

Fac/Perm/Co ID #	Date	Doc ID#
44-06	7/19/10	11173

**LANDFILL No. 6
OPERATIONS & MAINTENANCE
MANUAL**

RECEIVED

JUL 19 2010

SOLID WASTE SECTION
ASHEVILLE REGIONAL OFFICE

**Prepared for
BLUE RIDGE PAPER PRODUCTS INC. –
CANTON MILL
A DIVISION OF EVERGREEN PACKAGING
CANTON, NORTH CAROLINA**

May 2010

SME

Sevee & Maher Engineers, Inc.

ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE





Fac/Perm/Co ID #	Date	Doc ID#
44-06	7/19/10	11173

Blue Ridge Paper Products Inc. - Canton Mill / Waynesville Plant

Hand Delivered

July 15, 2010

Mr. Allen Gaither
North Carolina DENR
Division of Waste Management
2090 US Highway 70
Swannanoa, NC 28778

RE: Blue Ridge Paper Products Inc., Landfill Number 6, Permit Number 44-06, Operations & Maintenance Manual

Dear Mr. Gaither:

In association with the current construction of Landfill Number 6, Area D South, and the overall operation of the active and inactive areas in the landfill, Blue Ridge Paper is submitting the enclosed Operations & Maintenance Manual update. The plan is in accordance with Facility Permit Number 44-06 dated October 27, 2009, and supercedes the plan dated January 1999. Per our telephone conversation of May 14, 2010, the plan covers the daily operations related to the management of the entire site, and not be restricted to only the active area. Conceptually, this will promote a smoother transition from operations in one area to the next, and recognize that all areas, active or retired, require long-term maintenance.

Based upon Division of Waste Management rules governing landfill operation, we have incorporated our current and anticipated practices into the plan. We recognize that regulatory changes can occur, and therefore, future updates associated with the development of new areas will be addressed per North Carolina rules. The plan has been reviewed by Andrea Keller, and her recommendations incorporated.

The enclosed plan is the guide to the day-to-day operations at Landfill Number 6. Thank you for your consideration. Should you have questions or comments at this time please let us know.

Sincerely,

James A. Giaouque
Waste Compliance & Landfill Supervisor
Blue Ridge Paper Products Inc.
Jim.giauque@everpack.com
828-646-2028 Fax 828-646-6892

Paul Dickens
Manager, Environmental, Health & Safety
Blue Ridge Paper Products Inc.
paul.dickens@everpack.com
828-646-6141 Fax 828-646-6892

Enclosure

File:gaither051810

**Copy: Guy Cote (SME)
Bill vonVitzthume
Luke Williams**

**LANDFILL No. 6
OPERATIONS & MAINTENANCE
MANUAL**

**Prepared for
BLUE RIDGE PAPER PRODUCTS INC. –
CANTON MILL
A DIVISION OF EVERGREEN PACKAGING
CANTON, NORTH CAROLINA**

July 2010



ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE

TABLE OF CONTENTS

Section No.	Title	Page No.
1.0	GENERAL.....	1-1
1.1	Purpose.....	1-1
1.2	Design Concept.....	1-2
1.3	Development Concept.....	1-2
2.0	OPERATIONAL PROCEDURES.....	2-1
2.1	Commencement of Operations.....	2-1
2.2	Site Access.....	2-1
2.3	Operating Hours.....	2-2
2.4	Personnel Responsibilities.....	2-2
2.4.1	Organization.....	2-2
2.4.2	Personnel.....	2-3
2.5	Health, Safety, and Fire Considerations.....	2-4
2.6	Equipment Requirements.....	2-6
2.7	Waste Delivery and Acceptance.....	2-7
2.8	Waste Inspection Plan.....	2-7
2.9	Waste Placement and Grading.....	2-8
2.9.1	Waste Placement Plan.....	2-8
2.9.2	Special Handling of Waste.....	2-12
2.9.3	Asbestos Disposal Procedures.....	2-13
2.9.4	Wet Weather.....	2-15
3.0	LANDFILL DEVELOPMENT.....	3-1
4.0	LEACHATE MANAGEMENT.....	4-1
4.1	Leachate Generation.....	4-1
4.2	Leachate Storage.....	4-1
4.3	Leachate Flow Control.....	4-1
4.4	Leachate Disposal.....	4-2
5.0	LANDFILL INSPECTION AND MAINTENANCE.....	5-1
5.1	General.....	5-1
5.2	Access Roads.....	5-1
5.3	Equipment.....	5-1
5.4	Erosion Control Facilities.....	5-2
5.5	Leachate Collection Piping.....	5-2
5.6	Leachate Storage Pond.....	5-2
5.7	Liner Repair.....	5-2
5.8	Landfill Underdrain System.....	5-3
6.0	WATER QUALITY MONITORING.....	6-1
6.1	General.....	6-1
7.0	LANDFILL GAS MONITORING.....	7-1
7.1	Landfill Gas Characteristics.....	7-1

Table of Contents (cont'd)

Section No.	Title	Page No.
7.2	LFG Monitoring	7-2
8.0	RECORD KEEPING & REPORTING	8-1
8.1	General	8-1
8.2	Operating Records and Annual Reports	8-1
8.3	Waste Description	8-1
9.0	FINAL CLOSURE	9-1
9.1	General	9-1
9.2	Closure Procedures	9-1
9.2.1	Grading	9-2
9.2.2	Drainage Channels, Pipes, or Drains.....	9-2
9.2.3	Final Cover System.....	9-2
9.2.4	Seeding.....	9-2
9.3	Erosion Control	9-3
9.4	Long-Term (Post-Closure) Maintenance	9-4
9.4.1	Mowing.....	9-4
9.4.2	Site Inspection.....	9-4
9.5	Leachate Collection	9-4
9.6	Water Quality Monitoring.....	9-5
9.7	Gas Monitoring.....	9-5
9.8	Alternative Uses.....	9-5
9.8.1	Solar Array.....	9-5

LIST OF APPENDICES

APPENDIX A	WASTE RECEIPT FORMS
APPENDIX B	INSPECTION FORMS
APPENDIX C	ENVIRONMENTAL MONITORING PLAN
APPENDIX D	FIRE OCCURRENCE NOTIFICATION FORM

LIST OF FIGURES

<u>Figure No.</u>	<u>Title</u>	<u>Page No.</u>
1-1	DEVELOPMENT CONCEPT	1-4
2-1	ORGANIZATION CHART	2-2
2-2	WASTE PLACEMENT	2-10
2-3	INTERNAL CELL DRAINAGE	2-11
3-1	LANDFILL NO. 6 DEVELOPMENT	3-2
7-1	GAS MONITORING PROBE LOCATIONS	7-3

LIST OF TABLES

<u>Table No.</u>	<u>Title</u>	<u>Page No.</u>
7-1	TYPICAL COMPONENTS OF LANDFILL GAS.....	7-1

1.0 GENERAL

1.1 Purpose

The purpose of this manual is to provide information to the personnel involved in the operation, maintenance, and closure of the Blue Ridge Paper Products, Canton Facility Landfill. Guidelines and procedures for the development and operation of the landfill are provided herein. It is important to recognize that some of the procedures in this manual may require modification over time as in response to new regulations or as improved methods are developed for carrying out the day to day landfill activities. Changes in procedures must be verified with the Canton mill area management, Environmental, Health and Safety Department (EHS) and Mill Engineering prior to implementation.

It is equally important for the personnel involved in landfill operations to understand the critical requirements for successful landfill operation and maintenance. Operation of a landfill is as much about managing water as it is the solid waste. Approximately one million gallons per acre of precipitation falls to the ground in the Canton, North Carolina area on a yearly basis. Management of this and other waters which may be associated with or absorbed by the incoming waste is a principal task of the landfill operations personnel.

The landfill has been designed to collect the precipitation and other water which becomes leachate. It is the operations personnel's goal to insure that maximum leachate collection efficiency is maintained while simultaneously minimizing leachate generation to the extent practical. Minimizing leachate generation is accomplished by separating clean surface runoff from the wastes, encouraging evaporation of leachate, and other procedures which are discussed herein.

This manual was prepared with regard to the Solid Waste Rules and Regulations of the North Carolina Department of Environment and Natural Resources (NCDENR). It includes descriptions of development procedures, landfill operations, site maintenance, safety procedures, monitoring requirements, leachate management, and numerous other important procedures which must be adhered to. Everyone associated with the management and operation of the landfill should be familiar with this manual to insure a safe and environmentally secure facility.

1.2 Design Concept

It is not the purpose of this document to provide a detailed account of the design of the landfill; however, a general discussion of the design of the Blue Ridge Paper Products, Canton Landfill is presented herein. The landfill operations personnel are encouraged to review the Design Reports and Engineering Drawings which provide detailed descriptions of the landfill facilities.

The Landfill incorporates an engineered liner system beneath the waste to minimize the potential for leachate to impact the groundwater underlying the site. The current landfill design begins by placing a geosynthetic clay liner (GCL) over the cell base grades followed by a 60-mil thick high density polyethylene (HDPE) geomembrane. Over the geomembrane is placed a non-woven geotextile followed by a 15-inch granular drainage (leachate collection) layer to collect and transport leachate. Embedded within the drainage layer is a network of perforated pipes to aid in the transport of leachate by gravity flow to a discharge sump or wet well. From the sump, the leachate is pumped to the mill's wastewater treatment plant. Leachate storage ponds are an integral part of the system and provide leachate storage during periods of heavy rainfall.

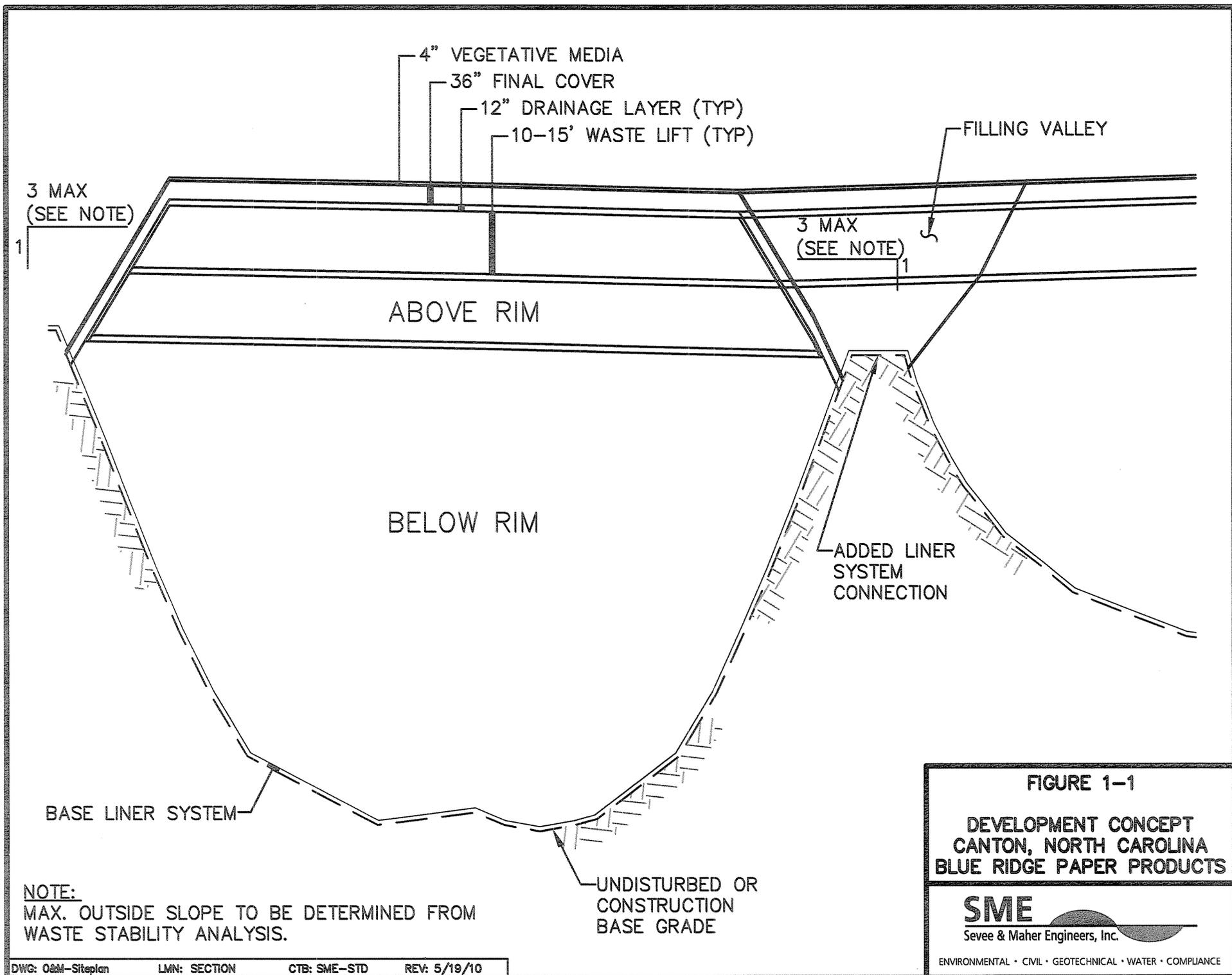
Once an area of the landfill has reached final waste grades, final cover is applied as detailed in Section 9.0. Final Cover is installed to reduce leachate generation and allow consolidation of the waste. The residual water within the waste will slowly percolate out via the leachate collection system as the waste consolidates.

