
3) Borrow Area Observation: Construction inspections shall be performed by the Soil Engineer. The Soil Engineer will provide an inspection of soil from the borrow area.
4) Fill Area Observation: Provide continuous inspection of soil placement activities. Monitor fill soil for deleterious or other unsuitable material. Observe lift thickness, and ensure that the required number of passes are made over each lift with the specified compaction equipment. Once the soil cover is in place, ensure measures have been taken to protect each lift of soil from desiccation, freezing, or other damaging forces. The Soil Engineer shall reject any work or materials that will compromise the integrity of the final cover.
5) Testing Requirements: Testing required by this Section shall be performed by the Soil Engineer. A minimum compaction of 90% inplace must be reached for the infiltration layer. A minimum of 5 test per acre shall be conducted to verify compaction. Testing shall be performed on the materials used in construction of the infiltration layer, and on each completed lift of the infiltration layer. Testing shall be completed prior to placement of erosion layer topsoil.
6) Topsoil Requirements: Place a 6-inch layer of soils suitable to support vegetation. Prior to placement pulverize subgrade to a depth of 2 inches by disking or plowing for the bonding of topsoil with the subsoil. Topsoil shall then be uniformly spread, graded, and compacted to the thickness, elevations, and slopes shown. The surface shall be left free of irregularities.
7) Seeding Requirements: Sow and establish an acceptable growth of grasses from seeds of the specified seed mixes designated for use. Seeding shall include ground preparation, sowing seed, application of fertilizers, application of mulch, watering, and installation of erosion controls necessary to establish a vegetative cover. Select, provide and install seeding in accordance with the construction details as outlined in the State of Alabama Highway Department manual of Standard Specifications for Highway Construction.

APPENDIX C

SCHEDULE FOR CLOSURE ACTIVITIES

APPENDIX C

SCHEDULE FOR CLOSURE ACTIVITIES

Construction of the final cap system for the Roanoke C/D Landfill will comply with the schedule outlined in ADEM Admin. Code r. 335-13-4-.20-(2).

1. Submit a notice of closure to ADEM after the last receipt of waste.
2. Complete closure grading within 90 days after the last receipt of waste.
3. Establish grass cover within 90 days of the completion of the closure grade.

ADEM Admin. Code r. 335-13-4-.20-(2). states:

(c)-5. For a permitted facility utilizing the area fill method or the trench method, final grading of the infiltration layer shall be completed within 90 days after the unit has received the last known receipt of waste.

(d) A vegetative or some other appropriate cover must be established to minimize erosion and, when applicable, maximize evapotranspiration. Within 90 days after completion of final grading requirements on each phase or each trench as specified in 335-13-4-.20(2)(a), the permittee or owner of a permitted landfill unit shall prepare the final cover for the establishment of a vegetative cover or alternative cover. Deep rooted vegetation (roots that may grow below the 6 inch erosion layer) shall be prohibited as vegetative cover. Preparation of a vegetative cover shall include, but not be limited to, the following:

1. Placement of appropriate species of grass seed, fertilizer, and mulch;
2. Watering and maintenance necessary such that germination of grass will occur.

(e) Prior to beginning closure of each landfill unit as specified in this rule, an owner or operator must submit to the Department and place in the operating record a notice of the intent to close the unit.

(f) The owner or operator must begin closure activities of each LF unit no later than 30 days after the date of which the LF unit receives the known final receipt of wastes. If the LF unit has remaining capacity and there is reasonable likelihood that the LF unit will receive additional wastes, closure activities of each LF unit must begin no later than one year after the date of known final receipt of wastes. Extensions beyond the one-year deadline for beginning closure may be granted by the Department if the owner or operator demonstrates that the LF unit has the capacity to receive additional wastes and the owner or operator has taken and will continue to take all steps necessary to prevent threats to human health and the environment from the unclosed LF unit.

HARMON ENGINEERING & CONTRACTING CO., INC.

ENGINEERING · CONTRACTING · ENVIRONMENTAL MANAGEMENT
13376 C. L. TORBERT JR. PARKWAY · LAFAYETTE, ALABAMA 36862
PHONE: 334-864-9135 FAX: 334-864-8046
e-mail: info@he-inc.co

February 19th, 2023

Attn: Melissa H. Adornato
Alabama Department of Environmental Management
Land Division Solid Waste Branch
Solid Waste Engineering Section
Phone (334) 270-5605
P.O. Box 301463
Montgomery, Alabama 36130-1463

RE: ROANOKE C/D LANDFILL & SANITARY LANDFILL (CLOSED)
2736 COUNTRY CLUB ROAD
ROANOKE, RANDOLPH COUNTY, ALABAMA
FACILITY ID NO. 56-02 & 56-02R
HARMON JOB NO. 703-24-23

Mrs. Adornato:

In response to two separate letters from ADEM dated July 14th, 2022 and September 21st, 2022, Harmon Engineering and Contracting has been working with the City of Roanoke to complete their renewal application for the City of Roanoke C/D Landfill. The ADEM letters appear to apply to both the City of Roanoke C/D landfill Permit No. 56-02 and the City of Roanoke Sanitary Landfill Permit 56-02R(Closed). Since these landfills have separate requirements, our letter will attempt to clarify relevance. We have conducted a file search of the ADEM e-file and any relevant documents are attached.

ADEM Letter Dated September 21, 2022:

1. A groundwater monitoring plan in accordance with ADEM Admin. Coder. 335-l 3-5-.02(2)(a)2(i) and subsequently Rules 335-13-5-.02(l)(a)4, 335-13-4-.14(1)(c), and 335- 13-4-.27(2)(g)l(ii) and as outlined in the Alabama Groundwater Monitoring Reporting Guidance for Solid Waste Facilities provided on the ADEM website:

- An addendum to the GWMP for the Sanitary Landfill Closure/Post Closure Plan prepared by Roy F. Weston Inc., dated July 1994 is attached to this letter.

2. A gas monitoring plan, in accordance with ADEM Admin. Code r. 335-l 3-5-.02(2)(a)2(i) and subsequently Rules 335-13-5-.02(l)(a)4 and 335-13-4-.16(2)(c);

- A gas monitoring plan for the C/D Landfill has been included in the Closure/Post-

Closure Plan prepared by Harmon Engineering and Contracting dated January 30th, 2023.

- A gas monitoring plan for the Sanitary Landfill is included in the Closure/Post Closure Plan prepared by Roy F. Weston Inc., dated July 1994.

3. A map of the landfill area that includes the location of the sediment pond as specified under ADEM Admin. Coder. 335-13-4-.13(2)(e);

- A map of the existing conditions as of February 14th, 2023, including the sediment pond is included in the Permit Renewal Site Plan drawings.

4. Details of plans for permanent all weather access roads in accordance with ADEM Admin. Coder. 335-l 3-4-.13(2)(g);

- A permanent all weather access road has been added to the Closure/Post-Closure Drawings for the C/D Landfill.

5. A map of the property showing the location of all explosive gas wells and/or monitoring points as specified under ADEM Admin. Coder. 335-13-4-.13(2)(1);

- The location of each piezometer well and gas monitor well have been added to the Closure/Post-Closure Drawings for the C/D Landfill.

6. A closure/post-closure plan as outlined in ADEM Admin. Code r. 335-l 3-5-.02(2)(a)2(i) and subsequently Rules 335-13-5-.02(1)(a)4 and 335-13-4-.20(1) and (2).

- The Closure/Post-Closure Plan prepared by Harmon Engineering and Contracting, dated January 30th, 2023, has been completed and is submitted for the active City of Roanoke C/D Landfill Permit No. 56-02.
- The Closure/Post-Closure Plan prepared by Roy F. Weston Inc., dated July 1994, has been submitted for the closed City of Roanoke Sanitary Landfill Permit No. 56-02R.

ADEM Letter Dated July 14, 2022:

- Any current variances (both the requests for those variances and ADEM's approval response letters).
  - The City of Roanoke files and the ADEM e-file have been searched and no documentation of variances were located.

- A copy of the original local approval and any subsequent local approvals relevant to current operations.
  - The original local approval can be found on page 8 of the Construction/Demolition Landfill Permit Application attached to this letter. The current local approval is attached to this letter as a separate document.

- Any siting requests and approvals relevant to current operations.
  - The City of Roanoke files and the ADEM e-file have been searched and no documentation of request or approval relevant to current operations were located.

- The hydrogeological evaluation relevant to current operations.
  - The hydrogeological evaluation relevant to current operations can be found attached to the Construction/Demolition Landfill Permit Application that is submitted with this letter.

- Storm water runoff calculations used to size sediment ponds relevant to current operations.
  - A map of the existing conditions including the sediment pond are included in the Closure/Post-Closure Drawings. Calculations have been run on the existing conditions because the pre-development conditions are unavailable. These calculations are attached in a separate letter to ADEM.

- The liner and leachate QA/QC plan relevant to current operations and statement of where the leachate goes after it leaves the facility.
  - A liner and leachate QA/QC plan is not relevant to the City of Roanoke's C/D Landfill, per:
    - ADEM Admin. Coder. 335- l 3-1-.03(79); Leachate - any liquid, including any soluble, suspended, or miscible components in the liquid, that has percolated through or emerged from solid waste other than construction/demolition waste and or rubbish.

- The most recent operations plan as well as any additional modifications made since the last operations plan was written, including waste screening procedures.
  - The City of Roanoke files and the ADEM e-file have been searched and no documentation relevant to current operations or any modifications were located. An operations plan for the C/D Landfill has been prepared by Harmon Engineering and Contracting dated February 28th, 2023.

- The most recent gas monitoring plan as well as any modifications made since the last gas monitoring plan was written.
  - The gas monitoring plan for the C/D Landfill has been included in the Closure/Post-Closure Plan prepared by Harmon Engineering and Contracting dated January 30th, 2023.
  - The gas monitoring plan for the Sanitary Landfill has been included in Closure/Post Closure Plan prepared by Roy F. Weston Inc., dated July 1994.

- The most recent closure plan as well as any modifications made since the last closure plan was written.
  - The Closure/Post-Closure Plan prepared by Harmon Engineering and Contracting, dated January 30th, 2023, has been completed and submitted with this letter for the active City of Roanoke C/D Landfill Permit No. 56-02.
  - The Closure/Post-Closure Plan prepared by Roy F. Weston Inc., dated July 1994, and an addendum to the GWMP prepared by Harmon Engineering and Contracting dated February 23rd, 2023 has been submitted for the closed City of Roanoke Sanitary Landfill Permit No. 56-02R.

- The most recent groundwater monitoring plan as well as any modifications made since the last groundwater monitoring plan. The plan should follow the outline provided in the Alabama Groundwater Monitoring Reporting Guidance for Solid Waste Facilities provided on the ADEM website:
  - An addendum to the GWMP for the Sanitary Landfill Closure/Post Closure Plan prepared by Roy F. Weston Inc., dated July 1994 is attached to this letter.

- The cell certification and subsequent approval letter from ADEM for the current cell waste is being disposed in.
  - Certification for Trench 6A was dated 9/30/2022; pre-disposal letter from ADEM for this trench was dated 10/21/2022.

- The most recent permit drawings relevant to site operations.
  - Certification for Trench 6A was dated 9/30/2022 included drawings has been previously submitted. Additional drawings have been drafted for the Closure/Post-Closure Plan prepared by Harmon Engineering and Contracting, dated January 30th, 2023.

- Boundary plat and legal property description prepared, signed, and sealed by a land surveyor of the permitted facility boundary and permitted disposal area of the facility.
  - The Boundary plat and legal property description relevant to current operations can be found attached to the Construction/Demolition Landfill Permit Application. This plat and legal description include Parcel 1 for the Closed Sanitary Landfill and Parcel 2 for the active C/D Landfill.

Sincerely,
HARMON ENGINEERING & CONTRACTING CO., INC.

Austin Harmon

Austin Harmon
EIT/Project Manager

CC: Jill Patterson

Tim Jacobs

Keith Richardson

Amanda Davis

Allen Tucker

£:oundory Survey For

CITY OF ROANOKE LAND}'ILL

City of Roanoke C/D Landfill
Permit No. 56-02

City of Roanoke Sanitary Landfill
Permit No. 56-02R (Closed)

Parcel 2
139.29 Acres

Parcel 1
38.72. Acres

LOCt,1.c'T ACCEPTED

AONI 94-2'1-3
-956021.63
E-786,Jt>4.91
ELEt.t6<t85<

MON# 94-241-4
N•955136.66
E-785793.J8
EIEV-612.1-4.

.w,1, 94-241-2
"U-ll-4.U2
786/U6.2i
V•653.97

Top=836.14'
Ground=833.84'

Top=846.7'
Ground=844.22'

MOI/f 94-:MI-1
/I-Or 931 fill
F. \.•P 72.74

Triangulation Point
"LEE 2"

1donaulallon Point
"LEE 2 AZI"

Grid North

GRAPHIC SCALE 1 INCH • 200 FEET

Iron Pin Found
■ Concrete Monument Found
0 Iron Pin Set
8 Groundwater L1011tor Wel
• Control Monument

STATE Ui AI./BALIA
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PARCEL 2: Commencing at a found concrete monument locally accepted as the Northwest Corner of Section 9, Township 22-South, Range-12-East, Randolph County, Alabama; thence run South 87°10' 03" East, a distance of 1439.28 feet to an iron pin set at a fence corner; thence South 00°06' 28" West, a distance of 1142.53 feet to an iron pin set at a fence corner; thence South 24°32' 43" East, a distance of 131.54 feet to an iron pin set at a fence corner; thence South 02°47' 59" East, a distance of 53.80 feet to an iron pin; thence South 02°47' 59" East, a distance of 100.00 feet to an iron pin; thence North 42°57' 57" West, a distance of 76.42 feet to an iron pin; thence South 47°02' 03" West, a distance of 1805.87 feet to an iron pin set at a fence corner; thence North 87°45' 15" West, a distance of 1303.09 feet to an iron pin set at a fence corner; thence North 00°19' 43" East, a distance of 2620.12 feet to an iron pin set at a fence corner; thence South 89°32' 24" East, a distance of 1161.20 feet to the Point of Beginning; containing 139.29 Acres, more or less, and lying part in Section 8 and part in Section 9, Township-22-South, Range-12-East, Randolph County, Alabama.

Subject to all rights-of-way, easements and restrictions which exist as a matter of record or exist de facto. It being the intention of this survey and description to reference that land described according to Deed Book 122, Page 749 located in the Office of the Probate Judge, Randolph County, Alabama, except for a correction made concerning the Northwest half (diagonal) of the Southwest 1/4 of the Northwest 1/4 of Section 9.

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D-S-94-241

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CITY OF ROANOKE SANITARY LANDFILL: CLOSED

SCALE: 1" = 100'-0"

LEGEND:

- GMW — GAS MONITORING WELL
- WM — GROUNDWATER MONITORING WELL

REFERENCES:

BOUNDARY SURVEY: BOUNDARY SURVEY ROANOKE LANDFILL DATED MAY 13TH, 1994
J. KEITH MAXWELL, PE/LS, NO. 17262

MONITORING WELL LOCATIONS: GPS, NONREFERENCED
AUSTIN HARMON, 2/7/2023 & 2/14/2023

GRAPHIC SCALE
1"=100'-0"
100' 0 100 200FT.

HARMON ENGINEERING & CONTRACTING CO., INC.
ENGINEERING · CONTRACTING · ENVIRONMENTAL MANAGEMENT
13367 C.L. Torbert, Jr. Parkway / Lafayette, Alabama 36862
(334) 864-9135 / FAX (334) 864-8046

REVISIONS:

NO:	DATE:	BY:	DESCRIPTION:

SANITARY LANDFILL MONITORING LOCATIONS
CITY OF ROANOKE SANITARY LANDFILL

CITY OF ROANOKE
ROANOKE, AL

DRAWN: AWH
CHECKED:
FILENAME: TECHNICAL FILES/703-24 CITY OF ROANOKE SANITARY LANDFILL.DWG
DATE: 2/14/2023
PROJECT: 703-24-23
SCALE: 1" = 100'-0"
FIGURE: C1.0

MIKE FISHER
MAYOR

PENNY HOLLOWAY
CITY CLERK

CITY OF ROANOKE
POST OFFICE BOX 1270
ROANOKE, ALABAMA 36274

PHONE: (334) 863-4129 • FAX: (334) 863-2137
E-MAIL: CITYRONK@TELECLIPSE.NET

COUNCILMEMBERS:
TAMMI HOLLEY,
MAYOR PRO TEM
MACK ARTHUR BELL
BUSTER ROBINSON
JOSEPH ROBERSON
RUSS CUMMINGS

July 12, 2010

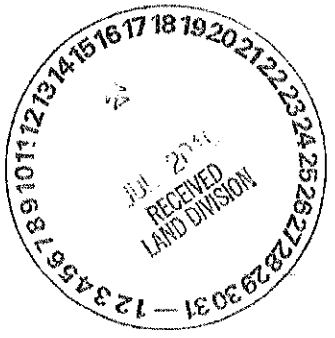
ADEM
Attn: Shane Lovett
P.O. Box 301463
Montgomery, Alabama 36130-1463

RE: 56-02 Permit
Roanoke C&D landfill

Attached you will find the following documents applying for the permit of the City of Roanoke's landfill.

Donnie Cash,
Street Department Supervisor

City of Roanoke



BURREL C. JONES

1302 BROOKSIDE DRIVE

ROANOKE, AL 36274

ADEM

Solid Waste Branch Land Division

1400 Coliseum Boulevard

Montgomery, AL 36110-2055

ATT: Shane Lovett

RE: City of Roanoke

C/D Landfill

Permit Application

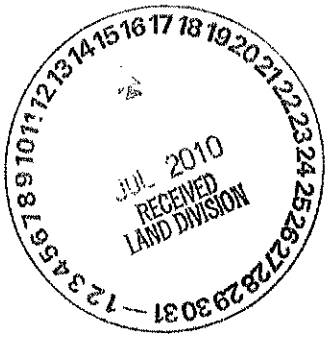
Mr. Lovett:

This letter is to certify that the attached permit application for the above facility is true and correct, to the best of my knowledge.

Sincerely,

Burrel C. Jones

AL. REG P.E. / L. S. # 15294



SOLID WASTE DISPOSAL FACILITY

CONSTRUCTION/DEMOLITION LANDFILL
PERMIT APPLICATION PACKAGE

July 10, 2002

MEMORANDUM

TO: Applicants Seeking a Permit for Solid Waste Facilities

FROM: Wm. Gerald Hardy, Chief
Land Division
Alabama Department of Environmental Management

RE: Processing Solid Waste Permits by ADEM

Any permit issued by ADEM must be in accordance with §22-27-48 Code of Alabama. This section indicates that ADEM may not consider an application for a new or modified permit unless such application has received approval by the affected unit of local government having an approved plan. ADEM, therefore, will require the following before it can process a new or modified permit application:

1. The local government having jurisdiction must approve the permit application in accordance with §22-27-48 Code of Alabama.

2. The applicant shall obtain a statement of consistency from the regional planning and development commission. The commission shall evaluate the proposal using the provisions of the current regional solid waste management needs assessment.

3. Local governments and the regional planning and development commissions should follow the procedures outlined in §22-27-48 Code of Alabama and the siting standards included in the local approved plan in considering approval of a facility.

This procedure applies to applications for new or modified permits. ADEM cannot review an application unless it includes approval from the affected local government and a statement of consistency from the regional planning and development commission. This procedure shall not apply to exempted industrial landfills receiving waste generated on site only by the permittee.

Please contact the Solid Waste Branch of ADEM at (334) 271-7988 if there are any questions.

WGH/

CONSTRUCTION AND DEMOLITION LANDFILL
SITING AND HYDROGEOLOGICAL EVALUATION SHEET
(SUPPLEMENT TO C/D APPLICATION)

All of the following items should be included with a construction and demolition landfill permit application:

1. •Local Approval
   •Statement of Consistency
   •Fees

2. •Map showing flood prone areas.

3. Evaluation of land use:
   - •Wetlands determination by U.S.A. Corps of Engineers
   - •Endangered species determination by U.S. Fish and Wildlife Service
   - •Habitat
   - •Archaeologically sensitive areas determined by Alabama Historical Commission.

4. Site geology using borings, exploration pits, or hydrogeologic mapping for the purposes of determining the minimum 5-foot separation between groundwater and the cell bottom.

5. Location of borings, pits, and sections on a map.

6. Log of pits and borings.

7. A map showing geology and structural features such as sink holes and faults.

8. •Engineer's stamp on plans.

9. A Certification Letter, signed by an registered professional engineer, verifying the accuracy of the submitted permit application.

PERMIT APPLICATION
SOLID WASTE DISPOSAL FACILITY
CONSTRUCTION/DEMOLITION LANDFILL
ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
(Submit in Triplicate)

The following application, with all required attachments, must be submitted before the Department will begin its review.

SECTION I:

LANDFILL ACTION:
_____ New Application
X Renewal Application, Permit Number 56-02
_____ Modification Application, Permit Number _____

LANDFILL NAME: City of Roanoke

LANDFILL ADDRESS (MAILING): P.O. Box 1270
Roanoke, Al 36274

LANDFILL ADDRESS (PHYSICAL): 2736 Country Club Road
Roanoke, Al 36274

SECTION II:

APPLICANT/PERMITTEE:

NAME: City of Roanoke

ADDRESS: P.O. Box 1270

TELEPHONE: 334-863-4129

If applicant/permittee is a Corporation, please list officers:

SECTION III:

LANDFILL OPERATOR:

Name: (1) Donnie Cash (2) _____

Address: P.O. Box 1270

Roanoke, AL 36274

Telephone: 334-863-7666

SECTION IV:

CONTACT PERSON(S):

Name: (1) Donnie Cash (2) _____

Address: P.O. Box 1270

Roanoke, Al 36274

Telephone: 334-863-7666

SECTION V:

LANDOWNER(S):

Name: (1) City of Roanoke (2) _____

Address: P.O. Box 1270

Roanoke, Al 36274

Telephone: 334-863-4129

Attach copy of agreement from landowner giving permission to use site for disposal if landowner is different from applicant.

SECTION VI:

ADJACENT LANDOWNER(S):

a. Submit a list of all adjacent landowners including name and current mailing address

b. Submit a drawing/map identifying the proposed disposal site and the properties of all adjacent landowners listed in "a" above.

SECTION VII:

LOCAL APPROVAL: No Required (Yes or No)

_____ Date Received if needed (attach copy of resolution and proof of publishing public notice)

SECTION VIII:

WASTE DESCRIPTION:

a. Describe and list all waste streams/types to be accepted at landfill:

C & D, Tires

b. List proposed service area (geographic area or location(s)):

City of Roanoke

c. What is the maximum daily volume of waste to be received at the landfill? (Select One)

_____ tons per day 1000 cubic yards per day

SECTION IX:

SITE DESCRIPTION:

a. Attach location map with the site clearly identified. Acceptable maps include a USGS 7.5 or 15 minute series, a county highway map published by the Alabama Department of Transportation.

b. Location:

County: _____

Part: _____ of Section(s): 9

Township(s): 22 Range(s): 12-E

c. Attach legal property description and boundary plat of the permitted area and disposal area prepared and signed by a licensed land surveyor.

d. Size of permitted area: 178 acres

e. Size of disposal area: 4.17 acres

SECTION X:

This Section is to be completed by the applicants/permittees. A copy of all concurrence letters must be attached to this application upon submittal to the Department.

Location Standards: (Rule 335-13-4-.01(1)

a. Is the landfill located in the 100-year flood plain? (need to have flood plain map)
NO: ✓ YES: ____

b. Does the proposed landfill disposal area:

(1.) Jeopardize the continued existence of endangered or threatened species protected under the Endangered Species Act of 1973?
NO: ✓ YES: ___(Attach letter from U.S. Dept. of Interior or Alabama Fish and Wildlife)

(2.) Result in the destruction or adverse modification of critical habitats protected under the Endangered Species Act of 1973?
NO: ✓ YES: ___(Attach letter from U.S. Dept. of Interior or Alabama Fish and Wildlife)

c. Is the proposed landfill located in a zone of active faults, seismic impact zones and unstable areas?
NO: ✓ YES: ____
(If YES then all required seismic studies should be submitted to the Department.)

d. Is the proposed landfill located in an area that is archaeologically sensitive?
NO: ✓ YES: ____ (Attach letter from State Historic Preservation Officer)

Water Quality Standards (Rule 335-13-4-.01(2):
(ADEM Water Division should be contacted to determine if permit is required)

a. Will the proposed landfill discharge pollutants to waters of the State in violation of requirements of the National Pollutant Discharge Elimination System (NPDES) Permit?
NO: ✓ YES: ____

b. Will the proposed landfill violate any requirement of an area wide or Statewide water quality plan that has been approved under the Alabama Water Pollution Control Act?
NO: ✓ YES: ____

c. Will any part of the landfill, including buffer zone, be located in wetlands, beaches, dunes?
NO: ✓ YES: ____

d. Will solid waste be disposed in any location which will significantly degrade wetlands, beaches, or dunes?

NO: ✓ YES: ____

e. Will the proposed landfill be located outside the boundaries of the coastal area? (If not, then all demonstrations should be submitted to the Department for review.)

NO: ✓ YES: ____

Groundwater Elevations:

Has a minimum five-foot separation between the floor of the disposal cell and the groundwater been established? NO: ____ YES: ✓

SECTION XI:

GENERAL COMMENTS:

All materials listed in Rules 335-13-4-.12 to 335-13-4-.17, Rules 335-13-4-.19 to 335-13-4-.20, and Rule 335-13-4-.23 shall be kept at the landfill office along with a copy of the engineering drawings which must be submitted to the Department for review.

The applicant/permittee is responsible for obtaining a copy of the Division 13 regulations and complying with all Rules related to construction/demolition landfill units.

SECTION XII:

CERTIFICATION OF LOCAL GOVERNMENT APPROVAL:

Upon submittal of this application, we the undersigned certify that local approval has been obtained from City of Roanoke (city/county). Evidence of this local approval is contained in documents which are on file at the permit applicant's business address.

CERTIFICATION OF COMPLIANCE:

Upon submittal of this application, we the undersigned certify that this document and all attachments submitted are to the best of our knowledge and belief, true, accurate, and complete. We also understand that if any of the material certified to above has not been received, or is not complete or is not accurate, that shall be grounds for the Department to revoke the landfill permit if issued.

SIGNATURE (Responsible official of permit applicant): Donnie Cash TITLE: Superintendant

Donnie Cash DATE: 5-21-2010

(please print or type name)

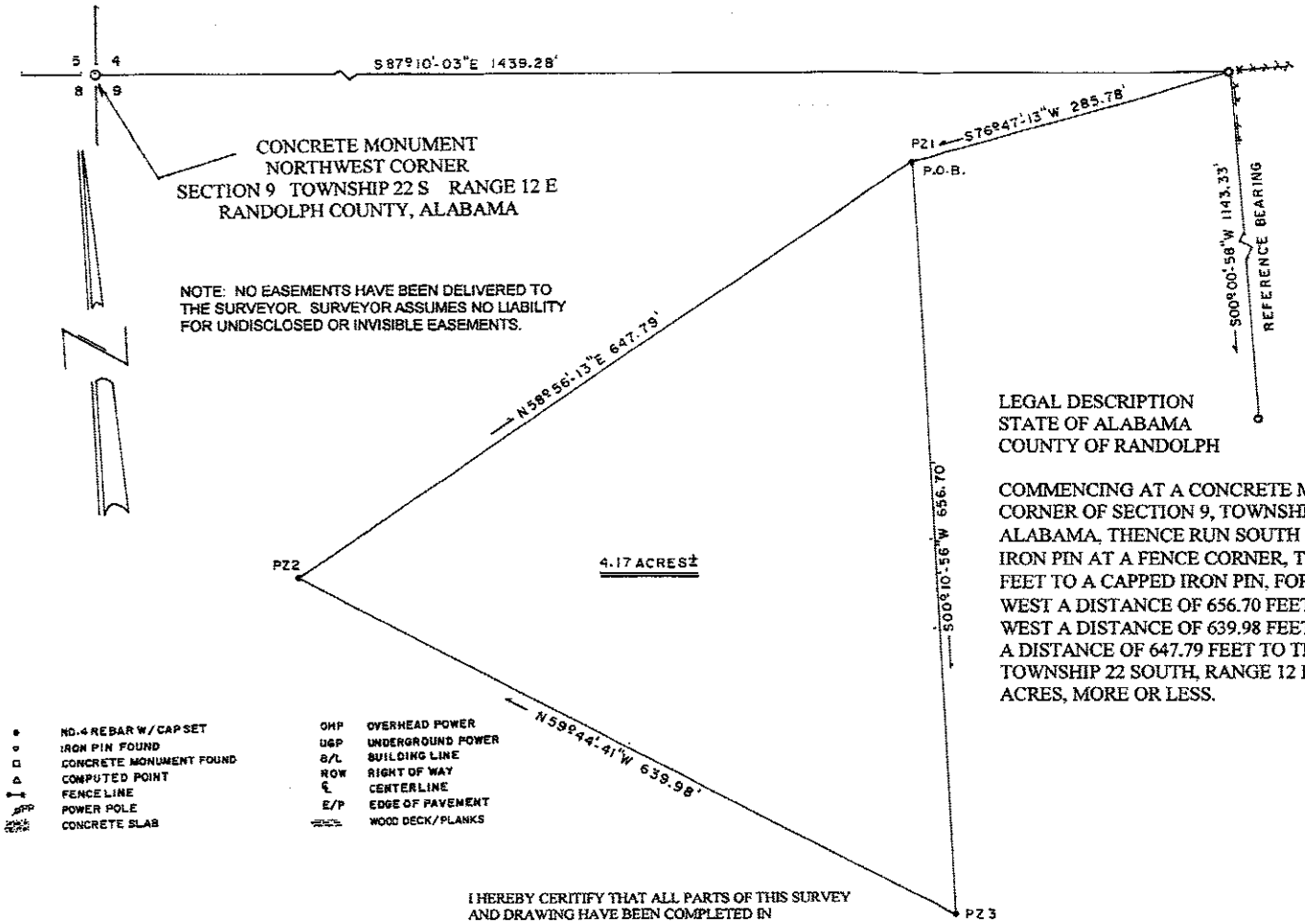
SIGNATURE (Certifying Engineer): TITLE: County Engineer

Burrel C. Jones DATE: 7/9/2010

(please print or type name)

FIRM: _____ STAMP OR SEAL:

ALABAMA PROFESSIONAL ENGINEER AND LAND SURVEYOR REGISTERED NO. 15294 BURREL C. JONES IV



ALL IRON PINS FOUND ARE NO. 5 REBAR CAPPED MAXWELL 17262 UNLESS NOTED

PZ1-PZ2-PZ3 ARE PIEZOMETER WELLS LOCATED WITHIN 1 FOOT OF THE CAPPED IRON PINS SET

THIS PARCEL ABUTS PROPERTY OWNED BY THE CITY OF ROANOKE ON ALL SIDES

THIS SURVEY AND BEARING REFERENCE ARE BASED UPON A SURVEY FOR THE 'CITY OF ROANOKE LANDFILL' DATED MAY 13, 1994, BY KEITH MAXWELL, PE/LS NO. 17262

LEGAL DESCRIPTION
STATE OF ALABAMA
COUNTY OF RANDOLPH

COMMENCING AT A CONCRETE MONUMENT LOCALLY ACCEPTED AS THE NORTHWEST CORNER OF SECTION 9, TOWNSHIP 22 SOUTH, RANGE 12 EAST, RANDOLPH COUNTY, ALABAMA, THENCE RUN SOUTH 87°10'03" EAST A DISTANCE OF 1439.28 FEET TO A CAPPED IRON PIN AT A FENCE CORNER, THENCE RUN SOUTH 76°47'13" WEST A DISTANCE OF 285.78 FEET TO A CAPPED IRON PIN, FOR A POINT OF BEGINNING, THENCE RUN SOUTH 00°10'56" WEST A DISTANCE OF 656.70 FEET TO A CAPPED IRON PIN, THENCE RUN NORTH 59°44'41" WEST A DISTANCE OF 639.98 FEET TO A CAPPED IRON PIN, THENCE RUN NORTH 58°56'13" EAST A DISTANCE OF 647.79 FEET TO THE POINT OF BEGINNING, SAID PARCEL LYING IN SECTION 9, TOWNSHIP 22 SOUTH, RANGE 12 EAST, RANDOLPH COUNTY, ALABAMA, CONTAINING 4.17 ACRES, MORE OR LESS.

I HEREBY CERTIFY THAT ALL PARTS OF THIS SURVEY AND DRAWING HAVE BEEN COMPLETED IN ACCORDANCE WITH THE CURRENT REQUIREMENTS OF THE STANDARDS OF PRACTICE FOR SURVEYING IN THE STATE OF ALABAMA TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF. NO PART OF THIS DRAWING MAY BE COPIED, ADDED TO, ALTERED OR REPRODUCED BY ANY MEANS WITHOUT WRITTEN PERMISSION FROM BURREL C. JONES, ALABAMA PE/LS NO. 15294. THIS PLAT IS NOT VALID UNLESS IT IS SEALED IN RED WITH MY ORIGINAL SIGNATURE.

DATE: 10/10/05

BURREL C. JONES AL PE/LS NO. 15294

ALABAMA PROFESSIONAL ENGINEER AND LAND SURVEYOR REGISTERED NO. 15294 BURREL C. JONES IV

BURREL JONES
1302 BROOKSIDE DRIVE
ROANOKE, AL 36274
334-863-7077

SURVEY OF
C & D LANDFILL PERMIT AREA
CITY OF ROANOKE
SECTION 9 TOWNSHIP 22 S RANGE 12E
RANDOLPH COUNTY, ALABAMA
SCALE 1" = 100' 10 OCTOBER 2005

THE STATE OF ALABAMA,

RANDOLPH County.

LEWIS H. HAMNER, JR.
ATTORNEY AT LAW
ROANOKE, ALABAMA

Know All Men By These Presents:

That we, J. P. Phillips and wife, Mary Will C. Phillips, and Leon Phillips and wife, Eunice M. Phillips,

for and in consideration of the sum of ... Dollars to us in hand paid by The City of Roanoke, Alabama, a municipal corporation,

the receipt whereof we do hereby acknowledge, have GRANTED, BARGAINED and SOLD and by these presents do hereby GRANT, SELL and CONVEY unto the said The City of Roanoke, Alabama, a municipal corporation, hereinafter called the grantee,

its successors ~~heirs~~ and assigns, the following described Real Estate, situated in the County of Randolph and State of Alabama, to-wit:

The East Half of the Northeast Quarter (E½ of NE¼) of Section 8, Township 22, Range 12; the Northwest Quarter of the Northwest Quarter (NW¼ of NW¼), the North Half of the Southwest Quarter of the Northwest Quarter (N½ of SW¼ of NW¼), and the Southeast Quarter of the Northwest Quarter (SE¼ of NW¼) of Section 9, Township 22, Range 12, all in Randolph County, Alabama, and containing 180 acres, more or less, and said property being formerly a part of the W. S. Kirk Estate and known as the "White & Awbrey Place", together with all additions and improvements thereon, and being the same property conveyed to the within grantors J. P. Phillips and Leon Phillips by warranty deed from Lesa K. Overstreet dated April 11, 1958, recorded in Deed Record 75, pages 221-222, in the Office of the Judge of Probate of Randolph County, Alabama.

To Have and to Hold the foregranted premises to the said grantee its successors ~~heirs~~ and assigns FOREVER. And we do covenant with the said grantee its successors ~~heirs~~ and assigns, that we are lawfully seized in fee simple of the aforementioned premises; that they are free from all encumbrance; that we have a good right to sell and convey the same to the said grantee its successors ~~heirs~~ and assigns, and that we will WARRANT AND DEFEND the premises to the said grantee its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, we have hereunto set our hands and seals this the 8th day of June in the year of our Lord One Thousand Nine Hundred and Seventy-nine (1979).

Signed, Sealed and Delivered in Presence of

J. P. Phillips (L. S.)

Mary Will C. Phillips (L. S.)

Leon Phillips (L. S.)

Eunice M. Phillips (L. S.)

BOOK 122 PAGE 719

LEWIS H. HAMNER, JR.
ATTORNEY AT LAW
ROANOKE, ALABAMA

THE STATE OF ALABAMA,

.....RANDOLPH..... County.

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Abutters
Roanoke CD Landfill
Tax Parcels

Parcel 11	Denney Family Trust, LLC 1901 Tyus Carrollton Road Carrollton, GA 30117
Parcel 1	Robert A. Joiner 2528 Country Club Road Roanoke, AL 36274
Parcels 3, 8	Robert Stokes 3020 Katherine Valley Road Decatur, GA 30032
Parcel 2	Edgar Stevenson 1101 County Road 871 Roanoke, AL 36274
Parcel 33	Winnie Baker 801 Old West Point Road LaGrange, GA 30240
Parcel 22.001	Danny Hall 778 Louina Road Roanoke, AL 36274
Parcels 9.038, 9.037, 9.036, 9.034, 9.033	Tommy Fincher P.O. Box 411 Roanoke, AL 36274
Parcel 9.035	Michael Bryant 746 Rhett Circle Roanoke, AL 36274
Parcel 9.032	Gary Clark 3938 County Road 49 Wadley, AL 36276

ADDENDUM #1- GROUNDWATER MONITORING

CLOSURE/POST-CLOSURE PLAN

FOR

ROANOKE SANITARY LANDFILL

ROANOKE, ALABAMA

ADEM PERMIT NO. 56-02R (CLOSED)
ORIGINALLY PREPARED BY ROY F. WESTON INC.
DATED JULY 1994

OWNER
CITY OF ROANOKE, ALABAMA

HARMON JOB NO. 703-24-23

FEBUARY 23rd, 2023

Engineer:

HARMON ENGINEERING & CONTRACTING CO., INC.
13376 C.L. TORBERT JR. PARKWAY
LAFAYETTE, ALABAMA 36862
info@he-inc.co

INTRODUCTION

This addendum is intended to replace section 10.0 of the Sanitary Landfill Closure/Post Closure Plan prepared by Roy F. Weston Inc., dated July 1994. Replace section 10.0 with the following:

10.0 GROUNDWATER MONITORING

The City of Roanoke will maintain (5) existing groundwater monitoring wells at the closed sanitary landfill during the post-closure care period. MW-1 has been established as the background groundwater monitoring point for the closed sanitary landfill. MW-2, MW-3, MW-4, and MW-5 have been established as downgradient monitoring points for the closed sanitary landfill. The City or Roanoke shall install and maintain any additional groundwater monitoring wells as necessary to assess changes in the rate and extent of any plume of contamination or as otherwise deemed necessary by ADEM. If additional groundwater monitoring wells are required, the City of Roanoke will submit a report to ADEM 90 days prior to any well installation. This report will include:

1. Well construction techniques including proposed casing depth(s), total depth(s), and screened interval(s) of well(s);

2. Well development method(s);

3. A complete analysis of well construction materials;

4. A schedule of implementation for construction; and

6. Provisions for determining the lithologic characteristics, hydraulic conductivity, and grain-size distribution for the applicable aquifer unit(s) at the location of the new well(s).