1.3 Development Concept

The Blue Ridge Landfill uses natural geographic features in the area such as depressions to maximize the space utilized for the waste stream from the Canton Mill. The main waste stream entering the landfill is treatment plant sludge and lime from the paper-making process. The engineering properties of these two materials can vary significantly. Traditionally landfill construction consists of building a small self-enclosing berm and installing a liner system inside on which to place waste. To circumvent any issues with the paper mill wastes (i.e., stability) and traditional landfilling techniques, the Canton Landfill enhances and utilizes the depression walls to buttress the waste to allow the same quantity of waste fill in a similar sized footprint as a

typical Landfill that would accept municipal solid waste. Development and operation of the landfill in this manner allows for separation of clean surface water from the waste, thus minimizing leachate generation.

The initial landfill permit does not permit placement above the rim of the landfill depressions. Development typically begins by filling the space below the rim of the depression with waste and then filling above the rim, as shown on Figure 1-1. Applications to the NCDENR for successive Permits to increase the vertical height of the landfill areas will be made pending successful operation below the rim of each cell.



NOTE:
 MAX. OUTSIDE SLOPE TO BE DETERMINED FROM
 WASTE STABILITY ANALYSIS.

FIGURE 1-1
DEVELOPMENT CONCEPT
CANTON, NORTH CAROLINA
BLUE RIDGE PAPER PRODUCTS



ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE

P:\Bpp\NCO&M\Acad\Figures\O&M-Siteplan.dwg, 5/20/2010 2:43:58 PM, mbistcup

2.0 OPERATIONAL PROCEDURES

2.1 Commencement of Operations

- (a) At least 5 business days prior to commencing operation of a new landfill area, Blue Ridge Paper Products, Inc. shall notify the NCDENR of the intent to commence operations.
- (b) The notice shall include the following:
- (1) Facility identification, including permit number;
 - (2) Date of intended commencement of operations; and
 - (3) The name and telephone number of the facility manager or other primary contact person.

2.2 Site Access

All vehicles and visitors will enter the site via the gated road which accesses the Landfill. The entrance to the landfill will have a facility sign which includes the following:

- The facility name and permit number;
- The name, address, and telephone number of Blue Ridge Paper Products, Inc.;
- The type of wastes accepted and not accepted (i.e. "No hazardous or liquid waste accepted"); and
- The penalty for unlawful dumping.

All visitors will check in at the main gate which is located on Main Street. Only approved employees will have unrestricted access to the landfill facility. All others will proceed only after receiving clearance from security at the main gate and landfill management. No visitors will be allowed on-site unaccompanied and the number of visitors will be minimized.

During non-operational hours, the gate at the entrance to the site will be locked.

2.3 Operating Hours

The Landfill will normally accept mill wastes seven days per week, and up to a 12-hour per day schedule, depending on daylight hours. It is not uncommon for operations to be expanded to 24 hours per day during mill outages or process upsets.

The normal start of the work day for operators will be 5:30 A.M. The operators will perform daily maintenance and move the equipment to the operating area within 1/2 hour of commencement of dumping. An operator shall be present at the operating area at the commencement of dumping.

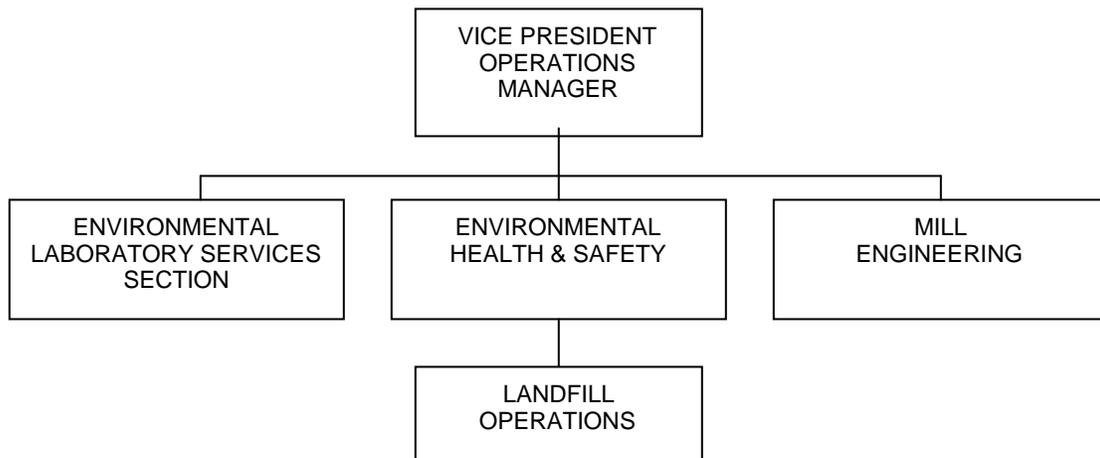
2.4 Personnel Responsibilities

The personnel and departments involved in the operation of the landfill include: 1) EHS department; 2) Mill Engineering; 3) RURU-Environmental Laboratory Services (ELS); and 4) landfill operations. The organization, responsibilities, and tasks conducted by these people are described below.

2.4.1 Organization. An organization chart, Figure 2-1, is presented to outline the chain of command and support groups which include the EHS Department and Mill Engineering.

FIGURE 2-1

ORGANIZATION CHART



2.4.2 Personnel.

2.4.2.1 Environmental, Health and Safety Department

The Environmental Health & Safety Department (EHS) is responsible for securing and assuring compliance with licenses and permits required for operating the landfill. This responsibility includes quantity estimates of all plant waste brought to the site and environmental monitoring of the landfill in accordance with the conditions of the landfill permit. In addition, the department's responsibility includes assuring that the landfill operation is in compliance with all regulations of the NCDENR. This responsibility includes periodic site audits and inspections as well as submission of appropriate data to the NCDENR.

EHS personnel are also charged with directing and overseeing the daily operation of the landfill to assure that the operating plans are being implemented properly.

Responsibilities of the EHS personnel in this area include:

- a. initiating site development to maintain continuity of operation;
- b. directing the overall planning and scheduling of waste placement;
- c. maintaining site records and tracking landfill volume consumption;
- d. supervising and training personnel; and
- e. supervising the site safety program.

In addition, this department is responsible for the maintenance of leachate collection systems, stormwater runoff facilities, and roads.

2.4.2.2 Mill Engineering

The Mill Engineering group is responsible for overseeing major construction projects at the landfill and providing support services for site maintenance. Major construction projects, such as landfill construction (i.e., cell development and closure), would be implemented by Mill Engineering.

2.4.2.3 Landfill Operator

The landfill site operators are responsible for the daily operation of the landfill's active face (current waste placement area).

The Operator will:

- a. direct placement of the waste by haul vehicle operators;
- b. spread and compact wastes;
- c. apply cover materials as required;
- d. inspect equipment and facilities;
- e. abide by established safety rules;
- f. maintain site security in conjunction with Canton Mill security;
- g. immediately note and report unusual events or circumstances;
- h. maintain such records as may be required (see Section 8.0);
- i. immediately report any observed and/or imminent environmental impacts to EHS department management; and
- j. strive to maintain neat and efficient operations.

The mill site operators and drivers of the haul vehicles will be responsible for the proper loading and handling of their loads. While on the landfill site, they will comply with the provisions of this manual and directions provided by the Landfill Site Operator.

Problems encountered at the landfill should be reported to the Landfill Team and to EHS management.

2.5 Health, Safety and Fire Considerations

The following health and safety procedures will be adhered to at the landfill facility:

1. Only essential personnel will be involved in activities associated with operation of the landfill.
2. Manholes or other similar enclosed facilities at the landfill are classified as confined space structures. Entry into these structures will be in accordance with

mill protocols for confined space entry, the inside air will be tested in accordance with the mill's confined space entry procedures.

3. Dumping areas will be maintained firm and level. After directing trucks to the dumping area, the operating personnel will stand clear of the truck.
4. The leachate storage pond gate will be locked at all times, except when access is required.
5. Exit ramps will be provided in the leachate storage pond for exit in the event that someone falls in.
6. In the event of an accident involving property damage, mill security personnel will be notified immediately, to generate necessary reports.
7. In the event of an accident involving personal injury, assess the severity of the injury and do one of two things. For serious or life threatening injuries call emergency personnel by dialing 911 outside the mill, or 2911 in the mill. If the resulting injuries are only minor, the injured person must report to the mill medical section.
8. In the event of an environmental emergency, the operator will follow the spill and release reporting procedure detailed in the Canton Mill Employee Safety Handbook or call mill extension 6711.
9. Keep gate locked when area not in use.
10. Follow all safety policies and procedures in accordance with the Canton Mill Employee Safety Handbook.

In the event of a fire, the following procedures will be implemented:

1. If it is an equipment fire, the fire extinguisher provided with all equipment will be utilized, if feasible, to extinguish the fire.

2. If the fire does not appear to be controllable with a fire extinguisher, or if the fire is associated with the landfilled wastes, the emergency dispatcher at mill extension 2911 will be contacted immediately. The emergency dispatcher will be provided with information concerning the location and extent of the fire.
3. The emergency dispatcher will mobilize the appropriate fire fighting equipment and personnel. All fire personnel should be notified in advance to alert them of the nature of hazards at the landfill so they may be appropriately prepared and equipped.
4. All efforts to keep applied water and fire fighting chemicals within the landfill limits will be made.
5. EHS department personnel will be notified as soon as possible so that an inspection can be made.
6. Hot ashes on the sludge pile will not be considered a fire hazard unless they are blown by strong winds.
7. EHS department will notify the NCDENR Division of Solid Waste Management, Solid Waste Section, verbally within 24 hours and a written notification must be made within 15 days of the occurrence. A sample fire occurrence form is shown in Appendix D.

2.6 Equipment Requirements

The following equipment will be available to conduct the daily landfilling activities, place final cover, minimize erosion, maintain roads, and operate the leachate system:

1. Bulldozer for fine grading;
2. Bulldozer for waste placement and grading;
3. Front-end loader to move cover material and construct temporary berms;
4. Two-way radio communication system.

2.7 Waste Delivery and Acceptance

To assure that all information regarding a waste delivery is accurately recorded, it is necessary to adhere to a "flow control" system. The details of the "flow control" system are described in this section and Section 2.8, as well as Section 8.0 which describes in detail the record keeping and reporting requirements which will be followed by this facility.

Each day, drivers will provide the following information:

1. The types and sources of the waste being delivered; and
2. The number of truck loads of each type of waste delivered.

Each month, drivers will provide the following information:

1. Weights of the trucks according to the established plan.

Sample waste receipt forms are shown in Appendix A.

Landfill personnel will determine if the landfill is permitted for the type and source of waste being delivered, see the following Section 2.8. When the truck arrives at the disposal area, the Landfill Operator will direct the unloading of the waste. Weigh tickets will be obtained periodically from the Scale Operator by Landfill personnel for recording onto the monthly accounting forms.

A sample of trucks will be weighed and the gross weight recorded in accordance with Section 8.3. Tare weight will be determined by deducting the truck empty weight determined at the time the truck was acquired from the weight of the truck when it enters the site.

2.8 Waste Inspection Plan

The loader operator and truck driver will inspect the waste load and determine if the waste is accepted at the landfill. If there is any question as to the waste being accepted at the landfill, EHS management will be notified to obtain a decision on whether it is an acceptable waste.

The landfill operator will also inspect each load. If an unpermitted waste is improperly accepted for disposal, the landfill operator shall notify EHS management.

In the event a special waste is generated, the owner will secure NCDENR approval prior to disposal.

2.9 Waste Placement and Grading

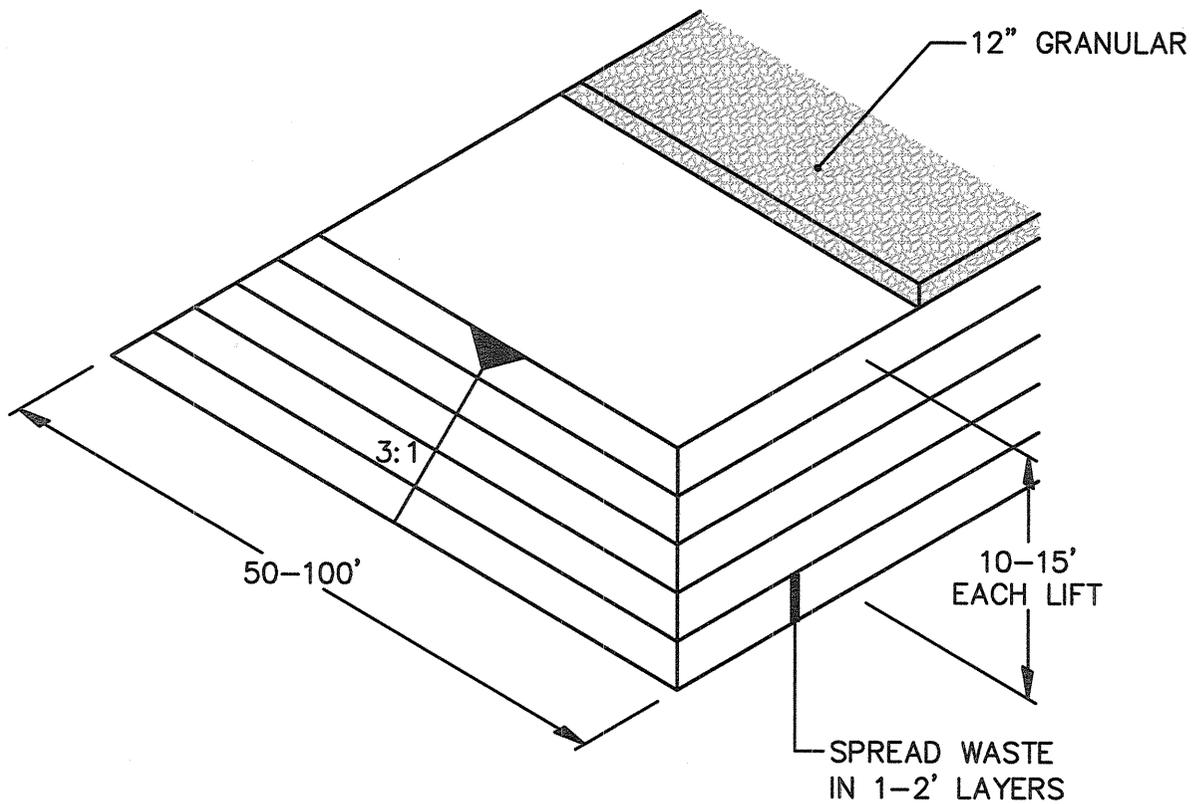
2.9.1 Waste Placement Plan. The following is the waste placement plan. This plan is designed around the nature of the waste disposed at the facility and location below or above the rim of the landfill. Each lift shall be constructed as detailed herein to achieve the grades shown on the waste grading plans prepared as part of the engineering drawings for each phase. Failure to adhere to the procedures in this Manual could have negative results on overall or local landfill stability.