The City of Roanoke will conduct groundwater sampling during March of each year, per the permit requirements. Annual sampling will be conducted for the entire post-closure care period of the sanitary landfill. During the annual sampling, the following information will be determined and reported to the City or Roanoke and ADEM:

1. Surface elevation at each monitoring well and piezometer;
2. Groundwater flow rate and direction in the first zone of saturation;
3. Depth to groundwater table; and
4. Groundwater elevation

The City of Roanoke will sample and analyze all monitoring wells identified in Table 1 below. These samples will be analyzed for the parameters listed in Appendix I of ADEM Code r. 335-13-4, which is attached to this addendum. The sampling procedure will be as follows:

1. Depth to groundwater is measured and recorded and the volume of purging needed is calculated. A minimum of 4 well casing volumes must be purged before samples are collected.
2. Monitoring wells will be purged and allowed to recharge. After recharge, samples will be collected.
3. Temperature, pH, ORP, Turbidity, and Specific Conductance measurements can be taken in the field or determined by laboratory analysis.
4. Immediately after samples are collected, they should be properly labeled and stored in ice. These samples will remain on ice until they are analyzed.

TABLE 1
GROUNDWATER MONITORING WELLS.

Monitoring Well Number	Top of Casing (feet msl)	Part Monitoring
UPGRADIENT/BACKGROUND MONITORING WELLS		
MW-1	888.13	Entire
DOWNGRADIENT MONITORING WELLS		
MW-2	849.32	Entire
MW-3	836.30	Entire
MW-4	836.24	Entire
MW-5	846.72	Entire

*ft-bis= Depth in feet below land surface

The City of Roanoke will use the following techniques and procedures when obtaining, analyzing, and recording results of samples from the groundwater monitoring wells:

1. Samples shall be analyzed according to the procedures specified of the Application, Standard Methods for the Examination of Water and Wastewater (American Public Health Association, latest edition), Methods for Chemical Analysis of Water and Wastes (EPA-600/4-79-020), Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA Publication SW-846, latest edition), or other appropriate methods approved by this Department. All field tests must be conducted using approved EPA test kits and procedures.
2. Samples shall be tracked and controlled using the chain-of-custody and QA/QC procedures specified of the Application.
3. All field measurements and lab analysis results will be recorded by the City of Roanoke and submitted to ADEM. These results will be placed in the operating records for the landfill.

If at any time the City of Roanoke or ADEM determines that the groundwater monitoring

plan in place is no longer meeting ADEM requirements, the City of Roanoke will, within 90 days, apply for permit modification to make any necessary and appropriate changes to the system.

335-13-4-APPENDIX I CONSTITUENTS FOR DETECTION MONITORING[1]

	Common Name[2]	CAS Number[3]
	pH[4]	N/A
	Specific Conductance[4]	N/A
	Inorganic Constituents	
1.	Antimony	Total
2.	Arsenic	Total
3.	Barium	Total
4.	Beryllium	Total
5.	Cadmium	Total
6.	Chromium	Total
7.	Cobalt	Total
8.	Copper	Total
9.	Lead	Total
10.	Mercury	Total
11.	Nickel	Total
12.	Selenium	Total
13.	Silver	Total
14.	Thallium	Total
15.	Vanadium	Total
16.	Zinc	Total
	Organic Constituents	
17.	Acetone	67-64-1
18.	Acrylonitrile	107-13-1
19.	Benzene	71-43-2
20.	Bromochloromethane	74-97-5
21.	Bromodichloromethane	75-27-4
22.	Bromoform; Tribromomethane	75-25-2
23.	Carbon disulfide	75-15-0
24.	Carbon tetrachloride	56-23-5
25.	Chlorobenzene	108-90-7
26.	Chloroethane; Ethyl chloride	75-00-3
27.	Chloroform; Trichloromethane	67-66-3
28.	Dibromochloromethane; Chlorodibromomethane	124-48-1
29.	1,2-Dibromo-3-chloropropane (DBCP)	96-12-8
30.	1,2-Dibromoethane; Ethylene dibromide; EDB	106-93-4
31.	o-Dichlorobenzene; 1,2-Dichlorobenzene	95-50-1
32.	p-Dichlorobenzene; 1,4-Dichlorobenzene	106-46-7
33.	trans-1,4-Dichloro-2-butene	110-57-6
34.	1,1-Dichloroethane; Ethylidene chloride	75-34-3
35.	1,2-Dichloroethane; Ethylene dichloride	107-06-2
36.	1,1-Dichloroethylene; 1,1-dichloroethene; Vinylidene chloride	75-35-4
37.	cis-1,2-Dichloroethylene; cis-1,2Dichloroethene	156-59-2

38.	trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene	156-60-5
39.	1,2-Dichloropropane; Propylene dichloride	78-87-5
40.	cis-1,3-Dichloropropene	10061-01-5
41.	trans-1,3-Dichloropropene	10061-02-6
42.	Ethylbenzene	100-41-4
43.	2-Hexanone; Methyl butyl ketone	591-78-6
44.	Methyl bromide; Bromomethane	74-83-9
45.	Methyl chloride; Chloromethane	74-87-3
46.	Methylene bromide; Dibromomethane	74-95-3
47.	Methylene chloride; Dichloromethane	75-09-2
48.	Methyl ethyl ketone; MEK; 2-Butanone	78-93-3
49.	Methyl iodide; Iodomethane	74-88-4
50.	4-Methyl-2-pentanone; Methyl isobutyl ketone	108-10-1
51.	Styrene	100-42-5
52.	1,1,1,2-Tetrachloroethane	630-20-6
53.	1,1,2,2-Tetrachloroethane	79-34-5
54.	Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	127-18-4
55.	Toluene	108-88-3
56.	l,l,l-Trichloroethane; Methylchloroform	71-55-6
57.	1,1,2-Trichloroethane	79-00-5
58.	Trichloroethylene; Trichloroethene	79-01-6
59.	Trichlorofluoromethane; CFC-11	75-69-4
60.	1,2,3-Trichloropropane	96-18-4
61.	Vinyl acetate	108-05-4
62.	Vinyl chloride	75-01-4
63.	Xylenes	1330-20-7

Notes

[1] This list contains 47 volatile organics for which possible analytical procedure provided in EPA Report SW-846, "Test Methods for Evaluating Solid Waste," Third Edition, November 1986, as revised December 1987, includes Method 8260; and 15 metals for which SW-846 provides either Method 6010 or a method from the 7000 series of methods.

[2] Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

[3] Chemical Abstracts Service registry number. Where "Total" is entered, all species in the groundwater that contain this element are included.

[4] State specific requirements.

Received
JUN 09 2025
Land Division

ADDENDUM #1- GROUNDWATER MONITORING

CLOSURE/POST-CLOSURE PLAN

FOR

ROANOKE SANITARY LANDFILL

ROANOKE, ALABAMA

ADEM PERMIT NO. 56-02R (CLOSED)
ORIGINALLY PREPARED BY ROY F. WESTON INC.
DATED JULY 1994

OWNER
CITY OF ROANOKE, ALABAMA

HARMON JOB NO. 703-24-23

FEBUARY 23rd, 2023
REVISED July 24th, 2024
REVISED November 13th, 2024
REVISED: May 12th, 2025

Engineer:

HARMON ENGINEERING & CONTRACTING CO., INC.
13376 C.L. TORBERT JR. PARKWAY
LAFAYETTE, ALABAMA 36862
info@he-inc.co

INTRODUCTION

This addendum is intended to replace section 10.0 of the Sanitary Landfill Closure/Post Closure Plan prepared by Roy F. Weston Inc., dated July 1994. If at any time the City of Roanoke or ADEM determines that this groundwater monitoring plan is no longer meeting ADEM requirements, the City of Roanoke will, within 90 days, apply for permit modification to make any necessary and appropriate changes to the monitoring plan or monitoring system. Please replace section 10.0 of the Closure/Post-Closure Plan with the following:

HISTORY

In November 1999, the City of Roanoke started groundwater monitoring of the Sanitary Landfill Permit No. 56-02R (Closed). Since no previous groundwater water analysis reports were available, ADEM requested an accelerated schedule for groundwater sampling/analysis (once per month). The accelerated sampling continued until March 2002 (i.e. five consecutive sampling events). After the initial five (5) sampling events, the City of Roanoke was to conduct annual groundwater monitoring during March of each year. Due to low level detections of some volatile organics in past groundwater sampling events in MW-2, ADEM requested Assessment Monitoring (Appendix II monitoring) for MW-2 only. In March 2012, Appendix II constituents were monitored for MW-2 and no Appendix II constituents were detected. In July of 2024, as a result recent ground water monitoring reports that confirmed SSI's over background levels at the facility, ADEM requested groundwater monitoring and the following report be increased to semi-annually until further notice.

10.0 GROUNDWATER MONITORING

The City of Roanoke will maintain (5) existing groundwater monitoring wells at the closed sanitary landfill during the post-closure care period. MW-1 has been established as the background groundwater monitoring point for the closed sanitary landfill. MW-2, MW-3, MW-4, and MW-5 have been established as downgradient monitoring points for the closed sanitary landfill. The City of Roanoke shall install and maintain any additional groundwater monitoring wells as necessary to assess changes in the rate and extent of any plume of contamination or as otherwise deemed necessary by ADEM. If additional groundwater monitoring wells are required, the City of Roanoke will submit a report to ADEM 90 days prior to any well installation. This report will include:

1. Well construction techniques including proposed casing depth(s), total depth(s), and screened interval(s) of well(s);

2. Well development method(s);

3. A complete analysis of well construction materials;

4. A schedule of implementation for construction;

5. Provisions for determining the lithologic characteristics, hydraulic conductivity, and grain-size distribution for the applicable aquifer unit(s) at the location of the new well(s);

SEMI-ANNUAL SAMPLING

The City of Roanoke will conduct groundwater sampling during March and September of each year, per the permit requirements and written request from ADEM. Semi-Annual sampling will be conducted for the entire post-closure care period of the sanitary landfill. During the semi-annual sampling, the following information will be determined and reported to the City of Roanoke and ADEM:

1. Surface elevation at each monitoring well and piezometer;
2. Groundwater flow rate and direction in the first zone of saturation;
3. Depth to groundwater table;
4. Groundwater elevation;

Once the semi-annual sampling for the groundwater monitoring has been completed, a report will be submitted by the City of Roanoke to ADEM. The Alabama Groundwater Monitoring Reporting Guidance for Solid Waste Facilities will be used as guidance for the formatting and topic inclusion for this report and any follow up reports. Visual tools such as maps, graphs, and charts can be attached to these reports to represent any data or statistical results from the groundwater monitoring.

SAMPLING PROCEDURES

The City of Roanoke will sample and analyze all monitoring wells identified in Table 1 below. These samples will be analyzed for the parameters listed in Appendix I of ADEM Code r. 335-13-4, which is attached to this addendum. The sampling procedure will be as follows:

1. Depth to groundwater is measured and recorded and the volume of purging needed is calculated. A minimum of three (3) well casing volumes must be purged before samples are collected;
2. Monitoring wells will be purged and allowed to recharge. After sufficient well recharge, samples will be collected;
3. Temperature, pH, ORP, Turbidity, and Specific Conductance measurements will be taken in the field;
4. Immediately after samples are collected, they will be properly labeled and stored on ice. The samples will remain on ice until they are returned to the laboratory and placed in refrigerated storage. Samples will remain refrigerated until they are analyzed.

TABLE 1
GROUNDWATER MONITORING WELLS.
CLOSED SANITARY MUNICIPLE LANDFILL

Monitoring Well Number	Top of Casing (feet msl)	Part Monitoring
UPGRADIENT/BACKGROUND MONITORING WELLS		
MW-1	888.13	Entire
DOWNGRADIENT MONITORING WELLS		
MW-2	849.32	Entire
MW-3	836.30	Entire
MW-4	836.24	Entire
MW-5	846.72	Entire

*ft-bis= Depth in feet below land surface

The City of Roanoke will use the following techniques and procedures when obtaining, analyzing, and recording results of samples from the groundwater monitoring wells:

1. Samples shall be analyzed according to the procedures specified for the Application, Standard Methods for the Examination of Water and Wastewater (American Public Health Association, latest edition), Methods for Chemical Analysis of Water and Wastes (EPA-600/4-79-020), Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA Publication SW-846, latest edition), or other appropriate methods approved by ADEM. All field tests must be conducted using approved EPA test kits and procedures;
2. Samples shall be tracked and controlled using the chain-of-custody and QA/QC procedures specified in the Sampling Application;
3. All field measurements and lab analysis results will be recorded by the City of Roanoke and submitted to ADEM. These results will be placed in the operating records for the landfill;

PRACTICAL QUANTITATION LIMITS

The City of Roanoke will use laboratory Practical Quantitation Limits (PQLs) as the reporting limits of applicable low detection analyzed samples. The USEPA developed the concept of PQL's to comply with the Safe Drinking Water Act that says "The PQL's thus represents the lowest level achievable by good laboratories within specified limits during routine laboratory operating conditions". ADEM Admin. Code 335-13-4-.27(2)(m)5 contains recommendations for the PQL's reference requirements that should be followed as well. An analytical laboratory will be contracted to perform sample analysis and the laboratory will be capable of meeting the applicable ADEM water-quality standards. If retesting is required, the PQL's used for the retest sample will be the same or a lower detected value as the initial testing. A higher detected valve will be accepted based on laboratory quality control and sample interferents. If a higher detected valve is used, the

reasoning why will be documented in the monitoring report.

QUALITY ASSURANCE/QUALITY CONTROL

The City of Roanoke will require a quality-assurance and quality-control (QA/QC) program that will be used for each sampling, each in field measurement, and for any laboratory analytical services. The QA/QC procedures for collecting and evaluating samples will meet the EPA Methods for Chemical Analysis of Water and Wastes. The laboratory QA/QC program will be a written program stored in the City of Roanoke Landfill files. This program will describe the precision, accuracy, and completeness of the laboratory data. It will include the procedures for calibration and maintenance of any laboratory equipment and the documents recording when calibration and maintenance were performed. Laboratory QA/QC standards will be initiated when the samples are received by the laboratory and will be continued throughout the analytical period.

STATISTIC ANALYSIS

Statistical analysis is required by the Rules of the ADEM, Solid Waste Management Code r. 335-13- 4-.27. The 2009 Statistical Analysis of Groundwater at RCRA Facilities Unified Guidance document provides guidance for statistical analysis of groundwater monitoring data. The Unified Guidance document recommends using confidence intervals as a statistical strategy for comparing Groundwater Protection Standards to sampled groundwater analysis data when background wells show statistically higher concentrations than in a down-gradient well(s). This comparison will be used to determine if constituent concentrations are higher than established standards. The Confidence interval around the data set mean will be used to estimate the 95% confidence intervals.

Statistical evaluation of the analysis conducted will be completed and reported by the City of Roanoke to ADEM in the groundwater monitoring report. The 2009 Statistical Analysis of Groundwater at RCRA Facilities Unified Guidance will be generally followed for any statistical evaluations.

Background data will be reviewed for each sampling period to assure the analytical detection limits do not exceed the prediction limits or EPA Regional Screening Limit (RSL) and exceptions will be noted. Background data will also be reviewed approximately every 2-3 years to assure there are no non-detects or outlier data (using Rosner's Test of Outliers and/or Discordance Outlier Test) above the EPA Regional Screening Limit (RSL) that would possibly mask low level concentration SSIs in downgradient wells. Also, approximately every 2-3 years, time-series trend analyses (visual graphs, ANOVA, Spearman's Trend Test, and/or Mann-Kendal Trend Analysis) will be used to determine if indicator parameters have a significant increase or decrease in concentration that might suggest a change in the background groundwater quality. All screened data or data determined to be "outliers" will be reported in the Method Section of the groundwater monitoring report under a heading such as "Outlier Data" and/or

"Screened Data".

All data will be screened to verify non-detectable concentrations have a value below the EPA (RSL) and exceptions will be noted. A value of one-half the analytical detection limit will generally be used to represent non-detectable constituent concentrations.

DETECTION VERIFICATION

Inorganic Constituents: Inter-Well Prediction Limits will be used to determine whether there is a statistically significant increase (SSI) between upgradient/background constituent concentrations (MW-1) and hydraulically downgradient constituent concentrations (MW-2, MW-3, MW-4, and MW-5). If a constituent has greater than 15% non-detectable constituent concentrations, Non-Parametric Prediction Limits will be used. Otherwise, the data will be analyzed for normality using the Shapiro-Francia Test of Normality and equal variance testing using Bartlett's or Levene's Equal Variance Test. If data are normally distributed and have equal variance, Parametric Prediction Limits will be used. If the original scale and transformed data (e.g. natural logarithm and log base 10) are determined to not be normally distributed and/or do not have equal variance, Non-Parametric Prediction Limit analyses will be used.

If a hydraulically downgradient well has an SSI that is historically uncharacteristic, the City of Roanoke will employ a verification sampling plan that provides for a per constituent confidence level of 95% or greater. Based on the number of background samples (n=20-40), the number of downgradient wells and statistical comparisons (k= 60 to 70), Gibbons, 1994, Statistical Methods for GW Monitoring (Table 2.3) recommends a two (2) sample verification plan (i.e. 1 of 3 sample plan- original sample, plus up to two verification samples) to confirm a prediction limit exceedance. If the first verification sample is less than the prediction limit, no SSI is indicated. If the first verification is greater than the prediction limit, a second verification sample will be collected. If a constituent concentration in the second verification sample is less than the prediction limit, no SSI is indicated. If the first and second verification samples are above the Prediction Limit, the City of Roanoke will place a notice in the operating records and will submit a copy of the notice and the sampling results to ADEM. If all three samples (original sample and two verification samples) show SSIs, assessment monitoring will be discussed with ADEM.

Volatile Organic Constituents (VOCs): All VOCs detections are considered SSI unless it can be demonstrated the detections are caused by a hydraulically up gradient source. If an organic constituent is detected, the same verification sampling procedure as used for inorganic constituents (discussed above) will be implemented. If the first and second verification samples show VOC(s) detections, the City of Roanoke will place a notice in the operating records and will submit a copy of the notice and the sampling results to ADEM. If all three samples show SSI, assessment monitoring will be discussed with ADEM.

ASSESSMENT MONITORING

Assessment monitoring, if required, will be conducted in accordance with ADEM Administrative Code R. 335-13-4-.27.

CORRECTIVE ACTION

Corrective action, if required, will be conducted in accordance with ADEM Administrative Code R. 335-13 -4-.27.

335-13-4-APPENDIX I CONSTITUENTS FOR DETECTION MONITORING[1]

	Common Name[2]	CAS Number[3]
	pH[4]	N/A
	Specific Conductance[4]	N/A
	Inorganic Constituents	
1.	Antimony	Total
2.	Arsenic	Total
3.	Barium	Total
4.	Beryllium	Total
5.	Cadmium	Total
6.	Chromium	Total
7.	Cobalt	Total
8.	Copper	Total
9.	Lead	Total
10.	Mercury	Total
11.	Nickel	Total
12.	Selenium	Total
13.	Silver	Total
14.	Thallium	Total
15.	Vanadium	Total
16.	Zinc	Total
	Organic Constituents	
17.	Acetone	67-64-1
18.	Acrylonitrile	107-13-1
19.	Benzene	71-43-2
20.	Bromochloromethane	74-97-5
21.	Bromodichloromethane	75-27-4
22.	Bromoform; Tribromomethane	75-25-2
23.	Carbon disulfide	75-15-0
24.	Carbon tetrachloride	56-23-5
25.	Chlorobenzene	108-90-7
26.	Chloroethane; Ethyl chloride	75-00-3
27.	Chloroform; Trichloromethane	67-66-3
28.	Dibromochloromethane; Chlorodibromomethane	124-48-1
29.	1,2-Dibromo-3-chloropropane (DBCP)	96-12-8
30.	1,2-Dibromoethane; Ethylene dibromide; EDB	106-93-4
31.	o-Dichlorobenzene; 1,2-Dichlorobenzene	95-50-1
32.	p-Dichlorobenzene; 1,4-Dichlorobenzene	106-46-7
33.	trans-1,4-Dichloro-2-butene	110-57-6
34.	1,1-Dichloroethane; Ethylidene chloride	75-34-3
35.	1,2-Dichloroethane; Ethylene dichloride	107-06-2
36.	1,1-Dichloroethylene; 1,1-dichloroethene; Vinylidene chloride	75-35-4
37.	cis-1,2-Dichloroethylene; cis-1,2Dichloroethene	156-59-2

38.	trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene	156-60-5
39.	1,2-Dichloropropane; Propylene dichloride	78-87-5
40.	cis-1,3-Dichloropropene	10061-01-5
41.	trans-1,3-Dichloropropene	10061-02-6
42.	Ethylbenzene	100-41-4
43.	2-Hexanone; Methyl butyl ketone	591-78-6
44.	Methyl bromide; Bromomethane	74-83-9
45.	Methyl chloride; Chloromethane	74-87-3
46.	Methylene bromide; Dibromomethane	74-95-3
47.	Methylene chloride; Dichloromethane	75-09-2
48.	Methyl ethyl ketone; MEK; 2-Butanone	78-93-3
49.	Methyl iodide; Iodomethane	74-88-4
50.	4-Methyl-2-pentanone; Methyl isobutyl ketone	108-10-1
51.	Styrene	100-42-5
52.	1,1,1,2-Tetrachloroethane	630-20-6
53.	1,1,2,2-Tetrachloroethane	79-34-5
54.	Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	127-18-4
55.	Toluene	108-88-3
56.	l,l,l-Trichloroethane; Methylchloroform	71-55-6
57.	1,1,2-Trichloroethane	79-00-5
58.	Trichloroethylene; Trichloroethene	79-01-6
59.	Trichlorofluoromethane; CFC-11	75-69-4
60.	1,2,3-Trichloropropane	96-18-4
61.	Vinyl acetate	108-05-4
62.	Vinyl chloride	75-01-4
63.	Xylenes	1330-20-7

Notes

[1] This list contains 47 volatile organics for which possible analytical procedure provided in EPA Report SW-846, "Test Methods for Evaluating Solid Waste," Third Edition, November 1986, as revised December 1987, includes Method 8260; and 15 metals for which SW-846 provides either Method 6010 or a method from the 7000 series of methods.

[2] Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

[3] Chemical Abstracts Service registry number. Where "Total" is entered, all species in the groundwater that contain this element are included.

[4] State specific requirements.

Permit No. 56-02 Modification

Application

SOLID WASTE DISPOSAL FACILITY

PERMIT APPLICATION PACKAGE

January 16, 2018

MEMORANDUM

TO: Applicants Seeking a Permit for Solid Waste Facilities

FROM: Stephen A. Cobb, Chief
Land Division
Alabama Department of Environmental Management

RE: Processing Solid Waste Permits by ADEM

Any permit issued by ADEM must be in accordance with §22-27-48 and §22-27-48.1 Code of Alabama. This section indicates that ADEM may not consider an application for a new or modified permit unless such application has received approval by the affected unit of local government having an approved plan. ADEM, therefore, will require the following before it can process a new or modified permit application:

1. The local government having jurisdiction must approve the permit application in accordance with §22-27-48 and §22-27-48.1 Code of Alabama.

2. Local governments should follow the procedures outlined in §22-27-48 and §22-27-48.1 Code of Alabama and the siting standards included in the local approved plan in considering approval of a facility.

This procedure applies to applications for new or modified permits. ADEM cannot review an application unless it includes approval from the affected local government. This procedure shall not apply to exempted industrial landfills receiving waste generated on site only by the permittee.

Please contact the Solid Waste Branch of ADEM at (334) 274-4201 if there are any questions.

SAC/sss/abj

PERMIT APPLICATION
SOLID WASTE DISPOSAL FACILITY
ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
(Submit in Triplicate)

1. Facility type:
   _____ Municipal Solid Waste Landfill (MSWLF)
   _____ Industrial Landfill (ILF)
   __X__ Construction and Demolition Landfill (C/DLF)
   _____ CCR Landfill (CCRLF)
   _____ CCR Surface Impoundment (CCRSI)
   _____ Other (explain)_____

2. Facility Name City of Roanoke

3. Applicant/Permittee:

   Name: City of Roanoke

   Address: P.O. Box 1270, Roanoke, AL 36274

   Telephone: 334-863-4129

   If applicant/permittee is a corporation, please list officers:

4. Location: (include county highway map or USGS map)

   Township 22 Range 12-E
   Section 9 County Randolph

5. Land Owner:

   Name: City of Roanoke

   Address: P.O. Box 1270, Roanoke, AL 36274

   Telephone: 334-863-4129

   (Attach copy of agreement from landowner if applicable.)

6. Contact Person:

Name Keith Richardson

Position or
Affiliation Director of Street Department

Address: P.O. Box 1270, Roanoke, AL 36274

Telephone: 334-863-4129

7. Size of Facility: 178 Acres

Size of Disposal Area(s): 8.71 Acres

8. Identify proposed service area or specific industry that waste will be received from:

City of Roanoke

9. Proposed maximum average daily volume to be received at landfill (choose one):

_____ Tons/Day 1000 Cubic Yards/Day

10. List all waste streams to be accepted at the facility (i.e., household solid waste, wood boiler ash, tires, trees, limbs, stumps, etc.):

C & D

SIGNATURE (Responsible official of permit applicant):

Keith Richardson TITLE: Street Supervisor

Keith Richardson DATE: 10-22-24
(please print or type name)

ADDITIONAL REQUIRED INFORMATION

Applicants seeking to obtain a permit to construct and/or continue to operate a municipal solid waste (MSW) landfill, industrial landfill, construction and demolition (C/D) landfill, coal combustion residuals (CCR) landfill, or CCR surface impoundment are required to submit additional information as part of the Solid Waste Disposal Facility Permit Application. These additional information requirements vary depending on the facility type.

For new and existing landfill units, refer to ADEM Admin Code 335-13-5-.02 for a list of additional information to be submitted in the permit application. Some requirements apply only to MSW landfills and CCR landfills, while other requirements apply to industrial landfills and C/D landfills. You need only to address the requirements that pertain to your type landfill. For new and existing CCR surface impoundments, refer to ADEM Admin Code 335-13-15-.09 for additional information to be submitted in the permit application.

Each rule that is applicable to your type landfill or surface impoundment must be addressed in detail in the operational narrative and/or engineering drawings before the review process can be completed. All operational narratives, engineering drawings, survey maps and legal descriptions are to be prepared by licensed engineers or surveyors registered in the State of Alabama and with their stamp or seal on each drawing/map and cover of the narrative.

Act No. 89-824 Section 9(a) states "The department may not consider an application for a new or modified permit for a facility unless such application has received approval by the affected unit of local government having an approved plan." This document must be received by the Department prior to processing the application.

The referenced rules are covered in greater detail in ADEM's Administrative Code, Division 13. Clarification can be obtained by reviewing the regulations. Copies of the ADEM Administrative Code, Division 13 regulations, can be obtained for a fee by contacting ADEM's Permits and Services Division. If the Department can answer any questions, please contact the Solid Waste Branch at (334) 274-4201.

JILL PATTERSON
MAYOR

AMANDA DAVIS
CITY CLERK

CITY OF ROANOKE
POST OFFICE BOX 1270
ROANOKE, ALABAMA 36274

PHONE: (334) 863-4129
FAX: (334) 863-2137

COUNCILMEMBERS:
TAMMI HOLLEY – MAYOR PROTEM
JOHN FRANK HOUSTON
TIMOTHY JACOBS
MIKE PARMER
KESA JOHNSTON

October 1, 2024

CERTIFICATION OF LOCAL GOVERNMENT APPROVAL:

Upon submittal of this application, we the undersigned certify that local approval has been obtained from the City of Roanoke. Evidence of this local approval is contained in documents which are on file at the permit applicant's business address.

CERTIFICATION OF COMPLIANCE:

Upon submittal of this application, we the undersigned certify that this document and all attachments submitted are to the best of our knowledge and belief, true, accurate, and complete. We also understand that if any of the material certified to above has not been received, or is not complete or is not accurate, that shall be grounds for the Department to revoke the landfill permit if issued.

SIGNATURE (Responsible official of permit applicant): Keith Richardson TITLE: Superintendent

Keith Richardson DATE: October 1, 2024
(Please print or type name)

SIGNATURE (Certifying Engineer): Allen Tucker TITLE: Engineer

Allen Tucker DATE: October 1, 2024
(Please print or type name)

FIRM: Harmon Engineering

STAMP OR SEAL:

HARMON ENGINEERING & CONTRACTING CO., INC.
ENGINEERING · CONTRACTING · ENVIRONMENTAL MANAGEMENT
PO Box 230 · 13376 C. L. TORBERT JR. PARKWAY · LAFAYETTE, ALABAMA 36862
PHONE: 334-864-9135 FAX: 334-864-8046
e-mail: info@he-inc.co

Adjacent Landowners
Roanoke C/D Landfill
Tax Parcels

Parcel 2	Edgar Stevenson 1101 Co. Rd. 871 Roanoke, AL 36274
Parcel 8, 3	Jonathan Stokes 4807 McAlpine Farm Rd. Charlotte, NC 28226
Parcel 4	Mattie Felton 2412 Santa Barbara Ct Conyers, GA 30013
Parcel 23	Rachel Elijah Jr. PO Box 163 Roanoke, AL 36274
Parcel 12	Gale McFarland & Calvin Trammell 814 Willow Creek Circle Roanoke, AL 36274
Parcel 2, 1	Robert A. Joiner 2528 Country Club Rd. Roanoke, AL 36274
Parcel 9.032	Joseph Ridley 1459 Tana Lane Gambrills, MD 21054
Parcel 9.033	Betty Ann Phillips 790 Rhett Circle Lot 18 Roanoke, AL 36274
Parcel 9.034, 9.035	Rubin & Dianne Gowin 746 Rhett Circle Roanoke, AL 36274
Parcel 9.036 9.037	Raymond Johnson 690 Rhett Circle Roanoke, AL 36274
Parcel 9.038 9.039	Marilyn Fincher PO Box 411 Roanoke, AL 36274
Parcel 22.001	Danny Hall 778 Louina Rd. Roanoke, AL 36274

HARMON ENGINEERING & CONTRACTING CO., INC.

ENGINEERING · CONTRACTING · ENVIRONMENTAL MANAGEMENT
13376 C. L. TORBERT JR. PARKWAY · LAFAYETTE, ALABAMA 36862
PHONE: 334-864-9135 FAX: 334-864-8046
e-mail: info@he-inc.co

October 2nd, 2024

Attn: Melissa H. Adornato
Alabama Department of Environmental Management
Land Division Solid Waste Branch
Solid Waste Engineering Section
Phone (334) 270-5605
P.O. Box 301463
Montgomery, Alabama 36130-1463

RE: ROANOKE C/D LANDFILL
2736 COUNTRY CLUB ROAD
ROANOKE, RANDOLPH COUNTY, ALABAMA
FACILITY ID NO. 56-02
HARMON JOB NO. 703-24-23

Mrs. Adornato:

Harmon Engineering and Contracting has performed stormwater runoff calculations for the City of Roanoke C/D Landfill and included these calculations in this letter. Harmon has determined that adequate storm drainage facilities have been provided for the active C/D landfill and will be adequate in closure and post-closure.

Sincerely,
HARMON ENGINEERING & CONTRACTING CO., INC.

Austin Harmon

Austin Harmon
Vice President/ EIT

CC: Allen Tucker

		Runoff Calculations (SCS Method)									
Area (mi^2)		Area (sf)	acre								
0.021719324		605,500	13.90								
PREDEVELOPMENT CN											
	Area (ac)	CN									
Wooded	13.90	70									
POST DEVELOPMENT CN											
	Area (ac)	CN									
Closed Landfill	8	85	680								
Wooded	0	70	0								
Grassed	5.90	71	418.9								
Weighted Avg	13.90		79.1								
Post-Developed											
0.2S (Ia)	0.8S	CN	P (in) 24hr		Storm	Q (in)	Runoff Volume (cf)	Ia/p	qu(csm/in) from graph		qp, CFS
0.529809343	2.119	79.1	6.72		25yr	4.335041447	218739	0.078840676	350		32.95396
S											
2.649046715											
Pre-Developed											
0.2S (Ia)	0.8S	CN	P(in)		Storm	Q (in)	Runoff Volume (cf)	Ia/p	qu (csm/in) from graph		qp (cfs)
0.857142857	3.429	70.0	6.72		25yr	3.386988417	170902	0.12755102	350		25.74708
S											
4.285714286											
DISCHARGE RATE & VOLUME											
Q=Ca(2gh)^.5											
Calculated Discharge (Q)	25.75							Q=Ca(2gh)^.5			
Cooeff discharge (C)	0.96	EXISTING PIPE		12	inches	depth =5'	Q (CFS)	13.5229			
Pipe area (a)	?	EXISITING PIPE		15	inches	depth =1'	Q (CFS)	9.4494			
Gravity (g)	32.2						SUM Q (CFS)	**22.9723**			
Pond Depth (h)	5										
		Pre-Development Runoff Volume (cf)				170902					
		Post-Development Runoff Volume (cf)				218739					
			Required Pond Volume (cf)			47837					
			Provided Pond Volume (cf)			**58955**					

August 23, 2024

Mr. Austin Harmon
Harmon Engineering and Contracting Co., Inc.
13376 CL Torbert Jr. Parkway
LaFayette, Alabama 36862

Re: Roanoke C&D Landfill Expansion
Roanoke, Alabama
Our Job No. A24114.00445.000

Dear Mr. Harmon:

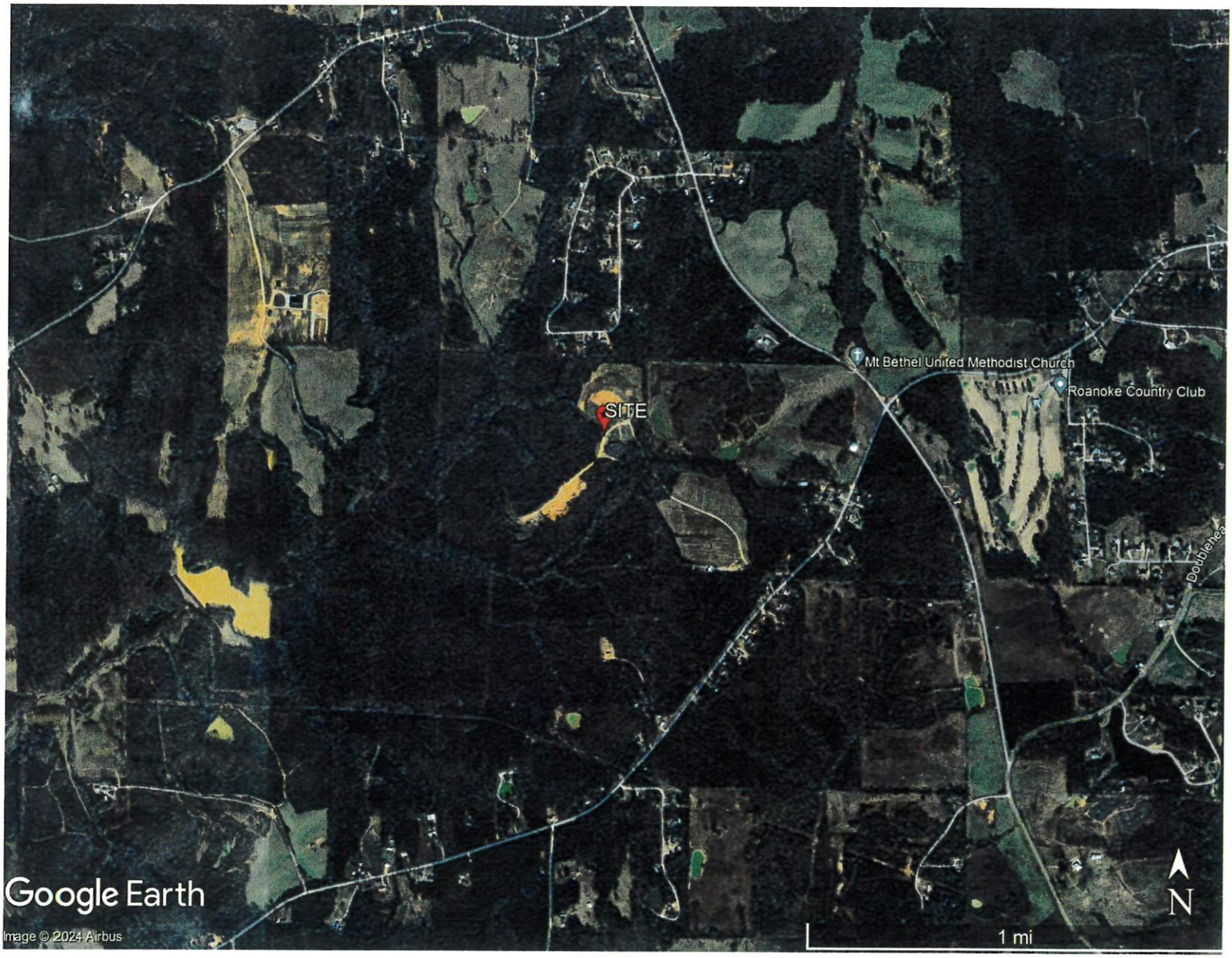
UES Professional Solutions 18, LLC., (UES) has completed the requested installation of two piezometers and two gas monitoring wells at the site of the Roanoke C&D Landfill. A site vicinity map, a boring plan, graphical logs of the borings with descriptions of the installed piezometers and gas monitoring wells, and photos of the installed piezometers and gas wells are attached.

Please contact our office if you have any questions or if we can be of any further assistance.

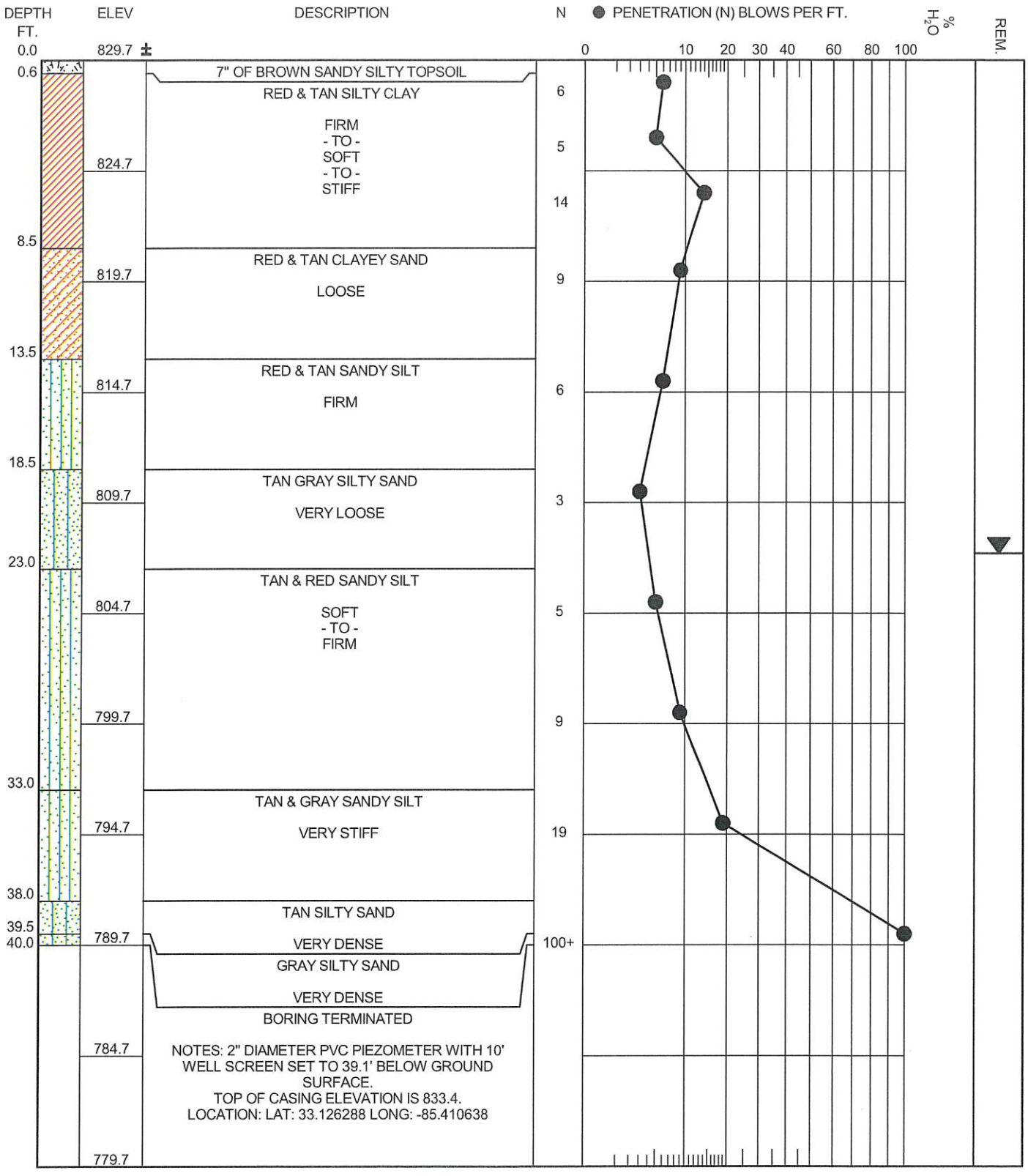
Sincerely,

J. Stephen Carmichael, P.E.
Licensed AL No. 15730

ALABAMA LICENSED No. 15730 PROFESSIONAL 8/23/24 ENGINEER STEPHEN CARMICHAEL


Mt Bethel United Methodist Church
Roanoke Country Club
SITE
Google Earth
Image © 2024 Airbus
1 mi
N

B-1 (Piezometer)
B-2 (Piezometer)
B-3 (Gas Monitoring Well)
B-4 (Gas Monitoring Well)
Google Earth
mage © 2024 Airbus
600 ft
N



UES™

Boring and Sampling Meets ASTM D-1586

Penetration (N) is the Number of Blows of 140 lb. Hammer Falling 30 in. Required to Drive 1.4 in I.D. Sampler 1 Ft.

☒ Undisturbed Sample

LA Lab Analysis

Water Level 22.3' AFTER 24 HOURS

Water Level

Boring Caved

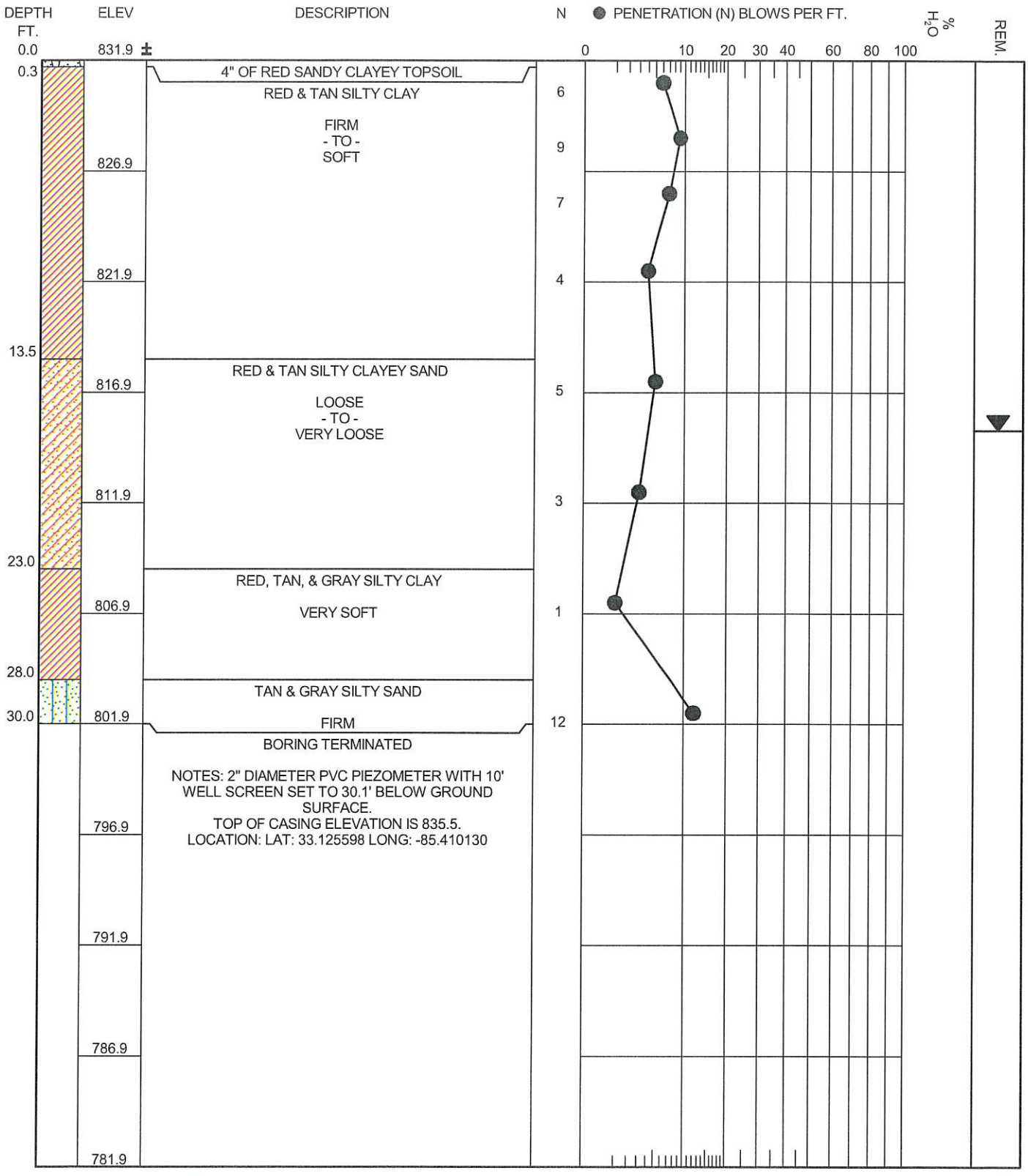
TEST BORING LOG

JOB NO. A24114.00445.000

BORING NO. B-1

DATE DRILLED 8/20/24

TYPE BORING SB



UES™

Boring and Sampling Meets ASTM D-1586

Penetration (N) is the Number of Blows of 140 lb. Hammer Falling 30 in. Required to Drive 1.4 in I.D. Sampler 1 Ft.

☒ Undisturbed Sample

LA Lab Analysis

Water Level 16.7' AFTER 24 HOURS

Water Level

Boring Caved

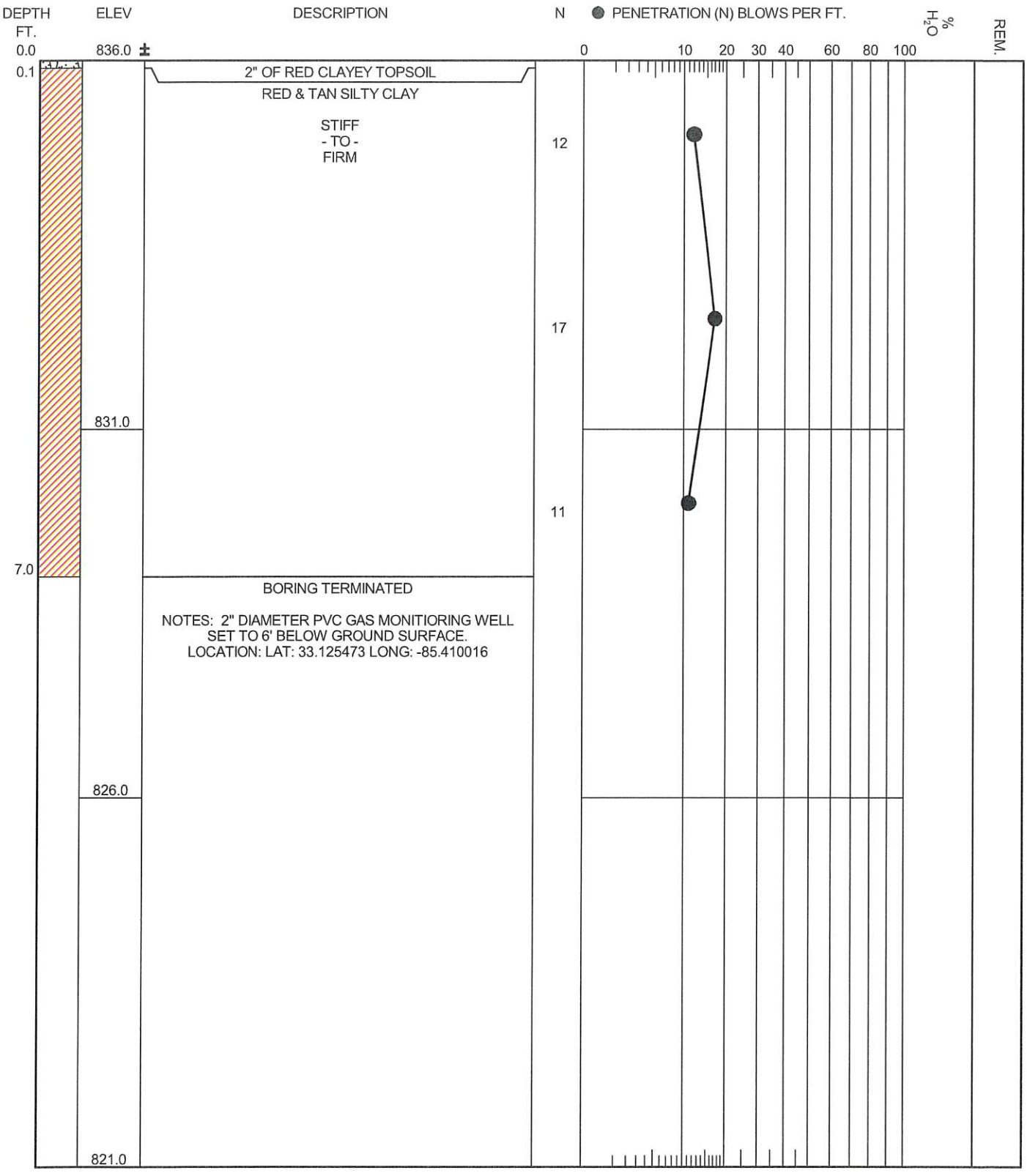
TEST BORING LOG

JOB NO. A24114.00445.000

BORING NO. B-2

DATE DRILLED 8/20/24

TYPE BORING SB



UES™

Boring and Sampling Meets ASTM D-1586

Penetration (N) is the Number of Blows of 140 lb. Hammer Falling 30 in. Required to Drive 1.4 in I.D. Sampler 1 Ft.

☒ Undisturbed Sample

LA Lab Analysis

Water Level

Water Level

Boring Caved

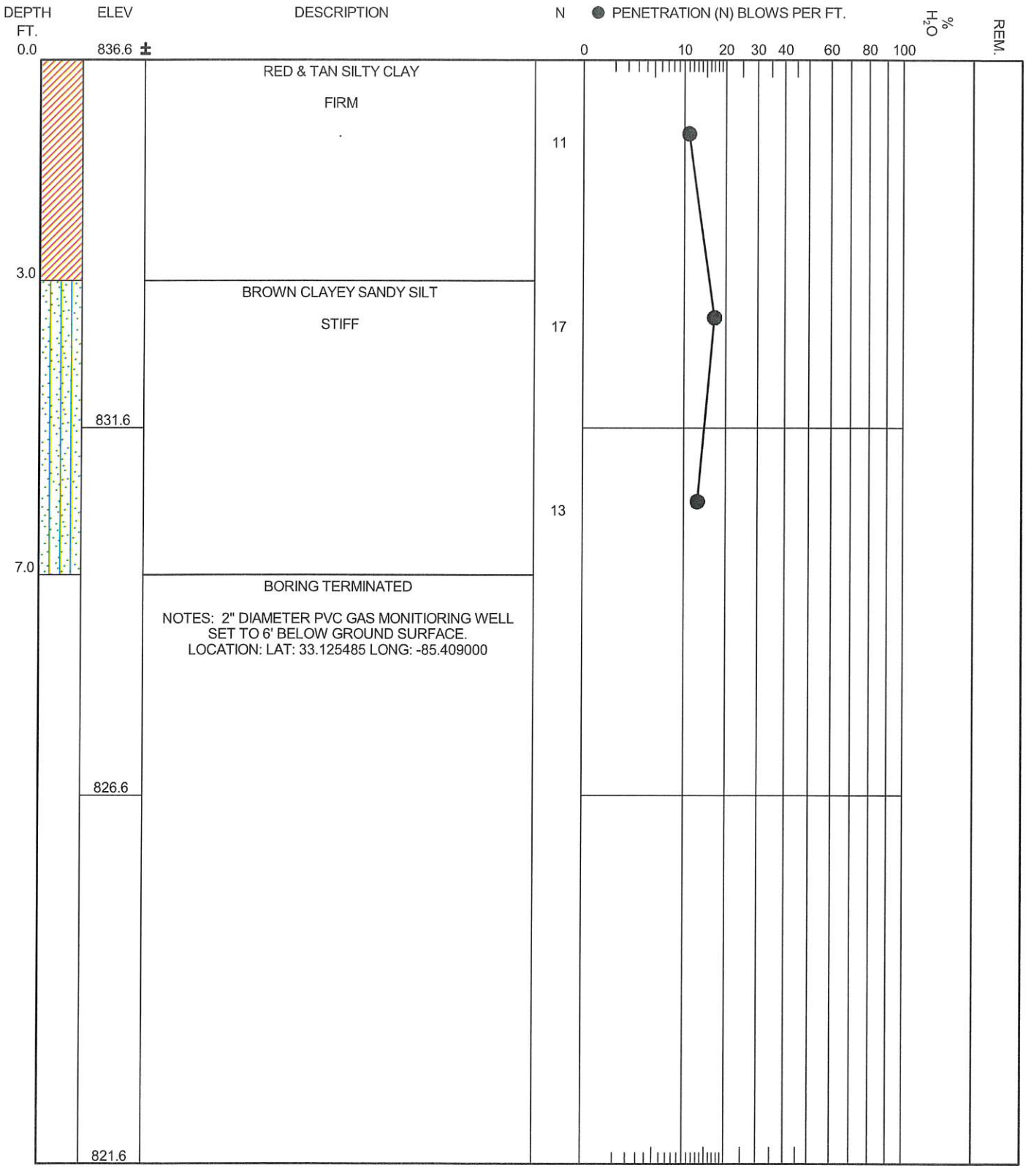
TEST BORING LOG

JOB NO. A24114.00445.000

BORING NO. B-3

DATE DRILLED 8/20/24

TYPE BORING SB



UES™

Boring and Sampling Meets ASTM D-1586

Penetration (N) is the Number of Blows of 140 lb. Hammer Falling 30 in. Required to Drive 1.4 in I.D. Sampler 1 Ft.

☒ Undisturbed Sample

LA Lab Analysis

Water Level

Water Level

Boring Caved

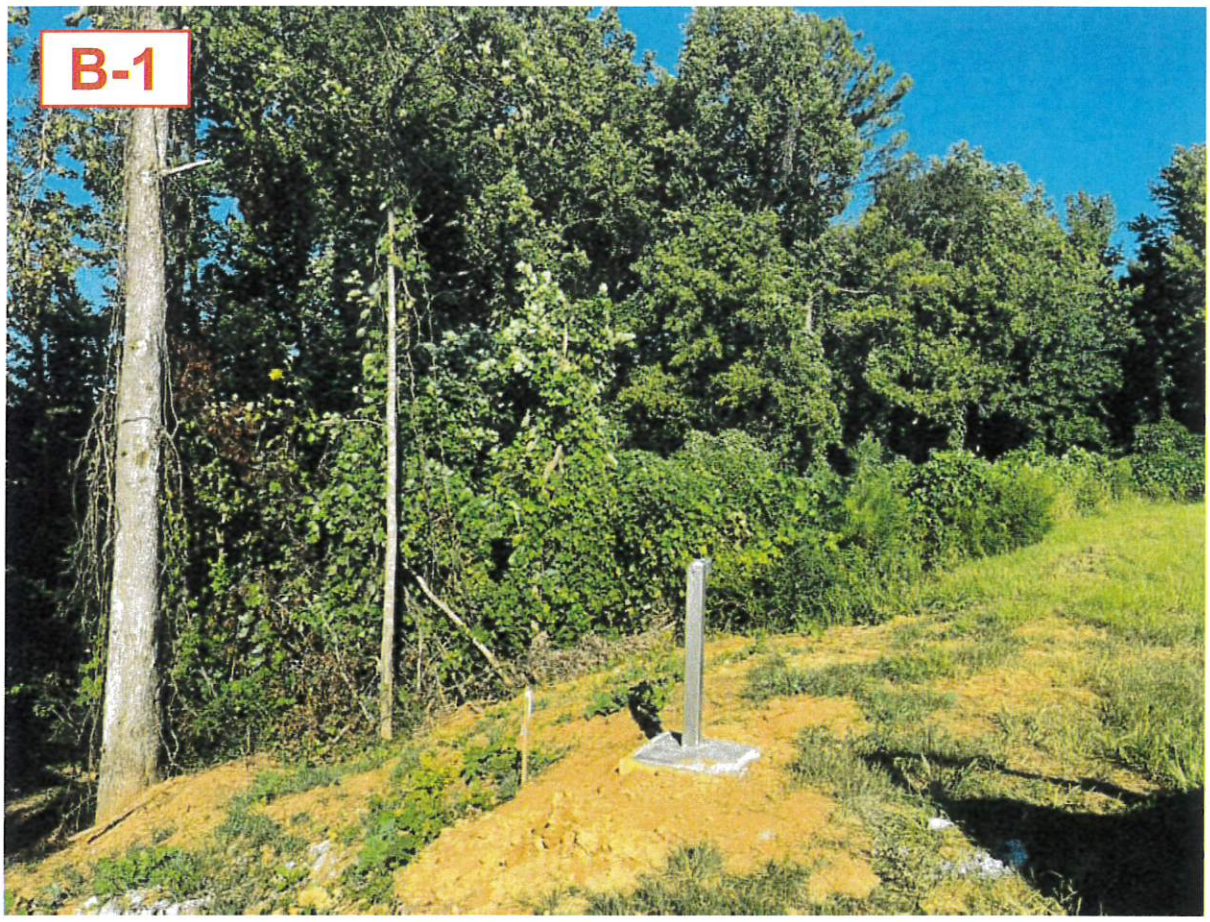
TEST BORING LOG

JOB NO. A24114.00445.000

BORING NO. B-4

DATE DRILLED 8/20/24

TYPE BORING SB


B-1

B-2

B-3

B-4

HARMON ENGINEERING & CONTRACTING CO., INC.

ENGINEERING · CONTRACTING · ENVIRONMENTAL MANAGEMENT
13376 C. L. TORBERT JR. PARKWAY · LAFAYETTE, ALABAMA 36862
PHONE: 334-864-9135 FAX: 334-864-8046
e-mail: info@he-inc.co

October 25th, 2024

Attn: Melissa H. Adornato
Alabama Department of Environmental Management
Land Division Solid Waste Branch
Solid Waste Engineering Section
Phone (334) 270-5605
P.O. Box 301463
Montgomery, Alabama 36130-1463

RE: ROANOKE C/D LANDFILL
2736 COUNTRY CLUB ROAD
ROANOKE, RANDOLPH COUNTY, ALABAMA
FACILITY ID NO. 56-02
HARMON JOB NO. 703-24-23

Mrs. Adornato:

Harmon Engineering and Contracting has performed well depth measurements for the City of Roanoke C/D Landfill over the past 3 months and included these measurements in this letter. Harmon has determined the piezometric surface and it is displayed on Sheet C1.0 of the Roanoke C/D landfill permit modification plans attached to this permit application package.

Sincerely,
HARMON ENGINEERING & CONTRACTING CO., INC.

Austin Harmon

Austin Harmon
Vice President/ EIT

CC: Allen Tucker

703-28 COR Landfill Expansion					
DATE	Well ID/Depth to Water Top of Casing(feet)				
	Piezometer 1	Piezometer 2	Piezometer 3	Piezometer 4	Piezometer 5
8/15/24			27.30	25.90	20.25
8/29/24			27.45	26.10	20.50
9/17/24	15.5	25.5	28.00	26.30	21.10
9/30/24	13.6	24.85	28.20	25.20	18.45
10/11/24	13.45	25.15	28.00	25.40	19.40
10/24/24	14.25	25.49	28.12	25.68	20.09
All measurements in Feet					
AVG Elevation to TOC	14.20	25.25	27.85	25.76	19.97
Top of Casing	846.32	830.37	848.05	833.50	835.72
GW Elevation	**832.12**	**805.12**	**820.21**	**807.74**	**815.76**

MAY 1999
RECEIVED
ADEM
LAND DIVISION

CITY OF ROANOKE C & D LANDFILL
RANDOLPH COUNTY, ALABAMA
HYDROGEOLOGIC EVALUATION

PREPARED FOR

CITY OF ROANOKE
ROANOKE, AL

PREPARED BY

SOUTHERN ENVIRONMENTAL RESOURCES, INC.
101 MARKET PLACE SUITE 300
MONTGOMERY, AL 36117

MAY 14, 1999

Southern Environmental Resources, Inc.

May 25, 1999

Mr. Russell Kelly
Solid Waste Branch
Alabama Department of Environmental Management
1751 W.L. Dickinson Drive
Montgomery, AL 36109-2608

Dear Mr. Kelly:

In compliance with ADEM Administrative Code, Division 13, 335-13-4-.11 through 335-13-4-.14, three copies of the report "Hydrogeologic Evaluation is submitted on behalf of the City of Roanoke proposed C & D landfill, Randolph County, Alabama. The report includes geology and hydrogeology of the area, potentiometric data, and groundwater flow direction.

If you have any questions concerning this report of need additional information, please contact Dale Case with Southern Environmental Resources, Inc. at 334-279-6666.

Sincerely,

Dale Case

Dale Case
Hydrogeologist, PG #804
Southern Environmental Resources, Inc.

Post Office Box 3195 ■ 2835 Zelda Road ■ Montgomery, AL 36109 ■ Phone: 334.279.6666 ■ Fax: 270.5983

CERTIFICATION PAGE

I Certify that I am a Certified Geologist experienced in hydrogeological investigations. The investigation described in this report was performed by a Geologist(s) experienced in hydrogeologic investigations. The information submitted herein, to the best of my knowledge and belief, is true, accurate, and complete.

Dale Case

Signature

Dale S. Case
Certified Geologist

5/24/99

Date

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4.0 SOILS

5.0 GEOLOGY

6.0 HYDROGEOLOGY

7.0 CONCLUSIONS

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FIGURE 2: TABLE OF PIEZOMETER ELEVATIONS AND WATER LEVELS

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APPENDIX 2: POTENTIOMETRIC MAP

APPENDIX 3: CROSS SECTION OF BOREHOLES

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1.0 INTRODUCTION

The City of Roanoke, Randolph County, has proposed the development of a construction and demolition (C & D) landfill. A hydrogeologic evaluation was performed on April 22, 1999. The evaluation consists of drilling three piezometers on the site to determine depth to groundwater and to evaluate geologic materials at the site.

2.0 LOCATION

The property under consideration is located in the northwest one- quarter of the northwest one- quarter of Section 9 of Township 22 South, Range 12 East in Randolph County, Alabama, and consists of approximately 38 acres.

3.0 TOPOGRAPHY

A review of the USGS Topographic map for the site in Section 9 in T22S, R12E indicates that elevations range from 780 feet to 865 feet above sea level. Total relief at the site is approximately 85 feet with a slope of approximately 10.0%. The site's topography can be described as moderately rolling.

Surface water drains to the northwest and south into tributaries of Red Caty Creek. The City of Roanoke has used the soils at the proposed site for various projects over the years, thus the present topography may not match the USGS Topographic map's gradients and slopes.

4.0 SOILS

The soils at the proposed site are the Appling- Cecil- Wedowee series with the Wedowee (WdC3, WdD3) and the Cecil (CeD3, CeC3) being the most predominant. The Ochlockonee fine sandy loam, a local alluvium, is also present at the site. This soil sequence is described as moderately deep to shallow well- drained soils that formed over bedrock on broad ridges. The Wedowee series is a gravelly sandy clay loam with a 6% to 15% slope and severely eroded. The Appling and Cecil series is described as a gravelly clay loam with a 6% to 15% slope and also severely eroded. The parent material

for each soil type is granite, gneiss, schist, and basic rocks. However, the soils at the proposed site have been used by the City of Roanoke for various projects, and the overlying soils have been stripped away in most areas of the site.

5.0 GEOLOGY

The City of Roanoke is underlain by high- grade metamorphic rocks of Precambrian to Paleozoic Age. The proposed C & D landfill site is located within the Rock Mills Granite Gneiss of the Dadeville Complex. The Rock Mills Granite Gneiss is a coarse to medium- grained biotite granite gneiss with thick bands of epidote and thin, small amphibolite bodies.

Three boreholes were drilled with an auger at the proposed site to a depth ranging from 24 feet to 34 feet. The character of the soils at the site consists of mottled sandy silt clays and silt clays ranging in color from red brown, light brown and green- tan with weathered bedrock stringers (clasts of biotite gneiss). Bedrock was encountered while drilling Piezometer-1 (PZ-1) at a depth of 24 feet, whereas PZ-2 and PZ-3 encountered no auger refusal and were set at 30 feet and 34 feet, respectively.

6.0 HYDROGEOLOGY

Regionally the site lies above an area that is not considered a major aquifer due to the low yields of groundwater in the metamorphic Dadeville Complex. The Dadeville Complex is not used as a municipal water supply due to the small yields. The movement of groundwater in this region is controlled by topography, the character and thickness of the clay layers, and by the fracture features of the bedrock.

Borehole data concludes that most groundwater at the site is in the form of saturated sandy clays located adjacently overlying the gneiss bedrock. The drilling of Piezometer-1 (PZ-1) yielded saturated clay at 24 feet, PZ-2 at 26 feet, and PZ-3 at 24 feet. Measurements conducted on April 28, 1999 yielded water levels of 9.3 feet below ground surface (BGS) for PZ-1, 21.95 feet (BGS) for PZ-2, and 23.0 feet (BGS) for PZ-3. The data from the three piezometers suggests that groundwater flow is generally southwest at a gradient of 0.014 ft/ft.

7.0 CONCLUSIONS

1. The site is not located within any major aquifer recharge or discharge zone.

2. Geology at the proposed site consists of thick impermeable clay units overlying the Precambrian to Paleozoic Rock Mills Granite Gneiss bedrock.

3. Groundwater was determined to range from 9.3 feet to 23.0 feet below ground surface.

4. Groundwater flows to the southwest with a gradient of 0.014 ft/ft.

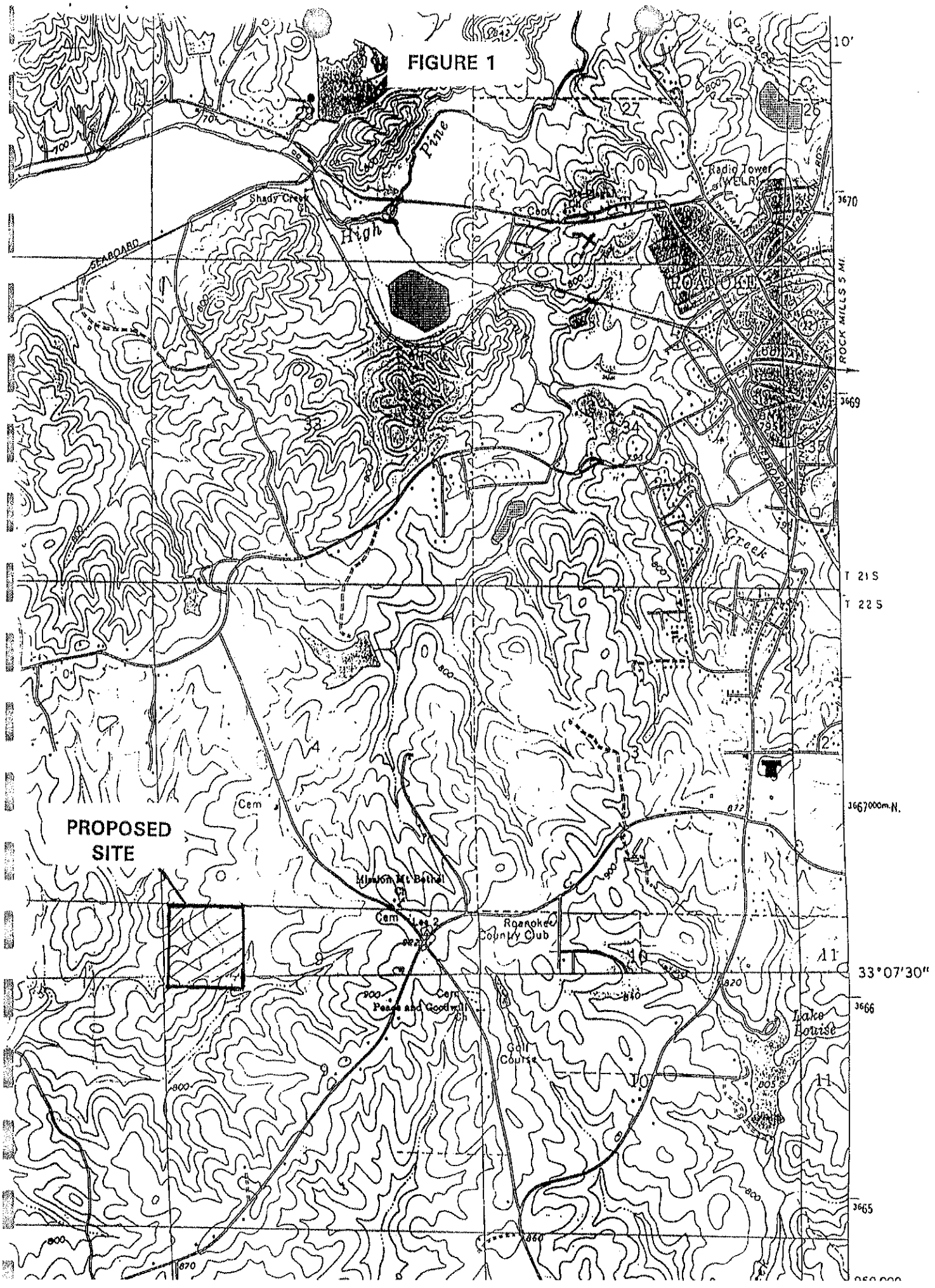
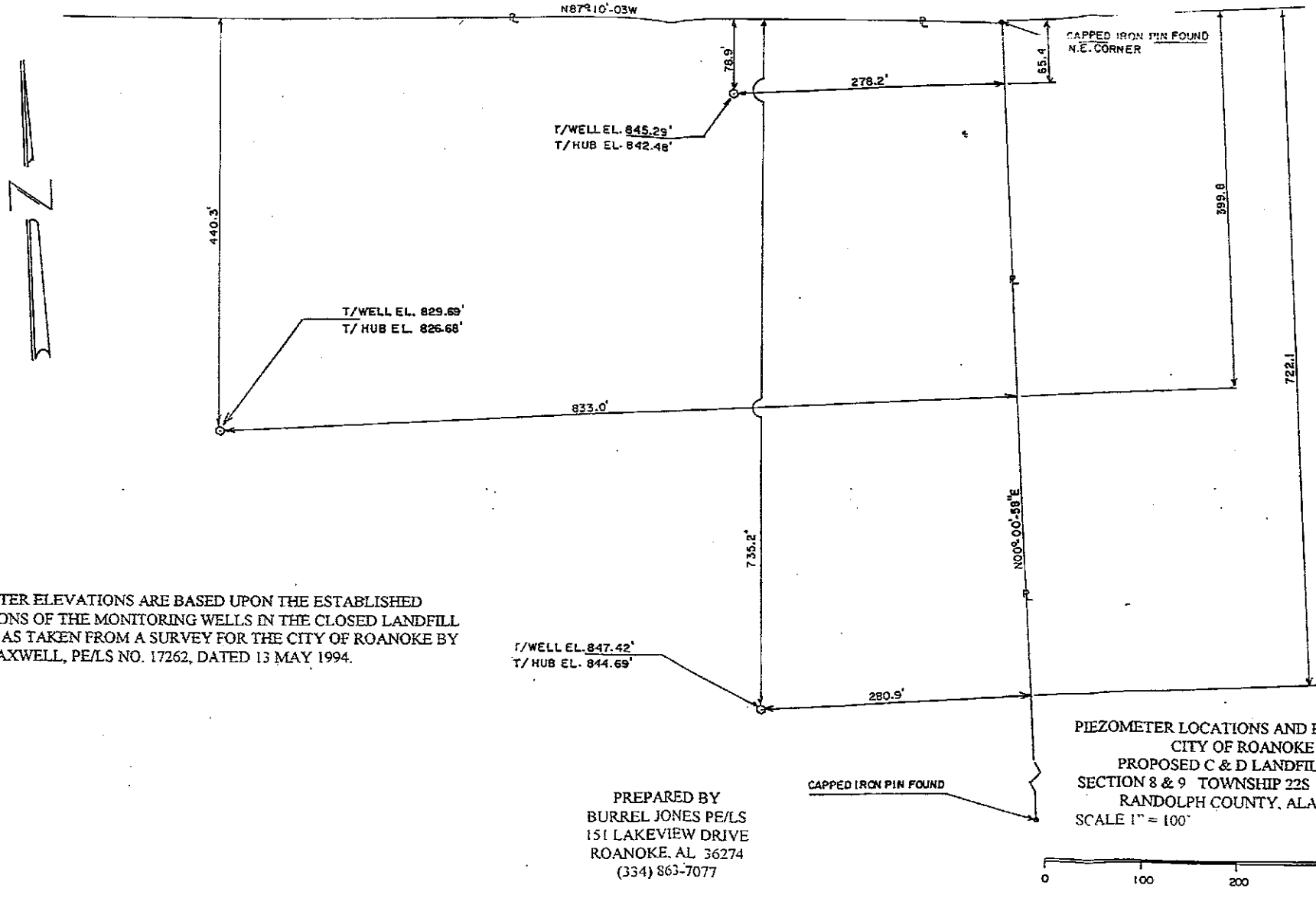


FIGURE 1
PROPOSED SITE
Pine
High
Shady Creek
SEABOARD
ROANOKE
Radio Tower
WSLS
ROCK MILLS 5 MI.
Creek
T 21 S
T 22 S
Cem
Mission Mt. Bethel
Cem
Roanoke Country Club
Cem
Peace and Goodwill
Golf Course
Lake Louise
3670
3669
3667000m.N.
3666
3665
33°07'30"

TABLE OF PIEZOMETER ELEVATIONS AND WATER LEVELS

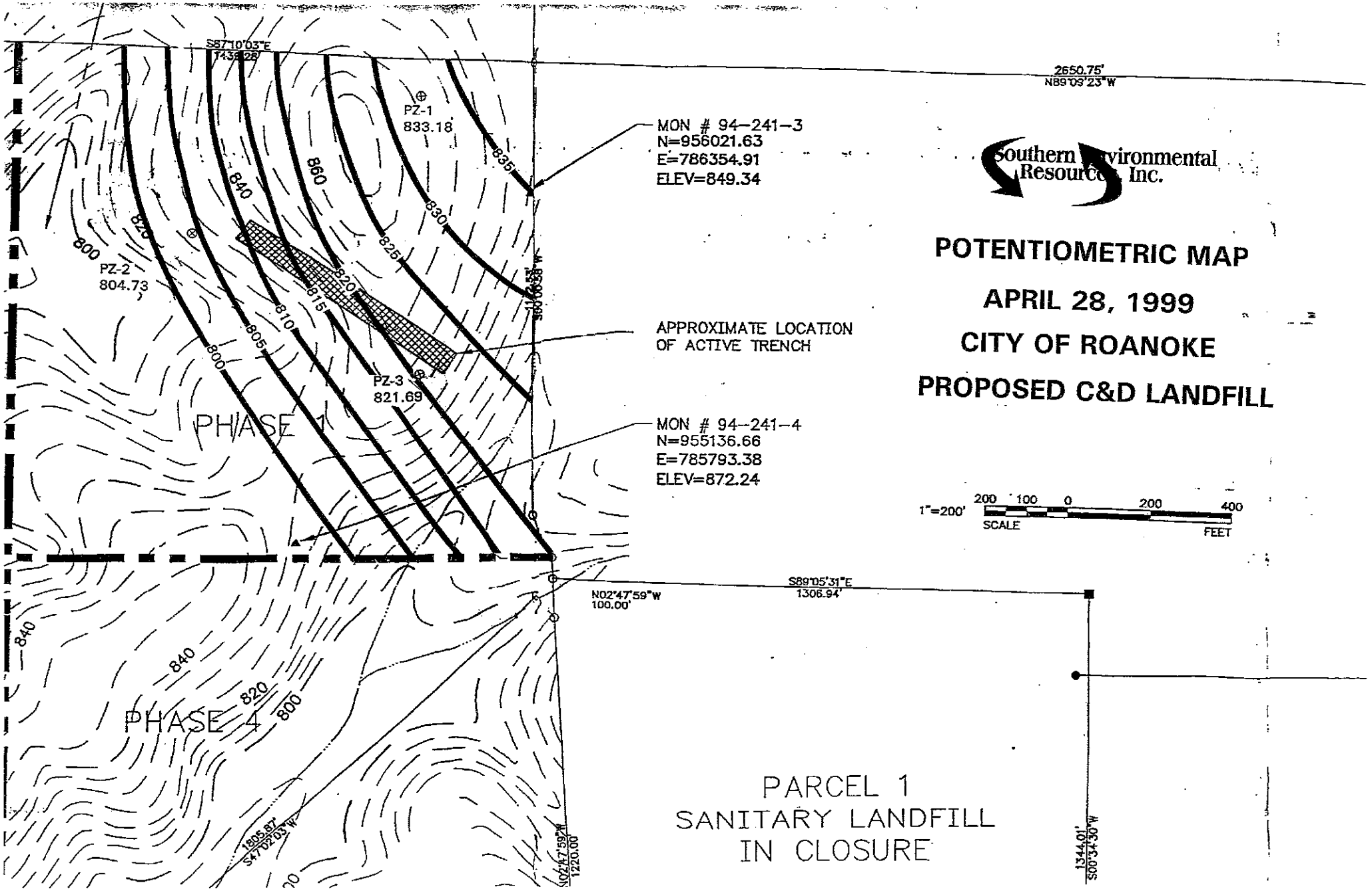
PIEZOMETER	SURFACE ELEVATION	WELLHEAD ELEVATION	WATER LEVEL ON 4/28/99	DEPTH TO WATER FROM TOP OF CASING
PZ-1	842.48	845.29	833.18	12.1
PZ-2	826.68	829.69	804.73	25.1
PZ-3	844.69	847.42	821.69	26.2



PIEZOMETER ELEVATIONS ARE BASED UPON THE ESTABLISHED ELEVATIONS OF THE MONITORING WELLS IN THE CLOSED LANDFILL SECTION AS TAKEN FROM A SURVEY FOR THE CITY OF ROANOKE BY KEITH MAXWELL, PE/LS NO. 17262, DATED 13 MAY 1994.