2.9.1.1 Waste Placement Below the Rim

The sludge, woodwaste, and lime mud will be dumped by the haul truck operator and spread by an equipment operator. Dumping of waste will start at the lower elevations within the cell. The landfill operator will push and spread the waste over the working face, in layers no greater than 2 feet thick as shown in Figure 2-2. Spreading the waste in thin layers, allows the waste to drain, achieves greater in-place compaction (density), and maintains the stability of the working face. The thin layers of waste will make up waste in lifts approximately 10 to 15 feet thick. Each lift of waste must achieve positive drainage either through proper waste grading or through a mechanical means described in the Special Handling of Waste Section.

Papermill sludge as a byproduct of the papermaking process contains varying amounts of clay that is used as filler. As the sludge is landfilled deeper, the consolidation of the sludge also makes the sludge less permeable; water does not drain as easily. In order to maintain good drainage within the landfill, the top surface of each lift will be covered with a 12-inch thick layer of granular material, i.e. stone, gravel, etc. The drainage layer will aid in draining the next lift of waste, making for a more stable landfill operation. In

addition to the drainage layers, chimney drain strips will be expanded upward to the top of the base cells, as shown in Figure 2-3. As with the chimney drain strips, the stone drainage layer along the lined sideslopes will also be extended with each new lift of waste.



WASTE PLACEMENT

NTS

FIGURE 2-2

WASTE PLACEMENT
CANTON, NORTH CAROLINA
BLUE RIDGE PAPER PRODUCTS



ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE

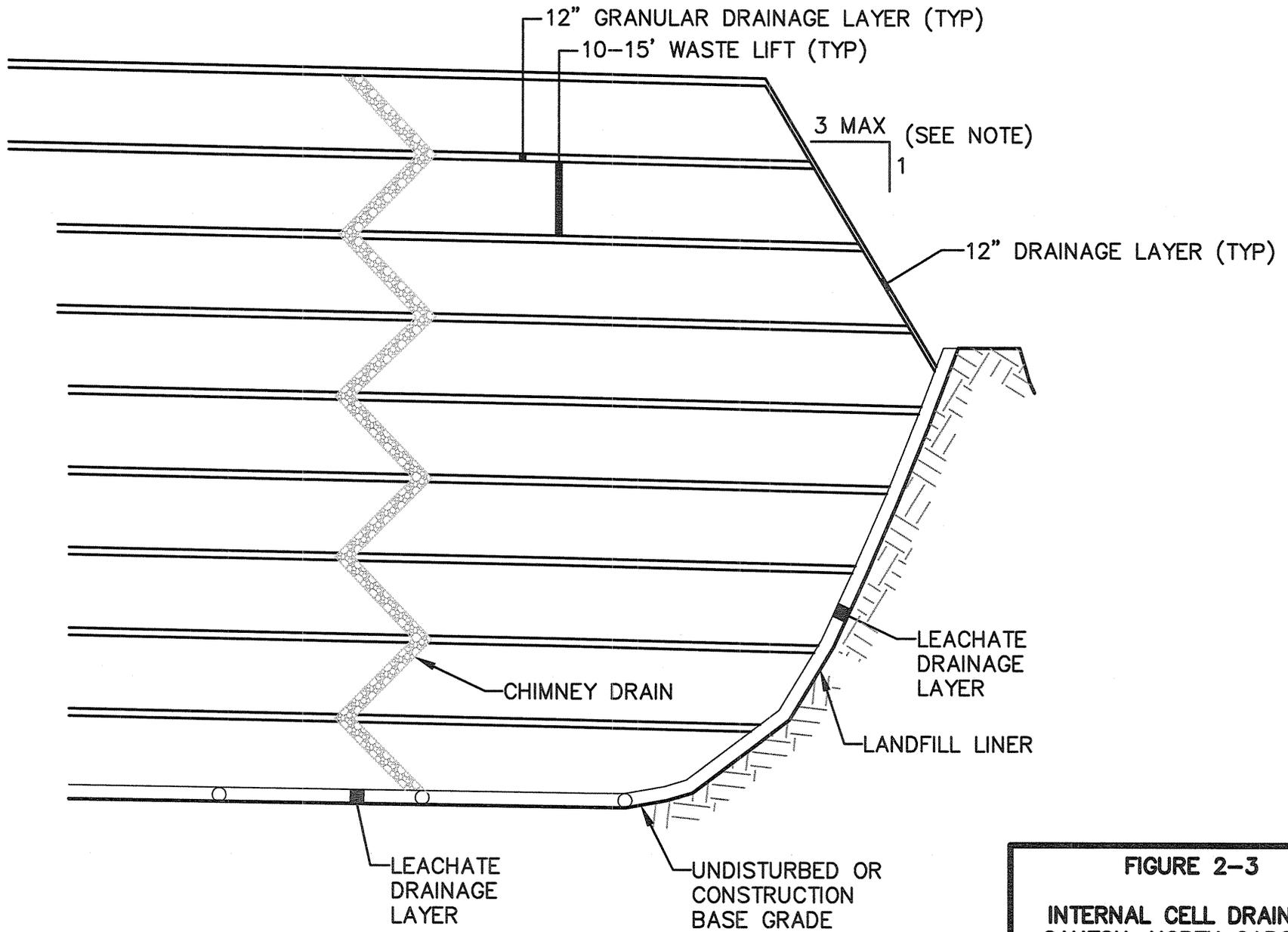


FIGURE 2-3

INTERNAL CELL DRAINAGE
CANTON, NORTH CAROLINA
BLUE RIDGE PAPER PRODUCTS

SME

Sevee & Maher Engineers, Inc.

ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE

NOTE:
MAX. OUTSIDE SLOPE TO BE DETERMINED FROM
WASTE STABILITY ANALYSIS.

Special procedures will be implemented during winter operation of the landfill. Snow and ice removal from operational areas including roads and the working face of the landfill must be maintained to allow proper operation of the landfill. Waste placement, grading, and site cleanliness become more important during the winter since ungraded frozen sludge can become a barrier to traffic movement. The access road must be plowed and sanded to provide safe travel conditions. Salt should only be used if necessary, because it may seep into the groundwater and could affect groundwater quality data. Sanding will be the preferred method of road treatment in the winter months. Drainage structures such as culverts should be kept free of ice and snow to assure unrestricted runoff during thawing conditions.

Any damage to the liner system of the landfill that occurs as a result of construction or operational activities will be reported immediately to EHS management for appropriate action.

2.9.1.2 Waste Placement Above the Rim

Waste placed above the rim of the landfill does not have the depression wall to buttress against movement. Placement of waste above the rim is performed similar to waste placed below the rim with some exceptions. Proper waste placement above the rim is critical to landfill stability. Waste placed above the rim of the landfill will have outside slopes as determined by a stability analysis conducted during the design phase for each cell. Typical outside slopes are likely to range from 3 to 4 feet horizontal to 1 foot vertical. Soft wet wastes must be placed greater than 100 feet away from any outside slope to maximize slope stability.

2.9.2 Special Handling of Waste. Other than asbestos disposal, certain situations require special landfilling procedures to maintain the integrity of the landfill and protect the working area and surrounding environment. One special procedure is in areas of the landfill that have become too wet to work on and the other special procedures for disposal of boiler ash.

Occasionally, wetter than normal waste material will be delivered to the landfill for disposal. This saturated waste material will not be placed closer than 100 feet from and outside slope.

When an area is too wet to work, a mechanism is needed to allow the excess water to drain freely away from the saturated waste area. Drainage and enhanced equipment flotation will be achieved by using a drainage layer that utilizes either a drainage geocomposite, used paper machine wires or used paper machine felts placed over the wet area. This will ensure a channel for excess water to drain from the saturated waste materials while allowing continued waste placement.

The safe disposal of ash will protect the working atmosphere and the surrounding environment. Boiler ash amounts to approximately 1,400 cy per week. Two types of ash are brought out to the landfill: cinders and fly ash. The cinders consist of inorganic boiler residue from the burning of coal and wood fuel. This material is landfilled by spreading it over the working face or used as a gravel substitute within the active area of the landfill. The fly ash is a much finer material and can dry out and become dusty. Landfilling the fly ash can be accomplished by spreading the fly ash and immediately placing a layer of sludge over it or working it into the sludge, depending on the moisture content of the sludge. This will prevent blowing of the ash, and, water from the sludge will minimize the generation of fly ash dust becoming airborne.

2.9.3 Asbestos Disposal Procedures.

2.9.3.1 Notification and Approval Procedures

A disposal area located between Areas F and H has been permitted in accordance with 40 CFR Part 61 and 15 NCAC 2D and 10A NCAC 41C to accept asbestos containing materials (ACM). Anyone wishing to dispose of ACM at Landfill No. 6 must contact the EHS Department at 646-2028. The EHS Department will determine that the material to be disposed of is ACM and will issue a coordinate the disposal with the contractor. ACM must be hauled and disposed of by a contractor permitted by the State of North Carolina. The ACM must be removed from the source, transported to the disposal site, and properly buried in compliance with Toxic Substance Control Act and North Carolina Rules.

Before approving the ACM disposal, the abatement contractor will assure that any personnel on the transport crew who may be exposed to asbestos fibers above the OSHA permissible exposure limit or are required to wear a protective respirator during

asbestos unloading have complied with the requirements of Evergreen/Blue Ridge Respiratory Protection Program. Personnel or ambient air monitoring may be required during the disposal event.

2.9.3.2 Site Security and Maintenance

During the unloading of asbestos waste at the landfill, the Landfill Operator will assure that all personnel and equipment not directly involved with the unloading activity are kept at least 100 feet back from the disposal area. If the driver of the truck that hauled the asbestos has not been trained, he/she will remain in the truck with the windows up, or the driver should remain 100 feet away as per the Rules during a manual unloading process of friable asbestos or during clean-up of asbestos materials. All friable ACM is to be wetted and bagged according to the regulations. Within the disposal area, the bagged ACM is to be placed on an appropriate sized sheet of plastic, then covered with plastic. Before the end of the day, at least 18 inches of soil will be placed over the plastic covered asbestos waste.

The asbestos disposal area at the landfill shall be permanently identified on a map as an asbestos waste disposal area in compliance with the Regulations.

2.9.3.3 Disposal Procedures

Vehicles used to transport asbestos-containing waste material must be marked during loading and unloading per 40 CFR 61.149(d)(1)(iii). All trucks must be weighed at the landfill scales on their way in and must reweigh when empty. The weight tickets must be signed by the transporter before departure. All friable or potentially friable asbestos waste will be transported to the disposal area in double 6-mil poly bags, labeled in compliance with 29 CFR 1926.58(k). The transport container shall be leak-tight and labeled in compliance with 40 CFR 61.152. Non-friable asbestos may be transported without bagging if the transport container is poly lined and the material is adequately wetted and covered with 6-mil poly cover and secured to prevent the effects of wind or evaporation on the material during transport. It is the responsibility of Blue Ridge Paper Products and their ACM contractor to properly package and label the asbestos waste.

The landfill representative can reject loads that are not properly packaged and labeled.

Non-friable asbestos shall not be shredded, crushed, or subjected to any other form of volume reduction prior to placement in the landfill.

Trucks approaching the asbestos unloading area shall approach as closely as possible before unloading waste. The ACM contractor and landfill operator will coordinate asbestos disposal in the designated area. Waste containers shall be lowered to the ground at the disposal area and not pushed or dropped from the back of a truck. All containers shall be inspected during unloading and any damaged containers shall be immediately wetted sufficiently to prevent dispersal of asbestos fibers during the burying of the waste. The operators can then cover the asbestos with the proper amount of cover material.

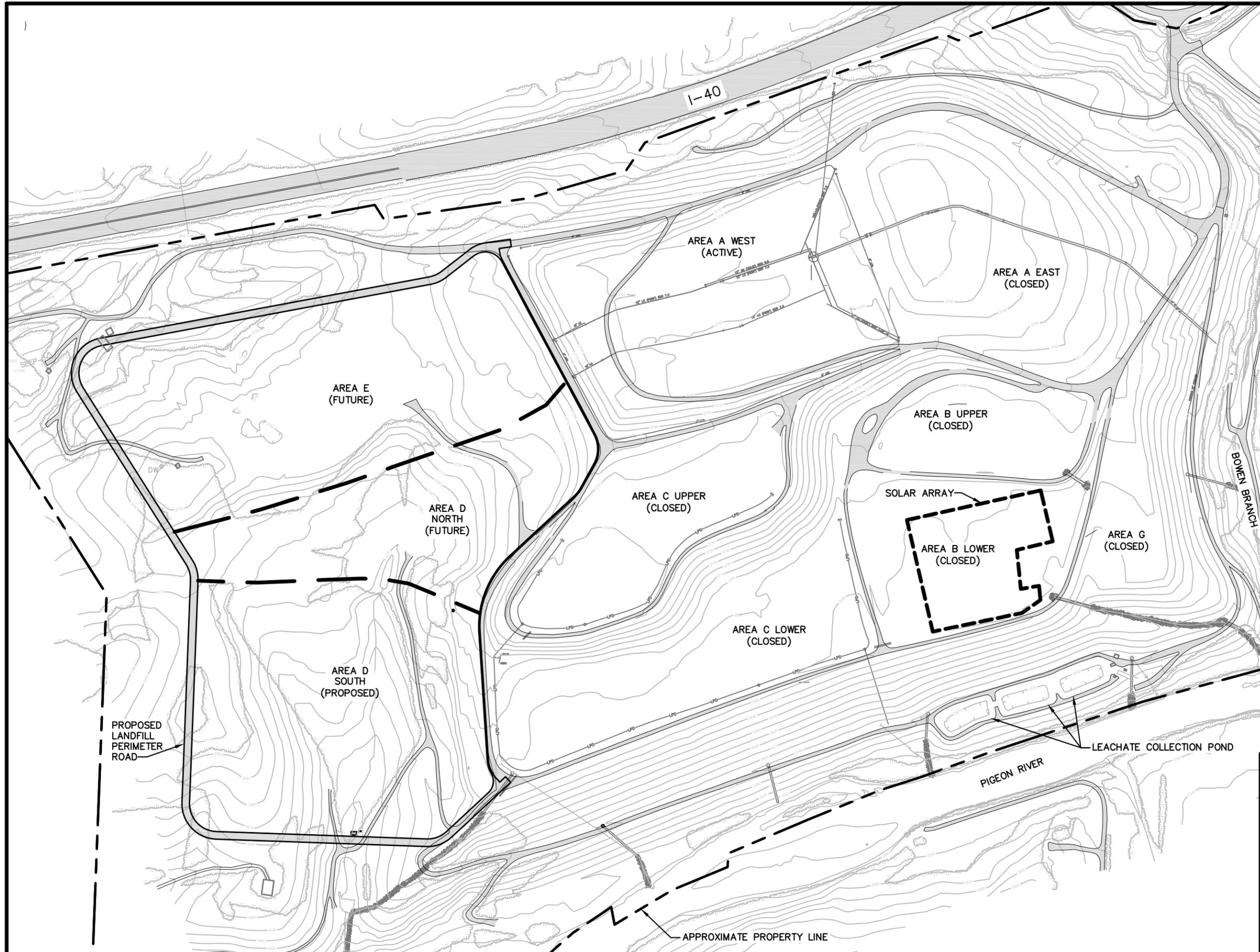
Damage to containers outside the disposal area may be repaired only by properly trained and licensed personnel under the supervision of the ACM contractor. The amount of asbestos material that may be repacked by the contractor crew is limited to minor asbestos abatement projects in accordance with 10A NCAC 41C.0605. These Rules allow the abatement of disturbances of less than or equal to 35 cubic feet (1 cubic meter), 160 square feet (15 square meters) or 260 linear feet (80 linear meters), of regulated asbestos containing material. If the quantities are greater than the allowed quantities, an asbestos abatement contractor shall be used to clean-up the asbestos release. Workers who must handle or repack damaged bags must wear proper protection equipment, which includes disposable protective clothing, gloves, and respirators equipped with HEPA filters, and must be properly trained and licensed to work with asbestos. All protective clothing and poly lining in the container shall be disposed of in compliance with the asbestos requirements of 29 CFR 1910.1001.

2.9.4 Wet Weather. During very wet weather, access to the working face may become difficult. Grit or gravel can be used to provide a stable traffic mat to improve movement of vehicles on the landfill as needed, but the amount of these materials should be held to a minimum.

3.0 LANDFILL DEVELOPMENT

Waste placement within each cell will begin at the lowest elevation and placed as outlined in Section 2.9 in a uniform layer over the entire open operational area. Subsequent lifts will be placed on top of the lower lifts in the same manner until the rim elevation is reached. The initial development of each cell does not permit placement of waste above the rim. Therefore, prior to achieving waste capacity at any given cell, the following cell will be constructed and tied into the current cell as necessary to allow for proper leachate containment, transport, and disposal. Waste placement within that cell will proceed as with the previous cell, beginning at the lowest elevations and buttressing against waste of the previous cell.

Upon reaching cell capacity beneath the rim, waste placement above the rim may commence after all necessary permits are acquired. All outer waste sideslopes should be graded as determined by a stability analysis conducted during the design phase for each cell. Typical outside slopes are likely to range from 3 to 4 feet horizontal to 1 foot vertical. Waste placement above the rim will continue as in previous cells, maintaining uniform layers over the entire open operational area until final waste grades are achieved, at which point final cover will be placed as outlined in Section 9.0. The current and future landfill development is shown on Figure 3-1.



NOTES:

1. MAPPING FOR LANDFILL AREA COMPILED USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY DATED MARCH 5, 2008, JULY 14, 2009 AND JUNE 18, 2010.
2. LOCATIONS OF OBJECTS SHOWN AND CONTOURS ARE APPROXIMATE. SITE CONDITIONS HAVE CHANGED SINCE THE COMPILATION OF THIS MAP AND STANDARD PRACTICE DICTATES THAT PLANS COMPILED IN THIS MANNER SHOULD BE FIELD VERIFIED, AS THE DESIGN MAY REQUIRE FIELD ADJUSTMENT FOR CONSTRUCTION.
3. GRID IS BASED ON NORTH CAROLINA STATE PLANE COORDINATE SYSTEM BASED ON NAGS (1983).
4. VERTICAL DATUM BASED ON NGVD (1929).
5. PROPERTY LINE DIGITIZED FROM LAW ENGINEERING DRAWING DATED JANUARY 14, 1984.
6. EXISTING GRADE CONTOUR INTERVAL IS 10 FT.



FIGURE 3-1
LANDFILL NO. 6 DEVELOPMENT
CANTON, NORTH CAROLINA
BLUE RIDGE PAPER PRODUCTS


SME
 Sevee & Maher Engineers, Inc.
 ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE

P:\Bpp\NC\O&M\Acad\Figures\O&M-Siteplan.dwg, 7/8/2010 10:19:54 AM, .sjm

4.0 LEACHATE MANAGEMENT

4.1 Leachate Generation

Leachate will be generated in the landfill through two mechanisms. Precipitation infiltrating into and running off of the active waste face is the major source of leachate generation at the landfill. Waste consolidation and subsequent drainage of entrained water is the secondary mechanism by which leachate is generated at the landfill. Further discussion concerning the volumes of leachate may be found in the Design Report.

Leachate is collected and transported through a gridwork of perforated pipes that underlie the waste and drainage layers that are placed along the side slopes of the landfill and between waste lifts. Leachate will flow by gravity to the leachate pump station and storage ponds and pumped via a force main to the Canton Mill wastewater treatment plant.

4.2 Leachate Storage

The leachate storage ponds utilize a synthetic liner to contain excess leachate. The ponds are designed to store leachate during extended wet weather periods prior to transportation to the WWTP. Typically, the ponds will be dry by design. The capacity of the ponds is approximately 1.7 million gallons. The location of the leachate ponds is shown on Figure 3-1.

4.3 Leachate Flow Control

The leachate transport piping system between the landfill and the wastewater treatment plant is designed with gate valves to control the flow if necessary. The following scenarios are described with the proper actions to be taken.

The leachate transport system includes a pump station with the capacity to handle up to 200 gpm of leachate flow. If this capacity is exceeded, the leachate flow in excess of 200 gpm will be directed to the leachate storage ponds. There are no actions required by the landfill operator for this scenario. Once the flow falls below 200 gpm, the ponds will begin to empty.

In the event the leachate transport pipe from the pump station to the treatment plant develops a leak, pipe break, blockage, or the pump station needs maintenance, the transport pipeline can be shut off. A gate valve located on the outlet of the pond can be opened, thereby allowing the ponds to fill. Leachate flow will then be directed to the leachate storage ponds for temporary storage while the problem is solved.

4.4 Leachate Disposal

The leachate generated during the operation of the secure landfill will be treated by Blue Ridge Paper Products, Inc.'s NPDES permitted wastewater treatment facility.

5.0 LANDFILL INSPECTION AND MAINTENANCE

5.1 General

Landfill inspection and maintenance will be an ongoing activity. All personnel will be expected to observe the condition of landfill facilities throughout their workday and notify the EHS management of areas and equipment which may need repair and maintenance. Formal landfill inspections will be conducted in the spring and fall of each year. Additional inspections may be warranted following unusual climatic or operational events including, but not limited to, major rain storms, flood, fire, hurricane, or earthquake. These inspections will follow the inspection forms attached in Appendix B. A description of the inspection items are discussed in the remainder of this section. EHS management is ultimately responsible to insure that the inspection and maintenance of all landfill facilities and equipment occurs.

5.2 Access Roads

The access roads to the landfill will be maintained by Blue Ridge Paper Products, Inc. Frequent inspections by the operators, especially during the spring and winter months will be made to insure that these roads are in safe condition.

Internal landfill access roads, including those within the landfill cells, will be maintained as all weather roads. Prompt attention to road repairs is the most cost-effective approach since deterioration becomes increasingly more rapid once it has begun.

5.3 Equipment

Maintenance of equipment and landfill operations vehicles is critical in controlling and maintaining landfill operations. All equipment will be subject to a comprehensive, preventive maintenance program, as specified in the manufacturer's specifications. Critical parts or replacement equipment will be identified and obtainable within a short period of time to maintain continuity of operations.

5.4 Erosion Control Facilities

Open Areas - Areas outside of the landfill, which have been disturbed, will be seeded to prevent erosion. The seeding will be performed in accordance with the seeding schedule contained in the closure plan. Prior to any land disturbing activity greater than 1/2 acre, a soil and erosion plan must be secured by the appropriate mill group (EHS or Mill Engineering).

Ditches - Areas, which are riprapped or otherwise protected, will be repaired as necessary. All ditches, which are not riprapped or otherwise protected, will be seeded. All debris and other blockages will be removed from the ditch to allow for unobstructed drainage. Reseeding of the drainage ditches will be necessary from time to time, as erosion occurs.

Cover System – It is important that the Areas of the landfill that have received final cover, remain intact to function to reduce leachate properly. The cover soils will be replaced and the area re-seeded in places where the final cover system has eroded. Repeated erosion in a particular area may require a different cover soil such as rip rap as opposed to vegetative soil.

5.5 Leachate Collection Piping

A cleanout is located at the end of the leachate collection main. This device provides a means to remove blockages within the piping system, should they occur.

5.6 Leachate Storage Pond

To insure the integrity of the leachate storage pond, annual inspections will be made. When the ponds are empty, visual inspection of the liner will be made. Any tears or punctures will be noted and repaired.

5.7 Liner Repair

If tears or punctures occur in the liner within the pond or along the sideslopes of the landfill, they will be repaired as soon as possible. Punctures and tears less than 6 inches in length will be repaired by Blue Ridge Paper Products, Inc. personnel if trained personnel are available.

Repairs will involve placement of an overlapping patch (6-inch minimum overlap) which will be

tack-welded to the underlying liner. Extra liner will be stored on-site for field repairs. If the liner tear is greater than 6 inches in length, a liner installer will be contacted to make the necessary repairs.

5.8 Landfill Underdrain System

The landfill underdrain system will be inspected on a monthly basis. An inspection form, See Appendix B, will be filled out to document each inspection. The inspection will consist of the following list.

1. Pipe outlets shall be checked for blockages and that the discharge is not eroding the outlet ditch. Any blockages should be removed to provide free flow from the pipe outlet. If erosion should occur, the ditch outlet should be stabilized, riprapped, or otherwise reinforced. The end of the pipe also has a rodent guard to prevent animals from entering the pipe. This should be checked and repaired, if necessary.

2. Inspect the manholes for blockages or silt build-up. For either case, the EHS management should have the manhole cleaned and reinspected.

In addition to a monthly inspection, the underdrains shall be inspected after any major rain storms, floods, fire, hurricane, and earthquake or facility failure.

6.0 WATER QUALITY MONITORING

6.1 General

To aid in evaluating the performance of the landfill, a groundwater and surface water monitoring program will be conducted. The collection, preparation, preservation, and delivery of the samples to the laboratory shall be the responsibility of the EHS. A description of the sampling program and procedures is provided in the Environmental Monitoring Plan in Appendix C.

7.0 LANDFILL GAS MONITORING

7.1 Landfill Gas Characteristics

Landfill gas (LFG) is mixture of several gases that are produced through anaerobic (oxygen less) decomposition of organic wastes. Typically, LFG is composed of mainly methane and carbon dioxide with smaller amounts of nitrogen and water vapor. LFG is also composed of trace amounts of hydrogen sulfide, other sulfur compounds, and volatile organic compounds (VOCs). Typical components of LFG are shown below in Table 7-1.