PREPARED BY
BURREL JONES PE/LS
151 LAKEVIEW DRIVE
ROANOKE, AL 36274
(334) 863-7077

PIEZOMETER LOCATIONS AND ELEVATIONS
CITY OF ROANOKE
PROPOSED C & D LANDFILL SITE
SECTION 8 & 9 TOWNSHIP 22S RANGE 12E
RANDOLPH COUNTY, ALABAMA
SCALE 1" = 100' 7 MAY 1999



Southern Environmental Resources Inc.

POTENTIOMETRIC MAP

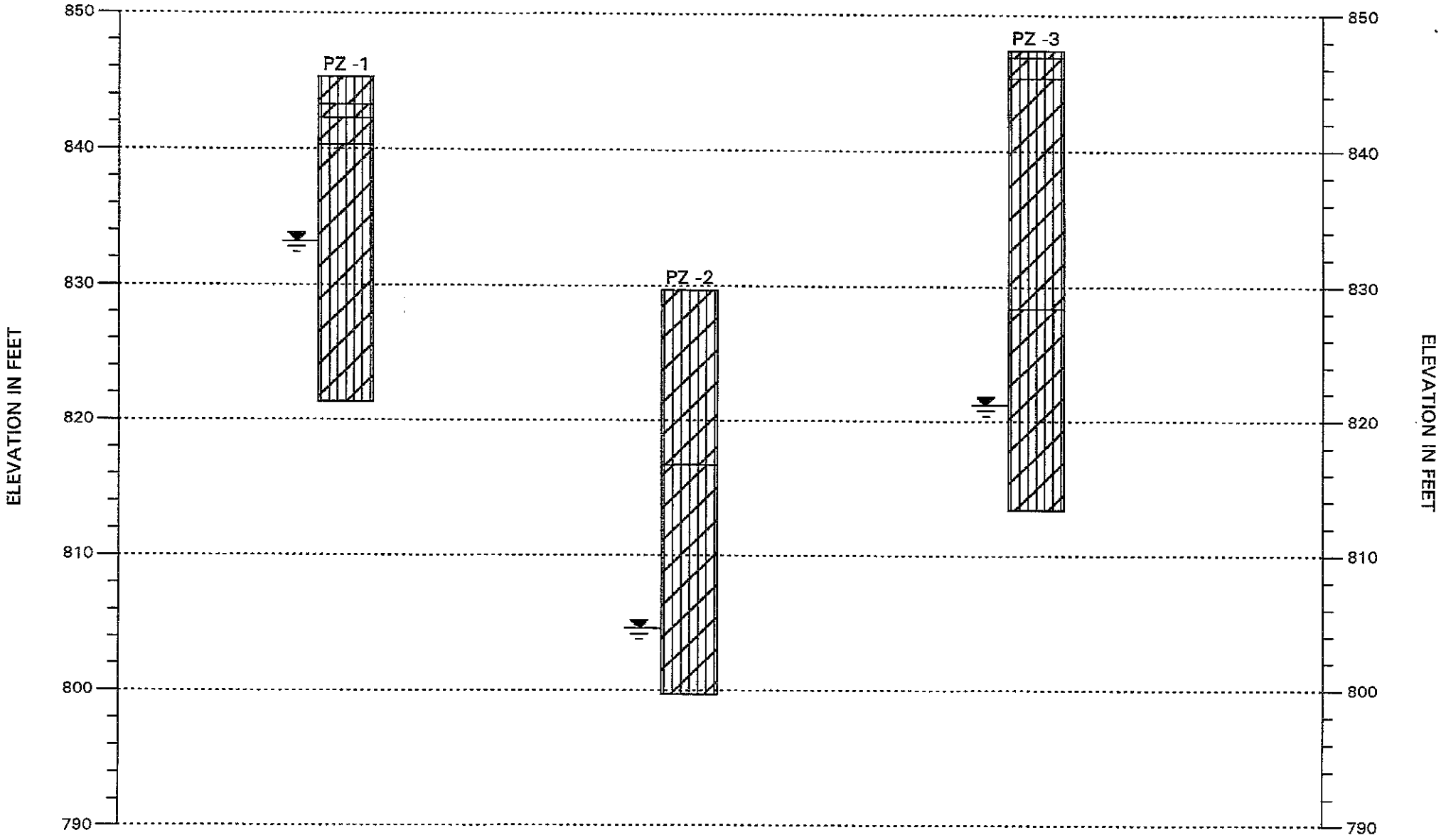
APRIL 28, 1999

CITY OF ROANOKE

PROPOSED C&D LANDFILL

1"=200' SCALE 200 100 0 200 400 FEET

SOIL BORING CROSS SECTION
ROANOKE C & D



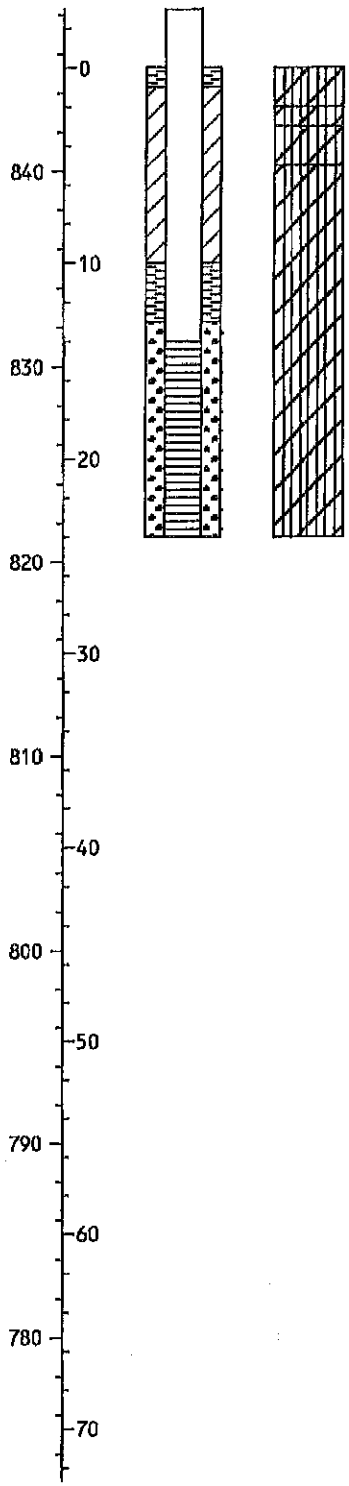
Strata symbols

Silty low plasticity clay

SOIL BORING LO

BORING PZ -1

PROJECT: ROANOKE C & D
JOB No:
PROJECT LOCATION: ROANOKE, RANDOLPH CTY, AL
METHOD: AUGER
DATE DRILLED: 4/22/99
ELEVATION: 845.29
WATER LEVEL: 833.18
DRILLER: QUALITY ASSURANCE DRILL

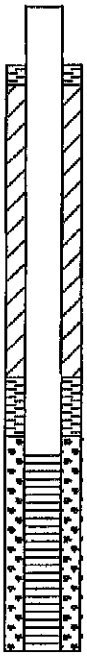
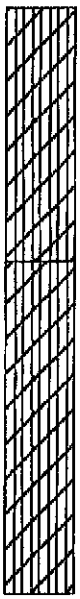


ELEVATION/ DEPTH	WELL DETAIL	SOIL SYMBOLS SAMPLER SYMBOLS AND "N" VALUE	USCS	DESCRIPTION	OVA DATA ppm	PERM. (K) cm/sec
			CL-ML	RED BROWN SANDY SILT CLAY		
			CL-ML	LIGHT TAN SANDY SILT CLAY		
			CL-ML	LIGHT BROWN SANDY SILT CLAY		
			CL-ML	LIGHT BROWN SILT CLAY W/ REGOLITH CLASTS		

SOIL BORING LO

BORING PZ -2

PROJECT: ROANOKE C & D
JOB No:
PROJECT LOCATION: ROANOKE, RANDOLPH CTY, AL
METHOD: AUGER
DATE DRILLED: 4/22/99
ELEVATION: 829.69
WATER LEVEL: 804.73
DRILLER: QUALITY ASSURANCE DRILL

ELEVATION/ DEPTH	WELL DETAIL	SOIL SYMBOLS SAMPLER SYMBOLS AND "N" VALUE	USCS	DESCRIPTION	OVA DATA ppm	PERM. (K) cm/sec
830 – 0			CL-ML	RED BROWN SILT CLAY W/ GREY-TAN MOTTLED CLAY STRINGERS		
820 – 10			CL-ML	BROWN SILT CLAY		
810 – 20						
800 – 30						
790 – 40						
780 – 50						
770 – 60						
760 – 70						

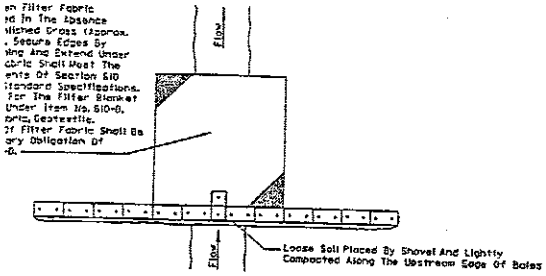
SOIL BORING LO

BORING PZ -3

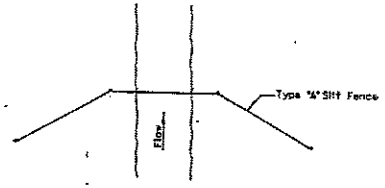
PROJECT: ROANOKE C & D
JOB No:
PROJECT LOCATION: ROANOKE, RANDOLPH CTY, AL
METHOD: AUGER
DATE DRILLED: 4/22/99
ELEVATION: 847.42
WATER LEVEL: 821.69
DRILLER: QUALITY ASSURANCE DRILL

ELEVATION/ DEPTH	WELL DETAIL	SOIL SYMBOLS SAMPLER SYMBOLS AND "N" VALUE	USCS	DESCRIPTION	OVA DATA ppm	PERM. (K) cm/sec
850 / 0			CL-ML	PINK SANDY CLAY		
			CL-ML	BROWN SANDY SILT CLAY		
			CL-ML	RED BROWN SILT CLAY		
840 / 10						
830 / 20			CL-ML	LIGHT [illegible]		
820 / 30						
810 / 40						
800 / 50						
790 / 60						
780 / 70						

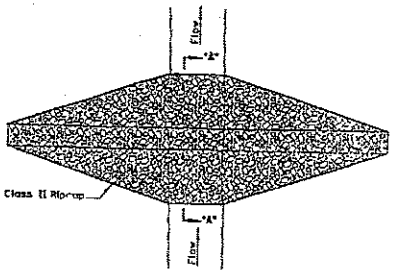
FHWA REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
-1	AL				



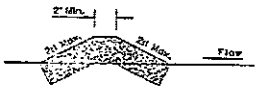
PLAN



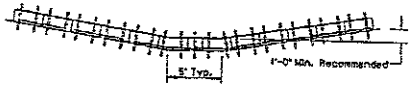
PLAN



PLAN



SECTION "A-A"

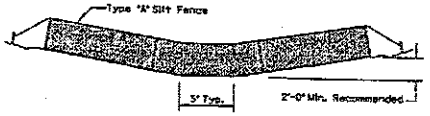


Anchor Bales With 2 - 2" x 2" x 4' Stakes Per Bale

ELEVATION

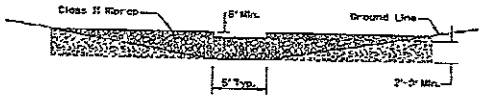
BALED HAY DITCH CHECK
FOR LIGHT FLOWS AND RELATIVELY FLAT SLOPES

Do not deploy in a manner that silt fences will act as a dam across permanent flowing watercourses. Silt fences are to be used at upland locations.



ELEVATION

SILT FENCE DITCH CHECK
FOR INTERMEDIATE FLOWS AND MODERATE SLOPES



ELEVATION

CLASS II OR LOCAL RIPRAP DITCH CHECK
FOR HEAVY FLOWS AND STEEP SLOPES

NOTES:

1. Payment for the suggested ditch check applications shall be made under the appropriate pay items
   - 665-F Hay Bales
   - 665-1 Temporary Riprap, Class 2
   - 665-J Silt Fence, Type A
   - 610-C Filter Fabric, Geotextile
2. Local rock excavated in the project area and meeting approximate size and weight specifications of Class II Riprap may be used. Payment shall be as Item 665-1, Temporary Riprap, Class 2. In lieu of weighing the local rock, a conversion factor of 3800 #/Cu. Yd. loose measurement may be used.
3. Spacing shall be as shown on the plans for special treatment areas, or as determined by actual project needs to minimize erosion.
4. Additional erosion control methods will be required at the ditch outlet to contain sediment.
5. The details shown on this drawing are to be used as a guide only and not intended to replace the requirements of current Alabama Department of Transportation Specifications concerning Temporary Erosion Control.

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

THIS DRAWING REPRESENTS DESIGNS PREPARED FOR USE BY THE ALABAMA DEPARTMENT OF TRANSPORTATION AND IS NOT TO BE COPIED, REPRODUCED, ALTERED, OR USED BY ANYONE, OR ANY ORGANIZATION, WITHOUT THE EXPRESSED WRITTEN CONSENT OF THE ALABAMA DEPARTMENT OF TRANSPORTATION REPRESENTATIVE AUTHORIZED TO APPROVE THIS USE. ANYONE MAKING UNAUTHORIZED USE OF THIS DRAWING MAY BE PROSECUTED TO THE FULLEST EXTENT OF THE LAW.

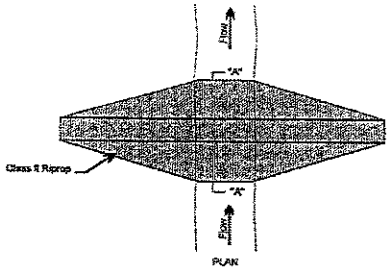
REVISIONS

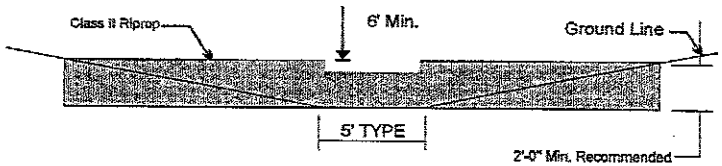
ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

DESIGN BUREAU SPECIAL DRAWING

TEMPORARY DITCH CHECK APPLICATIONS

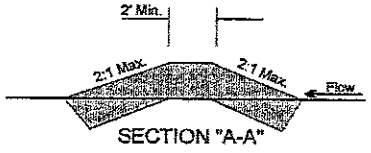
DATE: 11-1-94 | SPECIAL DRAWING NO.





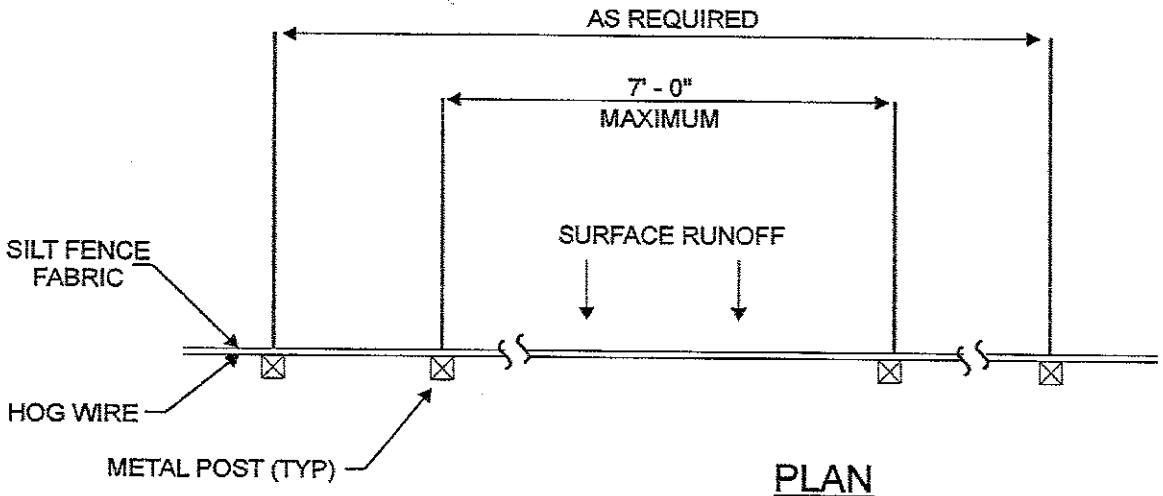
ELEVATION

CLASS II OR LOCAL RIPRAP DITCH CHECK
FOR HEAVY FLOWS AND STEEP SLOPES

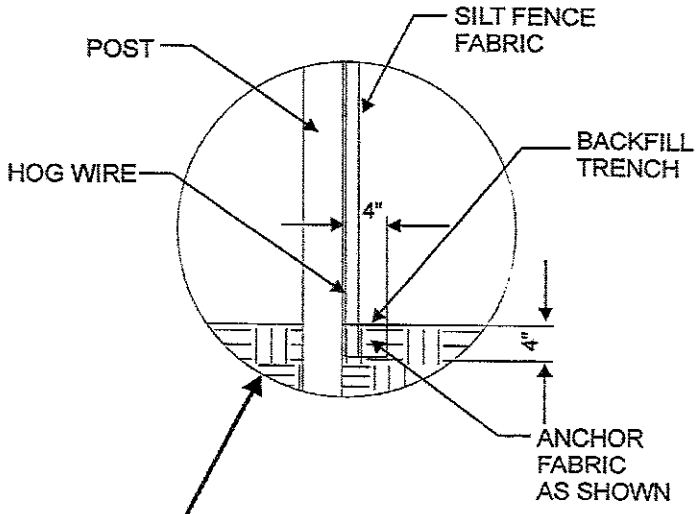


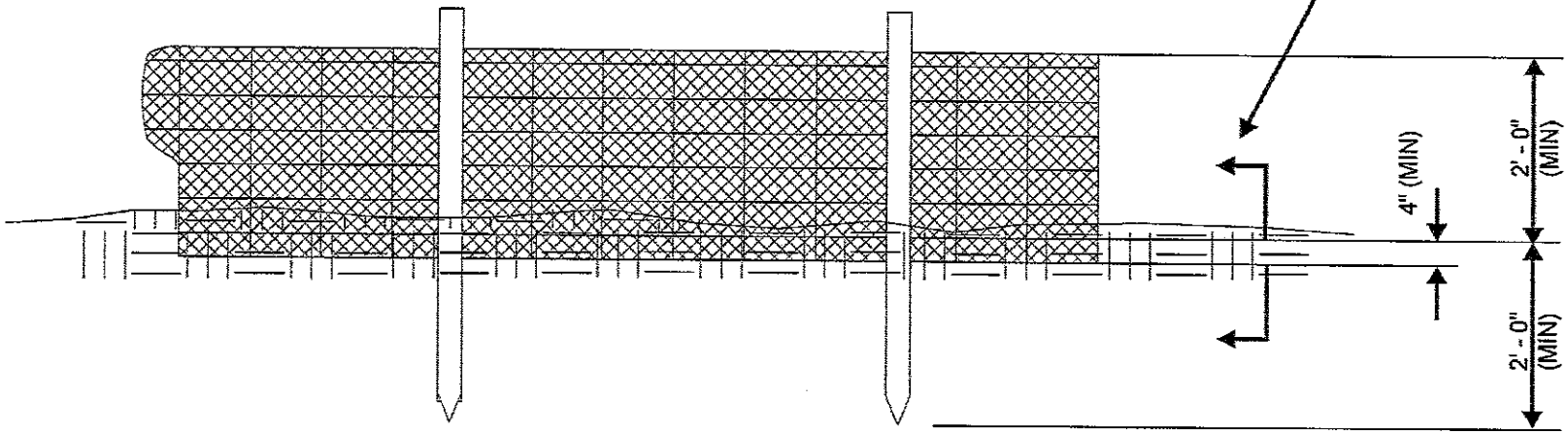
SECTION "A-A"

TYPICAL SILT FENCE DETAIL

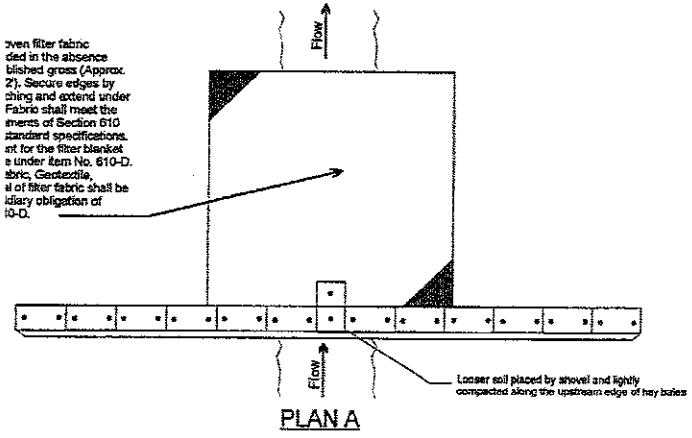


PLAN

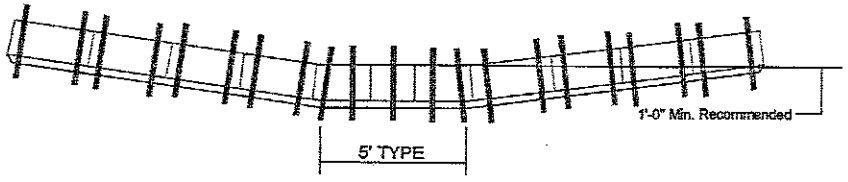




ELEVATION



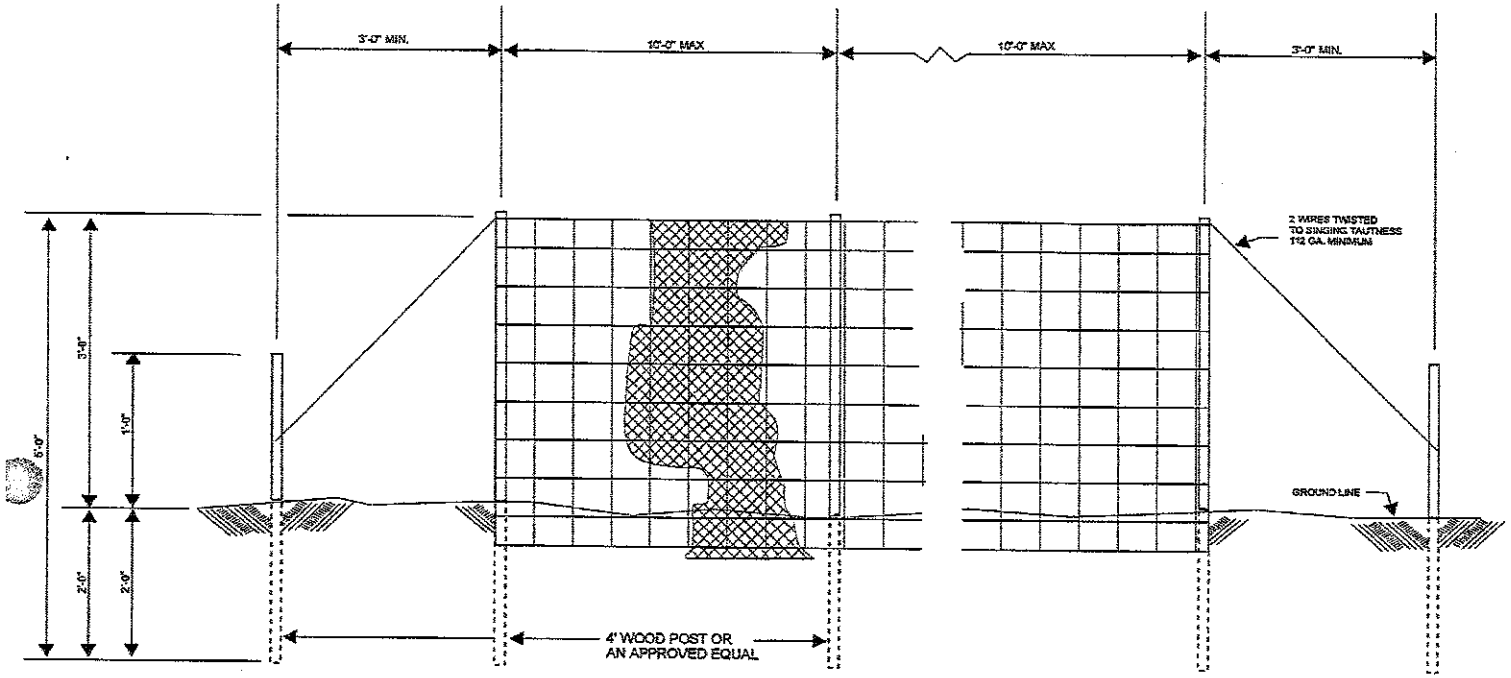
PLAN A



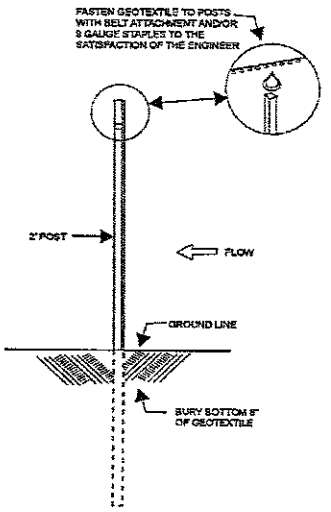
Anchor Hay Bales with 2 - 2' x 2' x 4' Stakes Per Bale

ELEVATION

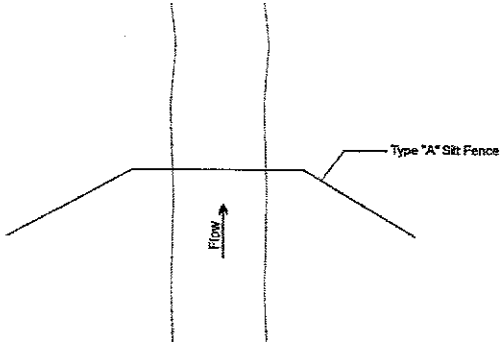
BALED HAY DITCH CHECK
FOR LIGHT FLOWS AND RELATIVELY FLAT SLOPES
(LESS THAN 5% SLOPE)



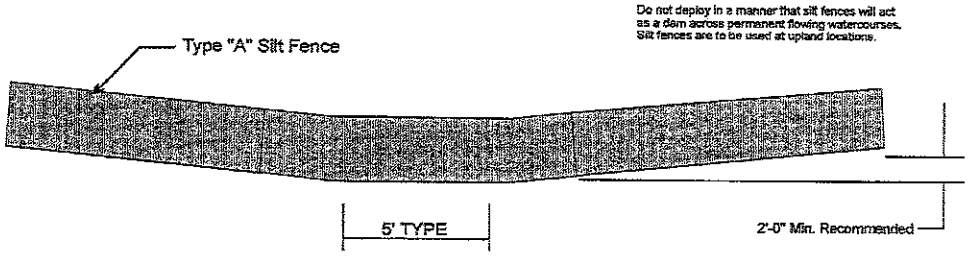
PLAN - TYPE "B"



SECTION

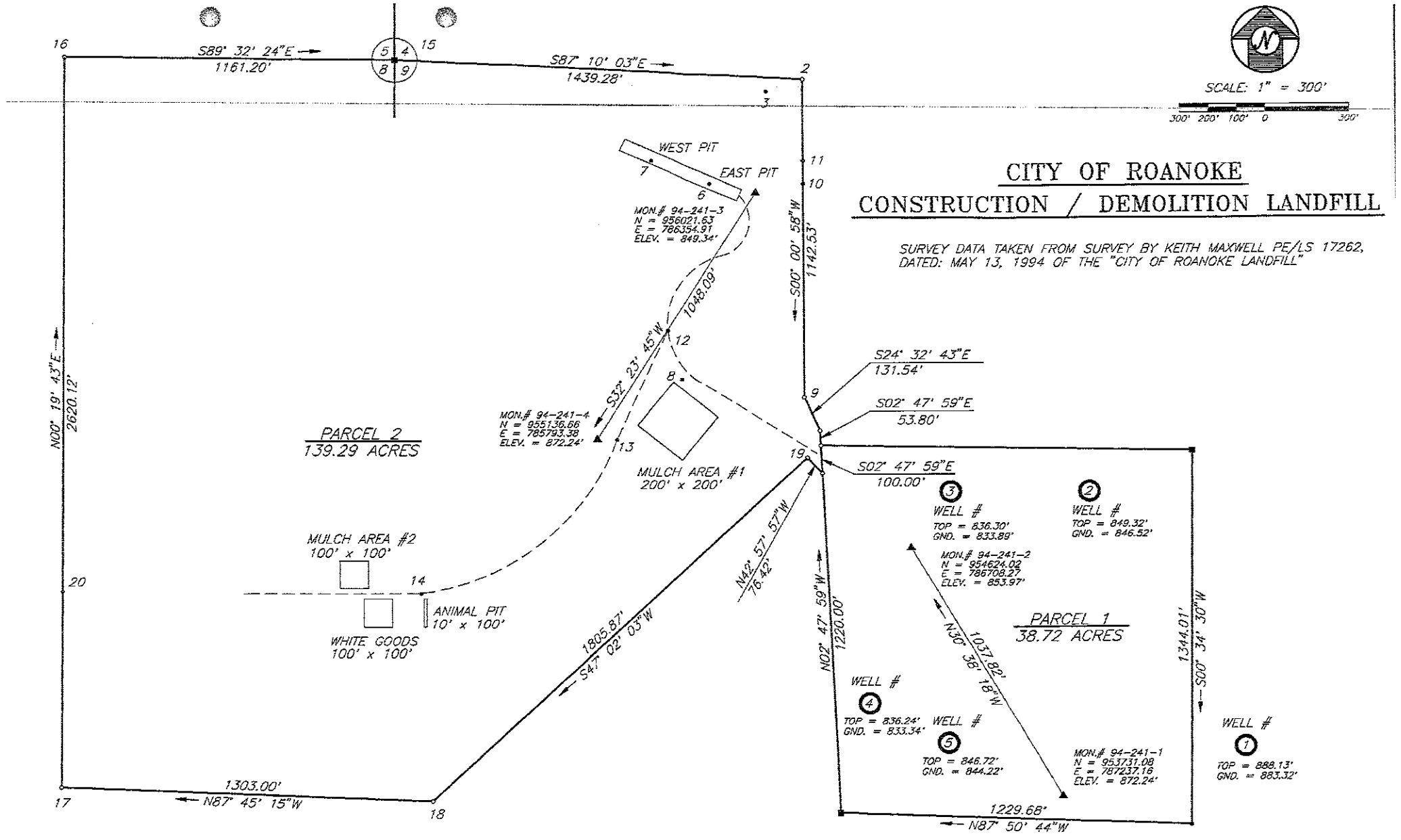


PLAN B



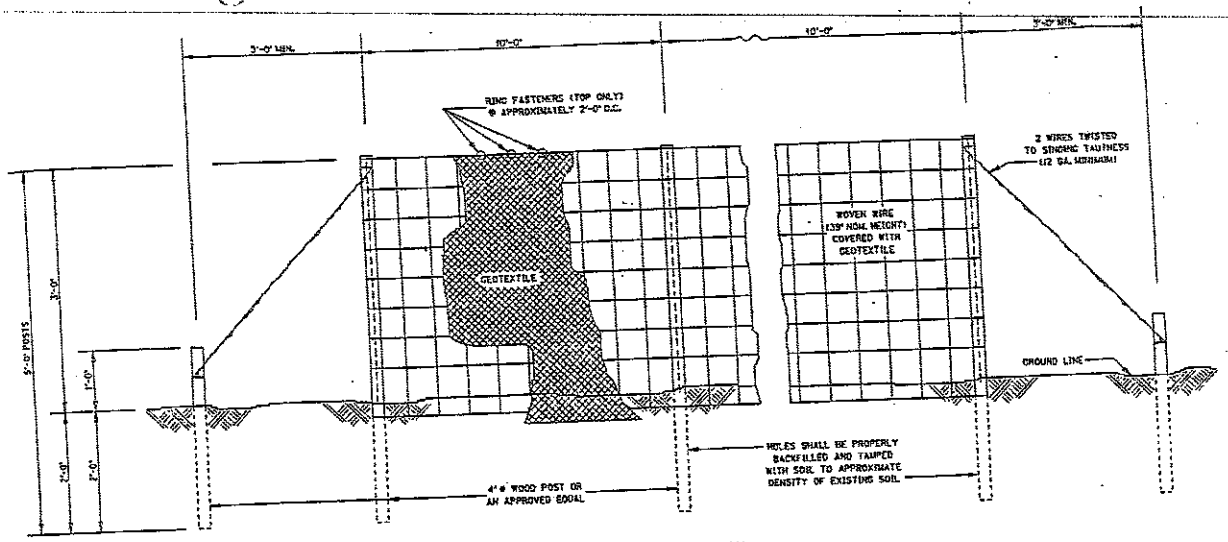
ELEVATION

SILT FENCE DITCH CHECK
FOR INTERMEDIATE FLOWS AND MODERATE SLOPES
(GREATER THAN 5% SLOPES)

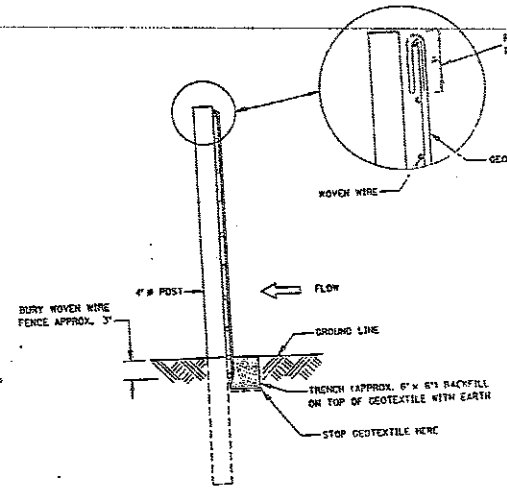


AUGUST 29, 1997

FHWA REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	AL				



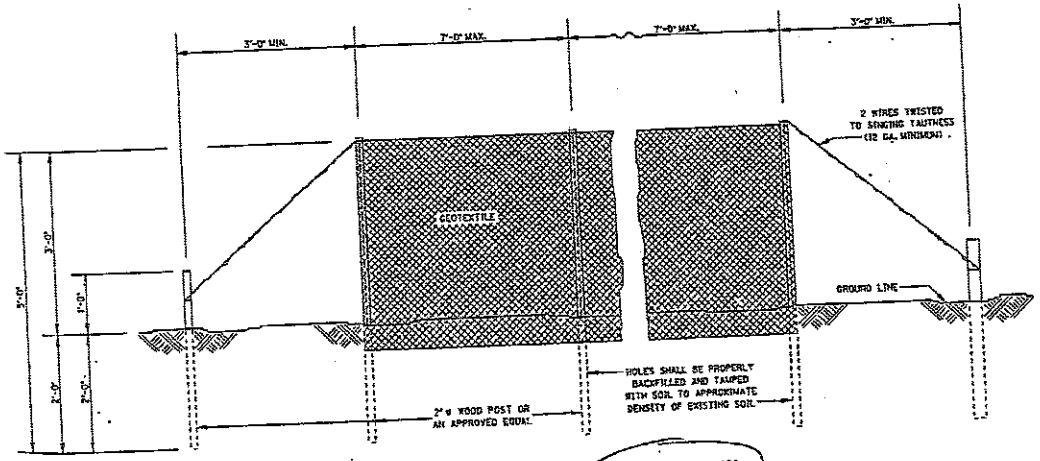
PLAN - TYPE "A"



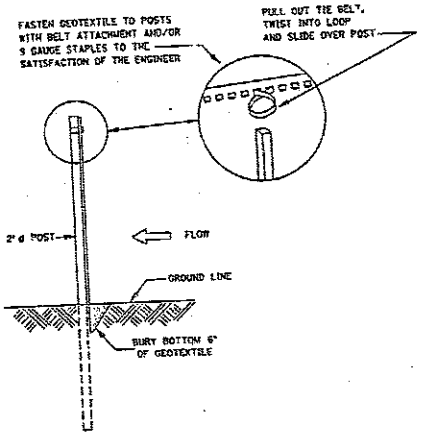
SECTION

GENERAL NOTES

1. TYPE "A" SILT FENCE SHALL BE USED IN AREAS OF CONCENTRATED FLOW. TYPE "B" SILT FENCE SHALL BE USED IN AREAS WHERE FLOW IS NOT AS SEVERE OR AS DIRECTED BY THE ENGINEER.
2. SILT FENCES ARE TEMPORARY EROSION CONTROL ITEMS, THAT SHALL BE ERECTED OPPOSITE ERODABLE AREAS SUCH AS NEWLY GRADED FILL SLOPES AND ADJACENT TO STREAMS AND CHANNELS.
3. SILT FENCE SHOULD BE PLACED WELL INSIDE RIGHT-OF-WAY ADD ALONG EDGE OF CLEARING LIMITS. THIS WILL ALLOW ROOM FOR A BACK-UP FENCE IF FIRST BECOMES FULL. SILT FENCES SHALL BE IN PLACE PRIOR TO ANY CONSTRUCTION OPERATION.
4. WHEREVER POSSIBLE SILT FENCES SHALL BE CONSTRUCTED ACROSS A FLAT AREA IN THE SHAPE OF A HORSESHOE. THIS AIDS IN PONDING OF RUNOFF AND FACILITATES SEDIMENTATION.
5. AFTER THE CONSTRUCTION AREA IS STABILIZED AND EROSION ACTIVITY CURTAILED, SILT FENCES SHALL BE REMOVED.
6. RING FASTENERS USED TO SECURE GEOTEXTILES TO WOVEN WIRE SHALL BE 13 GA. (AMERICAN).
7. IF WOOD POST ARE USED, STAPLES FOR SECURING WOVEN WIRE TO POSTS SHALL BE 19 GAUGE, GALVANIZED, 1½" LONG, 5 PER POST AT APPROX. 1'-0" O.C.
8. WOVEN WIRE TO BE 12½ GAUGE (MIN.)



PLAN - TYPE "B"



SECTION

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

THIS DRAWING REPRESENTS DESIGNS PREPARED FOR USE BY THE ALABAMA DEPARTMENT OF TRANSPORTATION AND IS NOT TO BE COPIED, REPRODUCED, ALTERED, OR USED BY ANYONE, OR ANY ORGANIZATION, WITHOUT THE EXPRESSED WRITTEN CONSENT OF THE ALABAMA DEPARTMENT OF TRANSPORTATION REPRESENTATIVE AUTHORIZED TO APPROVE THIS USE. ANYONE MAKING UNAUTHORIZED USE OF THIS DRAWING MAY BE PROSECUTED TO THE FULLEST EXTENT OF THE LAW.

REVISIONS
1. Redrawn on CADD 09-1992 by C.A.S.
2. Changed post height to 5'-0" on Type "A" silt fence 11-22-93 by C.A.S.
3. Corrected dimensions on woven wire fence detail on Type "A" 03-24-97 by C.A.S.