**TABLE 7-1
TYPICAL COMPONENTS OF LANDFILL GAS**

Component	Percent (dry volume basis except moisture)
Methane	45 – 60
Carbon Dioxide	40 – 60
Nitrogen	2 – 5
Oxygen	0.1 – 1
Hydrogen sulfides, disulfides and other sulfur compounds	0 – 1
Ammonia	0.1 – 1
Hydrogen	0 – 0.2
Carbon Monoxide	0 – 0.2
Moisture	2 – 12
Volatile Organic Compounds (VOCs)	0.01 – 0.6

Section 7.2 of this manual outlines the requirements for landfill gas sampling and analysis which is undertaken as part of the system's operations. General landfill gas characteristics which an operator should be aware of include:

- LFG production undergoes changes over the life of the waste placed. Initially air entrained in the waste stimulates aerobic decomposition and produces mainly carbon dioxide. As the oxygen is depleted, large amounts of carbon dioxide are produced with some hydrogen. During complete anaerobic conditions methane production begins and as the waste ages the methane, carbon dioxide, and nitrogen production becomes fairly steady.
- LFG is primarily composed of methane (typically 50%) and carbon dioxide (typically 45%) both colorless and odorless gases. The odor associated with

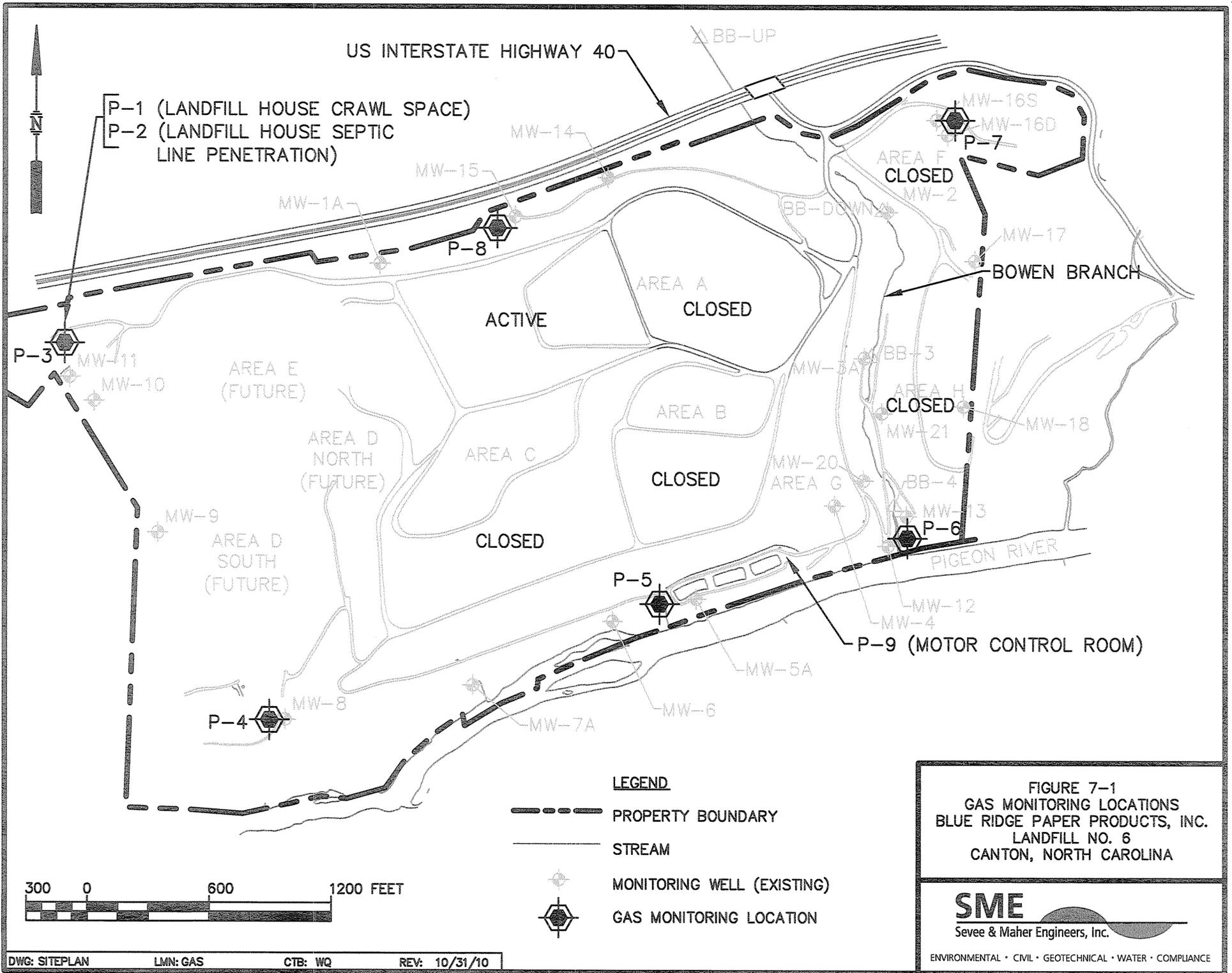
LFG is due to the lesser and trace gases, such as hydrogen sulfide, that are part of the LFG mixture.

- LFG is flammable and potentially explosive. Methane has a flammability range of 5 to 15 percent by volume in air. Five percent being the lower explosive limit (LEL) and 15 percent being the upper explosive limit (UEL). Between these limits the LFG-air mixture is readily flammable. Just because LFG contains methane above the UEL does not mean that somewhere away from the source the conditions for flammability are not met.
- Methane and carbon dioxide have specific gravities of 0.55 and 1.52, respectively. However, the mixture that comprises LFG has a specific gravity closer to that of air (i.e., 1.0); it should not be assumed that LFG will rise.
- LFG can migrate within open conduits and through trench backfill or through the vadose zone (unsaturated soil or bedrock above the water table). This migration can allow it to accumulate to flammable or lethal levels in manholes, buildings and other structures designed for human occupancy. This migration through the vadose zone may also cause the LFG to separate into its component gases. LFG migration below the landfill is limited by the presence of a geosynthetic liner system.

7.2 LFG Monitoring

During the operation of the facility, gas monitoring will be conducted at six gas probes and the ambient air of the Crew House and the Pump Station Motor Control Room. These gas monitoring locations are shown on Figure 7-1. The gas monitoring locations have been selected between the waste boundary and the landfill property boundary to monitor the vadose zone for potential LFG intrusion. These probes and the Crew House and the Pump Station Motor Control Room are monitored on a semi-annual basis for methane concentration in % LEL and hydrogen sulfide in ppm. The equipment to monitor the gas concentrations includes:

P:\Bpp\NCO&M\Acad\Figures\O&M-Siteplan.dwg, 3/31/2010 1:51:08 PM, mbiskup



- Industrial Scientific Meter, Model MX251 or equal; and
- CES-Landtec Gem 2000 Landfill Gas Monitor or equal.

If landfill gases are detected above 100 percent of the LEL at the property line monitoring locations or exceed 25 percent of the LEL at the Crew House or Motor Control Room, the EHS Department will notify NCDENR.

In the event the gas levels rise to the point where there is a hazard to health, safety, or property, the following steps shall be taken:

- Evacuate all personnel immediately to a safe distance upwind from the landfill;
- Ventilate any structures;
- Notify NCDENR;
- Investigate to determine the source of the gas release; and
- Remediate the problem.

8.0 RECORD KEEPING & REPORTING

8.1 General

One of the most important elements of a well run landfill is an efficient record keeping system. For a facility of this nature it requires the timely collection, interpretation, and management of large volumes of data. Data collected will be presented in an annual report to the NCDENR. The annual report will include the source, type, and volume of waste accepted over the course of the calendar year.

A copy of the permit and operating plan will be maintained at the facility.

8.2 Operating Records and Annual Reports

- (a) Blue Ridge Paper Products, Inc. will maintain documentation of all facility operations, including:
 - (1) Identification of the facility, owner, and operator;
 - (2) Quantity, type and source(s) of wastes received;
 - (3) Complete record of inspections, maintenance, repairs, and emergency event response;
 - (4) Data on all environmental monitoring required for current operating cell.

- (b) Blue Ridge Paper Products, Inc. will file an annual report of operation with the NCDENR by July 31 of each year, for the previous 12 months of operation.

8.3 Waste Description

The Landfill is licensed to dispose of wastes which fall into six general categories. Regardless of the type of waste, similar accounting procedures will be used. Accounting will include logging the number of truckloads with regard to waste type and volume.

The six general categories are:

1. Fly ash from multi-fuel boilers;
2. Lime waste;
3. Wastewater treatment plant sludge;
4. Wood waste;
5. Cinders; and
6. Asbestos containing material (ACM).

The scaled amount of each category of acceptable waste will be recorded on a truckload log sheet. Truck weight samples of each waste category will be logged as needed. A copy of the log sheet is included in Appendix A.

9.0 FINAL CLOSURE

9.1 General

Closure of the site is a continuing process which includes the following activities:

1. Final waste grading and shaping;
2. Closure of discontinued channels, pipes, or drains;
3. Placement of cover materials;
4. Seeding and fertilizing.

The principle goals of the closure plan for the Landfill are: 1) to minimize future generation of leachate; and 2) to provide a cover system suitable for developing a grass crop which will prevent erosion. The final cover system designed for this site will minimize future generation of leachate, and provide a suitable stormwater management plan which will minimize the potential of erosion.

Inspection and monitoring of closed areas are necessary to detect erosion and to initiate repair for prevention of significant damage to the landfill cover. Uneven settlement may result in ponding or breaks in the cover system, these areas will be rebuilt and/or regraded to restore proposed contours. In addition, maintenance and post-closure care will include periodic mowing to discourage large, deep rooted vegetation which can damage the cover integrity.

The Owner may permit third-party use of select areas for alternative use; however, State approval must be obtained. One such use is the FLS Energy Solar array located on Area B-Lower which was approved in 2009. Further information is provided in Section 9.8, Alternative Uses.

9.2 Closure Procedures

The subsections which follow describe the various closure procedures and activities which must be performed.

9.2.1 Grading. The waste will be placed and graded to design final waste elevations. Prior to seeding, a surveyor will check elevations to insure that the proper grades exist and there are no low areas or depressions within the site. The surveyor will also check the perimeter slopes to be sure they do not exceed the proper grades. Spot elevations will be taken in the surface runoff ditches to insure that proper slopes exist.

9.2.2 Drainage Channels, Pipes, or Drains. The closure of channels, pipes, or drains will be accomplished in a manner which ensures the integrity of the system for the system's design life.

The design life of all components within the landfill is 50 years, typical products which have this life are stainless steel and high density polyethylene (HDPE). Design of the closure should also take into consideration the forces acting on the area of interest.

9.2.3 Final Cover System. The final cover system over the Landfill will consist of three layers. The three layers from top to bottom are:

1. Four inches of vegetative cover soil;
2. 36 inches of suitable on-site soils, i.e. residual soils; and
3. 12 inches of granular drainage material.

The 12-inch granular drainage layer will tie into the stone leachate collection and drainage layer along the perimeter of the landfill.

Permanent markers consisting of metal or fiberglass placards will be placed at the waste boundary of landfill cells that have been permanently closed. The markers will extend up approximately 3 to 5 feet above the final cover surface, contain the words "Edge of Waste," or "EOW", and have a spacing not to exceed 250 feet. Caution should be taken when installing the sign post so as not to penetrate the liner.

9.2.4 Seeding. All areas which have final cover applied will be seeded. Seeding should normally occur between March 1 and October 15. All surface grading and construction of runoff control structures such as drainage ditches, berms, and culverts are to be performed prior to seeding. The top layer of soil shall be loosened by raking, discing, or other acceptable means before seeding. Lime (2 tons/acre or as needed based on testing) and fertilizer (1,000 lbs/acre

of 10/10/10 or as needed based on testing) will be harrowed or disced into the soil at a minimum of 3 inches. If the site is hydroseeded, lime, fertilizer and seed can be applied simultaneously. The seed mixture to be used is as shown below.

SEEDING MIXTURE (OR EQUAL)

Tall Fescue (KY 31)	80 lb/acre
Sericea lespedeza	20 lb/acre
Kobe lespedeza	<u>10 lb/acre</u>
	110 lb/acre

The seed will be applied uniformly with a cyclone seeder, drill, cultipack seeder, or hydroseeder. Seed should not be planted if there is a danger of frost shortly after seed germination. Maximum seeding depth is 1/4 inch when using methods other than hydroseeding.

9.3 Erosion Control

The following procedures will be used for erosion control on the seeded areas:

- Slopes less than 4:1 - Apply unrotted, long-fibered hay, straw, or cellulose fiber at a rate of 2 tons per acre. Mulch material should be relatively free of all kinds of weeds, and should be anchored with a tractor drawn implement designed to punch and anchor it into the top 2 inches of soil. Anchoring of the mulch will be performed immediately after placement to minimize loss by wind or water. This method of anchoring should be done on the contour wherever possible.
- Slopes steeper than 4:1 - On 4:1 slopes or steeper, the seed will be applied by hydroseeding with a binder or excelsior matting to control erosion. Siltation fences will be installed at the bottom of all seeded slopes. Berms will divert runoff from the top of the slopes to established slopes.
- Drainage ditches - The grass-bottomed drainage ditches will be seeded in the same manner as the remainder of the site. The same mulch specified above will

be placed in these areas. Staples, lightweight biodegradable paper, plastic, or cotton nettings will be placed within the ditches to anchor the mulch.

9.4 Long-Term (Post-Closure) Maintenance

The subsections which follow describe the various activities which must be performed to insure the long-term integrity of the landfill subsequent to final closure.

9.4.1 Mowing. To prevent deep rooted tree growth, the closed portions of the landfill and drainage ditches will be mowed at least twice per year. Evergreen/Blue Ridge permits local farmers to use several areas that have final cover applied for hay production provided they cut the area at least 2 times per year to prevent tree growth.

9.4.2 Site Inspection. Once the landfill is closed, the area will be inspected by the EHS in the spring and fall of each year for a period of at least three years to insure the cover system integrity is maintained against differential settlement, erosion and other problems. The inspection will include an examination of the following items:

- Surface drainageways
- Surface grading
- Grass growth

Each inspection will include notation of any problems and recommended remedial actions. Following the three years, an inspection frequency of once per year will be sufficient unless major problems develop, whereupon more frequent inspections will be made.

9.5 Leachate Collection

Leachate collection will continue past the closure of the landfill. The primary source of leachate during this period will be consolidation of waste. The amount of leachate which must be collected, transported, and treated will be greatly reduced from that generated during operation of the landfill.

9.6 Water Quality Monitoring

The semi-annual monitoring program described elsewhere in this manual will continue after site closure. After closure, if the concentrations of parameters analyzed stabilize, the NCDENR can be approached to reduce the frequency of sampling and the number of parameters analyzed.

9.7 Gas Monitoring

Landfill gas shall be monitored in accordance with Section 7.0 until the facility effectively ceases generation of gas.

9.8 Alternative Uses

The owner may permit third-party use of select areas of the landfill for alternative use; however, State approval must be obtained. In such cases, the person or company responsible for the operation and maintenance of the specific site must be made available. Examples of this may include but are not limited to security, fencing, mowing and maintaining the integrity of the cap.

9.8.1 Solar Array. In 2009, approval was granted for FLS Energy to install and operate a solar array located on the closed portion of the landfill, Area B-Lower. This area is shown on Figure 3-1. FLS Energy maintains all responsibility for operating equipment associated with the solar array. The area is not secure and perimeter fencing is not installed therefore all surrounding vegetated areas will be maintained according to Section 9.4 and will not be the responsibility of FLS Energy.

FLS Energy Contact information:

FLS Energy Inc.
239 Amboy Road
Asheville, NC 28806
Ph# (828) 350-3993

APPENDIX A
WASTE RECEIPT FORMS

LANDFILL
MONTHLY LOAD WEIGHTS

MONTH/YEAR _____

DATE	LIME 25 LOADS P/M	SLUDGE 25 LOADS P/M	FLYASH 20 LOADS P/M	CINDERS 5 LOADS P/M	WOODWASTE 2 LOADS P/M
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					

APPENDIX B
INSPECTION FORMS

UNDERDRAIN INSPECTION RECORD

INSPECTION BY: _____

DAY

S	M	T	W	T	F	S
---	---	---	---	---	---	---

DATE _____

UNDERDRAIN LOCATION: _____

WEATHER _____

TEMP. _____

PIPE OUTLET

PASS

CORRECTIVE
ACTION
REQUIRED

BLOCKAGES
RODENT GUARD
DITCH OUTLET

CORRECTIVE ACTION: _____

MANHOLE

BLOCKAGES
SILT BUILD-UP
M.H. COVER IN PLACE

CORRECTIVE ACTION: _____

FOLLOW-UP INSPECTIONS OF PREVIOUSLY REPORTED DEFICIENCIES

DISTRIBUTION: 1. ELS MANAGEMENT
2. EOHS

LANDFILL INSPECTION RECORD

INSPECTION BY: _____

DAY

S	M	T	W	T	F	S
---	---	---	---	---	---	---

LOCATION: _____

DATE: _____

REASON FOR INSPECTION: _____

TEMP.: _____

	PASS	CORRECTIVE ACTION REQUIRED
ACCESS ROADS	PASS	
ROAD SURFACE	_____	_____
CULVERTS	_____	_____
CORRECTIVE ACTION: _____		

LEACHATE STORAGE POND / PIPELINE

CONDITION OF VISIBLE LINER	_____	_____
FENCE	_____	_____
FLOW RECORDERS	_____	_____
MANHOLE COVERS	_____	_____
EROSION	_____	_____
CORRECTIVE ACTION: _____		

LANDFILL OPERATIONS

SLOPE STABILITY	_____	_____
WASTE COVERED	_____	_____
SETBACK ALONG DIKES	_____	_____
INLET STRUCTURES	_____	_____
CORRECTIVE ACTION: _____		

CLOSURE AREAS

SLOPE STABILITY	_____	_____
VEGETATION	_____	_____
EROSION	_____	_____
DITCHES	_____	_____
CORRECTIVE ACTION: _____		

FOLLOWUP INSPECTIONS OF PERVIOUSLY REPORTED DEFICIENCIES _____

DISTRIBUTION: 1. ELS MANAGEMENT
2. EOHS

APPENDIX C

ENVIRONMENTAL MONITORING PLAN

**ENVIRONMENTAL MONITORING PLAN
LANDFILL NO. 6
CANTON, NORTH CAROLINA**

**BLUE RIDGE PAPER PRODUCTS INC. –
CANTON MILL
DIVISION OF EVERGREEN PACKAGING
CANTON, NORTH CAROLINA**

MAY 2009

SME

Sevee & Maher Engineers, Inc.
Waste Management and Hydrogeologic Consultants
Cumberland Center, Maine



TABLE OF CONTENTS

Section No.	Title	Page No.
1.0	INTRODUCTION.....	1-1
2.0	SAMPLING LOCATIONS AND FREQUENCY	2-1
3.0	WATER QUALITY MONITORING PARAMETERS.....	3-1
4.0	SAMPLING PROCEDURES	4-1
4.1	Groundwater Sample Collection	4-1
4.1.1	Well Inspection and Water Level Measurement	4-1
4.1.2	Monitoring Wells Where a Bladder Pump is Used	4-2
4.1.3	Monitoring Wells Where a Submersible Grundfos Pump is Used.....	4-2
4.1.4	Monitoring Wells Where a Bailer is Used for Sample Collection.....	4-3
4.2	Surface Water and Underdrain Sampling Procedure.....	4-3
4.3	Leachate Sampling Procedure	4-4
4.4	Sample Volume, Preservation, and Holding Times.....	4-5
4.5	Field Instrumentation Calibration.....	4-5
5.0	EQUIPMENT DECONTAMINATION	5-1
5.1	Field Instrumentation Decontamination	5-1
5.2	Bladder Pump and Grundfos Pump Decontamination.....	5-1
5.3	Teflon Bailer Decontamination	5-2
6.0	SAMPLE CUSTODY	6-1
6.1	Sample Monitoring Forms.....	6-2
6.1.1	Chain-of-Custody Record.....	6-2
6.1.2	Sample Collection Forms	6-2
6.1.3	Instrument Calibration Form	6-2
6.2	Packing and Shipping	6-3
6.2.1	Packing	6-3
6.2.2	Shipping	6-3
7.0	QUALITY ASSURANCE/QUALITY CONTROL (QA/QC).....	7-1
8.0	REPORTING	8-1

LIST OF APPENDICES

APPENDIX A	STANDARD RECORDKEEPING FORMS AND CHAIN OF CUSTODY FORM
APPENDIX B	MONITORING WELL INSTALLATION DIAGRAMS

LIST OF FIGURES

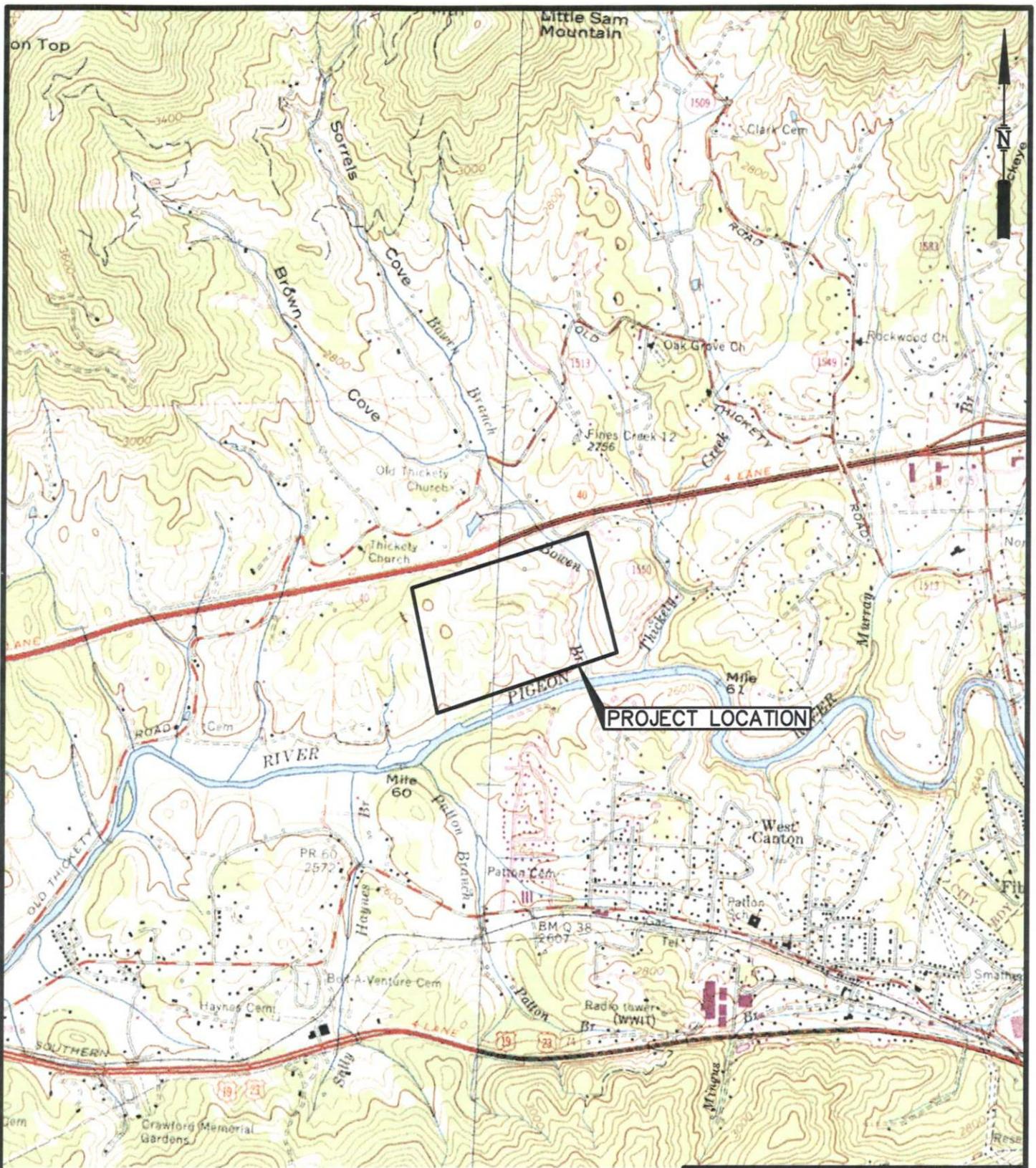
<u>Figure No.</u>	<u>Title</u>	<u>Page No.</u>
1-1	SITE LOCATION MAP	1-2
2-1	WATER QUALITY MONITORING LOCATIONS	2-2

LIST OF TABLES

<u>Table No.</u>	<u>Title</u>	<u>Page No.</u>
2-1	ENVIRONMENTAL MONITORING LOCATIONS	2-1
3-1	ANALYTICAL PROGRAM	3-1

1.0 INTRODUCTION

This Environmental Monitoring Plan (EMP) summarizes the sampling procedures and analytical methods to be used for groundwater, surface water, underdrain, and leachate monitoring at the Blue Ridge paper Products Inc.'s (BRPP) Landfill No. 6 site in Canton, North Carolina (See Figure 1-1). The procedures, protocols, methods, and monitoring locations in this EMP shall not be changed or altered without approval from the North Carolina Department of Environment and Natural Resources (NCDENR).



BASE MAP ADAPTED FROM 7.5 MIN
 USGS TOPOGRAPHIC QUADRANGLES:
 CLYDE, NC-1978 & CANTON, NC-1990

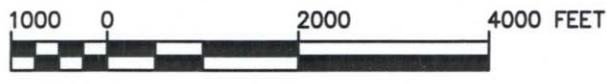


FIGURE 1-1
 SITE LOCATION MAP
 BLUE RIDGE PAPER PRODUCTS, INC.
 LANDFILL NO. 6
 CANTON, NORTH CAROLINA

SME
 Sevee & Maher Engineers, Inc.

DWG: SITE LMN: NO-6 CTB: HPSTD REV: 4/22/09

2.0 SAMPLING LOCATIONS AND FREQUENCY

Samples will be collected from twenty-one (21) groundwater locations, six (6) surface water locations, one (1) underdrain location, and one (1) leachate location on a semi-annual basis in March and November. The groundwater, surface water, underdrain, and leachate locations are listed in Table 2-1 and shown on Figure 2-1.