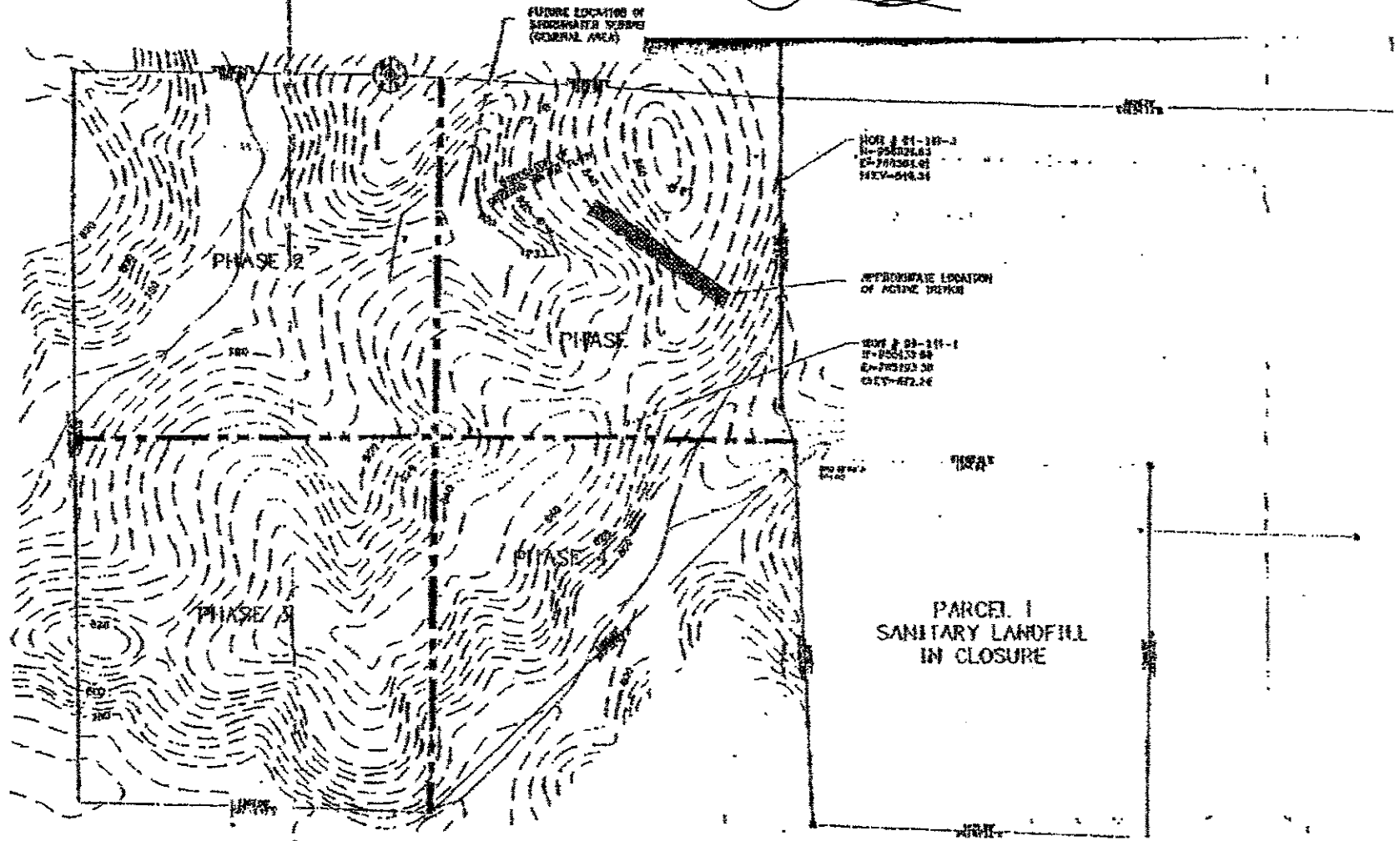
ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

DESIGN BUREAU SPECIAL DRAWING

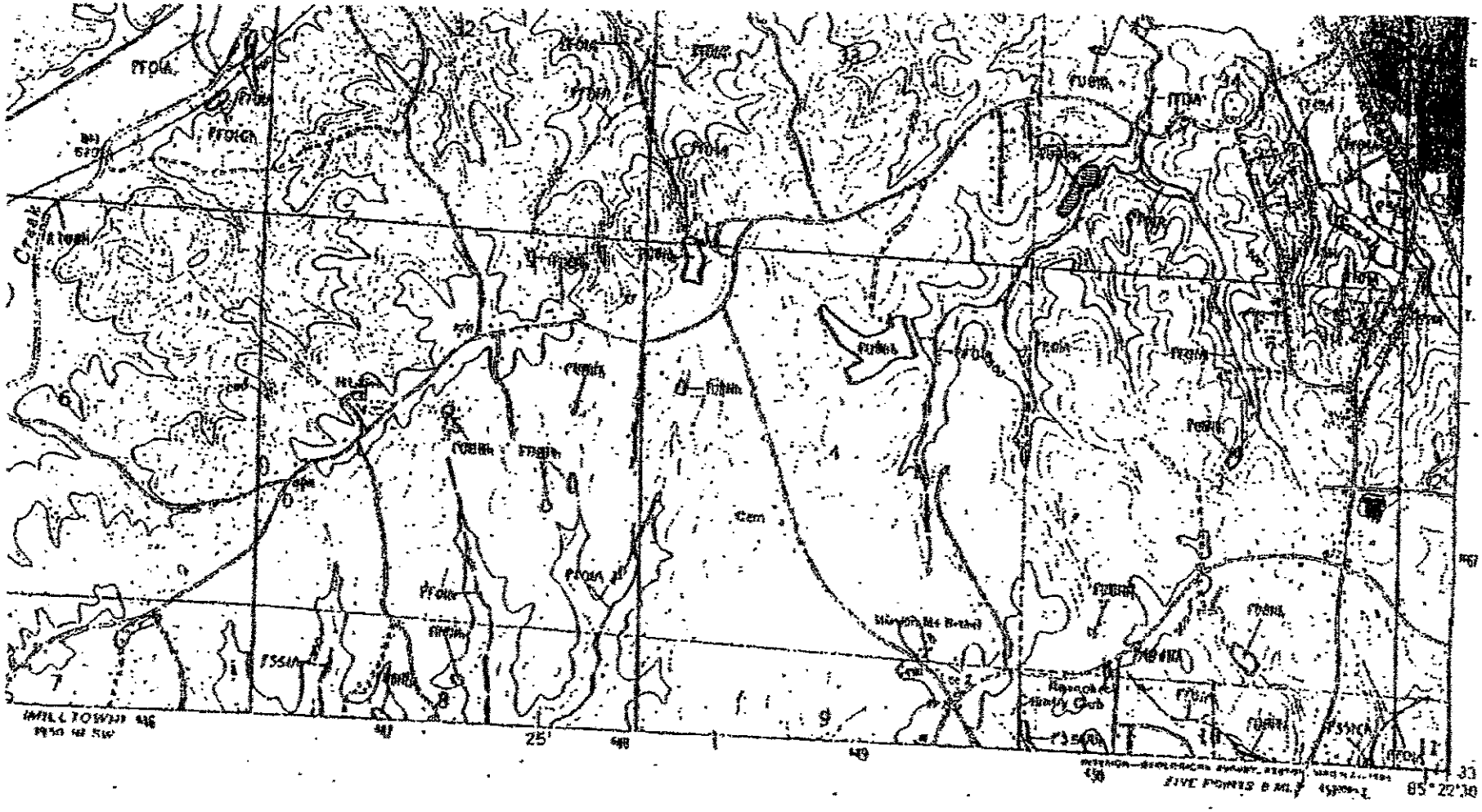
DETAILS OF SILT FENCE

STANDARD DRAWING NO. EC-665-S

CITY OF ROANOKE
ROANOKE, ALABAMA



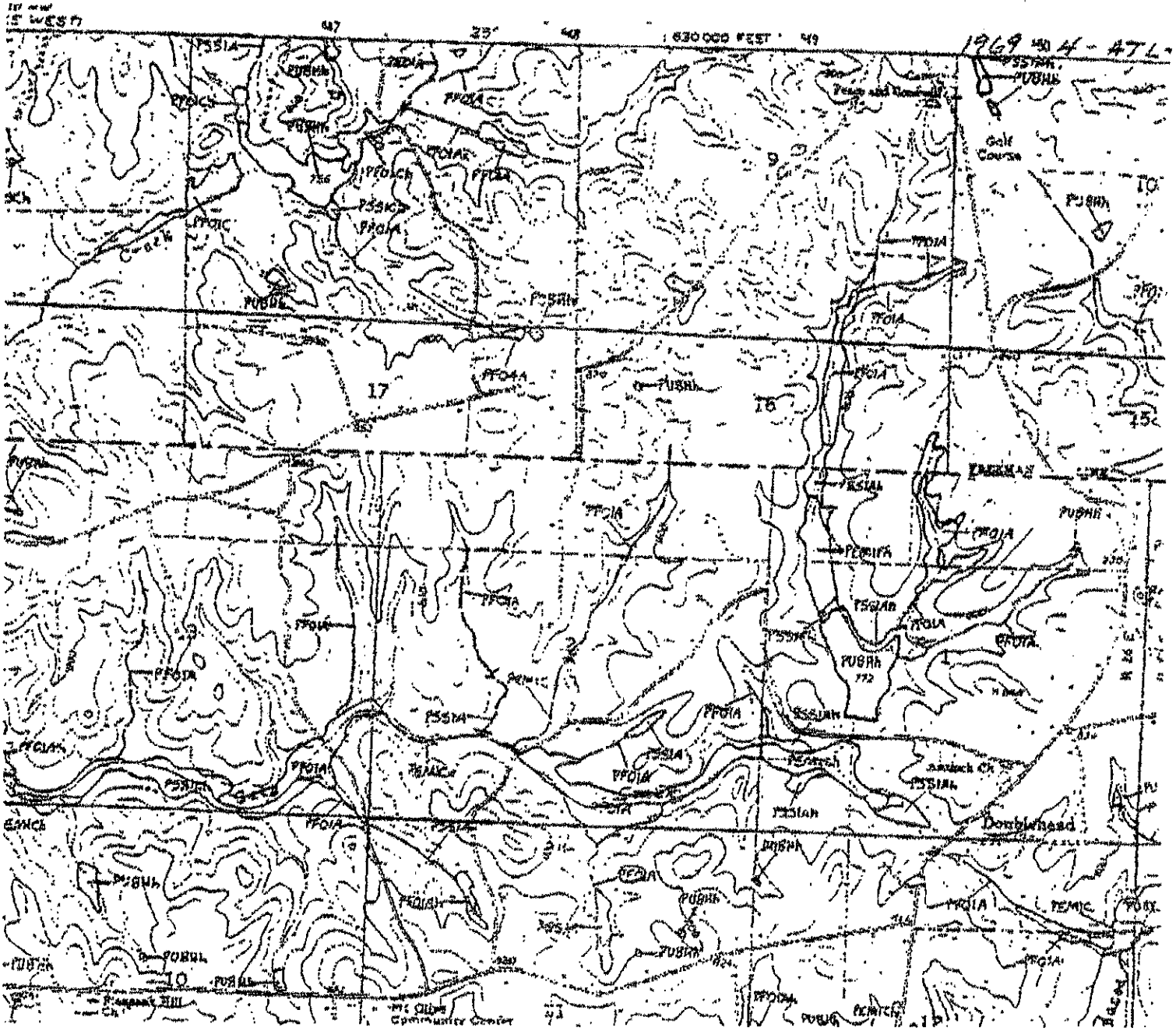
PARCEL 2
PROPOSED INDUSTRIAL LANDFILL


PFOA
PEMA
PSSA
PUBH
Cem
Ranch
Country Club
Mission-Methodist Parsonage
Mission-Methodist Church
Mission-Methodist Cemetery
Mission-Methodist Church
Mission-Methodist Parsonage
Mission-Methodist Church
Mission-Methodist Cemetery

CA BFH 24

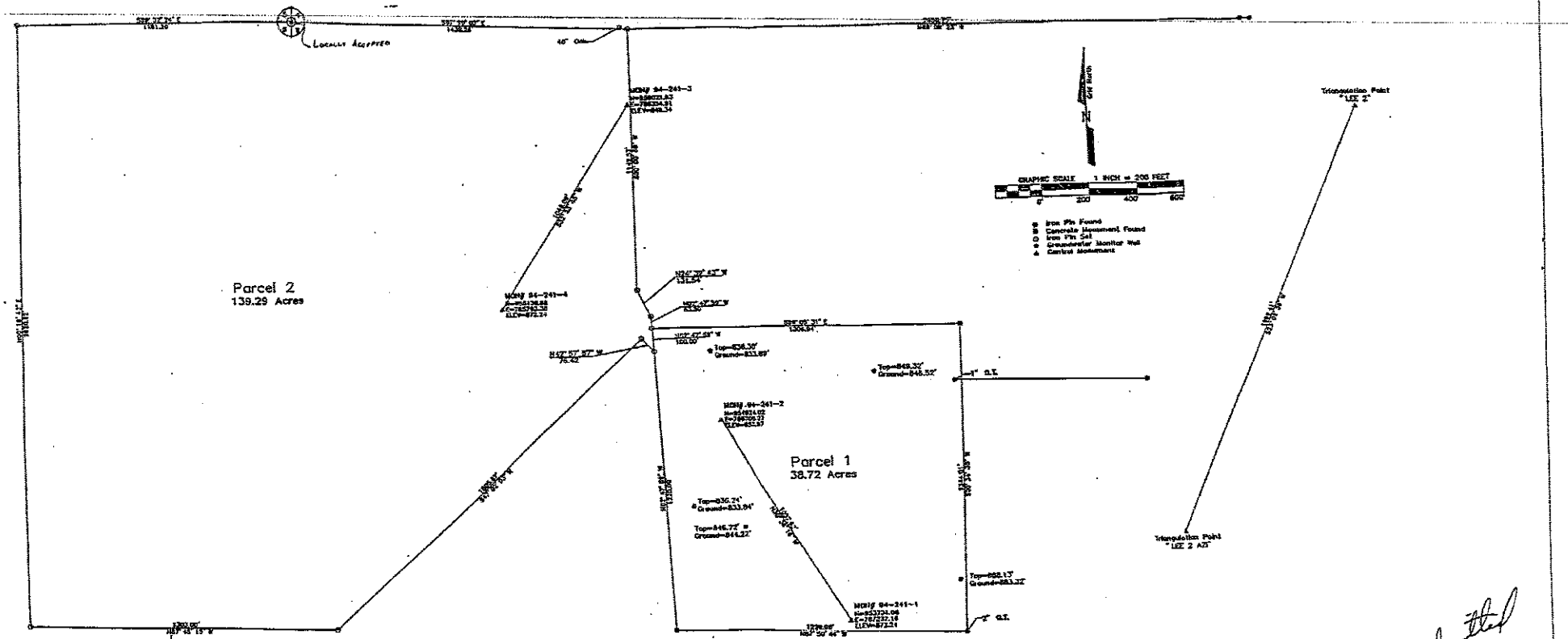
NDS INVENTORY

IENT OF THE INTERIOR



Boundary Survey For

CITY OF ROANOKE LANDFILL



STATE OF ALABAMA
RANDOLPH COUNTY

I, J. Keith Maxwell, a registered Professional Engineer and Land Surveyor, hereby state that the foregoing is a true and correct map or plat of the surveyed property and that the survey and mapping substantially meet the Minimum Technical Standards for the Practice of Land Surveying in the State of Alabama. Being more particularly described as follows:

PARCEL 1 : Beginning at a found concrete monument locally accepted as the Southwest corner of the Southeast 1/4 of the Northwest 1/4 of Section 8, Township-22-South, Range-12-East, Randolph County, Alabama; thence run North 02°47' 59" West, a distance of 1320.00 feet to an iron pin; thence continue North 02°47' 59" West, a distance of 190.00 feet to an iron pin; thence South 89°05' 31" East a distance of 1306.94 feet to a found concrete monument at a fence corner; thence South 00°34' 30" West, a distance of 1344.01 feet to a found 2" open top iron; thence North 87°50' 44" West, a distance of 1232.68 feet to the Point of Beginning, containing 38.72 acres, more or less, and lying in the Southeast 1/4 of the Northwest 1/4 of Section 8, Township-22-South, Range-12-East, Randolph County, Alabama.

PARCEL 2: Commencing at a found concrete monument locally accepted as the Northwest Corner of Section 8, Township 22-South, Range-12-East, Randolph County, Alabama; thence run South 87°10' 03" East, a distance of 1438.28 feet to an iron pin set at a fence corner; thence South 00°00' 55" West, a distance of 1142.53 feet to an iron pin set at a fence corner; thence South 24°02' 43" East, a distance of 1131.54 feet to an iron pin set at a fence corner; thence South 02°47' 59" East, a distance of 1131.54 feet to an iron pin set at a fence corner; thence South 02°47' 59" East, a distance of 1131.54 feet to an iron pin; thence South 02°47' 59" East, a distance of 76.42 feet to an iron pin; thence North 42°57' 57" West, a distance of 1100.00 feet to an iron pin; thence North 42°57' 57" West, a distance of 1303.87 feet to an iron pin set at a fence corner; thence South 41°52' 03" West, a distance of 1303.00 feet to an iron pin; thence South 41°52' 03" West, a distance of 1303.00 feet to an iron pin set at a fence corner; thence North 87°15' 10" West, a distance of 1306.94 feet to an iron pin set at a fence corner; thence North 00°19' 42" East, a distance of 2620.15 feet to an iron pin set at a fence corner; thence South 89°32' 24" East, a distance of 1361.20 feet to the Point of Beginning, containing 139.29 Acres, more or less, and lying part in Section 8 and part in Section 9, Township-22-South, Range-12-East, Randolph County, Alabama.

Subject to all rights-of-way, easements and restrictions which exist on a matter of record or exist de facto. It being the intention of this survey and description to reconvey that land described according to Deed Book 122, Page 749 recorded in the Office of the Probate Judge, Randolph County, Alabama, except for a correction made concerning the Northwest half (diagonal) of the Southeast 1/4 of the Northwest 1/4 of Section 8.

Note survey may not be reproduced without written consent. Only embossed sealed and signed copies are valid. Surveyor did not locate any improvements on the property other than those shown on this plat. All bearings are referenced to the recovery other than those shown on this plat. All bearings are referenced to Grid North. (Alabama East State Plane Coordinate System)

This copy embossed '97

D-S-94-241

J. KEITH MAXWELL PE/LS No. 17262
MAXWELL ENGINEERING AND
LAND SURVEYING, INC.
P. O. BOX 230 (205)826-9540
AUBURN, ALABAMA 36831-0230

Boundary Survey
Roanoke Landfill

Drawn By: HH | Scale: 1" = 200' | File Name: roanoke.prs | Date: May 13, 1994

FHWA REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	AL				

n Filter Fabric
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Secure Edges By
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For The Filter Blanket
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f Filter Fabric Shall Be
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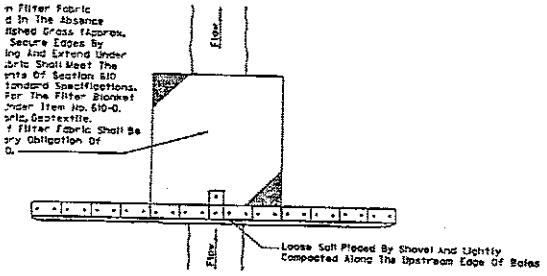
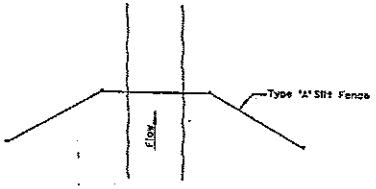
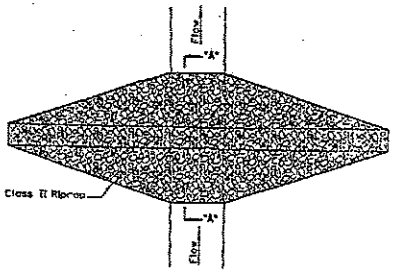


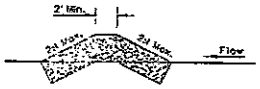
PLAN



PLAN



PLAN



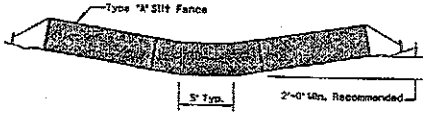
SECTION "A-A"

Anchor Bales With 2 - 2" x 2" x 4' Stakes Per Bale

ELEVATION

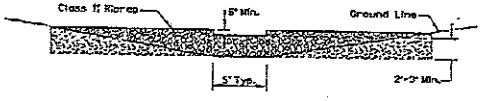
BALED HAY DITCH CHECK
FOR LIGHT FLOWS AND RELATIVELY FLAT SLOPES

Do not deploy in a manner that silt fences will act as a dam across permanent flowing watercourses. Silt fences are to be used at upland locations.



ELEVATION

SILT FENCE DITCH CHECK
FOR INTERMEDIATE FLOWS AND MODERATE SLOPES



ELEVATION

CLASS II OR LOCAL RIPRAP DITCH CHECK
FOR HEAVY FLOWS AND STEEP SLOPES

NOTES:

1. Payment for the suggested ditch check applications shall be made under the appropriate pay item
   - 665-F Hay Bales
   - 665-J Temporary Riprap, Class 2
   - 665-J Silt Fence, Type A
   - 610-D Filter Fabric, Geotextile
2. Local rock excavated in the project area and meeting approximate size and weight specifications of Class II Riprap may be used. Payment shall be as Item 665-J, Temporary Riprap, Class 2. In lieu of weighing the local rock, a conversion factor of 3600 T/Cu. Yd. loose measurement may be used.
3. Spacing shall be as shown on the plans for special treatment areas, or as determined by actual project needs to minimize erosion.
4. Additional erosion control methods will be required at the ditch outlet to contain sediment.
5. The details shown on this drawing are to be used as a guide only and not intended to replace the requirements of current Alabama Department of Transportation Specifications concerning Temporary Erosion Control.

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

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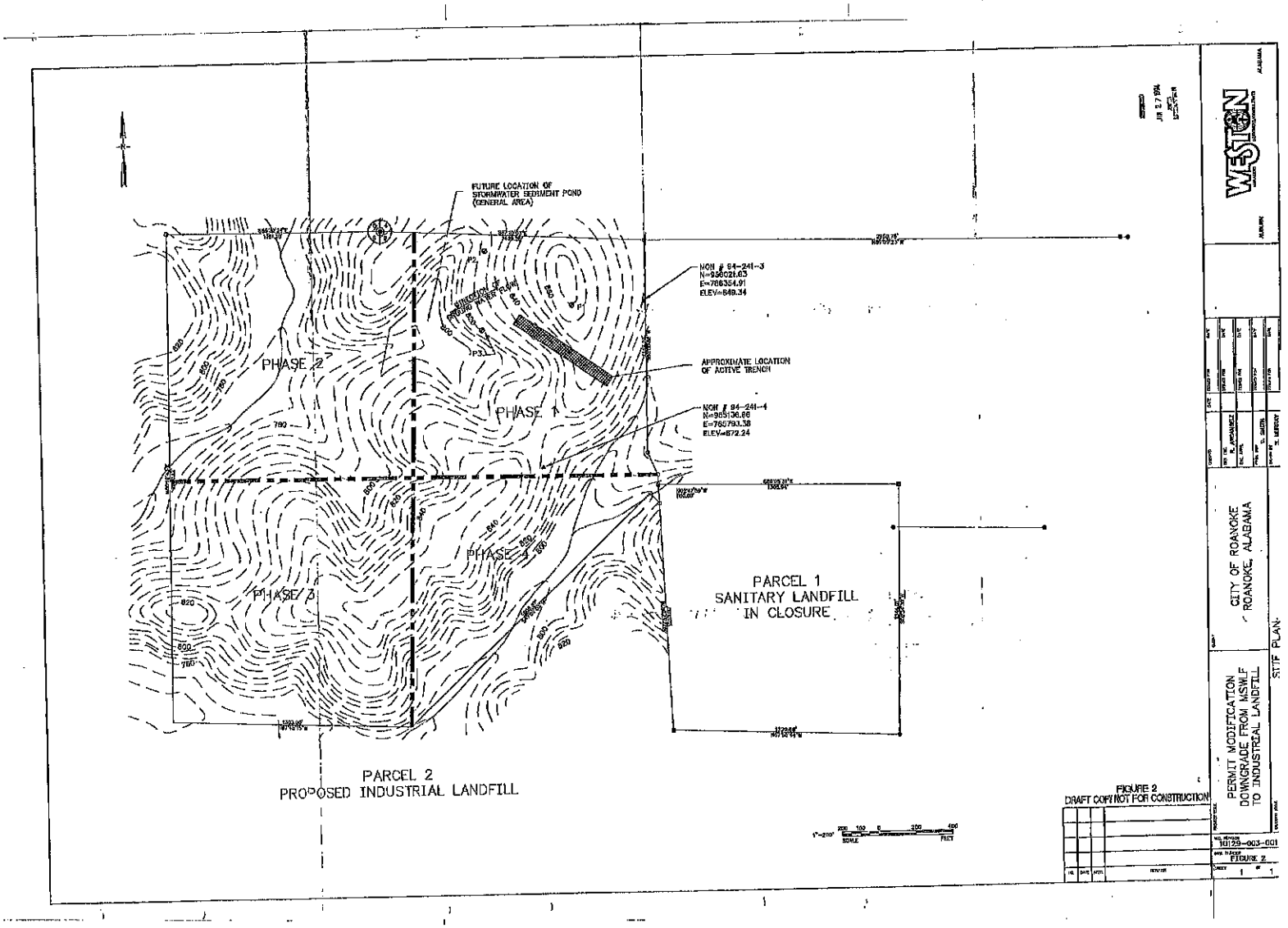
REVISIONS

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

DESIGN BUREAU SPECIAL DRAWING

TEMPORARY DITCH CHECK APPLICATIONS

DATE: DRAWN | SPECIAL DRAWING NO.


FUTURE LOCATION OF STORMWATER SEDIMENT POND (GENERAL AREA)
MON # 84-241-3
N=956021.63
E=766364.91
ELEV=649.34
APPROXIMATE LOCATION OF ACTIVE TRENCH
MON # 84-241-4
N=955136.66
E=765793.58
ELEV=672.24
PHASE 2
PHASE 1
PHASE 4
PHASE 3
PARCEL 1
SANITARY LANDFILL
IN CLOSURE
PARCEL 2
PROPOSED INDUSTRIAL LANDFILL
WESTON
CITY OF ROANOKE
ROANOKE, ALABAMA
PERMIT MODIFICATION
DOWNGRADE FROM MSWLF
TO INDUSTREAL LANDFILL
SITE PLAN
FIGURE 2
DRAFT COPY NOT FOR CONSTRUCTION
101259-003-001
FIGURE 2

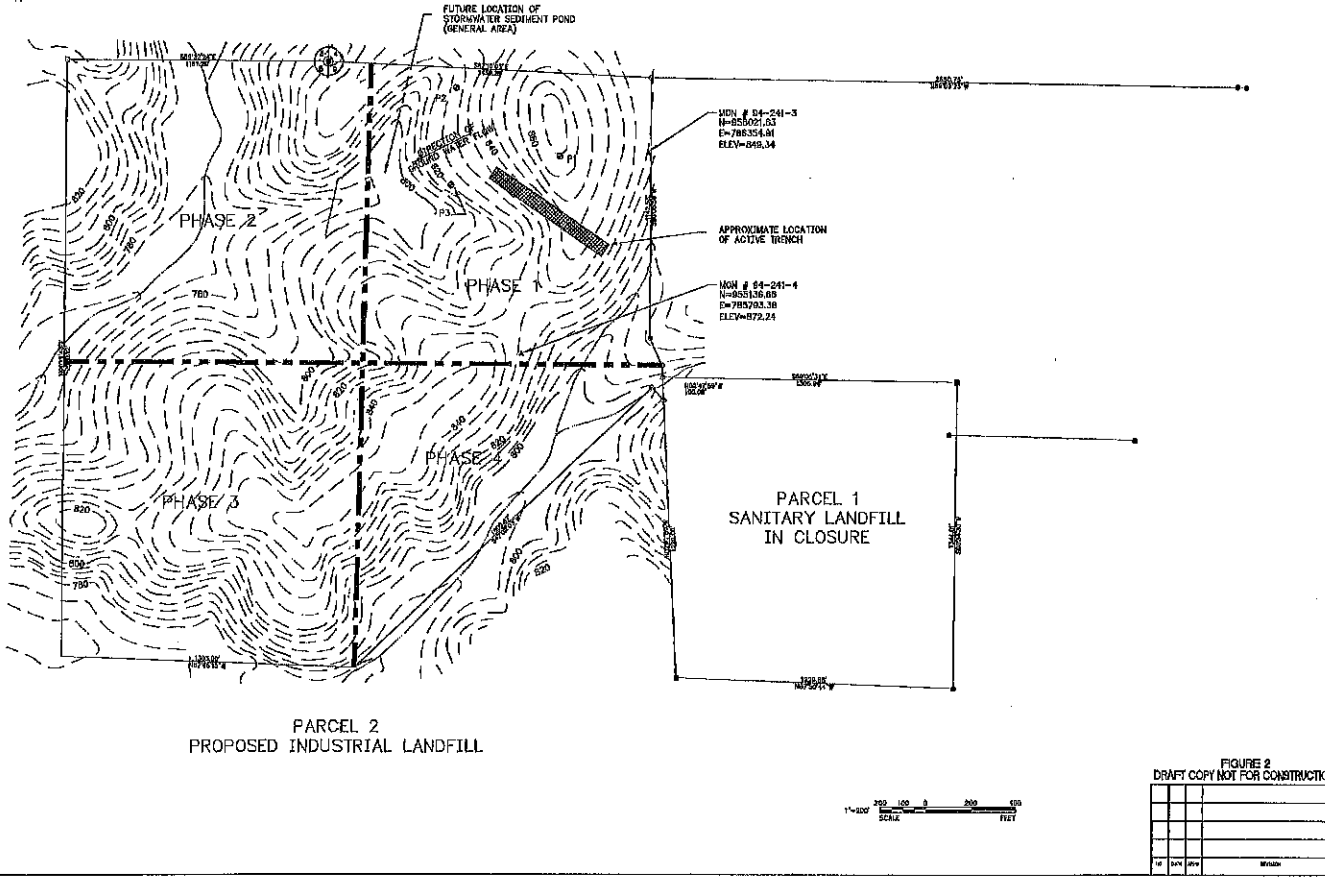


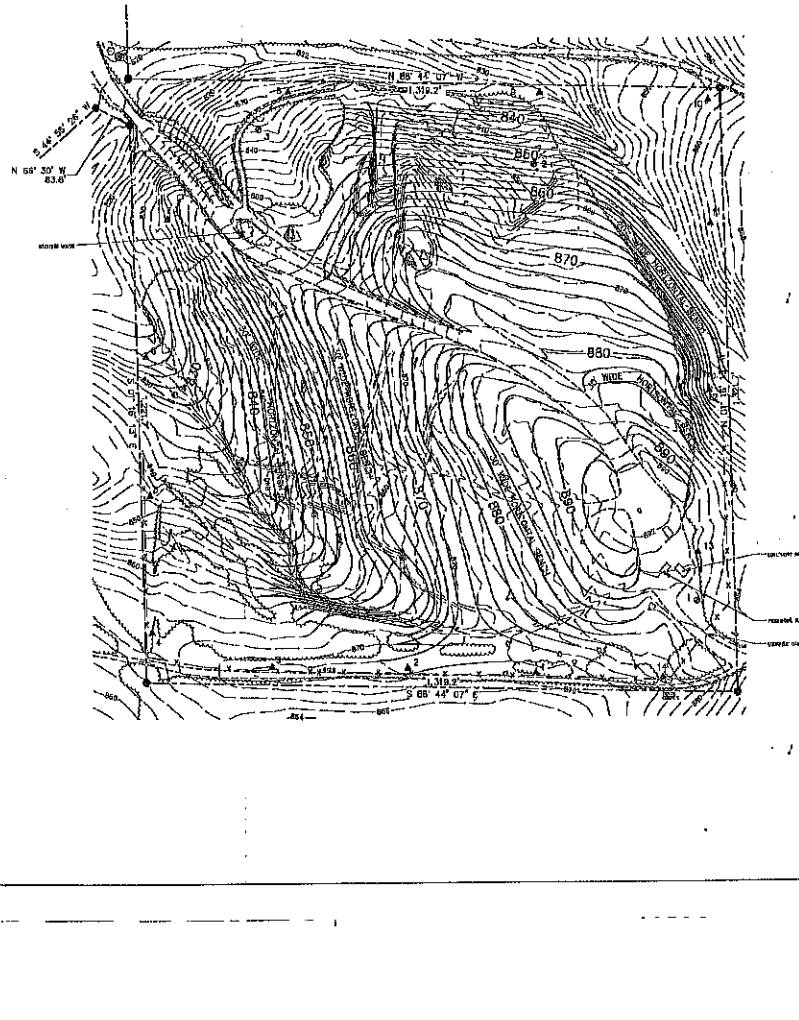
FIGURE 2
DRAFT COPY NOT FOR CONSTRUCTION

CITY OF ROANOKE
ROANOKE, ALABAMA

PERMIT MODIFICATION
DOWNGRADE FROM MSWLF
TO INDUSTRIAL LANDFILL

SITE PLAN

FIGURE 2



PROPERTY DESCRIPTION

THE EAST HALF OF THE NORTHEAST QUARTER (E 1/2 OF NE 1/4) OF SECTION 8, TOWNSHIP 22, RANGE 12; THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER (NW 1/4 OF NW 1/4), THE NORTH HALF OF THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER (N 1/2 OF SW 1/4 OF NW 1/4), AND THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER (SE 1/4 OF NW 1/4) OF SECTION 9 TOWNSHIP 22 RANGE 12, ALL IN RANDOLPH COUNTY, ALABAMA, AND CONTAINING 160 ACRES MORE OR LESS.

NOTES:

1. THE PORTION OF THE SITE (APPROXIMATELY 40 ACRES) THAT HAS BEEN USED AS A SANITARY LANDFILL CONSISTS OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER (SE 1/4 OF NW 1/4) OF SECTION 9. AN INERT LANDFILL WILL BE CONSTRUCTED ON THE REMAINING 140 ACRES OF THE SITE.

2. BOUNDARY INFORMATION WAS OBTAINED FROM A SITE PLAN PROVIDE BY THE CITY OF ROANOKE. THE SITE PLAN WAS DEVELOPED IN DECEMBER 1979 BY LADD ENVIRONMENTAL CONSULTANTS .

3. THE SITE MAP WAS OBTAINED FROM THE FOLLOWING UNITED STATES GEOLOGICAL SURVEY, QUADRANGLE, 7.5 MINUTE SERIES TOPOGRAPHIC MAPS:

   MILLTOWN, ALABAMA (1980)
   FIVE POINTS, ALABAMA (1968, PHOTOREVISED 1983)
   ROANOKE WEST, ALABAMA (1968, PHOTOREVISED 1983)
   ROANOKE EAST, ALABAMA (1969, PHOTOREVISED 1983)

4. EXISTING CONTOURS WERE OBTAINED BY AERIAL PHOTOGRAPHY PROVIDED BY SOUTHERN RESOURCES MAPPING CORPORATION. THE AERIAL PHOTOGRAPHS WERE TAKEN ON 7 JUNE 1993.

5. THE PROPERTY DESCRIPTION WAS OBTAINED FROM A LAND DEED PREPARED BY LEWIS H. HAMNER, SR. ATORNEY AT LAW

6. THE LOCATION OF EXPLOSIVE GAS AND GROUNDWATER MONITORING WELLS WERE APPROXIMATED DURING FIELD OBSERVATIONS.

SCALE : 1" = 100'
100 0 100 200 300

DRAFT COPY NOT FOR CONSTRUCTION

WESTON

CLOSURE PLAN
ROANOKE SANITARY LANDFILL
PERMIT NO. 56-02R
ROANOKE, ALABAMA

CITY OF ROANOKE
P. O. BOX 432
ROANOKE, ALABAMA 36724

FINAL GRADING PLAN

7/19/93

10129-002-001
10129-01
3 of 3

EXISTING CONTOURS
CLOSURE PLAN
ROANOKE SANITARY LANDFILL
PERMIT NO. 56-02R
ROANOKE, ALABAMA
CITY OF ROANOKE
P. O. BOX 432
ROANOKE, ALABAMA 36724
DRAFT COPY NOT FOR CONSTRUCTION
EXISTING TOPOGRAPHIC PLAN
SCALE 1" = 100'
WESTON
AUBURN
ALABAMA

BETTY SLAY ZIGLAR, MAYOR

COUNCILMEMBERS:
RICHARD FETNER
TAMMI HOLLEY

CITY OF ROANOKE

"Home Of The Ella Smith Doll"

ELLEN W. FARMER, CITY CLERK

MACK ARTHUR BELL, Mayor Pro Tem
BUSTER ROBINSON
WALTER SUDDUTH

JUN 1999
RECEIVED
LAND DIVISION

June 14, 1999

Mr. Bill Wood
Alabama Department of Environmental
Management Solid Waste Branch
P.O. Box 301463
Montgomery, Alabama 36130-1463

Dear Mr. Wood:

An endangered species assessment and wetland delineation report by Dr. Joseph Freda, Project Director and Environmental Resource Analysts is enclosed in this letter.

Dr. Freda mailed information to the Corp of Engineers and Fish and Wildlife Department ten days ago. He told me it would be two to three weeks before we hear from them.

The landowners surrounding the landfill are the same as the ones you mailed to me with no change.

I will keep in touch with you. If you need additional information, please call me.

Sincerely,

Betty Ziglar

Betty S. Ziglar

BSZ/pbt

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ENDANGERED SPECIES ASSESSMENT AND WETLAND DELINEATION AT A PROPOSED LANDFILL IN ROANOKE, ALABAMA

Prepared for:

City of Roanoke
Roanoke, AL

Prepared by:

Environmental Resource Analysts, INC
Auburn Technology Park
2975 Brown Court
Auburn, Alabama 36830

Joseph Freda, Ph.D.
Project Director

6/2/99
Date

ERA Report Number 132

1.0 INTRODUCTION

Environmental Resource Analysts (ERA) was contracted by The City of Roanoke to conduct a wetland delineation and endangered species survey at a proposed Landfill in Roanoke (Randolph County), Alabama. The location of the study area is illustrated in Figure 1.

2.0 METHODS

2.1 Wetland Delineation

The wetlands delineation study was conducted on April 19, 1999 according to the 1987 Army Corp Engineers wetlands delineation manual (ACE 1987). The "on site", routine determination method for areas greater than 5 acres was employed. The objective was to identify and map potential jurisdictional wetlands. Jurisdictional wetlands exhibit 3 characteristics: 1) Hydric Soil, 2) Hydrophytic Vegetation, 3) Wetland Hydrology. Soil color was determined with the use of a Munsell soil color charts (Munsell Color 1990). Plants were identified by ERA personnel according to Radford et al. (1968) and Brown and Kirkman (1990). The depth of the water table was determined by digging a standard soil pit.

2.2 Endangered Species Survey

The site was surveyed for its general habitat characteristics and a determination was made if suitable habitat existed within the property which might support species listed as threatened or endangered by the U.S. Fish and Wildlife Service. The U.S. Fish and Wildlife Service specifically requested a survey for a species of threatened plant: Little Amphianthus (*Amphianthus pusillus*).

3.0 RESULTS

3.1 General Description

The project area encompasses approximately 139 acres and is adjacent, and to the west, of the existing Roanoke Landfill. The northeast portion of the site has been stripped of all vegetation and topsoil down to the clay substrate. The central portion of the site is hilly and dominated by a mixed pine-deciduous forest including white oak, sweetgum, hickory, loblolly pine, yellow popular, dogwood, and azalea. Caty Creek boarders the northwest, and an un-named tributary of Caty Creek boarders the south and southeast sides of the site.

3.2 Wetland Delineation

No wetlands were observed within the boundaries of the study site. The two tributaries were contained within steep banks ranging from 3 to 10 feet. No evidence of flooding was observed. The

flood plains adjacent to the tributaries were dry and well drained with the water table greater than 16" in depth. The vegetation on the flood plains was also not typical of local wetlands. Species observed include yellow popular, sweetgum, cherry, dogwood, and poison ivy. The Randolph County Soil Survey (USDA 1967) illustrates the Cn and Mt mapping unit for the flood plain of the two tributaries (Figure 2). The Cn mapping unit is composed primarily of Chewacla soil which is a moderately well drained silt loam. The Mt mapping unit is composed primarily of the Mantachie soil which is a moderately well drained fine sandy loam. We observed a dark brown (2.5 YR 4/6) soil throughout the flood plain which is consistent with the descriptions for both soil types. Mantachie soil is not listed as a hydric soil on the National list of Hydric Soils (USDA 1991). Chewacla Soil is listed as a hydric soil, but only in areas of frequent flooding and we observed no evidence of flooding.

3.3 Endangered Species Survey

No endangered or threatened species were observed during the course of this survey.

Within Alabama, the little amphianthus is found in Chambers and Randolph Counties. It is listed as threatened by the U.S. Fish and Wildlife Service. This plant is a very small (1-2") aquatic species which inhabits shallow pools on granite outcrops. No granite or other rock outcrops were observed within the study site. Therefore no potential habitat for the little amphianthus was observed.

4.0 LITERATURE CITED

ACE. 1987. Corps of Engineers wetlands delineation manual. Dept. Army, U.S. Army Corps of Engineers, Washington, DC, 20314-1000.

Brown, C.L. and L.K. Kirkman. 1990. Trees of Georgia and Adjacent States. Timber Press, Portland OR. 292 pp.

Munsell Color. 1990. Munsell Soil Color Charts. Kollmorgen Corp. Baltimore, MD.

Radford, A.E., H.E. Ahles, and C. R. Bell. 1968. Manual of Vascular Flora of the Carolinas. The University of North Carolina Press. Chapel Hill, NC. 1183 pp.

USDA. 1967. Soil Survey of Randolph County.

USDA. 1991. Hydric Soils of the United States.

Figure 1. The location of the study site illustrated on a USGS topographic map (Roanoke West & Milltown Quadrangles).

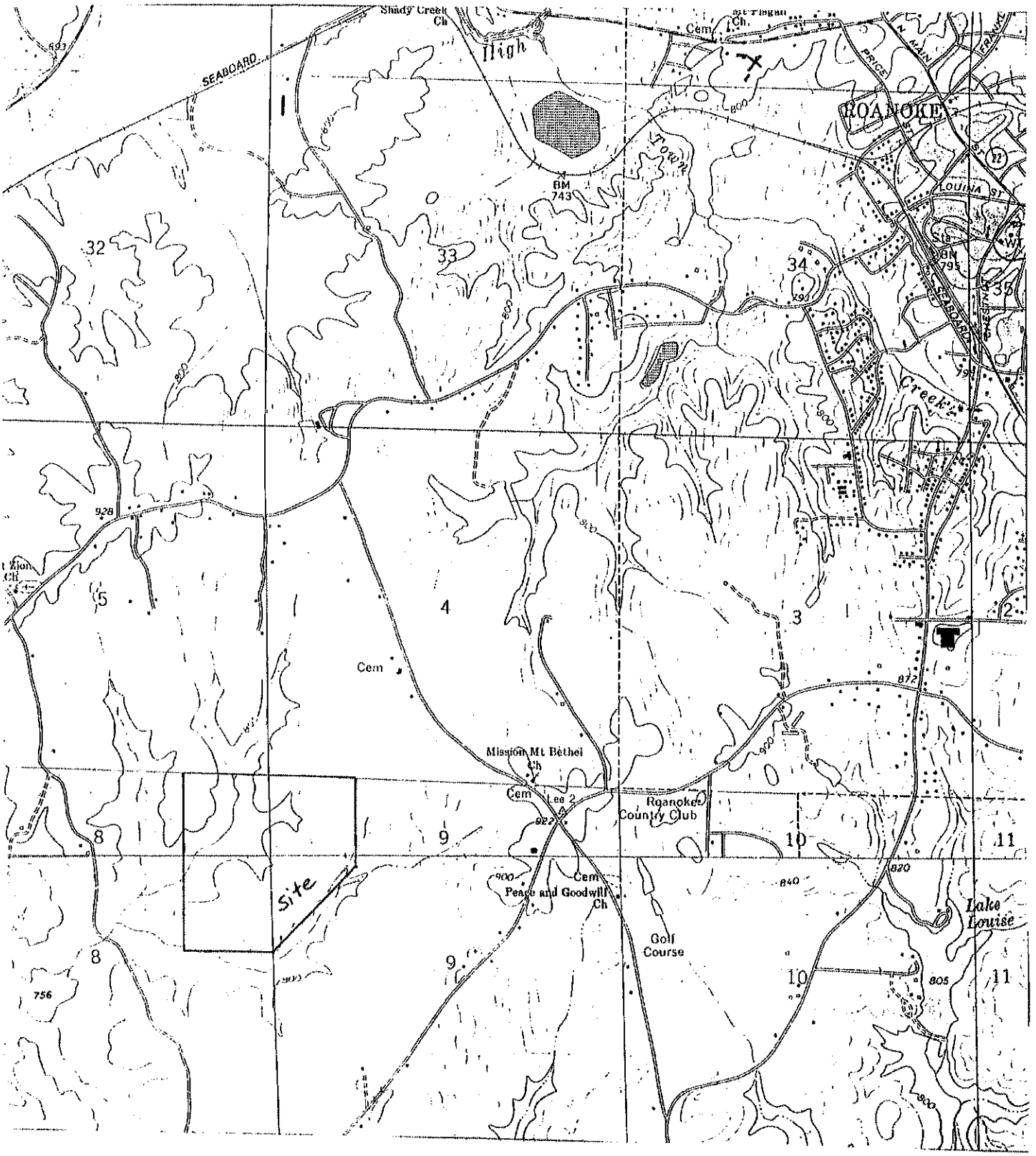
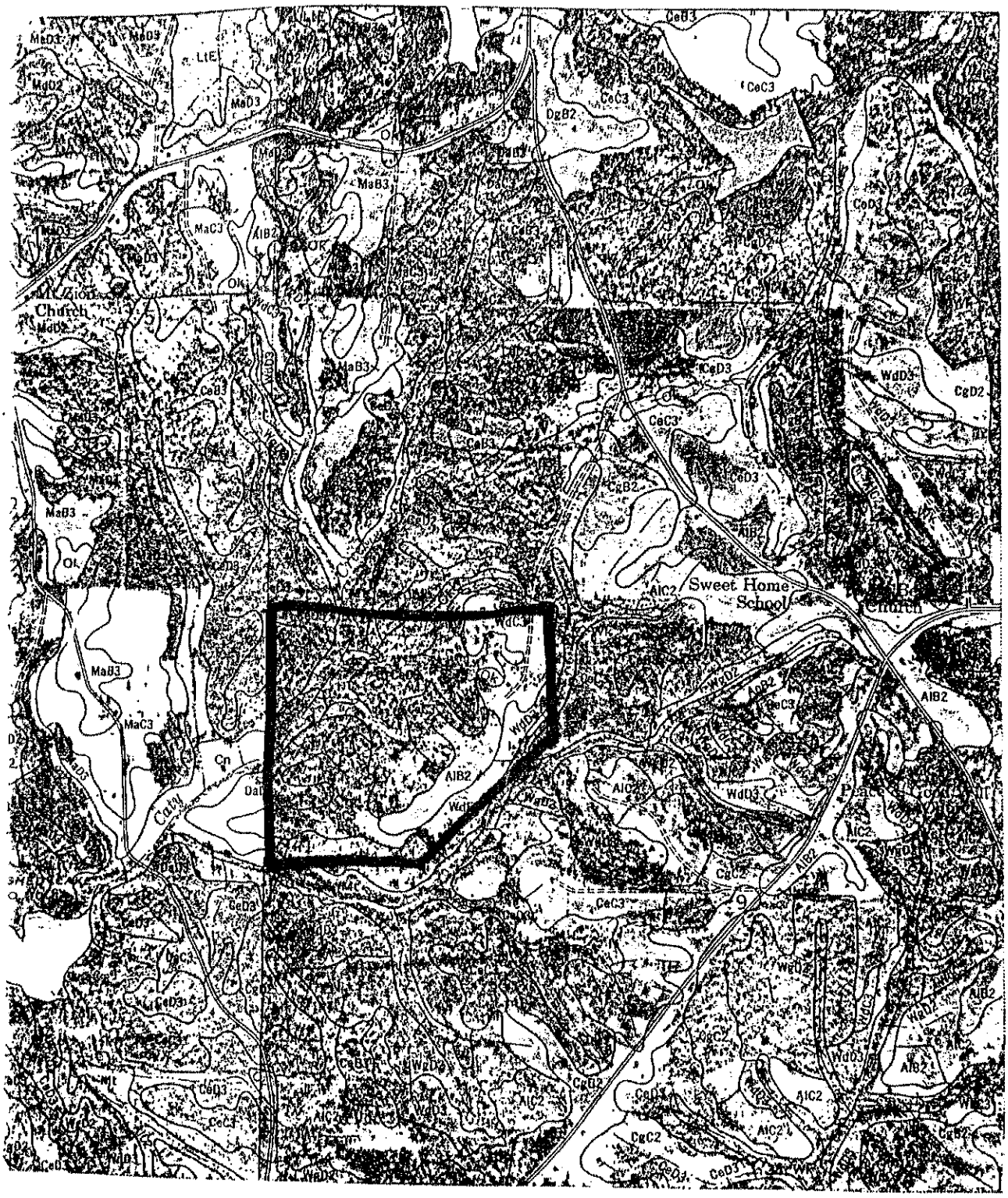


Figure 2. Soil survey map of the study site (USDA 1967).



ENVIRONMENTAL RESOURCE ANALYSTS, INC.
Auburn Technology Park • 2975 Brown Court • Auburn, AL 36830
Tel. (334) 502-3444 • Fax (334) 502-3444 • email: eralab@aol.com

6/02/99

Mr. Larry Goldman
U.S. Fish and Wildlife Service
P.O. Drawer 1190
Daphne, AL 36526

Dear Mr. Goldman,
I have been contracted by the City of Roanoke to assist them with the environmental site assessment of a Proposed C&D landfill in Roanoke, AL. I have enclosed a report of my survey findings.

I would appreciate if you could inform us of the potential for any adverse impacts on threatened or endangered species, or their critical habitat.

Please call if you need additional information. Thank you.

Sincerely,

Joseph Freda, Ph.D.

cc. : Burrel C. Jones, PE

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Auburn Technology Park • 2975 Brown Court • Auburn, AL 36830
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June 2, 1999

Mr. Art Hosey
U.S. Army Corps of Engineers
Regulatory Branch
Attn OP/SA
P.O. Box 2288
Mobile, AL 36628-0001

Dear Mr. Hosey,

My firm has been contracted by the City of Roanoke to assist them in the environmental assessment of a proposed C&D landfill in Roanoke, Alabama. I have enclosed a copy of the report describing our wetland delineation and endangered species survey.

I would appreciate if you would review our report and notify me if you concur with our findings. Your letter of concurrence is required for the landfill permit application to ADEM. This request is not a notification for proposed filling activity.

Sincerely,

Joseph Freda, Ph.D.
Director

cc: Burrel C. Jones, PE

TO: Mayor Tigler FROM: Bill Wood ADEM DATE: 6/2/1998
FAX #: 334-863-2137 FAX #: 334-279-3050 PHONE #: 334-271-7767 PAGES INCLUDING THIS PAGE: 1

P. 01

Randolph County Alabama Tax Map

1. Estate & Willie Trammell, 2501 Country Club Rd., Roanoke, Ala. 36274
2. Edgar O. Stevenson, 1101 Co. Rd. 871, Roanoke, Ala. 36274
3. Robert L. Stokes, 3020 Katherine Valley Rd., Decatur, Ga. 30032
4. I.B. & Willie F. Moore, 1939 Louina Rd., Roanoke, Ala. 36274
5. Donald & Marilyn Fihoner, 460 Pine Valley Dr. #8, Roanoke, Ala. 36274
6. Winnie P. Barker, Old West Point Rd., LaGrange, Ga. 30240
7. Robert Alton Joiner, 2528 Country Club Rd., Roanoke, Ala. 36274
8. Mattie S. Felton, W.S. Lindsey, % Sarah B. Bell, 3645 Diamond Cir., Decatur, Ga. 30034
9. Estate of Virginia Belcher, 225 Valley Rd., Tocoa Ga. 30577

I.B. Moore 4
Donald Fihoner 5
Winnie P. Barker 6
Estate of Virginia Belcher 9
Edgar O. Stevenson 2
Robert Alton Joiner 7
Willie Trammel 1
City of Roanoke Sanitary Landfill Parcel 2
City of Roanoke Sanitary Landfill Parcel 1
Robert Stokes 3
Mattie S. Felton-W.S. Lindsey 8

GENERAL OPERATING PLAN

FOR

ROANOKE C/D LANDFILL

ROANOKE, ALABAMA

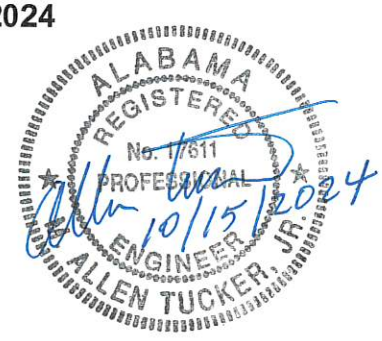
ADEM PERMIT NO. 56-02

OWNER

CITY OF ROANOKE, ALABAMA

HARMON JOB NO. 703-28-24

February 28, 2023
Revised October 2, 2024



Engineer:

HARMON ENGINEERING & CONTRACTING CO., INC.
13376 C.L. TORBERT JR. PARKWAY
LAFAYETTE, ALABAMA 36862
info@he-inc.co

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1.0 GENERAL OPERATING CONDITIONS

1.1 PURPOSE

This document contains the general operating plans for the City of Roanoke C/D Landfill (Permit No. 56-02) and has been prepared as a guideline for the daily and weekly operations and maintenance procedures performed by the landfill operators. Landfill operators must be certified by ADEM and be familiar with all operational requirements outlined in this plan and the facilities permit. A trained landfill operator must be on site during hours of operation to supervise daily operations of this landfill. This general operating plan is prepared in accordance with the Alabama Department of Environmental Management (ADEM) requirements for the City of Roanoke C/D Landfill permit. The City of Roanoke must operate and maintain this facility to the standards of the permit and ADEM guidelines. This plan should be used to properly operate this facility so as to protect human health and the environment.

1.2 ORIGIN OF WASTE

Local approval has been granted to the City of Roanoke to allow the site to accept waste from the City of Roanoke and Randolph County, Alabama. The City of Roanoke solid waste service is the only entity currently allowed to use this C/D Landfill.

1.3 ACCEPTABLE WASTE

Waste accepted at this facility shall be strictly controlled so as to allow only waste stipulated on the permit or waste approved by ADEM. The City or Roanoke C/D Landfill may accept non-putrescible and non-hazardous construction waste and rubbish as defined by ADEM Rule 335-13-1.03, and discarded tires. Disposal of any other waste is prohibited without being granted a temporary or one time waiver by ADEM.

1.4 RESTRICTED WASTE

Restricted waste will not be accepted at the City of Roanoke C/D landfill. Restricted waste includes, but is not limited to, free liquids, regulated hazardous waste, PCBs, and medical waste. In addition, bulk or non-containerized liquid and containers capable of holding liquids are not

acceptable at this landfill. The City of Roanoke will not accept or dispose of industrial waste. This facility will not dispose of any liquid waste or containers larger than 10 gallons. Empty containers larger than 10 gallons will be rendered unsuitable to contain any liquid prior to disposal in the landfill.

1.5 OPEN BURNING

Open burning of solid waste shall not occur at the landfill without written approval from ADEM. A burn request will be submitted to ADEM by the City of Roanoke and will include:

1) Specific area of the landfill to be utilized.
2) Type of waste to be burned.
3) Projected start date of burning.
4) Projected completion date of burning.
5) Projected days and hours of operation.

1.6 UNAUTHORIZED DISCHARGES

The City of Roanoke will operate and maintain the disposal facility so that neither water pollution nor unauthorized discharges will occur. Discharges for this facility may require a National Pollutant Discharge Elimination System permit under the Alabama Water Pollutant Control Act.

1.7 PERMITTED AREAS AND VOLUMES

The City of Roanoke C/D Landfill is approximately 178 acres and has 8.71 acres of approved disposal area. The disposal area will be clearly defined by a sufficient number of permanent boundary markers that are visible from one marker to the next marker. The City of Roanoke is limited to a maximum waste disposal volume of 1000 cubic yards per day and shall be placed within the approved disposal area.

1.8 WASTE PLACEMENT, COMPACTION, AND COVER

Daily waste shall be consolidated to as small an area as possible while not exceeding a 4 to 1 slope and maintaining an appropriate layer thickness. All waste shall be thoroughly spread in layers two feet or less in thickness and compacted daily with adequate landfill equipment prior to

placing additional layers of waste or placing the weekly cover. The weekly cover will consist of a minimum of six inches of compacted earth over all existing waste to control vectors, fire, odors, blown litter and scavenging. If the weekly cover is insufficient to control the previously listed items, the City of Roanoke will provide additional preventative measures approved by ADEM.

1.9 ACCESS CONTROL STRUCTURES

The disposal facility will be adequately secured to prevent entry except when a landfill operator is on site. A security gate exists at the main entrance into the facility and will remain locked except when city personnel are on site. This disposal site is not accessible to the public or commercial haulers and therefore no signage outlining the usage of this disposal site is required. Vehicular access to the property will be restricted by gates, fencing, dense vegetation, and the existing topography.

1.10 ADVERSE WEATHER OPERATIONS

An all-weather access road, constructed of a 6 inch thick granular base, will be provided to the working face of the landfill allowing landfill equipment to access the disposal area during adverse weather conditions.

1.11 MONITORING STRUCTURES

All monitoring structures will be protected from damage or disturbance of any kind by keeping the structure clearly visible and free of dense vegetation. All monitoring structures will be marked in such a way that they are easily identifiable by landfill personal. The monitoring structures will be inspected by landfill personnel on a semiannual basis to ensure that they remain in sufficient working order. If any structure(s) is/are found to not be in sufficient working order, the City of Roanoke will notify ADEM with a written request to repair or replace the monitoring structure.

1.12 LANDFILL PERSONNEL

All landfill operations will be supervised by the landfill manager and an adequate number of trained personnel will be provided to ensure safe and proper operation of the site.

1.13 INSPECTIONS, RECORDS, AND REPORTS

Inspections for this landfill will comply with any applicable ADEM guidelines. The City of Roanoke will conduct random inspections of any incoming waste and document accordingly in the landfill operating records. The operating records will include:

1) Documentation of any inspections or maintenance;
2) All daily volume reports;
3) Personnel records and training documents;
4) Any Solid/Hazardous Waste Determination forms for industrial waste;
5) Any ADEM disposal approval correspondence for special waste;
6) Groundwater monitoring reports;
7) Explosive gas monitoring records;
8) Surface water and leachate monitoring records;
9) Copies of the general operating plan as well as the permit application and issued permit;
10) Copies of any variances or special operating conditions approved by ADEM;

Quarterly waste volume reports will be submitted to ADEM within 30 days after the end of each calendar quarter. These quarterly reports will be maintained within the operating records.

Any monitoring reports or corrective action reports will be submitted to ADEM. These reports must contain all monitoring results and conclusions. Groundwater monitoring will be conducted annually and should be submitted to ADEM within the remaining calendar year of the monitoring event. Explosive gas monitoring will be conducted quarterly, and the reports will be submitted to ADEM within 30 days of the monitoring event.

CLOSURE/POST-CLOSURE PLAN

FOR

ROANOKE C/D LANDFILL

ROANOKE, ALABAMA

ADEM PERMIT NO. 56-02

OWNER

CITY OF ROANOKE, ALABAMA

HARMON JOB NO. 703-28-24

JANUARY 30TH, 2023
Revised October 2, 2024

Engineer:

HARMON ENGINEERING & CONTRACTING CO., INC.
13376 C.L. TORBERT JR. PARKWAY
LAFAYETTE, ALABAMA 36862
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1.0 INTRODUCTION

This document has been prepared for the City of Roanoke to address the closure and post closure care requirements established by the Alabama Department of Environmental Management (ADEM) Administrative Code, Division 13 Solid Waste Program, Chapter 4, Rule .20, ADEM Rule 335-13-4-.20, for the Roanoke Construction/Demolition (C/D) Landfill (Permit No. 56-02) located southwest of the City of Roanoke, Alabama. This Closure/Post- Closure Plans has been prepared by Harmon Engineering and Contracting Co., Inc. (Harmon). A separate Closure/Post-Closure Plan was previously prepared by Roy F. Weston Inc., dated July 1994, for the City of Roanoke Sanitary Landfill Permit No. 56-02R, which is closed.

2.0 SITE DESCRIPTION

The Roanoke C/D Landfill is located in Randolph County, Alabama and consists of one parcel of land, (approximately 139.29 acres) located in Sections 9, Township 22 South, Range 12 East, Parcel 2. The legal property description of the property is provided in Appendix A. The City of Roanoke began landfilling operations in 1999 using a trench and fill method for the disposal of solid waste and an area fill method for the disposal of inert waste. The landfill is currently in operations and is not scheduled to be closed.

The Roanoke Sanitary Landfill (closed) is located in Randolph County, Alabama and consists of one parcels of land, (approximately 38.72 acres) located in Sections 8, Township 22 South, Range 12 East, Parcel 1. The landfill ceased operations and closed on April 8TH, 1994.

3.0 FINAL COVER SYSTEM

The final cap constructed on the areas of the landfill that have received solid waste shall consist of two distinct soil layers: 1) an infiltration layer and 2) an erosion layer. Each layer is described separately in the following paragraphs;

- Infiltration Layer - The infiltration layer will be constructed in 6 inch lifts to a minimum of 18 inches in depth. The infiltration layer will be constructed of earthen material excluding sand.

- Erosion Layer - The erosion layer will be a minimum of 6 inches thick and be made of topsoil materials capable of sustaining a native plant growth. The type of vegetative cover established will be dependent by the City of Roanoke. Deep rooted vegetation (vegetation with roots that grow deeper than 6 inches) are prohibited. The City or Roanoke shall determine the

appropriate species and mixture of grass seeds, mulch, and fertilizer to establish the vegetative cover. Watering and Maintenance may be required to establish vegetative cover.

The final cover will be graded in a manner to prevent surface water from ponding on the landfill. The minimum and maximum final grades will be 5% and 25%, respectively. On slopes longer than 25 feet, a 20-foot-wide horizontal bench will be constructed for every 20 feet rise in elevation. The final surface grade for the Roanoke C/D Landfill are shown on Sheet C2.0 of the Closure/ Post Closure Drawings.

4.0 MAXIMUM COVER REQUIRED AND INVENTORY OF WASTE

An estimate of the largest area to require final cover for the Roanoke C/D Landfill is Trench 5 and 6 combined. These trenches cover a total footprint of approximately 50,000 SF.

The Roanoke C/D Landfill inventory of waste was obtained by comparing certified trench bottom elevations provided by Burrel Jones, Alabama Registered PE/LS No. 15294, dated June 20th 1999. The approximate waste inventory located at the Roanoke C/D Landfill currently is estimated at 30,000 cubic yards.

5.0 LANDFILL CLOSURE ACTIVITIES

The Roanoke C/D Landfill has no current plans for being closed.

A Quality Assurance/Quality Control (QA/ AC) program will be implemented to ensure the proper construction of the final cap. The QA/QC program that will be used is included in Appendix B.

A schedule for Closure Activities will be implemented to ensure a timely closure of the landfill unit. This schedule can be found in Appendix C.

Access to the landfill will be restricted by a lockable gate at the entrance of the access road to the landfill.

A sign will be installed at the entrance road to the landfill. The sign will state that it is closed and will identify the nearest permitted disposal facility. Additional information that will be displayed on the sign shall include:

- Name of the C/D landfill;
- Name and address of the operating authority;
- Name and address of a contact person for the operating authority;
- Date the landfill was closed;

6.0 LAND DEED NOTATION

Within 90 days after the landfill has been closed in accordance with the closure requirements, the City of Roanoke will record all the necessary information on the land deed for the Roanoke C/D Landfill. The notation on the land deed will in perpetuity, notify any potential purchaser of the property that Parcel 2 has been used as a C/D landfill. The notation on the land deed will include the following information.

- The land has been used as a solid waste disposal facility landfill unit.
- Use of the land is restricted to activities that will not disturb the integrity of the final cover, any other component of the containment system, or function of the monitoring systems.
- The location and dimensions of the disposal facility with respect to permanently surveyed benchmarks and section comers will be on a plat prepared and sealed by a Land Surveyor registered in the State of Alabama.
- A prominently displayed note which states:
    - Name of Permittee: City of Roanoke Facility Type: C/D Landfill
      Beginning Date of Operation: 1995 and Closure Date of Landfill: TO BE NOTED
- A certification by an Engineer or Land Surveyor, registered in the State of Alabama, that all closure requirements required by the Alabama Department of Environmental (ADEM) Administrative Code, Division 13 Solid Waste Program, Chapter 4, Rule .20 (335-13-4-.20) have been completed.

Within 120 days after completion of closure activities, a certified copy of the land deed will be submitted to ADEM.

7.0 LAND DEED NOTATION REMOVAL

The City of Roanoke reserves the right to request approval from ADEM to remove all waste, waste residues and any contaminated soils, if any, from the Roanoke C/D Landfill. If all waste, waste residues and contaminated soils, if any, are removed, The City of Roanoke will request permission to remove the notation from the land deed.

8.0 POST-CLOSURE USE OF THE PROPERTY

The post closure activities and/or operations at the landfill will be limited to activities and/or operations that will not disturb or compromise the integrity of the final cover or damage the gas monitoring system, piezometer wells, or surface water control structures. The closed C/D landfill area will be used as an open field. The existing access road will be used to access other areas of the property. Grass will be maintained by fertilization if required, mowing, or grazing.

9.0 POST-CLOSURE CARE

The City of Roanoke will conduct post-closure care of the Roanoke C/D Landfill as required by ADEM Rule 335-13-4-.20. Post-Closure Care must be conducted for a minimum 30 years, unless ADEM approves an increase or decrease in the length of post closure to maintain the environment and human health. The City of Roanoke will conduct a site inspection of the landfill on a quarterly basis and/or after heavy periods of rainfall for the three years following closure, and annually thereafter. During each site inspection, the inspector will:

- Evaluate the integrity of the final cover and the general condition of the landfill. Areas where erosion, ponding and surface cracks have occurred will be identified and denoted on a site plan.
- Identify areas where exposed waste is present, if any.
- Inspect access control structures, gas monitoring wells, piezometer wells, and surface water control structures for damage.
- Identify any additional waste that has been deposited since the landfill has been closed. If additional waste has been deposited, it will be removed and disposed of in a permitted landfill.

After each site inspection, the inspector will prepare an inspection report summarizing the results of the inspection. The inspection report will contain the following information:

- Inspectors name;
- Date of the inspection;
- A description of any deficiencies and/or defects identified in the final cover;
- A description and/or recommendation of the corrective measures needed to re- establish the integrity of the final cover;
- The location of exposed waste, if any;

A copy of the inspection report will be kept on file by the City of Roanoke. After each inspection, the City of Roanoke will initiate the work required to correct any deficiencies in the final cover that were identified during the site inspection.

The City of Roanoke will maintain the integrity of the final cover by making repairs as necessary to correct any defects caused by settling, subsidence, erosion, etc. The defects in the final cover will be corrected as follows:

- Eroded areas and surface cracks in the infiltration layer will be filled in six inch lifts with a suitable soil material and compacted to achieve a permeability of less than or equal to permeability of the surrounding cover material.
- Eroded areas and surface cracks in the erosion layer will be filled with a suitable soil material and the vegetative cover will be re-established.
- Areas which provide for ponding of surface water will be filled with a suitable soil material, graded in order to tie in with existing contours, and the vegetative cover will be re-established.
- Areas where the vegetative cover is insufficient will be reseeded. Fertilizer, mulch, and watering will be provided as necessary to promote vigorous plant growth.

10.0 EXPLOSIVE GAS MONITORING

Explosive gas monitoring will be conducted on a yearly basis, during the active life of this C/D landfill, in accordance with this Explosive Gas Monitoring Plan. The City of Roanoke will provide to ADEM an analysis of the explosive gas monitoring data. Once this landfill has been placed into Closure, the explosive gas monitoring will occur yearly for the duration of the 30 years of closure. The City of Roanoke will provide to ADEM an analysis of the explosive gas monitoring data throughout this closure/post closure.

10.1 INTRODUCTION

This explosive gas monitoring plan has been prepared for the City of Roanoke to address the explosive gas monitoring requirements established by the Alabama Department of Environmental Management (ADEM) Administrative Code, Division 13 Solid Waste Program, Chapter 4, Rule .16 (335-13-4-.16) for the Roanoke C/D Landfill.

10.2 EXPLOSIVE GAS MONITORING PROCEDURES

Explosive gas concentrations will be measured along the boundary of the C/D landfill at the monitoring points identified on the site plan included in sheet C1.0 of the Closure/Post Closure Drawings. Existing monitoring points along the landfill boundary are spaced at an approximately

300 feet apart. If explosive gas concentrations exceed acceptable limits, the City of Roanoke may be required to install additional monitoring points.

Explosive gas concentrations will be monitored using the procedures outlined below:

1. Explosive gas concentrations will be measured using a portable combustible gas indicator (CGI). The portable CGI will have a dual indicator which displays the concentration of explosive gases as a percentage of the lower explosive limit (LEL) and as a percentage of gas by volume. The portable CGI will be calibrated prior to each monitoring event.

2. Explosive gas concentrations will be measured and recorded for each monitoring point. Each monitoring point will be uncapped and the probe of the portable CGI will be inserted into the well. A reading of explosive gas concentrations will be taken. After the readings have been taken, the well will be re-capped.

3. All readings will be recorded to a tabulated report of analysis template. A site plan showing the location of each monitoring point will accompany the Explosive Gas Monitoring Form. The information that will be collected for each monitoring point includes:

- Name and contact information of individual conducting explosive gas monitoring;
- Date and time of monitoring;
- Monitoring point identification number;
- Concentration of explosive gases in %LEL and % of gas by volume at ground elevation;
- Concentration of explosive gases in %LEL and % of gas by volume at 6 ft below ground elevation;
- Weather conditions for that day;

4. Steps 1 through 3 will be repeated for each monitoring point.

5. In addition to the monitoring points identified on the site plan, explosive gas concentrations will be evaluated in other areas that show signs of or have the potential for explosive gas migration. These areas include:

- Areas where vegetation shows signs of distress or bare spots.
- Areas that suggest possible routes for explosive gas migration such as structures, pipe culverts, etc.

Explosive gas concentrations will be measured using the same method used at the monitoring points.

6. Upon completing explosive gas monitoring, a copy of the tabulated monitoring findings will be submitted to ADEM within 30 days of the monitoring event, unless explosive gas limits are exceeded. See section 10.5 below for action if explosive gas limits are exceeded.

10.3 EXPLOSIVE GAS MONITORING FREQUENCY

Explosive gas monitoring will be conducted annually or as required by ADEM.

10.4 MAXIMUM PERMISSIBLE GAS LEVELS

The maximum lower explosive limit (LEL) shall not exceed 25%.

10.5 CORRECTIVE ACTIONS

If a reading in excess of 25% of LEL is detected at a monitoring point the following procedure should be followed.

1. A bar-punch will be used to measure LEL in all directions around the gas monitoring point, at 10 foot intervals, until the LEL is less than 25%. Field notes will be used to document the locations of where the bar-punch LEL readings were taken. Bar-Punch LEL readings are taken at a depth of approximately 4-ft below ground surface.

2. The sampling technician will notify the City of Roanoke, who will immediately take the following corrective actions.

i. Notify the following agencies and inform them of the potential dangers at the landfill.
   a. City of Roanoke Police Department Phone (334) 863-2878
   b. City of Roanoke Fire Department Phone (334) 863-2222
   c. Alabama Department of Environmental Management (ADEM) Land Division Phone (334) 271-7730

ii. Restrict access to the landfill. Mechanical equipment and machinery will not be allowed to operate within 1,000 feet of the landfill boundary.

iii. Offer to check explosive gas concentrations in each dwelling or structure located within 1000 feet of the landfill boundary.

iv. Take any additional steps to ensure the protection of human health and property.

v. Within 7 days of the incident the City of Roanoke will place in the operating record of the facility the excessive explosive gas levels and the immediate action taken to protect human health.

vi. The City of Roanoke will prepare a remedial plan for mitigation of explosive gas and submit it to ADEM within 20 days after excessive explosive gas levels are detected.

vii. After receiving ADEM's approval of the remedial plan, the City of Roanoke will immediately implement the remedial plan.

11.0 SURFACE WATER DISCHARGES

A run-off control system shall be installed for the active and closed sections of the C/D landfill areas. This control system shall collect and control the peak discharge from a 24-hr-25 year storm. The control system will remove sediment prior to release onto adjacent properties. Drainage way to this control system will be designed to carry incident precipitation away from the existing disposal area to minimize leachate and erosion.

APPENDIX A

LEGAL PROPERTY DESCRIPTION AND BOUNDARY SURVEY PLAT

APPENDIX A

LEGAL DESCRIPTIONS - CITY OF ROANOKE LANDFILL PROPERTY

STATE OF ALABAMA

RANDOLPH COUNTY

City Of Roanoke Sanitary Landfill Permit No. 56-02R Closed.

PARCEL 1 : See Closure/Post-Closure Plan prepared by Roy F. Weston Inc., dated July 1994, for the City of Roanoke Sanitary Landfill.

City Of Roanoke C/D Landfill Permit No. 56-02 Active.

EXISTING PERMIT BOUNDARY: Commencing at a found concrete monument locally accepted at the Northwest Corner of Section 9, Township 22-South, Range-12-East, Randolph County, Alabama: thence run South 87°10'03" East, a distance of 1439.28 feet to an iron pin set at a fence corner; thence South 00°00'58" West, a distance of 1142.53 feet to an iron pin set at a fence corner: thence South 24°32'43" East, a distance of 131.54 feet to an iron pin set at a fence corner: thence South 02°47'59" East, a distance of 53.80 feet to an iron pin: thence South 02°47'59" East, a distance of 100.00 feet to an iron pin; thence North 42°57'57" West, a distance of 76.42 feet to an iron pin; thence South 47 ° 02'03" West, a distance of 1805.87 feet to an iron pin set at a fence corner; thence North 97 ° 45'15" West, a distance of 1303.00 feet to an iron pin set at a fence corner: thence North 00 ° 19'43" East, a distance of 2620.12 feet to an iron pin set at a fence corner: thence South 99 ° 32'24" East, a distance of 1161.20 feet to the Point of Beginning, containing 139.29 Acres, more or less, and lying part in Section 8 and part in Section 9, Township-22-South, Range-12-East, Randolph County, Alabama.

MOTIFIED PERMIT BOUNDARY: Commencing from the NW Corner of Section 9; Township 22 South; Range 12 East, Randolph County, AL; thence S 83"17'15" E a distance of 1167.31' to an iron pin found (capped "Jones"); thence S 00"10'56" W a distance of 656.70' to an iron pin found (capped rebar) and the Point of Beginning of the hereafter describe property; thence S 01"17'23" W a distance of 283.99' to an iron pin set; thence N 89"29'37" W a distance of 313.24' to an iron pin set; thence N 36"51'33" W a distance of 58.11' to an iron pin set; thence N 32"00'22" W a distance of 296.74' to an iron pin set; thence N 07"39'13" W a distance of 308.22' to a point; thence S 59"44'43" E a distance of 639.98' to the Point of Beginning, containing 4.54 ACRES, more or less.

Subject to all rights-of-way, easements and restrictions which exist as a matter of record or exist de facto. It being the intention of this survey and description to reference that land described according to Deed Book 122, Page 749 located in the Office of the Probate Judge, Randolph County, Alabama, except for a correction made concerning the Northwest half (diagonal) of the Southwest 1/4 of the Northwest 1/4 of Section 9.

APPENDIX A

SEE ATTACHED BOUNDARY PLAT

LEGEND

These standard symbols may be found in the drawing.

- ● Iron Pin Found (as noted)
- ○ Iron Pin Set (capped "Turner")
- △ Calculated Point

ALABAMA LICENSED No. 50377 PROFESSIONAL LAND SURVEYOR BLAKE NEWELL TURNER

Turner Surveying, LLC.
BLAKE NEWELL TURNER AL REG. # 50377
256-201-0089 Ph. 1071 CR 2, Delta, AL 36258
Original Certified Plat Stamped w/ Red Ink

POC
NW CORNER OF
SECTION 9
T-22-S; R-12-E
RANDOLPH CO., AL

1167.31'
S 83°17'15" E

IPF CAPPED "B. JONES"
N:956282.06
E:786090.47
Z:843.27

SURVEY NOTES:
1.) THE NW CORNER OF THE HEREON PLATTED PROPERTY WAS NOT MEASURED. SAID CORNER WAS CALCULATED USING A PRIOR SURVEY DONE BY "B. JONES" DATED 10/10/05.

647.79'
N 58°56'13" E

SEE NOTES
N:955947.87
E:785535.49

656.70'
S 00°10'56" W

308.22'
N 07°39'13" W

639.98'
S 59°44'42" E

"P-4" TOP OF CASING
N:955641.74
E:785577.23
Z:833.50

IPS
N:955642.40
E:785576.54
Z:829.70

IPF CAPPED REBAR
N:955625.42
E:786088.30
Z:845.34

POB
IPF CAPPED REBAR

CONTAINING
4.54 ACRES

296.74'
N 32°00'22" W

283.99'
S 01°17'23" W

"P-5" TOP OF CASING
N:955391.99
E:785733.52
Z:835.72

IPS
N:955390.77
E:785733.81
Z:832.01

58.11'
N 36°51'33" W

313.24'
N 89°29'37" W

IPS
N:955344.27
E:785768.67
Z:836.31

IPS
N:955341.50
E:786081.90
Z:836.81

STATE OF ALABAMA, RANDOLPH COUNTY

I, Blake Newell Turner, a registered professional land surveyor in the State of Alabama, do hereby certify that the foregoing is a true and correct record of my survey of the hereon platted property lying in the NW 1/4 of the NW 1/4 of Section 9, Township 22 South, Range 12 East, Randolph County, Alabama, and is a portion of a larger parcel that is recorded in deed book: 122, pg: 749 and being more particularly described as follows:

Commencing from the NW Corner of Section 9; Township 22 South; Range 12 East, Randolph County, AL; thence S 83°17'15" E a distance of 1167.31' to an iron pin found (capped "Jones"); thence S 00°10'56" W a distance of 656.70' to an iron pin found (capped rebar) and the Point of Beginning of the hereafter described property; thence S 01°17'23" W a distance of 283.99' to an iron pin set; thence N 89°29'37" W a distance of 313.24' to an iron pin set; thence N 36°51'33" W a distance of 58.11' to an iron pin set; thence N 32°00'22" W a distance of 296.74' to an iron pin set; thence N 07°39'13" W a distance of 308.22' to a point; thence S 59°44'43" E a distance of 639.98' to the Point of Beginning, containing 4.54 ACRES, more or less.