TABLE 2-1
ENVIRONMENTAL MONITORING LOCATIONS
LANDFILL NO. 6
BLUE RIDGE PAPER INC., CANTON, NORTH CAROLINA

GROUNDWATER LOCATIONS		
MW-1A	MW-8	MW-16S
MW-2	MW-9	MW-16D
MW-3A	MW-10	MW-17
MW-4	MW-11	MW-18
MW-5A	MW-12	MW-20
MW-6	MW-13	MW-21
MW-7A	MW-14	
	MW-15	
SURFACE WATER LOCATIONS		
BB-UP (Bowen Branch Upstream)		
BB-DOWN (Bowen Branch Downstream)		
BB-3		
BB-4		
PR-UP		
PR-DOWN		
UNDERDRAIN LOCATION		
Bowen Branch Underdrain Discharge Point		
LEACHATE LOCATION		
Leachate Collection Point in Area G		

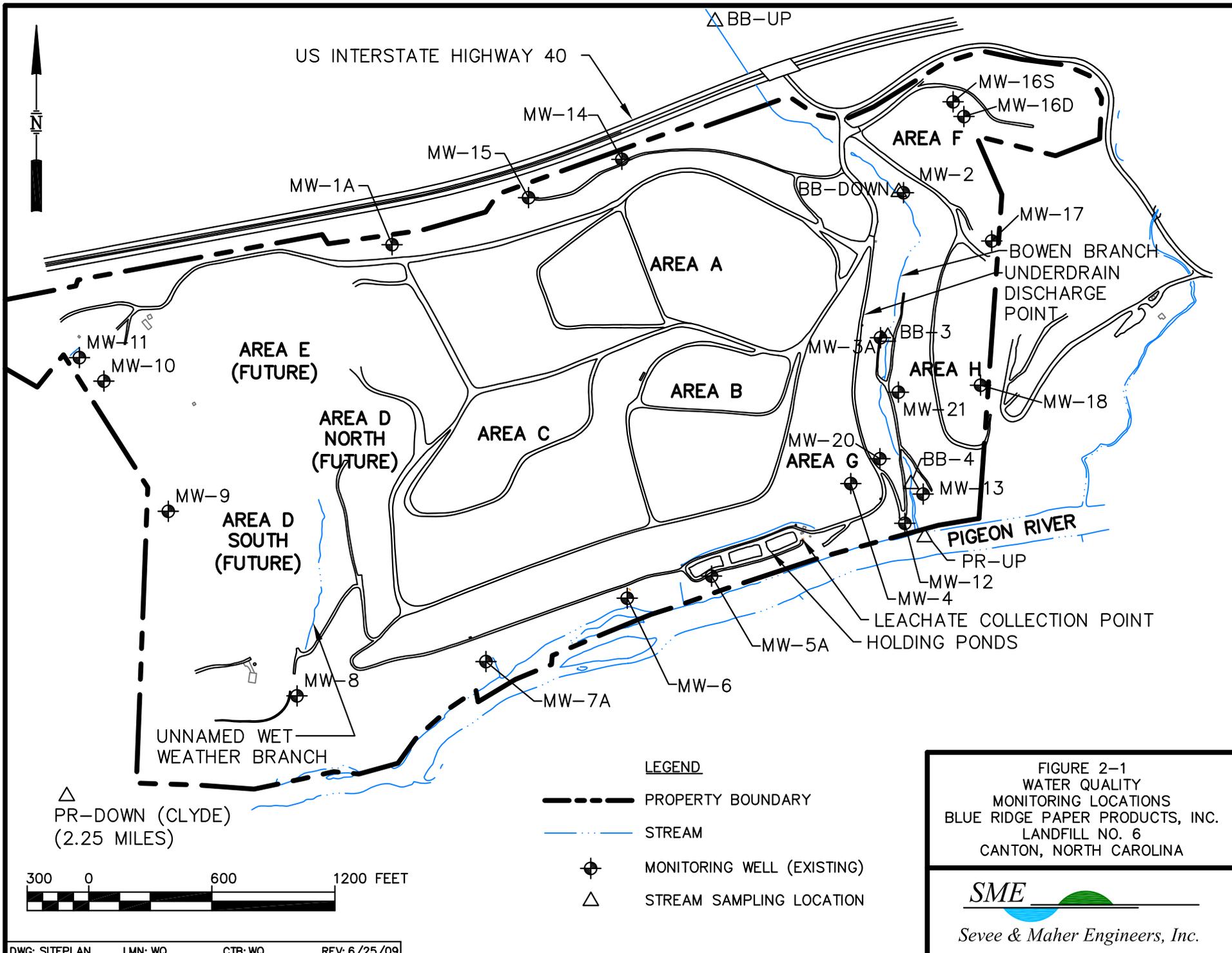


FIGURE 2-1
 WATER QUALITY
 MONITORING LOCATIONS
 BLUE RIDGE PAPER PRODUCTS, INC.
 LANDFILL NO. 6
 CANTON, NORTH CAROLINA

SME
 Sevee & Maher Engineers, Inc.

P:\Brrp\NC\6a-Valleyfill\acadd\Siteplan.dwg, 6/25/2009 10:46:02 AM, mbiskup

3.0 WATER QUALITY MONITORING PARAMETERS

The field and laboratory monitoring parameters, analytical methods, and reportable detection limits (RDLs) for the groundwater, surface water, underdrain, and leachate monitoring are shown in Table 3-1.

TABLE 3-1
ANALYTICAL PROGRAM
LANDFILL NO. 6
BLUE RIDGE PAPER INC., CANTON, NORTH CAROLINA

Water Quality Parameter	Units	Analytical Method	RDLs ¹
Specific Conductance at 25°C (Field)	µmhos/cm	SM 2510B	10
Temperature (Field)	degrees C	SM 2550B	0.1
pH (Field)	pH units	SM 4500 HB	0.1
Turbidity (Field)	NTU	Field Screen	1.0
Nitrate-Nitrite as N	mg/l	SM 4500 NO3H	0.20
Nitrite as N	mg/l	SM 4500 NO2B	0.01
Total Dissolved Solids	mg/l	SM 2540C	25
Total Organic Carbon	mg/l	SM 5310C	0.5
Total Recoverable Phenols	mg/l	EPA 420.1	0.005
Chloride	mg/l	EPA 300.0	1.0
Fluoride	mg/l	EPA 300.0	0.1
Sulfate	mg/l	EPA 300.0	1.0
Arsenic ICPMS	mg/l	EPA 200.8	0.005
Barium	mg/l	EPA 200.7	0.01
Cadmium ICPMS	mg/l	EPA 200.8	0.001
Calcium	mg/l	EPA 200.7	0.01
Chromium ICPMS	mg/l	EPA 200.8	0.002
Copper ICPMS	mg/l	EPA 200.8	0.005
Iron	mg/l	EPA 200.7	0.05
Lead ICPMS	mg/l	EPA 200.8	0.005
Magnesium	mg/l	EPA 200.7	0.01
Manganese ICPMS	mg/l	EPA 200.8	0.005
Mercury	mg/l	EPA 245.1	0.0002
Nickel ICPMS	mg/l	EPA 200.8	0.005
Potassium	mg/l	EPA 200.7	0.5
Selenium ICPMS	mg/l	EPA 200.8	0.005
Silver ICPMS	mg/l	EPA 200.8	0.002
Sodium	mg/l	EPA 200.7	0.05
Zinc	mg/l	EPA 200.7	0.02
TOX	mg/l	SW 846 9020B	0.03
BOD ²	mg/l	SM 5210B	2.0
COD ²	mg/l	EPA 410.4	20
Total Phosphorous ³	mg/l	SM 4500 PE	0.02

Notes:

1. RDL = Reportable Detection Limits
2. BOD and COD are done on the leachate and underdrain samples only.
3. Total phosphorous as Phosphate is done on leachate only.

Method Reference: The analytical methods selected are presented in Test Methods for Evaluating Solid Waste, OSWER, SW-846, Third Edition, as revised; Methods for Chemical analysis of Water and Wastes, EMSL, EPA-600/4-79-020, revised March 1983; and Standard Methods for the Examination of Water and Wastewater, APHA, 19th Edition, 1995. Equivalent and appropriate analytical methods may be substituted with Juniper Ridge Landfill approval, e.g., manual for automated and vice versa.

4.0 SAMPLING PROCEDURES

The following sections describe the procedures to be followed for collecting groundwater, surface water, underdrain, and leachate samples at the BRPP site. Sample recordkeeping forms and chain-of-custody forms to be completed for each water quality monitoring location are presented in Appendix A. Monitoring well installation diagrams for the BRPP monitoring wells are presented in Appendix B.

4.1 Groundwater Sample Collection

There is typically one of three possible purging and sampling procedures followed for collection of samples from the monitoring well locations at the BRPP site. The specific sampling methods are shown in Subsection 4.1.2, 4.1.3, and 4.1.4.

4.1.1 Well Inspection and Water Level Measurement. Upon arrival at each groundwater sampling location, the sampling personnel will observe the physical condition of the monitoring well(s). The inspection will include observation of the condition of the ground surface seal and the well guard pipe to evaluate if any evidence of frost heaving, cracks, or vandalism are present. The condition of the monitoring well will be recorded on the field data records. Periodically, the area around the well may have to be cleared of weeds, brush, or other materials prior to beginning the water sampling activity.

Following inspection of the sampling location, the water level will be measured. The water level in the well casing will be determined by lowering a clean electronic sounding probe into the well until contact with the water surface is made. The distance from the monitoring well reference elevation to the water surface contact will be entered into the field records. Water levels in the monitoring wells will be measured to the nearest 0.01 foot. In all cases, the depth to water will be referenced to the top of the PVC well casing (permanently marked measurement reference point). In instances where water is flowing from the well casing, the water level will be noted as

such. Upon removing the water level probe, it will be decontaminated as described in Section 5.0.

4.1.2 Monitoring Wells Where a Bladder Pump is Used. A submersible bladder pump is used to purge and sample monitoring well locations listed below. The bladder pump is adjusted to remove water from the monitoring well at a rate of approximately 200 millimeters per minute. Field measurements for pH, conductivity, temperature, and turbidity are monitored at five-minute or more intervals until three consecutive field readings are within the field parameter stabilization listed below for approximately 30 minutes prior to sample collection. The use of a bladder pump is applicable at the following wells:

MW-13	MW-16S
MW-14	MW-18
MW-15	MW-21
MW-16D	

Field parameter stabilization criteria:

pH	± 0.1 standard pH unit with respect to previous pH measurement.
Specific conductance	$\pm 10\%$ of previous measurement.
Turbidity	$\pm 10\%$ or <10 NTU of previous measurement.
Temperature	$\pm 1^\circ\text{C}$ of previous measurement.

4.1.3 Monitoring Wells Where a Submersible Grundfos Pump is Used. A submersible Grundfos pump is used to purge and sample the monitoring well locations listed below. The Grundfos pump is adjusted to remove water from the monitoring well at a flow rate of between 1.0 and 1.5 gpm. Field measurements for pH, conductivity, temperature, and turbidity are taken every six to ten minutes until three or more well volumes are removed and the field parameters stabilize as discussed in Section 4.1.2. A sample is collected after completing the above purging process. If the water column is drawn down to the pump head, the pump will be turned off and a sample of

the recharge water will be collected. The use of a Grundfos pump is applicable at the following locations:

MW-10
MW-17
MW-20

4.1.4 Monitoring Wells Where a Bailer is Used for Sample Collection. A Teflon bailer is used to purge and sample the monitoring locations listed below. In the case where the well has sufficient recharge, three well volumes of water will be removed from the well prior to sample collection. In the case where the recharge is insufficient and the well water is drawn down significantly, the well will be purged close to dry and a sample of the recharge will be collected. In the case where the monitoring well produces three volumes of water, periodic field measurements of pH, conductivity, temperature, and turbidity will be monitored, and purging will continue until these parameters have stabilized as discussed in Section 4.1.2. The following wells will be sampled using a bailer:

MW-1A	MW-7A
MW-2	MW-8
MW-3A	MW-9
MW-4	MW-11
MW-5A	MW-12
MW-6	

4.2 Surface Water and Underdrain Sampling Procedure

Surface water samples from the six surface water locations as well as the one underdrain location listed in Table 2-1 will be collected in the following manner:

1. Collect the sample by immersing the sample bottle or sampling device not more than 1 foot below the water surface. If a stream is being sampled, the sample point will be upstream of the sampler with the opening of the sample bottle or sampling device oriented upstream, but avoiding floating debris. If a culvert is

being sampled, the sample bottle or sampling device will be placed where the water flows out of the bottom of the culvert.

2. Directly fill the appropriate sample containers from the sampling device if needed.
3. If possible, measure the following parameters in the water body:
 - temperature
 - pH
 - specific conductance
 - turbidity

If direct measurement is not possible, these parameters will be measured from water remaining in the sampling device or a separate plastic bottle. This information will be recorded in the sample data record, sample labels will be completed, and the chain-of-custody (COC) procedures will be initiated.

4. Complete the Surface Water or Underdrain Sample Data Record (see Appendix A).

4.3 Leachate Sampling Procedure

Leachate samples will be collected from the leachate manhole by either using a Teflon bailer or a glass beaker attached to a pole. After filling sample bottles, pH, conductivity, temperature, and turbidity readings will be taken.

The information will be recorded on a Leachate Sample Data Record (see Appendix A), sample labels will be completed, and the COC procedures will be initiated.

4.4 Sample Volume, Preservation, and Holding Times

Obtaining required sample volumes, adhering to specified sample preservation procedures and complying with allowable sample holding times are necessary to produce analytical testing results which will be representative of the site water quality conditions. In preparing for each sampling event, the sampling personnel will prepare schedules which will permit adequate laboratory notification and sample delivery to allow testing within the allowable holding times. Preservation of collected samples is accomplished by refrigerating samples at 4 degrees Celsius (°C) and in some cases by acidification. Physical preservation of the samples will be accomplished by storing the filled sample bottles in covered insulated coolers constructed of impact resistant plastic. Efforts will be made to pack the coolers such that the sample bottles are not subject to movement or breakage.

4.5 Field Instrumentation Calibration

Sampling quality control will include the daily calibration of field equipment used to measure pH, turbidity, and specific conductance.

5.0 EQUIPMENT DECONTAMINATION

Decontamination of the sampling equipment and instrumentation is required prior to initiation of sampling and between each sample location to minimize the potential for cross contamination between samples. Clean nitrile or PVC gloves will be worn to reduce contamination potential when performing the decontamination activities, when handling decontaminated sampling equipment, as well as prior to and during all sampling.