This plat of survey makes no warranty or guarantee as to the existence of any additional easements other than as shown on the plat above. No search was performed to discover the existence of any additional easements. No conflicts or acts of possession were detected from a casual inspection of the property surveyed. No title search was conducted in the research of this property. The lines established, monumented and shown in this survey and plat are based upon deed descriptions of the tract surveyed as well as adjoining tracts, existing monumentation found, evidence of occupation, and other information provided at the time of this survey to the best of my ability. The issuance of this plat of survey and its intended use is as a boundary survey, and shall be used as such. In my opinion this survey has been completed in accordance with the Standards for the Practice of land surveying in the State of Alabama. According to my survey, this the 3rd, day of October, 2024.

SHEET 1 OF 1

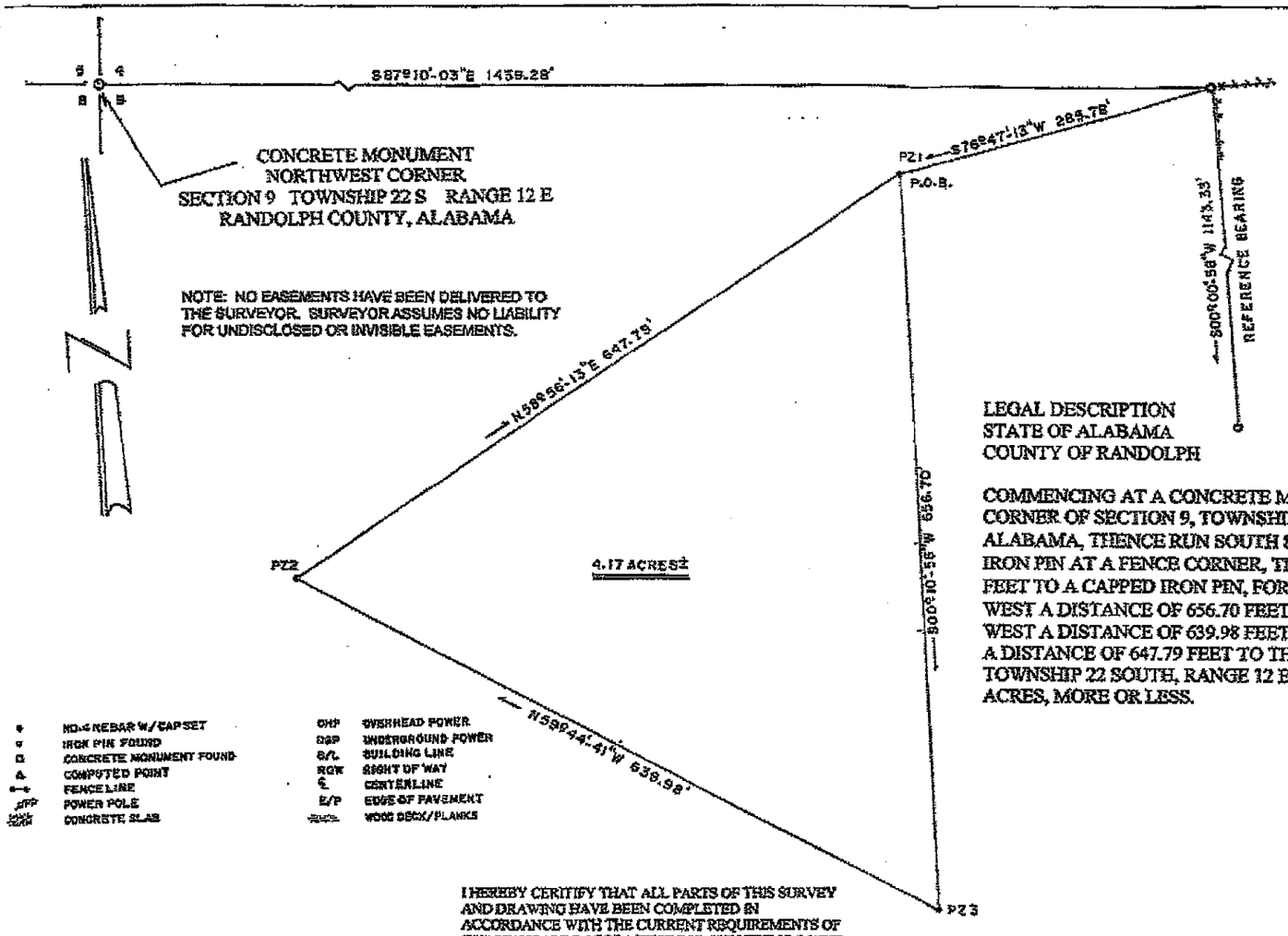
0 80 160 240
GRAPHIC SCALE

BOUNDARY AND AS-BUILT SURVEY
FOR
HARMON ENGINEERING

NORTH DERIVED FROM RTK-GPS AL EAST GRID NAD 83

NORTH

TURNER SURVEYING, LLC.
BLAKE NEWELL TURNER
1071 CR#2, DELTA, AL. 36258
AL. PLS #50377
256-201-0089
blake@turnerlandsurvey.com



ALL IRON PINS FOUND ARE NO. 5 REBAR CAPPED MAXWELL 17262 UNLESS NOTED

PZ1-PZ2-PZ3 ARE PIEZOMETER WELLS LOCATED WITHIN 1 FOOT OF THE CAPPED IRON PINS SET

THIS PARCEL ABUTS PROPERTY OWNED BY THE CITY OF ROANOKE ON ALL SIDES

THIS SURVEY AND BEARING REFERENCE ARE BASED UPON A SURVEY FOR THE 'CITY OF ROANOKE LANDFILL' DATED MAY 13, 1994, BY KEITH MAXWELL, PE/LS NO. 17262

LEGAL DESCRIPTION
STATE OF ALABAMA
COUNTY OF RANDOLPH

COMMENCING AT A CONCRETE MONUMENT LOCALLY ACCEPTED AS THE NORTHWEST CORNER OF SECTION 9, TOWNSHIP 22 SOUTH, RANGE 12 EAST, RANDOLPH COUNTY, ALABAMA, THENCE RUN SOUTH 87°10'03" EAST A DISTANCE OF 1439.28 FEET TO A CAPPED IRON PIN AT A FENCE CORNER, THENCE RUN SOUTH 76°47'13" WEST A DISTANCE OF 285.78 FEET TO A CAPPED IRON PIN, FOR A POINT OF BEGINNING, THENCE RUN SOUTH 00°10'56" WEST A DISTANCE OF 656.70 FEET TO A CAPPED IRON PIN, THENCE RUN NORTH 59°44'41" WEST A DISTANCE OF 639.98 FEET TO A CAPPED IRON PIN, THENCE RUN NORTH 58°56'13" EAST A DISTANCE OF 647.79 FEET TO THE POINT OF BEGINNING, SAID PARCEL LYING IN SECTION 9, TOWNSHIP 22 SOUTH, RANGE 12 EAST, RANDOLPH COUNTY, ALABAMA, CONTAINING 4.17 ACRES, MORE OR LESS.

BURREL JONES
1302 BROOKSIDE DRIVE
ROANOKE, AL 36274
334-863-7077

I HEREBY CERTIFY THAT ALL PARTS OF THIS SURVEY AND DRAWING HAVE BEEN COMPLETED IN ACCORDANCE WITH THE CURRENT REQUIREMENTS OF THE STANDARDS OF PRACTICE FOR SURVEYING IN THE STATE OF ALABAMA TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF. NO PART OF THIS DRAWING MAY BE COPIED, ADDED TO, ALTERED OR REPRODUCED BY ANY MEANS WITHOUT WRITTEN PERMISSION FROM BURREL C. JONES, ALABAMA PE/LS NO. 15294. THIS PLAT IS NOT VALID UNLESS IT IS SEALED IN RED WITH MY ORIGINAL SIGNATURE.

DATE: 10/10/05
BURREL C. JONES AL PE/LS NO. 15294

ALABAMA PROFESSIONAL ENGINEER AND LAND SURVEYOR REGISTERED NO. 15294 BURREL C. JONES IV

SURVEY OF
C & D LANDFILL PERMIT AREA
CITY OF ROANOKE
SECTION 9 TOWNSHIP 22 S RANGE 12E
RANDOLPH COUNTY, ALABAMA
SCALE 1" = 100' 10 OCTOBER 2005

APPENDIX B

QUAILTY ASSURANCE/ QUAILTY CONTROL PROGRAM

APPENDIX B

FINAL COVER INSTALLATION QUALITY ASSURANCE PLAN

I) GENERAL: This Section describes techniques to be performed by an independent quality assurance (QA) organization to provide assurance that the final cover for the Roanoke C/D Landfill will meet regulatory requirements. The QA organization will perform testing of the existing cover soils, borrow pit testing, field testing of soils after placement, and inspection of final contour. Cover material selection, testing, placement, and construction quality control shall be performed by the Contractor.

1) Cover Requirements: The final cover system shall be comprised of an erosion layer underlain by an infiltration layer as follows:

   (a) Infiltration layer shall be comprised of a minimum of 18-inches of compacted earthen material, excluding sand, designed to minimize infiltration. The infiltration layer shall be comprised of compacted earthen material.
   (b) Erosion layer shall consist of a minimum of 6-inches of earthen material that is capable of sustaining native plant growth.

2) Scope of Work: The QA organization shall be responsible for ensuring the final cover was installed to meet regulatory requirements. The QA organization shall perform the following:

   (a) Evaluate areas where an existing cover exists and determine the suitability of the cover.
   (b) Observe borrow pit soil to evaluate suitability of soils to be used for final cover infiltration layer construction.
   (c) Perform field testing to evaluate proper placement of borrow pit soils used for final cover infiltration layer construction.
   (d) Verify requirements for thickness of final cover (infiltration layer and erosion layer soils) are met.
   (e) Verify that final cover slope and bench requirements are met.
   (f) Make recommendations for correction of deficiencies noted.

II) QUALITY ASSURANCE:

1) The Contractor responsible for final cover construction shall retain the services of a commercial geotechnical inspection and testing company (Soil Engineer) to perform required soil tests and construction monitoring. The Soil Engineer will function as the independent QA organization for issues involving final cover construction.
2) The Soil Engineer will specify the type and use of equipment as required to achieve the final placement soil properties specified.

3) Any work that fails to meet specified test requirements shall be repaired, or removed and replaced, and retested as necessary to meet requirements.

III) SUBMITTALS:

1) The Soil Engineer shall provide certification to the City or Roanoke and to ADEM that the landfill cap was constructed in accordance with the Closure Plan.

IV). GENERAL: Soil placement shall be required to achieve final grade. Final Contours shown on the Closure/Post-Closure Drawings Prepared by Harmon include installing 18 inches of infiltration layer composed of compacted earthen material excluding sand and 6 inches of earthen material capable of sustaining native plant growth.

1) Lift Thickness Observation: Lift thickness shall not exceed six inches (compacted thickness).
2) Completed Lift Observation: All holes made in the soil liner shall be sealed. Include sealing of holes made for QC/QA testing.
3) Borrow Area Observation: Construction inspections shall be performed by the Soil Engineer. The Soil Engineer will provide an inspection of soil from the borrow area.
4) Fill Area Observation: Provide continuous inspection of soil placement activities. Monitor fill soil for deleterious or other unsuitable material. Observe lift thickness, and ensure that the required number of passes are made over each lift with the specified compaction equipment. Once the soil cover is in place, ensure measures have been taken to protect each lift of soil from desiccation, freezing, or other damaging forces. The Soil Engineer shall reject any work or materials that will compromise the integrity of the final cover.
5) Testing Requirements: Testing required by this Section shall be performed by the Soil Engineer. A minimum compaction of 90% in place must be reached for the infiltration layer. A minimum of 5 tests per acre shall be conducted to verify compaction. Testing shall be performed on the materials used in construction of the infiltration layer, and on each completed lift of the infiltration layer. Testing shall be completed prior to placement of erosion layer topsoil.
6) Topsoil Requirements: Place a 6-inch layer of soils suitable to support vegetation. Prior to placement pulverize subgrade to a depth of 2 inches by disking or plowing for the bonding of topsoil with the subsoil. Topsoil shall then be uniformly spread, graded, and compacted to the thickness, elevations, and slopes shown. The surface shall be left free of irregularities.
7) Seeding Requirements: Sow and establish an acceptable growth of grasses from seeds of the specified seed mixes designated for use. Seeding shall include ground preparation, sowing seed, application of fertilizers, application of mulch, watering, and installation of erosion controls necessary to establish a vegetative cover. Select, provide and install seeding in accordance with the construction details as outlined in the State of Alabama Highway Department manual of Standard Specifications for Highway Construction.

APPENDIX C

SCHEDULE FOR CLOSURE ACTIVITIES

APPENDIX C

SCHEDULE FOR CLOSURE ACTIVITIES

Construction of the final cap system for the Roanoke C/D Landfill will comply with the schedule outlined in ADEM Admin. Code r. 335-13-4-.20-(2).

1. Submit a notice of closure to ADEM after the last receipt of waste.
2. Complete closure grading within 90 days after the last receipt of waste.
3. Establish grass cover within 90 days of the completion of the closure grade.

ADEM Admin. Code r. 335-13-4-.20-(2). states:

(c)-5. For a permitted facility utilizing the area fill method or the trench method, final grading of the infiltration layer shall be completed within 90 days after the unit has received the last known receipt of waste.

(d) A vegetative or some other appropriate cover must be established to minimize erosion and, when applicable, maximize evapotranspiration. Within 90 days after completion of final grading requirements on each phase or each trench as specified in 335-13-4-.20(2)(a), the permittee or owner of a permitted landfill unit shall prepare the final cover for the establishment of a vegetative cover or alternative cover. Deep rooted vegetation (roots that may grow below the 6 inch erosion layer) shall be prohibited as vegetative cover. Preparation of a vegetative cover shall include, but not be limited to, the following:

1. Placement of appropriate species of grass seed, fertilizer, and mulch;
2. Watering and maintenance necessary such that germination of grass will occur.

(e) Prior to beginning closure of each landfill unit as specified in this rule, an owner or operator must submit to the Department and place in the operating record a notice of the intent to close the unit.

(f) The owner or operator must begin closure activities of each LF unit no later than 30 days after the date of which the LF unit receives the known final receipt of wastes. If the LF unit has remaining capacity and there is reasonable likelihood that the LF unit will receive additional wastes, closure activities of each LF unit must begin no later than one year after the date of known final receipt of wastes. Extensions beyond the one-year deadline for beginning closure may be granted by the Department if the owner or operator demonstrates that the LF unit has the capacity to receive additional wastes and the owner or operator has taken and will continue to take all steps necessary to prevent threats to human health and the environment from the unclosed LF unit.

ROANOKE C/D LANDFILL PERMIT MODIFICATION

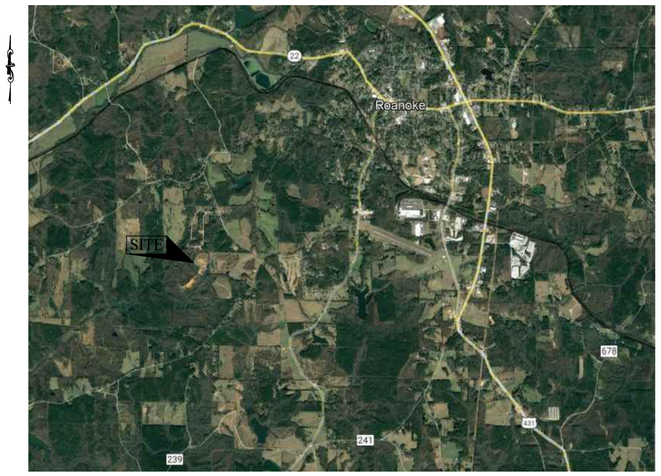
FOR

CITY OF ROANOKE

2736 Country Club Road
Roanoke, Alabama 36274

NPDES Permit: Not Required, Disturbed Area < 1 Acre

LOCATION MAP



DRAWING INDEX

SHEET NUMBER	TITLE
C1.0	PERMIT MODIFICATION SITE PLAN
C2.0	CLOSURE/ POST CLOSURE CONSTRUCTION PLAN
C2.1	EROSION CONTROL DETAILS
C3.0	STANDARD SPECIFICATIONS

ENGINEER

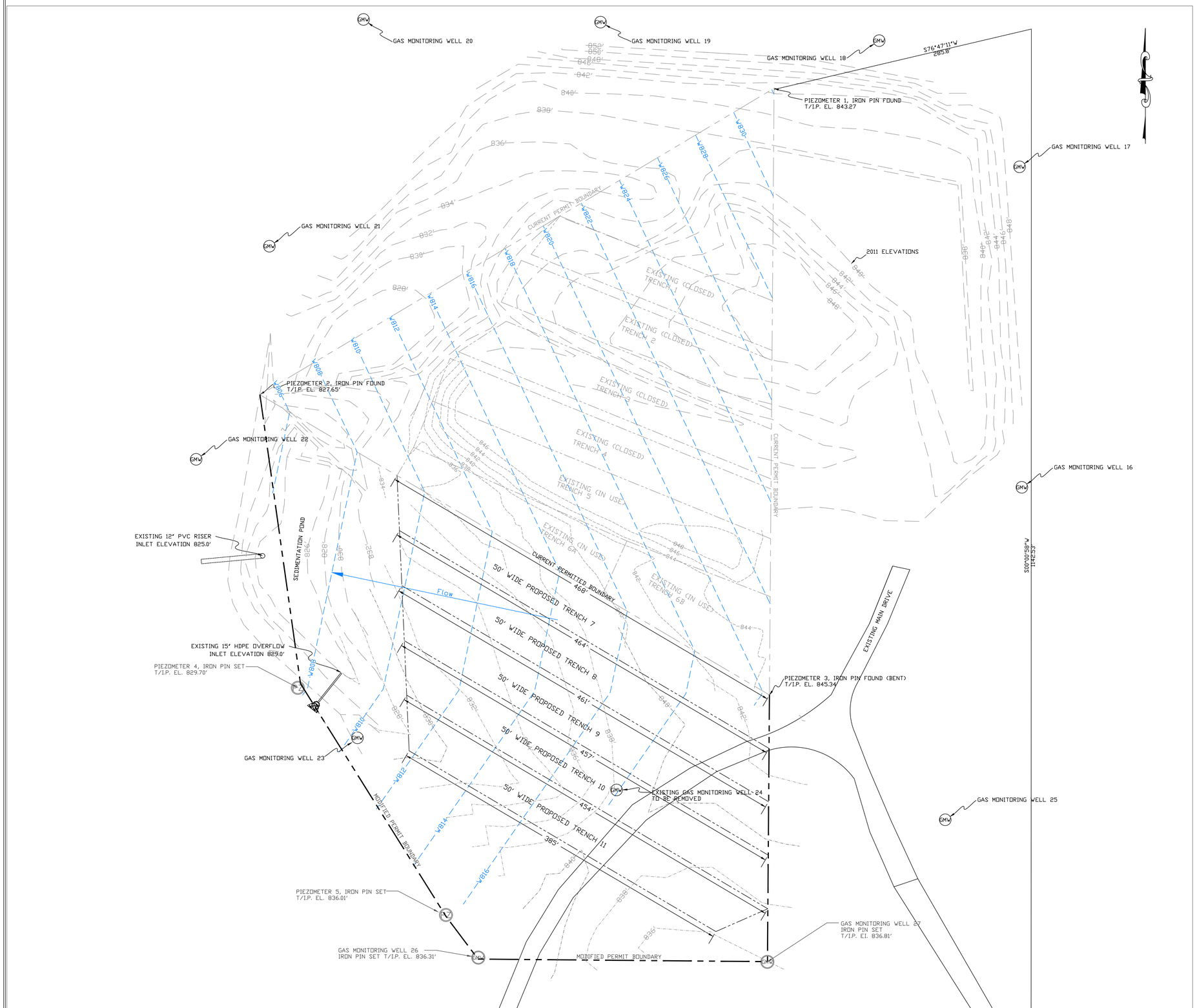
M. Allen Tucker, Jr., P.E.

ALABAMA REGISTERED No. 17712 PROFESSIONAL ENGINEER M. ALLEN TUCKER 2024

HARMON ENGINEERING AND CONTRACTING COMPANY, INC.
13367 C.L. Torbert, Jr. Parkway
LaFAYETTE, Alabama 36862
(334) 864-9135/Fax (334) 864-8046
Email: info@he-inc.co

OWNER

CITY OF ROANOKE
JILL PATTERSON, MAYOR
PO Box 1270
ROANOKE, Alabama 36274
(334) 863-4129



PERMIT MODIFICATION SITE PLAN

SCALE: 1" = 50'-0"

LEGEND:

- CURRENT PERMIT BOUNDARY LINES
- CURRENT TRENCH BOUNDARIES
- MODIFIED PERMIT BOUNDARY LINES
- PROPOSED TRENCH BOUNDARIES
- 800' EXISTING ELEVATIONS 2011
- 800' EXISTING ELEVATIONS 2023
- 800' EXISTING ELEVATIONS 2024
- W800 EXISTING PIEZOMETIC SURFACE 2024
- GMW GAS MONITORING WELL
- PZ PIEZOMETER WELL

PROJECT NOTES:

1. SITE AREA = 178 ACRES
2. SITE PERMITTED DISPOSAL AREA = 8.52 ACRES
3. SOLID WASTE DISPOSAL FACILITY PERMIT NUMBER 56-02.
4. CURRENT LAND USE: NON-HAZARDOUS CONSTRUCTION AND DEMOLITION WASTE
5. FACILITY LOCATION: SECTION 9, TOWNSHIP 22 SOUTH, RANGE 12
6. THIS PARCEL IS NOT IN THE FLOOD PLAIN AS SHOWN ON FIRM COMMUNITY PANEL NUMBER 01111C0410D EFF. 4/18/2011.

REFERENCES:

SURVEY: TOPOGRAPHIC MAP CITY OF ROANOKE DATED 19 AUGUST 2011
BURREL C JONES, PE/LS, AL PLS NO. 15294

BOUNDARY SURVEY: BOUNDARY SURVEY ROANOKE LANDFILL DATED OCTOBER 3RD, 2024
BLAKE TURNER, AL REG. # 50377

TOPO SURVEY: EXISTING ELEVATIONS FROM ONSITE SURVEY
AUSTIN HARMON, 2/14/2023, 7/11/2024

SITE NOTES:

1. GAS MONITORING WELLS ARE APPROXIMATELY LOCATED.

GRAPHIC SCALE
1"=50'-0"
50' 0 50 100FT.

HARMON ENGINEERING & CONTRACTING CO., INC.
ENGINEERING · CONTRACTING · ENVIRONMENTAL MANAGEMENT
13367 C.L. Torbert, Jr. Parkway / Lafayette, Alabama 36862
(334) 864-9135 / FAX (334) 864-8046

ALABAMA REGISTERED PROFESSIONAL ENGINEER
20-17927
ALLEN TUCKER
10-11-2024

REVISIONS:

NO:	DATE:	BY:	DESCRIPTION:

PERMIT MODIFICATION SITE PLAN
CITY OF ROANOKE C/D LANDFILL

CITY OF ROANOKE
ROANOKE, AL

DRAWN: AWH
CHECKED:
FILENAME: TECHNICAL FILES/703-28 CITY OF ROANOKE LANDFILL.DWG
DATE: 10/7/2024
PROJECT: 703-28-24
SCALE: 1" = 50'-0"
FIGURE: C1.0

CLOSURE/POST-CLOSURE CONSTRUCTION PLAN

SCALE: 1" = 50'-0"

LEGEND:

- PIEZOMETER WELL BOUNDARY LINES
- 800' EXISTING ELEVATIONS 2011
- TRENCH BOUNDARIES
- 800' EXISTING ELEVATIONS 2023
- 800' EXISTING ELEVATIONS 2024
- DRAINAGE SWALE
- 800 CLOSURE CONTOURS
- GMW GAS MONITORING WELL
- PZ PIEZOMETER WELL
- Ps PERMANENT SEED
- Mu MULCHING
- Tsg TOPSOILING
- Ecb EROSION CONTROL BLANKET
- PERMANENT GRASSING

REFERENCES:

SURVEY: TOPOGRAPHIC MAP CITY OF ROANOKE DATED 19 AUGUST 2011
BURREL C JONES, PE/LS, AL PLS NO. 15294

BOUNDARY SURVEY: BOUNDARY SURVEY ROANOKE LANDFILL DATED OCTOBER 3RD, 2024
BLAKE TURNER, AL REG. # 50377

TOPO SURVEY: EXISTING ELEVATIONS 2023 FROM ONSITE SURVEY
AUSTIN HARMON, 2/14/2023 & 7/11/2024

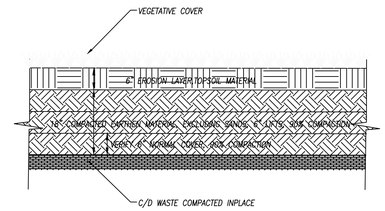
MONITORING WELL LOCATIONS: GPS, NONREFERENCED
AUSTIN HARMON, 2/7/2023 & 2/14/2023

SITE NOTES:

1. *CLOSURE CONTOURS INCLUDE 18" OF INFILTRATION LAYER AND 6" OF EROSION LAYER MEETING THE CRITERIA DESCRIBED IN THE CLOSURE/POST-CLOSURE PLAN PREPARED BY HARMON ENGINNERING AND CONTRACTING, DATED OCTOBER 2ND, 2024.*

EROSION CONTROL NOTES:

1. *EROSION CONTROL PLAN SHALL BE REFINED AND MODIFIED AS REQUIRED FOR VARIOUS CONSTRUCTION PHASES AND METHODS. ADDITIONAL BMPs SHOULD BE EXPECTED.*
2. *SEE SHEET C2.1 FOR CONSTRUCTION BEST MANAGEMENT PRACTICES DETAILS.*
3. *SPREAD 6" TOPSOIL ON ALL AREAS TO HOST VEGETATION. ALL TOPSOIL AREAS SHOULD BE HARLEY RAKED AND SMOOTHED.*
4. *ALL BMPs SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE ALABAMA HANDBOOK FOR EROSION CONTROL, SEDIMENT CONTROL, AND STORMWATER MANAGEMENT ON CONSTRUCTION SITES AND URBAN AREAS, AND THE CITY OF ROANOKE.*
5. *EROSION CONTROL BLANKET IS REQUIRED ON ALL SLOPES GREATER THAT A 4:1 RATIO UNLESS SOD IS APPLIED.*
6. *HYDROSEEDING WITH TACKIFIER IS AN ACCEPTABLE SUBSTITUTE FOR EROSION CONTROL BLANKETS AND MUCHING.*



NOTES:
1. *ALL MATERIALS AND METHODS OF PLACEMENT SHALL CONFORM TO ALDOT STANDARDS SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2022 EDITION*
2. *CONTRACTOR SHALL COORDINATE WITH OWNER'S GEOTECHNICAL ENGINEER FOR COMPACTION TESTING.*

TYPICAL FINAL COVER DETAIL

N.T.S.

GRAPHIC SCALE
1"=50'-0"

50' 0 50 100FT.

HARMON ENGINEERING & CONTRACTING CO., INC.
ENGINEERING · CONTRACTING · ENVIRONMENTAL MANAGEMENT
13367 C.L. Torbert, Jr. Parkway / Lafayette, Alabama 36862
(334) 864-9135 / FAX (334) 864-8046

ALABAMA REGISTERED PROFESSIONAL No. 47997 ENGINEER AUSTEN TUCKER 10/7/2024

REVISIONS:

NO:	DATE:	BY:	DESCRIPTION:

PERMIT RENEWAL CLOSURE PLAN
CITY OF ROANOKE C/D LANDFILL

CITY OF ROANOKE
ROANOKE, AL

DRAWN: AWH
CHECKED:
FILENAME: TECHNICAL FILES/703-28 CITY OF ROANOKE LANDFILL.DWG
DATE: 10/7/2024
PROJECT: 703-28-24
SCALE: 1" = 50'-0"
FIGURE: C2.0

INSTALLATION SCHEDULE AND INSPECTION NOTES:

1. INSTALL PERIMETER BEST MANAGEMENT PRACTICES FOLLOWING PRECONSTRUCTION CONFERENCE AND NOTICE TO PROCEED.
   A. IMPLEMENTATION:
      1. NO CLEARING, GRADING FILLING OR OTHER LAND DISTURBING ACTIVITIES SHALL BE PERMITTED UNTIL APPROVED BEST MANAGEMENT PRACTICES HAVE BEEN INSTALLED, EXCEPT THOSE OPERATIONS NEEDED TO INSTALL SUCH MEASURES.
      2. THESE BEST MANAGEMENT PRACTICES SHALL APPLY TO ALL FEATURES OF THE CONSTRUCTION SITE, INCLUDING, BUT NOT LIMITED TO, STREET AND UTILITY INSTALLATIONS AS WELL AS TO THE PROTECTION OF INDIVIDUAL LOTS.
2. A BEST MANAGEMENT PRACTICE INSPECTION IS REQUIRED BY A QCP FOLLOWING INITIAL BEST MANAGEMENT PRACTICES INSTALLATION AND PRIOR TO COMMENCEMENT OF ANY DISTURBANCE OR CONSTRUCTION.
3. INSTALL REMAINING BEST MANAGEMENT PRACTICES. CONTRACTOR SHALL INSPECT THESE PRACTICES DAILY PRIOR TO CLOSE OF WORK DAY.
4. BEST MANAGEMENT PRACTICES WILL BE INSPECTED AND CERTIFIED BY A QCI AT LEAST MONTHLY AND FOLLOWING GREATER THAN OR EQUAL TO 0.75" RAINFALL.
5. STREAM OR CREEK SAMPLING MAY BE REQUIRED AT THE DISCRETION OF THE QCI AND OR QCP.
6. A QCP INSPECTION SHALL BE PERFORMED EVERY 6 MONTHS AND TO TERMINATE THE ADEM NPDES PERMIT.
7. INSPECTION SHALL CONTINUE UNTIL THE REQUIRED PERMIT HAS BEEN TERMINATED BY ADEM, TERMINATION CAN BE REQUESTED WHEN ALL WORK IS COMPLETE AND THE SITE IS PERMANENTLY STABILIZED AND ALL BMPS HAVE BEEN REMOVED.

RECORD KEEPING:

1. CONTRACTOR SHALL KEEP DAILY LOG OF ALL INSPECTIONS, RAINFALL, MAINTENANCE, REPAIRS AND INSTALLATION OF BEST MANAGEMENT PRACTICES.
2. QCI AND QCP SHALL PROVIDE COPIES OF ALL INSPECTIONS TO CONTRACTOR, OWNER/DEVELOPER AND QCP/ENGINEER.
3. OWNER/DEVELOPER AND CONTRACTOR SHALL KEEP COPIES OF ALL INSPECTIONS, PERMITS, ETC. ON FILE FOR 3 YEARS FOLLOWING TERMINATION OF PERMIT.
4. A COPY OF THE PERMIT SHALL BE POSTED ON SITE WITH A RAIN GAUGE.
5. A COPY OF THE BEST MANAGEMENT PRACTICES PLAN IS REQUIRED ON SITE AT ALL TIMES BY THE CONTRACTOR.

MAINTENANCE:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONTINUOUSLY MAINTAINED BY THE CONTRACTOR OR OWNER DURING THE CONSTRUCTION PHASE OF THE DEVELOPMENT AND UNTIL PERMANENT STABILIZATION OF DITCHES, SHOULDERS, SLOPES AND ALL DISTURBED AREAS IS ACCOMPLISHED TO ELIMINATE THE NEED FOR THE TEMPORARY CONTROL MEASURES WHICH SHALL THEN BE REMOVED BY SAME.
2. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR THE EFFECTIVE EROSION CONTROL, ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.
3. CONTRACTOR SHALL REPAIR ALL BEST MANAGEMENT PRACTICES IMMEDIATELY FOLLOWING THE INSPECTION AT THE CLOSE OF EACH DAY AND DISPOSE OF ANY ON SITE REFUSE.

GENERAL NOTES:

1. FAILURE TO PROPERLY INSTALL AND MAINTAIN BEST MANAGEMENT PRACTICES MAY RESULT IN CONSTRUCTION BEING HALTED AND OR CITATION ISSUED TO APPEAR BEFORE LOCAL GOVERNING BODY AND OR ADEM.
2. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE INSTALLED IF DEEMED NECESSARY BY SITE INSPECTION.
3. THE BEST MANAGEMENT PRACTICES PLAN SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL GOVERNING BODY STANDARD BEST MANAGEMENT PRACTICES DETAILS AND THE ALABAMA HANDBOOK FOR EROSION CONTROL, SEDIMENT CONTROL AND STORMWATER MANAGEMENT ON CONSTRUCTION SITES AND URBAN AREAS, MOST CURRENT EDITION.
4. ALL DISTURBED AREAS THAT WILL REMAIN UN-WORKED FOR MORE THAN 13 DAYS SHALL BE SEEDED AND MULCHED WITHIN 5 DAYS OF BEING DISTURBED.
5. AREAS THAT WILL REMAIN UN-WORKED FOR MORE THAN 12 MONTHS SHALL BE PERMANENTLY SEEDED AND MULCHED.
6. ONLY AREAS OF THE SITE THAT CAN BE ACTIVELY WORKED TO A POINT OF STABILIZATION (NO FURTHER EROSION) SHALL BE DISTURBED AND OR CLEARED.
7. STORM DRAIN SYSTEMS SHALL BE PROTECTED AND MAINTAINED CLEAN AND FREE OF SILT AND DEBRIS.
8. NO SILT FENCE IS TO BE USED IN AREAS OF CONCENTRATED FLOW OR WATERS OF THE STATE.
9. NO UNAUTHORIZED CROSSING OF WATERS OF THE STATE SHALL BE PERMITTED.
10. HAYBALES ARE ONLY TO BE USED AS MULCH.
11. ANY UNAUTHORIZED SEDIMENT IN WATERS OF THE STATE WILL RESULT IN NOTIFICATION TO ADEM OF A NON-COMPLIANT DISCHARGE.
12. ALL FEES ASSOCIATED WITH FAILURE TO MAINTAIN RECORDS, PERFORM INSPECTIONS, MAINTAIN OR INSTALL BEST MANAGEMENT PRACTICES, SEDIMENT IN WATERS OF THE STATE AND ANY RELATED SEDIMENT AND CONTROL ITEMS SHALL BE PAID BY THE GENERAL CONTRACTOR UNLESS DESIGNATED OTHERWISE BY CONTRACT.
13. CONTRACTOR SHALL ENSURE ALL APPLICABLE ADEM AND USACE PERMITS ARE IN PLACE PRIOR TO START OF CONSTRUCTION.

GRASSING NOTES:

1. ALL AREAS TO RECEIVE SEED OR SOD SHALL HAVE TOPSOIL TO A MINIMUM DEPTH OF 4 INCHES.
2. SURFACE TO RECEIVE SEED OR SOD SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 4 INCHES AND APPROXIMATELY PARALLEL TO GRADE CONTOUR LINES.
3. PLANT SEED AT RECOMMENDED RATE AND DEPTH. FIRM SOIL WITH CULTIPACKER, DOZER TRACK, OR SIMILAR.
4. TOP DRESS SEED AREA WITH 400lb/ac OF 13-13-13 FERTILIZER.
5. MULCH ALL DISTURBED AREAS IMMEDIATELY UPON COMPLETION.
6. WATER AS REQUIRED TO ESTABLISH AND MAINTAIN SOD FOR DURATION OF THE CONTRACT WARRANTY PERIOD.

MULCHING MATERIALS AND APPLICATION

MATERIAL	RATE PER ACRE AND (PER 1000 FT.)	NOTES
STRAW (WITH SEED)	1 1/2 – 2 TONS (70 LBS – 90 LBS)	SPREAD BY HAND OR MACHINE; ANCHOR WHEN SUBJECT TO BLOWING
STRAW ALONE (NO SEED)	2 1/2 – 3 TONS (115 LBS – 140 LBS)	SPREAD BY HAND OR MACHINE; ANCHOR WHEN SUBJECT TO BLOWING
WOOD CHIPS	5 – 6 TONS (230 LBS – 275 LBS)	TREAT WITH 12 LBS NITROGEN/TON
BARK	35 CUBIC YARDS (0.8 CUBIC YARD)	CAN APPLY WITH MULCH BLOWER
PINE STRAW	1 – 2 TONS (45 LBS – 90 LBS)	SPREAD BY HAND OR MACHINE; WILL NOT BLOW LIKE STRAW
PEANUT HULLS	10 – 20 TONS (450 LBS – 900 LBS)	WILL WASH OFF SLOPES; TREAT WITH 12 LBS. NITROGEN/TON

TEMPORARY SEEDING (TS)

SPECIES	SEEDING RATE/AC.	NORTH AL	CENTRAL AL	SOUTH AL
MILLET, BROWNTOP OR GERMAN	40 LBS	MAY 1– AUG 1	APR 1– AUG 15	APR 1– AUG 15
RYE	3 BU	SEPT 1– NOV 15	SEPT 15– NOV 15	SEPT 15– NOV 15
RYEGRASS	30 LBS	AUG 1– SEPT 15	SEPT 1– OCT 15	SEPT 1– OCT 15
COMMON BERMUDAGRASS	10 LBS	APR 1– JULY 1	MAR 15– JULY 15	MAR 1– JULY 15
CRIMSON CLOVER	10 LBS	SEPT 1– NOV 1	SEPT 1– NOV 1	SEPT 1– NOV 1

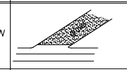
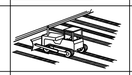
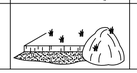
PERMANENT SEEDING (PS)

SPECIES	SEEDING RATE/AC.	NORTH AL	CENTRAL AL	SOUTH AL
BAHIAGRASS, PENSACOLA	40 LBS	--	MAR 1– JULY 1	FEB 1– NOV 1*
BERMUDAGRASS, COMMON	10 LBS	APR 1– JULY 1	MAR 15– JULY 15	MAR 1– JULY 15
BAHIAGRASS, PENSACOLA BERMUDAGRASS, COMMON	30 LBS 5 LBS	--	MAR 1– JULY 1	MAR 1– JULY 15
BERMUDAGRASS, HYBRID (LAWN TYPES)	SOLID SOD	ANYTIME	ANYTIME	ANYTIME
BERMUDAGRASS, HYBRID (LAWN TYPES)	SPRIGS 1/SQ FT	MAR 1– AUG 1	MAR 1– AUG 1	FEB 15– SEPT 1
FESCUE, TALL	40–50 LBS	SEPT 1– NOV 1	SEPT 1– NOV 1	--

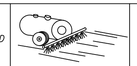
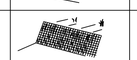
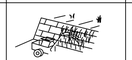
* FALL PLANTING OF BAHIA SHOULD CONTAIN 45 LBS OF SMALL GRAIN TO PROVIDE COVER DURING WINTER MONTHS (SEE TEMPORARY SEEDING)

STRUCTURAL PRACTICES FOR BEST MANAGEMENT PRACTICES

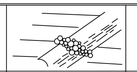
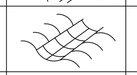
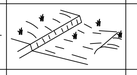
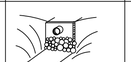
SITE PREPARATION

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Cep	CONSTRUCTION EXIT PAD		Cep	A crushed stone pad located at the construction site exit to provide a place for removing mud from tires thereby protecting public streets. It shall be installed at all points of ingress and egress to the site.
Lg	LAND GRADING		Lg	Reshaping of the ground surface
Tsg	TOPSOILING		Tsg	The practice of stripping off the more fertile top soil, storing it, then spreading it over the disturbed area after the completion of construction activities. Spread/re-spread minimum of 4" to all surfaces to host vegetation.

SURFACE STABILIZATION

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Dc	DUST CONTROL ON DISTURBED AREAS		Dc	Controlling surface and air movement of dust on construction sites, roadways and similar sites.
Ecb	EROSION CONTROL BLANKET		Ecb	A blanket or mat used in establishing a temporary or permanent vegetative cover to provide erosion control on slopes where erosion hazard is high. Plans to indicate class of blanket. Install per manufacturer. It shall be used in conjunction with permanent vegetation.
Mu	MULCHING		Mu	Establishing temporary protection for disturbed areas where seeding may not have a suitable growing season to produce an erosion retarding cover.
Ps	PERMANENT SEEDING		Ps	Establishing a permanent vegetative cover with perennial vegetation on disturbed areas.
Pv	PRESERVATION OF VEGETATION		Pv	Avoidance of an area during land disturbing and construction activity to prevent mechanical and other injury to desirable plants in the planned landscape.
Sod	SODDING		Sod	The use of transplanted vegetative cover to provide immediate erosion control in disturbed areas.
Ts	TEMPORARY SEEDING		Ts	Establishing a temporary vegetative cover with fast growing seeding on disturbed areas.

RUNOFF CONVEYANCE

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Cd	CHECKDAMS		Cd	A small temporary barrier or dam constructed across a swale, drainage ditch or area of concentrated flow.
Dv	DIVERSION		Dv	An earth channel or dike located above, below or across a slope to divert runoff. This may be a temporary or permanent structure.
Gs	GRASS SWALE		Gs	A natural or constructed channel shaped or graded for the stable conveyance of runoff
Op	OUTLET PROTECTION		Op	A paved or short section of riprap channel at the outlet of a storm drain system preventing erosion from the concentrated runoff.
Rs	RIPRAP-LINED SWALE		Rs	A natural or constructed channel with an erosion resistant rock lining designed to carry concentrated runoff to a stable outlet.

SEDIMENT CONTROL

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Bfb	BRUSH/FABRIC BARRIER		Bfb	A dam-like structure constructed of woody residue and faced with a geotextile fabric to provide a temporary sediment basin during clearing and grubbing operations.
Fip	FABRIC INLET PROTECTION		Fip	A device or structure placed around a storm drain inlet to prevent sediment from entering storm drains during construction as a temporary sediment filter. May be woven geotextile barrier, "Silt Saver", or "wattles". No hay bales.
Fs	FILTER STRIP		Fs	A wide belt of vegetation designed to provide infiltration, intercept sediment and reduce stormwater flow and velocity.
Rd	ROCK FILTER DAM		Rd	A permanent or temporary stone filter dam installed across small streams or drainageways.
Sb	SEDIMENT BARRIER		Sb	A barrier to prevent sediment from leaving the construction site. It may be sandbags, wattles, logs and poles, gravel, sediment fence, or a combination thereof. The barriers are usually temporary and inexpensive.
Sbn	SEDIMENT BASIN		Sbn	A basin created by excavation or a dam across a waterway. The surface water runoff is temporarily stored allowing the bulk of the sediment to drop out. the basin is usually temporary but may be designed as a permanent pond or stormwater retention device.
Sst	WATTLE SEDIMENT TRAP		Sst	A temporary catch basin consisting of a row or more of entrenched and anchored wattles

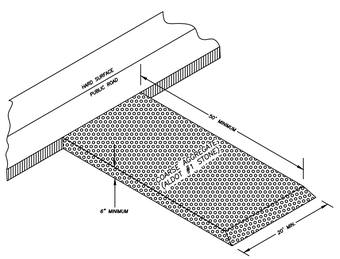
STORMWATER MANAGEMENT

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Sdb	STORMWATER DETENTION BASIN		Sdb	A dam-basin designed to hold stormwater runoff and release the water slowly to prevent downstream flooding and stream erosion.

STREAM PROTECTION

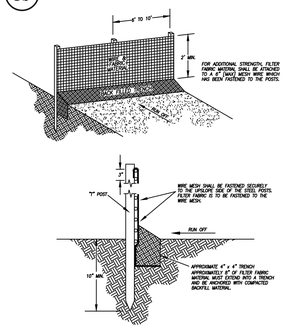
CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Bz	BUFFER ZONE		Bz	An undisturbed natural " green belt " separating the land-disturbed site from surrounding property and bordering streams. It serves to reduce water velocity and remove some sediment it is also at times a noise or " vision pollution" barrier.
Cs	CHANNEL STABILIZATION		Cs	Improving, constructing or stabilizing an open channel, existing stream, or ditch.
Tsc	TEMPORARY STREAM CROSSING		Tsc	A temporary bridge or culvert-type structure protecting a stream or watercourse from damage by crossing construction equipment. USACE Permit may be required

Cep CONSTRUCTION EXIT PAD



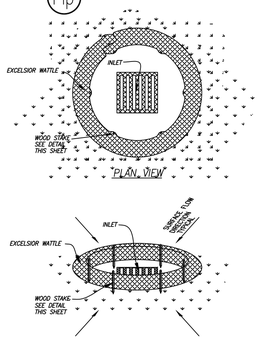
NOTE: GEOFABRIC SHALL BE INSTALLED PRIOR TO PLACEMENT OF STONE.

Sb CLASS A FILTER FABRIC SILT FENCE INSTALLATION

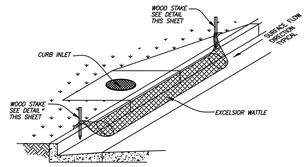


NOTE: REMOVE ACCUMULATED SEDIMENT WHEN DEPTH REACHES 1/4 HEIGHT OF BARRIER.

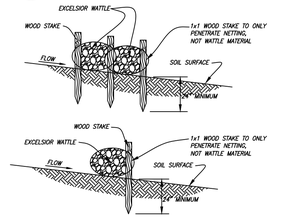
Fip FILTER FOR AREA INLET



Fip CURB INLET PROTECTION

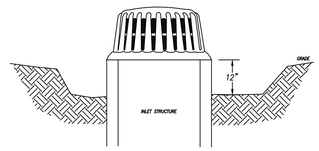


Sst WATTLE STAKE DETAIL



NOTE: ALL WATTLES SHALL BE INSTALLED PER MANUFACTURER'S DIRECTIONS.

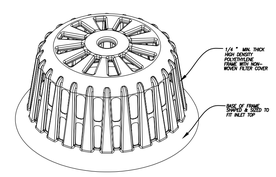
Fip INLET PROTECTION WITH SEDIMENT TRAP



Fip INLET PROTECTION

TYPICAL CONSTRUCTION SEQUENCE FOR SLZ-SAVER FRAME & FILTER

1. EXCAVATE APPROXIMATELY 4" TO 6" BELOW THE TOP OF THE INLET STRUCTURE.
2. PLACE THE FRAME ONTO THE INLET STRUCTURE. ENSURING PROPER SEATING OF FRAME TO STRUCTURE.
3. SLIDE THE FILTER OVER THE FRAME.
4. FILL THE FILTER POCKETS WITH SOIL, PIT GRAVEL OR FOUNDATION. THE FILTER POCKETS SHOULD BE COMPLETELY FILLED TO PROVIDE A GOOD SEAL BETWEEN THE GROUND AND INLET STRUCTURE.
5. BACK FILL AROUND THE FRAME AND FILTER ASSEMBLY IS NOT REQUIRED TO COMPLETE INSTALLATION, HOWEVER, BACK FILLING MAY BE NECESSARY TO COMPLETE EXCAVATION REQUIREMENTS FOR THE SITE.
6. CONSULT AND FOLLOW MANUFACTURER'S SPECIFICATIONS.



HARMON ENGINEERING & CONTRACTING CO., INC.
ENGINEERING · CONTRACTING · ENVIRONMENTAL MANAGEMENT
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(334) 864-9135 / FAX (334) 864-8046

ALABAMA REGISTERED PROFESSIONAL ENGINEER No. 27747 10/7/2024 MARLEN TUCKER

REVISIONS:	NO:	DATE:	BY:	DESCRIPTION:
			MAT	

EROSION CONTROL DETAILS
CITY OF ROANOKE C/D LANDFILL

CITY OF ROANOKE
ROANOKE, AL

DRAWN: AWH
CHECKED: MAT
FILENAME: TECHNICAL FILES/703-28 CITY OF ROANOKE LANDFILL.DWG
DATE: 10/7/2024
PROJECT: 703-28-24
SCALE: NONE
FIGURE: C2.1

ALABAMA 811 Know what's below. Call before you dig.

DIVISION 2

SECTION 02100 Site Preparation and Demolition
SECTION 02200 Earthwork
SECTION 02510 Site Concrete
SECTION 02512 Asphaltic Concrete Paving
SECTION 02580 Pavement Markings
SECTION 02660 Water Distribution
SECTION 02700 Sewage and Drainage

SECTION 02100
SITE PREPARATION AND DEMOLITION:

PART 1 – GENERAL

1.01 SUMMARY

A. Obtain and pay for necessary local permits, utility connection fees, and licenses to accomplish work.

B. Locate existing utilities.

C. Inspect and accept existing site conditions.

D. Install and maintain protective measures (i.e., install warning fence, tape, signs, or other means as designated on plans for the following items) including, but not limited to:
1. Existing pavement, driveways, sidewalks, utilities onsite & along frontage roads.
2. All existing storm sewer pipes & inlets.
3. All existing utilities stubbed out to site or extending through site.
4. Property corners & benchmarks.

E. Install and maintain all necessary measures to control erosion and sedimentation.

F. Clear and grub site for new construction within construction limits, protecting items designated above.

G. Remove and stockpile topsoil if any was placed by Owner's site preparation

H. Related work specified in other sections
1. Drawings and general provisions of Contract, including General Conditions and other Division 1 Specification sections apply to work of this section.
2. Topsoil shall comply with Section 02200 Earthwork.

1.02 QUALITY ASSURANCE

A. Industry Reference Standards:
1. Section Cross–Reference: Refer to Division 1 Reference Standards Section.
2. American Society for Testing and Materials (ASTM): D 448–86 Classification for sizes of aggregate for road and bridge construction.

1.03 PROJECT CONDITIONS

A. Permits: A copy of the approved ADEM Site Construction/ Land Disturbance Permit shall be posted on the site during construction.

B. Any penalties enforced by City of Roanoke, ADEM, OSHA, EPA, or other agency for violations of regulations set forth by these agencies are the responsibility of the contractor.

C. Nuisances: Keep dirt, dust, noise and other objectionable nuisances to a minimum. Use temporary enclosures, coverings and sprinkling, or combinations thereof, as necessary to limit dust to lowest practicable level, except do not use water to extent to cause flooding, contaminate runoff or icing.

D. Traffic: Conduct work to ensure minimum interference with the normal traffic operations, roads, alleys, streets, driveways, sidewalks, accesses on–site, and to adjacent sites occupied or used as traffic facilities.
1. Do not close or obstruct streets, sidewalks, alleys or other public passageways without permission from authorities having jurisdiction.
2. Parking by construction crews will be allowed at locations designated by the Owner.
3. Contractor is responsible for required traffic control.

E. Protection:
1. Prevent movement and settlement of adjacent structures. Install temporary barriers, fences, guard rails, enclosures, shoring, bracing, planking, barricades, utilities, landscaping and other items that are to remain in place.
2. Protect bench marks from displacement.
3. Restore damaged improvements to their original condition as acceptable to Project Engineer and local authorities having jurisdiction, at no cost to Owner.

F. Contractor is responsible for damage to State highways, city roads and streets, and public rights–of–way due to related construction activity.

1.04 SUBMITTAL

A. Field Quality Control Reports: Daily maintain a copy of the Soil Erosion and Sediment Control Inspection Log.

PART 2 – PRODUCTS

2.01 SEDIMENT DRAINAGE/SILT FABRIC

A. Non–biodegradable, sunlight stabilized, woven polypropylene fabric, type which will retain sediment and reduce water runoff velocity. Product selected should come from the Alabama Department of Transportation's approved list of qualified products and/or manufacturers.

2.02 CONSTRUCTION ENTRANCE/EXIT TREATMENT

A. Stone size ASTM D448, size no. 1 (1.5"–3.5" diameter). Minimum pad thickness – 6 inches. Length and width as shown on plans (minimum 20 feet wide by 50 feet in length).

2.03 DRAINAGE FILL

A. Selected stone or gravel, graded to pass a 3–inch sieve and retained on a 1" sieve.

2.04 TOPSOIL

A. Section cross–reference: Refer to Section 02200 Earthwork, 2.01F (Topsoil).

PART 3 – EXECUTION

3.01 EROSION AND SEDIMENT CONTROL

A. Install erosion and sediment control devices as shown on drawing and details.

B. Contractor shall inspect erosion control measures at the end of each working day to ensure measures are functioning properly. In addition, erosion and sediment control measures shall be inspected within 24 hours of every rainfall. A log of signed inspections shall be maintained at the site and updated on a daily basis.

C. Maintain erosion control during construction until permanent pavement, plantings, and restoration of natural areas is effective in controlling erosion at site. Employ additional erosion control measures where determined necessary by Project Engineer, City of Roanoke and/or owner for actual site conditions and sequencing of project.

D. Plan and execute construction by methods to control surface drainage from cut, fill, borrow and grading areas.
1. Minimize amount of bare soil exposed at any one time.
2. Schedule operations so ground surface will be disturbed for shortest possible time.
3. Maintain large areas as flat as possible to minimize soil transportation through surface flow.
4. Where steep slopes or abrupt grade changes occur, install temporary diversion berm or dike at top of slope to direct water flow to a control point to be transported downslope in a slope drain. In all cases, do not allow water to flow uncontrolled down slope.

E. Construction Entrance/Exit Treatment:
1. Prior to any other construction, a stabilized construction entrance treatment as shown in plans shall be constructed at each point of entry to or exit from the site. This is to be located as shown on drawings or as deemed necessary by Project Engineer.
2. The construction exit shall be maintained in a condition which will prevent tracking or flow of mud onto public right–of–way. This may require periodic top dressing of exit with additional stone, as conditions demand.
3. All materials spilled, dropped, washed, or tracked from vehicle or site onto public roadway or into storm drainage system must be removed immediately.

F. Storm Drainage System:
1. Repair and/or clean any structures used to trap sediment including inlet sediment traps and silt fencing.

G. Ground Cover: Protect all exposed sloping soils until construction of permanent surface begins.
1. Use straw or other mulches, temporary seeding, plastic sheets, fiber mats, or other effective erosion treatments acceptable to City of Roanoke.
2. Install permanent grass and other landscape plantings and materials, including mulching or hydroseeding for use as stabilization; maintain until ground cover planting is effective for erosion control.

H. Sediment Barriers/Inlet Sediment Traps:
1. Install at all locations as shown on plans and where water flows from construction areas in accordance with Erosion Control Plan. Maintain ground drainage structures until end of construction activities.
2. Arrange to create ponding behind barriers; remove accumulated sediments and maintain ponding capacity during construction.
3. Place silt barriers as access is obtained during clearing. No grading shall be done until silt barrier installation is completed.
4. The contractor shall remove accumulated silt when the silt is within 12" of the top if the silt fence.
5. Silt barriers to be placed as shown on the plans and at downstream toe of all cut and fill slopes.
6. After permanent grass cover and landscaping have been established, remove silt fence and appurtenance and dispose of properly.

I. Temporary Grassing:
1. All disturbed areas shall be stabilized with temporary seeding as soon as possible within construction period. Graded slopes on which no construction activity is scheduled shall be seeded as soon as grading operations are complete on an area by area basis.
2. Grassing limits shall be extended to existing grassed areas.

J. Repair washed and eroded areas; reestablish grades to required density, elevations, profiles, and contours.

K. Contractor is responsible for monitoring downstream conditions throughout the construction period and clearing any debris and sediment resulting from the construction.

3.02 SITE CLEARING

A. General: Remove any trees, shrubs, stumps, bushes, vines, undergrowth, dead wood, grass and other vegetation, improvements, or obstruction from the construction area except as otherwise designated on the drawings to remain. Relocate or store vegetation in accordance with landscape requirements. Remove such items elsewhere on site or premises as specifically indicated. Removal includes digging out stumps and roots.

B. Topsoil Activity:
1. Strip topsoil to whatever depths encountered in a manner to prevent intermingling of subsoil or other objectionable material.
   a. Remove heavy growths of grass from areas before stripping.
   b. Where trees are indicated to be left standing, stop topsoil stripping no closer than the drip line of the tree to prevent damage to main root system.
2. Stockpile topsoil in storage piles at location approved by Project Engineer, Landscape Architect and/or owner. Construct storage piles to freely drain surface water. Cover storage piles if required to prevent wind blown dust. Do not stockpile to depth exceeding eight feet. Install silt fence at toe of slope of perimeter of topsoil storage pile.
3. Dispose of unsuitable or excess topsoil same as waste material, herein specified.

3.03 UTILITIES

A. Contact local utility companies 72 hours minimum prior to start of demolition and/or excavation work. Confirm verbal notices and written notices. Verify locations of all utilities entering construction area and their locations on site.

B. Coordinate and cooperate with local utility departments and other utility companies, adjacent property owners, and other building trades in maintaining, protecting, rerouting or extending of utilities passing through work areas which serve structures located on project site or adjacent properties. Pay all fees associated with service taps, service extensions or relocations.

3.04 DEMOLITION

A. General:
1. If departures from drawing requirements are deemed necessary by Contractor, submit detail and reasons therefore to Project Engineer for action. Make no departures without prior written approval of Project Engineer.
2. Repair and replace all demolition work performed in excess to that required, at no cost to Owner. Repair or replacement shall match construction, condition, and finish existing at time of award of contract.

B. Backfill and compact areas excavated and open pits and holes resulting from demolition operations. Comply with requirements specified in Section 02200, Earthwork, for backfill materials, compaction, and installation methods.

C. Rough grade site, within demolition areas, to meet adjacent existing contours and to provide positive drainage. Leave site in clean condition acceptable for performance of subsequent construction operations.

D. Demolish any and all remaining buildings and other aboveground structures and remove debris.

3.05 CLEAN–UP AND DISPOSAL

A. Transport trash, rubbish and debris daily from site and dispose of legally.
1. Remove and promptly dispose of contaminated, vermin infested, or dangerous materials encountered.
2. Do not burn or bury materials on site, unless otherwise approved by Project Engineer and local authorities having jurisdiction.

B. Remove tools, equipment and protection when work is complete and when authorized to do so by local authorities having jurisdiction.

C. Remove and dispose of erosion control devices after landscaping is in place and ground cover is established at completion of project.

END OF SECTION

SECTION 02200

EARTHWORK

PART 1 – GENERAL

1.01 SUMMARY

A. Excavation, placement and compaction of material on the site to obtain the lines and grades shown on the drawings.

B. Related work specified in other sections:
1. Drawings and general provisions of Contract, including General Conditions and other Division 1 Specification sections apply to work of this section.
2. The verification, location, and removal of any utilities necessary but not shown on the drawing shall comply with Section 02100, Site Preparation and Demolition.
3. Topsoil shall be stripped and stockpiled in accordance with Section 02100, Site Preparation and Demolition.

1.02 QUALITY ASSURANCE

A. All work shall comply, at a minimum, with City of Roanoke development standards.

B. Field Quality Control:
1. Testing and Inspection: Owner will obtain and pay for the services of an independent commercial testing laboratory for performing field quality control testing of soils during construction.
2. Refer to Section 02200, 3.01 (Field Quality Control).

C. Industry Reference Standards:
1. "Standard Specifications for Highway Construction", Alabama Department of Transportation, most recent edition, Division 200, Earthwork.

1.03 SUBMITTAL

A. Test Reports:
1. Field density (compaction) test reports of each test mode.
2. Optimum moisture–maximum density curves for each test.

1.04 PROJECT CONDITIONS

A. Inspection:
1. Examine drawings or survey and site for discrepancies between actual site grades and contours and those shown on survey, before starting work. Report all discrepancies in writing to Project Engineer.
2. No extra compensation will be allowed for discrepancies between conditions shown on drawings and actual conditions existing at project site.

B. Excavation Classification:
1. Excavation is unclassified and includes: Excavation to extent of subgrade elevations and bottom of utility trenches shown on drawings or specified, regardless of character of materials and obstructions encountered.
2. Unsuitable Material Excavation: Excavation and disposal of unsuitable material below subgrade elevation.

C. A cut and fill balance has not been made. Contractor is responsible for establishing quantity of additional fill required or excess that must be hauled away. No additional compensation will be made for importation of additional material or for disposal of surplus material off site.

D. Existing Utilities:
1. Locations indicated are approximate and provided for contractor's information only. There may be additional utilities not shown on the plans. The Owner and/or Engineer assume no responsibility for locations shown and it shall be the responsibility of the Contractor to verify the locations of all utilities within the limits of work. All damage made to existing utilities shall be the sole responsibility of the Contractor.
2. Perform exploratory tests for verification if exact location of existing utilities are not known. Owner will assume no responsibility for hazardous conditions, losses, and accidents arising out of failure to perform tests for verification.

E. Benchmarks, Monuments, and Other Reference Points: Protect from damage and displacement; if disturbed or destroyed, replace at no additional cost to Owner.

F. Keep dirt , dust, noise, and other objectionable nuisances to a minimum.

G. Barricades:
1. Furnish and maintain barricades, signs and markings for work in public right–of–way in accordance with Alabama Department of Transportation specifications, City of Roanoke requirements, and as shown on the drawings.
2. Maintain barricades in good condition. Mount flashing yellow lights and maintain same.
3. Install protective measures adjacent to open excavations. This should include, but is not limited to channelizing drums and warning lights.
4. Prior to commencing land disturbance activity, mark the limits of the current phase of work clearly and accurately with silt fence, tree protection fence, ribbons or other appropriate means. The limits shall conform to the limits specified in Section 02100, Site Preparation and Demolition. The location and extent of all authorized land disturbance activity shall be demarcated for the duration of the construction activity. No land disturbance shall occur outside the limits indicated on the drawings or as approved by the Project Engineer.

PART 2 – PRODUCTS

2.01 SOIL MATERIALS

A. Suitable Soil Material: Provide soil material free from roots, debris, trash, organic materials, and other deleterious materials, frozen materials, material softer than adjoining soil, rock or stone larger than 3" maximum dimension. Materials shall meet the requirements of Section 820, of the "Standard Specifications for Highway Construction", Alabama Department of Transportation, most recent edition.

B. Unsuitable Soil Materials: USC Groups, CH, PT, OH, OL, and MH generally described as and including following:
1. Peat, mulch and/or other highly organic swamp solid.
2. Organic and inorganic clays of medium to high plasticity.
3. Organic and inorganic clays of medium to high plasticity.
4. Fine sand and silty soils.
5. Elastic silts.

C. Structural "Controlled Fill":
1. On–Site Excavated Material: Suitable soil material not exceeding 3" maximum dimension.
2. On–Site Excavated Material Blended with Imported Material: Material to be blended into uniform mixture meeting or exceeding the following imported material requirements.
3. Imported Materials: Unified Soil Classification (USC) System Groups ML, SM, SC–SM, SW, SP, or CL; Atterberg Liquid Limit (LL) less than 50; a maximum dry unit density greater than 90 PCF; Plastic Index (PI) less than 30; if granular, minimum of 20% must pass No. 200 sieve. Imported materials shall be certified as being free of hazardous waste material. Contractor must notify Project Engineer of the exact location of Borrow Pits prior to importing said material from pit. The contractor is responsible for obtaining all permits required for borrow.
4. Approval of material by Project Engineer required.

D. Nonstructural "Controlled Fill":
1. Same as structural "Controlled Fill".

E. Filter Aggregate: Provide clean gravel or crushed stone graded from coarse to fine with 100% passing 1/2" sieve, 15% passing 20 sieve, and not more than 2% passing No. 100 sieve.

F. Topsoil: Topsoil is defined as friable clay loam surface soil found in a depth of not less than 4". Satisfactory topsoil is reasonably free of subsoil clay lumps, stones and other objects over 2" diameter, and without weeds, roots, and other objectionable material.

2.02 EQUIPMENT

A. Provide type acceptable to Project Engineer suitable for use intended with proven capability to perform work in an acceptable manner. Consult Project Engineer prior to use of equipment and document Project Engineer recommendations in writing.
1. Use steel sheepsfoot roller or similar type equipment for compaction operations, except compact small and inaccessible areas with vibra plates, vibrator impact rammers, vibratory rollers, or similar type equipment.
2. Use rubber–tired pneumatic compaction equipment for sealing off compacted areas.
3. Use rubber–tired compactor or similar type approved equipment with minimum 40 tons static weight for proofrolling.

PART 3 – EXECUTION

3.01 FIELD QUALITY CONTROL

A. Testing and Inspection Services:
The owner shall retain the services of a Geotechnical Engineering Service (GES), or other qualified Engineer, licensed in the state of Alabama to perform observations, inspections and testing during execution of site work. Geotechnical Engineering Services include, but are not limited to:
1. Visual Observation by GES: After stripping the site of topsoil, organics, large root system, trash, and demolition debris, the site is to be observed by GES, and any localized pockets of organic, large root systems or remnants or previous construction identified should be undercut and discarded off–site or stockpiled for future use in landscaped areas.
2. Proofrolling: In the presence of GES, at–grade areas and other areas should be proofrolled with a heavily loaded dump truck, scraper, or similar piece of rubber–tired equipment approved by the testing Engineer.
3. In–Place Density Test by GES: Field density test will be preformed in all areas outside the right of way (proposed or otherwise) by the GES at vertical increments designated by the GES, but no less than every one foot of fill for each 3000 square feet of surface area. Test a minimum of every 50 linear feet per 2 feet vertical increment of utility trench backfill, or more as deemed necessary by the Project Engineer or Utility. Areas within the right of way (proposed or otherwise) shall be tested as directed by the plans. If not specified, follow requirements of the most recent ALDOT specifications.

B. Contractor shall cooperate with GES Inspectors and Technicians to facilitate the execution of GES duties.

3.02 PREPARATION

A. Conform to dimensions and elevations indicated on the plans. Do not exceed plus or minus five–hundredths of one–foot variation from design grade elevations shown.

B. Dewatering
1. Prevent ground and subsurface water from flowing into excavations, from flooding project site and surrounding properties, and from collecting and ponding unless such ponding is in connection with required erosion control; provide and maintain all temporary drainage and dewatering systems.
2. Install pumps, sumps and suction and discharge lines, as necessary to comply with requirements specified herein.
3. Install temporary deviations from grades indicated to channel water away from excavations.
4. Leave no sumps or pockets at completion of each day's grading operations.
5. If water is encountered during footing and foundation excavation, install pumps of suitable capacity to remove water while excavations are being made and continue pumping for 24 hours following placing of concrete footings and construction of permanent drainage is completed.
6. Contractor to be responsible for design, installation and maintenance of dewatering specified herein.

C. Do not place fill or backfill material in water, on substances which are frozen or contain frost, or during unfavorable weather conditions.
1. During periods of anticipated inclement weather, grade and seal surface of fill as required to limit percolation of surface water.
2. When work is interrupted by rains, do not resume operations until moisture content and field density tests of upper 6" of in–place materials have been made by GES and approved by Project Engineer.

D. Establish and identify required lines, levels, contours and datum.

E. Proofrolling and Compaction Testing:
1. Perform proofrolling over entire areas prior to receiving fill material, but after topsoil is removed, in presence of Geotechnical Engineering Service.
2. Make the number of passes as requested by GES over each area. Use minimum 40 tons static weight rubber–tired compactor or similar type equipment for proofrolling acceptable to Project Engineer and/or GES.
   a. Soils which are observed to rut or deflect excessively under to moving load should be undercut and replaced with properly compacted fill. Undercutting of three to five feet or more may be required. All proof–rolling and undercutting activities should be witnessed by representative of the geotechnical engineer and should be performed during a period of dry weather.
   b. After stripping, excavating where required, and proof–rolling, but prior to placing fill or pavement base, the exposed soils should be scarified and then processed to a moisture content between three percentage points below and three percentage points above the standard Proctor optimum. The subgrade soils should be recompacted to a dry density for a depth of at least 98 percent of the standard Proctor maximum dry density for a depth of at least 6 inches below the surface.
   c. After subgrade preparation and inspection have been completed, fill placement may begin. Fill materials should free of organic or other deleterious materials, have a maximum particle size of 3 inches, and meet material requirements of plans, and if not specified, ALDOT. Standard proctor density should meet requirements of plans, and if not specified, ALDOT specifications and is to be tested by the GES for compliance.
   d. Fill placement is expected to replace any undercut soils, and/or to raise site grades (if needed). Fill should be placed in loose lifts not exceeding 8 inches in thickness or as directed by the plans. If water must be added, it should be uniformly applied and thoroughly mixed into the soil by disking or scarifying. Each lift of compacted engineered fill should be proofrolled by the Geotechnical Engineer or his representative prior to placement of subsequent lifts. If construction operations soften or otherwise disturb previously proofrolled areas to an extent that they become soft and unstable or are rendered unsuitable, perform additional testing before starting filling operations. If necessary, remove unsuitable materials to depth and extent required and replace with approved compacted fill as specified above. Unsuitability to be determined by Project Engineer. Remedial work to be at Contractor's expense.
   e. Proofrolling should not be performed in areas of high ground water.

F. Following topsoil, stripping and proofrolling operations, but before making cuts or placing of fill and backfill, ground surfaces shall be free of all trash; debris; loose, frozen, wet or soft soil, and other undesirable surface materials.

3.03 GRADING

A. Remove excess topsoil from site and stockpile only the amount necessary to complete work. Specification cross reference: Refer to Section 02100, 3.02 (Site Preparation and Demolition).

B. Rough grade to required profiles, contours, elevations and subgrade levels as shown on drawing, with allowances made for depths required for placement of topsoil and construction of paving, walks, and equipment and building slabs or pads.

C. Control grading on site; slope ground to prevent water from running into excavated areas of building or damaging other structures; and so entire project is well–drained and free from water pockets.

D. Provide uniform levels and slopes between elevations shown on drawings, and between elevations shown and existing finished grades shown to be maintained. Round abrupt changes in slopes.

E. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Project Engineer. Unauthorized excavation, as well as remedial work directed by Project Engineer, shall be at no additional cost to Owner. Under footings, or retaining walls, fill unauthorized excavation by extending indicated bottom elevation of footing base to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to Project Engineer. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavation of same classification, unless otherwise directed by Project Engineer.

F. After cuts are made, scarify cut areas a minimum of 12" in depth and compact to specified density for each area.

3.04 FILL

A. General:
1. GES is sole judge as to when specified compaction densities have been obtained; however, the Contractor is recommended to obtain and maintain a copy of the Subsurface Exploration performed for the site.
2. Contractor is responsible for correcting, at his expense, including costs if testing, all areas with insufficient compaction. Remove and replace, or scarify, aerate or sprinkle (as needed), and recompact and retest deficient compacted fill.
3. Place acceptable material in horizontal lifts not exceeding 8" in loose depth, with each lift extending for entire length and width of each area being filled. Do not place material on surfaces that are muddy, frozen or contain frost.
4. Reduce or increase moisture content of fill by drying or uniform sprinkling with water to achieve moisture content required for specified degree of compaction for each lift.
5. Disk each layer of fill to break down oversize clods, to thoroughly mix to uniform density and achieve proper compaction.
6. Maintain positive surface slope to allow runoff and to prevent ponding of surface water. If surface water ponds, dewater. Remove all saturated or disturbed soil before placing additional fill material.
7. Number of compaction equipment passes required is dependent upon degree of compaction specified. Overlap rolling passes to completely cover areas of fill.

3.05 COMPACTION AND FILL MATERIAL LOCATION:
A. Under building, Driveway Areas, Sidewalks, Paving, and Curb and Gutter Areas: Compact as directed by plans. If not specified, follow requirements of the most current ALDOT specifications.
B. Under Lawn and Unpaved Areas: Nonstructural "Controlled Fill", minimum 3' in depth shall be 95% of Standard Proctor Maximum Dry Density.
C. Utility Trenches: Structural "Controlled Fill" 98% of Standard Proctor Maximum Dry Density or as directed by the governing utility, local government or plan detail.
D. Others not specified: Nonstructural "Controlled Fill", 95% of Standard Proctor Maximum Dry Density.

3.06 DISPOSAL OF EXCESS AND WASTE MATERIALS

A. Removal from Owner's Property: Remove waste material, including unacceptable excavated material, trash and debris, and dispose of it off owner's property in a legal manner. All waste material becomes property of the contractor.

HARMON ENGINEERING & CONTRACTING CO., INC.
ENGINEERING · CONTRACTING · ENVIRONMENTAL MANAGEMENT
13367 C.L. Torbert, Jr. Parkway / Lafayette, Alabama 36862
(334) 864-9135 / FAX (334) 864-8046

ALABAMA REGISTERED No. 27911 PROFESSIONAL ENGINEER ALLEN TUCKER 2024

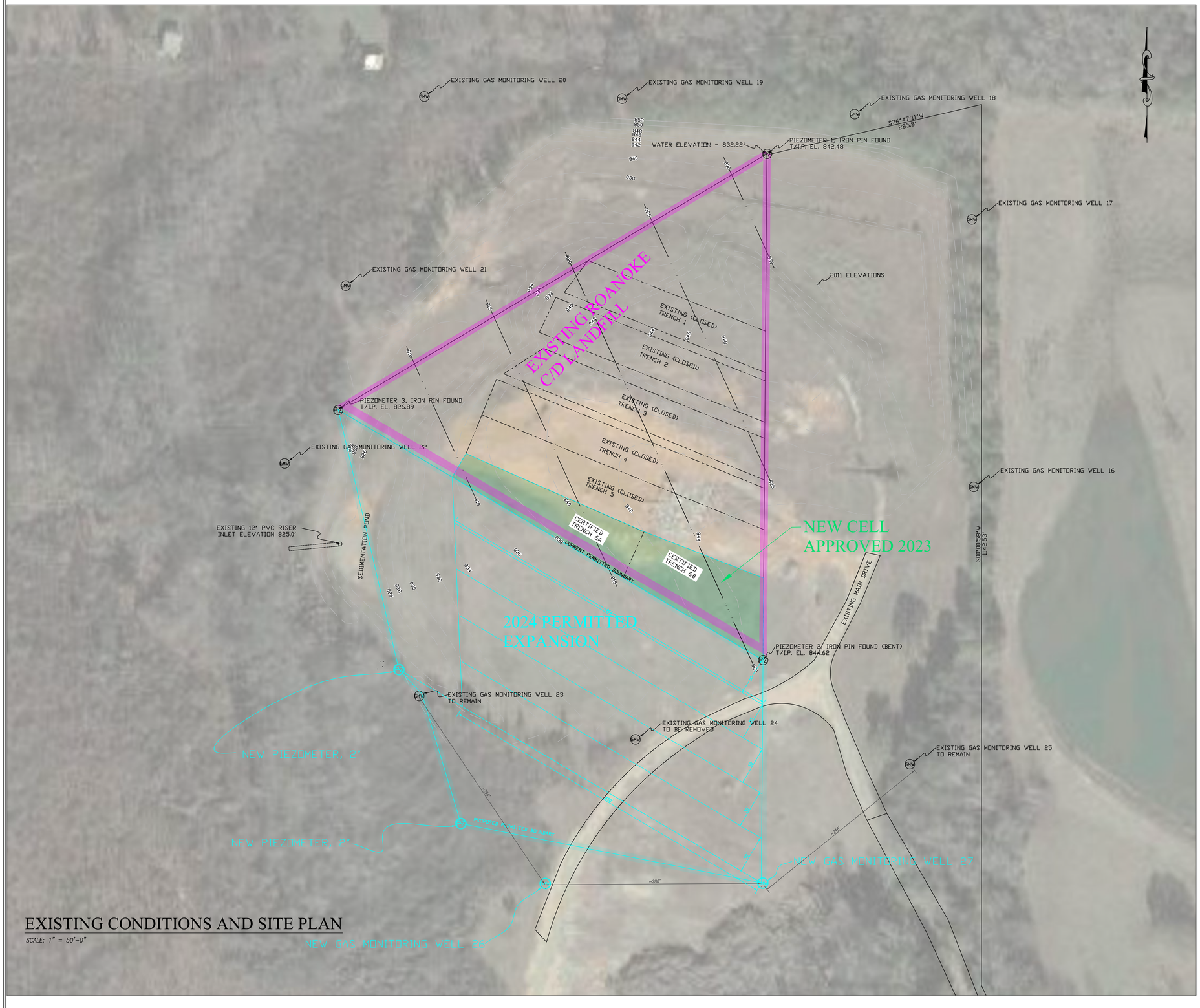
REVISIONS:

NO:	DATE:	BY:	DESCRIPTION:

STANDARD SPECIFICATIONS
CITY OF ROANOKE C/D LANDFILL

CITY OF ROANOKE
ROANOKE, AL

DRAWN: AWH
CHECKED: MAT
FILENAME: TECHNICAL FILES/703–28 CITY OF ROANOKE LANDFILL.DWG
DATE: 10/7/2024
PROJECT: 703–28–24
SCALE: NONE
FIGURE: C4.0



EXISTING CONDITIONS AND SITE PLAN

SCALE: 1" = 50'-0"

LEGEND:

- PIEZOMETER WELL BOUNDARY LINES
- EXISTING ELEVATIONS 2011
- TRENCH BOUNDARIES
- 2022 WATER ELEVATION
- GMW — GAS MONITORING WELL
- PZ — PIEZOMETER MONITORING WELL

PROJECT NOTES:

1. SITE AREA = 178 ACRES
2. EXISTING SITE PERMITTED DISPOSAL AREA = 4.17 ACRES
3. PROPOSED SOLID WASTE PERMITTED DISPOSAL AREA = 6.54 ACRES
3. SOLID WASTE DISPOSAL FACILITY PERMIT NUMBER 56-02.
4. CURRENT LAND USE: NON-HAZARDOUS CONSTRUCTION AND DEMOLITION WASTE
5. FACILITY LOCATION: SECTION 9, TOWNSHIP 22 SOUTH, RANGE 12
6. THIS PARCEL IS NOT IN THE FLOOD PLAIN AS SHOWN ON FIRM COMMUNITY PANEL NUMBER 01111C0410D EFF. 4/18/2011.

REFERENCES:

SURVEY: TOPOGRAPHIC MAP CITY OF ROANOKE DATED 19 AUGUST 2011
BURREL C JONES, PE/LS, AL PLS NO. 15294

BOUNDARY SURVEY: BOUNDARY SURVEY ROANOKE LANDFILL DATED MAY 13TH, 1994
J. KEITH MAXWELL, PE/LS, NO. 17262

TOPO SURVEY: EXISTING ELEVATIONS 2023 FROM ONSITE SURVEY
AUSTIN HARMON, 2/14/2023

GRAPHIC SCALE
1"=50'-0"
50' 0 50 100FT.

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REVISIONS:

NO:	DATE:	BY:	DESCRIPTION:

PROPOSED NEW PERMITTED AREA
CITY OF ROANOKE C/D LANDFILL

CITY OF ROANOKE
ROANOKE, AL

DRAWN: AWH
CHECKED:
FILENAME: TECHNICAL FILES/703-24 CITY OF ROANOKE LANDFILL.DWG
DATE: 2/14/2023
PROJECT: 703-24-23
SCALE: 1" = 50'-0"
FIGURE: C1.0