5.1 Field Instrumentation Decontamination

Field instrumentation, i.e., pH, specific conductance, turbidity, and temperature probes and meters will, under no circumstances, be introduced into a sampling device or sample bottle. To minimize latent influences between sampling locations, the probes and meters will be rinsed with distilled water and, when appropriate, wiped dry with clean paper towels. The electronic water level probe will be introduced into monitoring well(s) prior to the purging process. Upon extraction from a monitoring well, the probe and associated electric lead wire(s) will be cleaned with consecutive rinses of distilled water.

5.2 Bladder Pump and Grundfos Pump Decontamination

The Grundfos pumps and bladder pumps used for well purging and sampling, along with the tubing attached to them, will be decontaminated as follows. The bladder pump is cleaned with a solution of soapy water, deionized (DI) water rinse, rinsed with alcohol, and followed by a DI water rinse. Each bladder as well as the pump seals and tubing are replaced between wells. The outside of the Grundfos pump is cleaned in the same manner as the bladder pump. Several gallons of DI water is pumped through the Grundfos pump and all tubing is replaced between samples.

5.3 Teflon Bailer Decontamination

Each Teflon bailer used to purge and sample at monitoring well locations will be cleaned in the Rogers and Callcott laboratory with a soapy hot water scrub, hot water rinse, alcohol rinse, and DI water rinse. Each bailer will be wrapped with tin foil after decontamination and prior to use.

6.0 SAMPLE CUSTODY

Chain-of-custody (COC) procedures will be followed during sample collection and handling activities during both the field and laboratory operations. The COC procedures assure that each sample is accounted for at all times. To maintain the highest degree of control in sample handling, preprinted labels will be utilized so that all necessary information is retained with the sample. COC records will be used to maintain control over sample access during and after shipment from the sampling location. Additionally, proper completion of field sample logs, accession books, tracking sheets, and extraction logs by appropriate field and laboratory personnel will provide for thorough tracking of the samples from collection through analysis and final reporting.

The objectives of sample identification, custody, and tracking procedures are as follows:

- All samples collected for analysis are uniquely labeled for identification purposes throughout the analytical process.
- Samples are correctly analyzed and results are traceable to field records.
- Important sample characteristics are preserved.
- Samples are protected from loss, damage, or tampering.
- Any alteration of samples (e.g. preservation or damage due to shipment or other processes) is documented.
- A record of sample integrity and analytical fate is established.

6.1 Sample Monitoring Forms

The use of standard forms accomplishes one or more of the specific objectives of sample identification, custody, and tracking. Standard forms used by the samplers for water quality monitoring are provided in Appendix A and are discussed below. See attached COC form, field sampling log, and calibration form.

6.1.1 Chain-of-Custody Record. The COC Record is initiated in the field by the individual physically in charge of sample collection. The COC must be completed prior to the shipment of samples to the laboratory. The COC contains information specific to the sample location, date and time of sample collection, the sampler, the project name and number, laboratory project number, the number of containers of each sample being shipped, an itemization of the analyses requested for each sample and any remarks about the sample(s) prior to shipment. The completed COC is signed by the sampler and enclosed with the samples. The COC is then signed each time possession of the samples changes, with the signatures of the persons relinquishing and receiving the samples, as well as the time and date of the sample exchange being indicated on the COC Record.

6.1.2 Sample Collection Forms. The Monitoring Well, Surface Water, Underdrain, and Leachate Sampling Forms will be completed in the field by the individual placed in charge of sample collection. This form correlates the assigned sample bottle designation to a specific well. The forms also list pertinent sampling information that must be recorded at the time of sample collection (i.e., date and time of sampling and field parameter test results).

6.1.3 Instrument Calibration Form Field instrument calibration procedures will be recorded on the Instrument Calibration Form on a daily basis.

6.2 Packing and Shipping

Samples will be packed and shipped so as to maintain the sample container integrity as well as to provide for the health and safety of the sample transporter.

6.2.1 Packing. Sample containers are generally packed in picnic coolers for shipment. Bottles are to be packed tightly so that no motion is possible. Styrofoam, vermiculite, and bubble-pack are suitable as bottle packing material for most instances. (High-hazard samples may require different packing.) Ice is placed in double Ziploc™ bags and added to the coolers in order to maintain the required 4°C preservation requirement. All necessary paperwork will be placed in a separate Ziploc™ bag and also placed in the cooler. The cooler top will then be closed and taped shut. Custody sealing and taping of coolers may be required for certain samples/occasions.

6.2.2 Shipping. The standard procedure followed for shipping environmental samples to the analytical laboratory is:

1. For projects where the laboratory can be practically accessed:
 - Deliver all samples directly to the laboratory.
2. For projects where the laboratory is not practically accessed:
 - All shipping of environmental samples must be done through Federal Express or an equivalent overnight delivery service.
 - If prompt shipping and laboratory receipt of the samples cannot be guaranteed (i.e. Sunday and holidays), the samplers will be responsible for proper storage of the samples until suitable transportation arrangements can be made.

7.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

Quality assurance/quality control (QA/QC) is an integral part of this EMP to provide for assessment of the adequacy of the analytical results and their intended use. QA/QC activities associated with sampling include utilization of standardized collection procedures and sample data records, calibration of field instruments, and adherence to COC procedures. Analytical QA/QC involves the use of approved analytical protocols by qualified laboratories. Assessment of analytical data quality is performed through review of method-specified quality control data, to be reported along with the analytical results. To ascertain that the QA/QC objectives are met, the following data validation methods will be used to verify the accuracy and precision of the reported results.

- Chain of Custody for each sample is continuous and included with report.
- Verification that all sample holding times were met.
- Identification of values falling outside of historical (>5 sample rounds) range.
- Identification of wells whose depths have changed since construction.

8.0 REPORTING

The BRPP program will include semi-annual and annual reporting to the NCDENR in accordance with current waste management regulations.

APPENDIX A

**STANDARD RECORDKEEPING FORMS AND
CHAIN OF CUSTODY FORM**



ROGERS & CALLCOTT LABORATORY SERVICES

P.O. Box 5655, Greenville, SC 29606
 Phone (864) 232-1556 Fax (864) 232-6140
 Shipping Address: 426 Fairforest Way
 Greenville, SC 29607

CHAIN OF CUSTODY RECORD

PAGE ____ OF ____

Client Name _____

Address _____

Report To: _____

Telephone No. _____ FAX No. _____

PO No. _____ Project No. _____

Rogers & Callcott Lab No.	Yr. Date	Time	Sample Description

Total Number of Containers	PARAMETERS										Filtered (Yes/No)								
											Cooled (Yes/No)								
											Container Type (P/Q)								
											Container Volume								
											Sample Type (Grab/Composite)								
											Sample Source (WW, GW, DW, Other)								
											Sample Source Chlorinated (Yes/No)								
											Lab Receipt Cl, Check								
											Lab Receipt pH Check								
											Preserved (Code)								
<table border="0"> <tr> <td>A-None</td> <td>D-NoOH</td> <td>G-Boric Acid</td> </tr> <tr> <td>B-HNO₃</td> <td>E-HCL</td> <td>H-Ascorbic Acid</td> </tr> <tr> <td>C-H₂SO₄</td> <td>F-NO₂S₂O₈</td> <td>I- _____</td> </tr> </table>											A-None	D-NoOH	G-Boric Acid	B-HNO ₃	E-HCL	H-Ascorbic Acid	C-H ₂ SO ₄	F-NO ₂ S ₂ O ₈	I- _____
A-None	D-NoOH	G-Boric Acid																	
B-HNO ₃	E-HCL	H-Ascorbic Acid																	
C-H ₂ SO ₄	F-NO ₂ S ₂ O ₈	I- _____																	
COMMENTS:																			

SAMPLER Relinquished by (Sig.) ①		Date/Time	Received by (Sig.) ②		Date/Time	KNOWN HAZARDS ASSOCIATED WITH SAMPLES
Relinquished by (Sig.) ③		Date/Time	Received by (Sig.) ④		Date/Time	
Relinquished by (Sig.) ⑤		Date/Time	Received by (Sig.) ⑥		Date/Time	
Seal # _____ at'chd by ○ Recvd. Intact by ○ Seal # _____ at'chd by ○ Recvd. Intact by ○						Temperature of blank or representative sample At time of collection _____ °C At time of lab receipt _____ °C



2655 Park Center Drive, Suite A
Simi Valley, CA 93065

Confirmation of Sample Receipt

To:	Guy Cote	From:	Kate Aguilera
Email:	guy@smemaine.com	Email:	KAguilera@caslab.com
Fax:	207-829-5692	Fax:	805-526-7270
Phone:	207-829-5016	Phone:	805-526-7161 x234

Samples for analysis have been received by Columbia Analytical Services on 4/29/09 and assigned our Service Request number **P0901459**. **Please verify the following information and notify me of any corrections as soon as possible.**

The estimated completion date for this work is: 5/13/09

Client: Sevee & Maher Engineers, Inc.
Project: Quarterly & Annual Gas Analysis - Mt. Carberry/09004.02

PO Number: 09004.02

EDD Required: No

Tier: II

Report To: Guy Cote
Sevee & Maher Engineers, Inc.
4 Blanchard Road
PO Box 85a
Cumberland, ME 04021

Billing Address: Guy Cote
Sevee & Maher Engineers, Inc.
4 Blanchard Road
PO Box 85a
Cumberland, ME 04021

Comments: Canisters are backfilled with Helium.
The canister samples indicated on the CoC were shipped via FEDEX ground and will have a separate laboratory job number.

Thank you for your business!

A - Test is Authorized

H - Test is On Hold

P - Test is Authorized for Prep Only

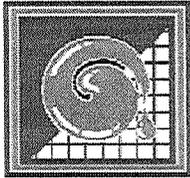
C - Test has been Cancelled

* - Test has assigned QC

				ASTM D5504-01 Sulfur Bag	ASTM D5504-01 TRS H2S Bag
P0901459-001	SP-010-A	Air	4/28/09 1331	A	A
P0901459-002	SP-010-B	Air	4/28/09 1335	A	A
P0901459-003	SP-010-C	Air	4/28/09 1338	A	A

Test Comments:

Group	Test/Method	Samples	Comments
VOA GC AIR	ASTM D5504-01/TRS H2S Bag	1-3	Please include total TRS along with normal speciated 20 compound analysis.



Well Number: _____ Development
 Purging

FIELD DATA LOG FOR GROUND WATER SAMPLING

ROGERS & CALLCOTT ENGINEERS, INC.

Date: _____ Field Personnel: _____

Page ____ of ____

Site Name/Location: _____

For Low Flow Sampling: Page ____ of ____

Method of Well Evacuation

Pump

- Grundfos
- Submersible
- Peristaltic
- Bladder
- Waterra
- Continuous (Recovery Well)
- _____

Bailer

- Non Disposable Teflon
- Disposable Teflon
- Disposable Poly
- Dedicated Teflon
- Dedicated PVC

One Volume Multiplier (gal/ft) = $\pi r^2 h (7.48)$ (r in feet)
 Well Diameter (gal/ft.) 1"= 0.041; 2"= 0.163; 3"= 0.367
 4"= 0.653; 6"= 1.470

Water Volume Calculations

Initial Depth to Ground Water (a): _____ @ _____
 Total Depth of Well (b): _____
 Length of Water Column in Well (b-a): _____
 Well Casing Diameter (inches): _____
 Depth to Immiscible Layer: _____

# of Casings	Gallons to be Removed	Gallons / mLs Removed
1 Casing Vol = (b-a) x Multiplier		
3 Casing Vol		

Circle One that Applies

Measuring Point: TOC / Ground Surface
 Riser Material: PVC / Steel / Teflon
 Steel Protective Casing? Yes / No
 Bollards? Yes / No
 Flush Mount? Yes / No
 Well Locked? Yes / No
 Well Pad Condition? Okay / _____
 Well Integrity Satisfactory? Okay / _____
 Vegetation: Overgrown/ Moderate/ Light/ None

Water Removal / Field Analysis Data

Date	Time	Increment	Removal Rate (gal/m) or (ml/m)	Water Level, (feet)	Water Volume Removed (gal) or (ml)	pH (units) ± 0.1-Stable	Temp (°C)	Conductivity (uS/cm) 10%-Stable	Dissolved Oxygen (mg/L)	Hydrogen Sulfide (ppm)	ORP (mVolts)	Odor (Subj*)	Turbidity (NTU)	Comments

Weather Conditions/~Temp: _____ / _____ °F

* Subjective (1) None (2) Slight (3) Moderate (4) Strong

Well Yield: (Low/ Moderate/ High) Sample Clarity: _____ Precipitate: _____ Fe⁺² mg/L= _____

Sample Collection Time _____

Comments _____

Reviewed by: _____ Date: _____

Rogers and Callcott Engineers

Continuing Calibration Verification

Client: _____

Date: _____

Conductivity Meter EPA 9050A

Meter Make / Model: YSI EC300

SN: _____

Probe: _____

Time	Analyst	Conc. of Standard, µmhos/cm @25°C	Actual Reading of Standard, µmhos/cm
			@ _____ °C
			@ _____ °C

pH Meter EPA 9040C

Meter Make / Model: YSI pH100

SN: _____

Probe: _____

Time	Analyst	Conc. of Buffer, units	Actual Reading of Buffer, units

Turbidity Meter Field Screen Method

Meter Make / Model: Hach 2100P

SN: _____

Time	Analyst	Assigned Conc. of Standard, NTU	Actual Reading of Standard, NTU

Field Duplicate

Well ID: _____

Time	Analyst	Conductivity, µmhos/cm	pH, units	Turbidity, NTU	Temperature, °C

Note: Refer to daily calibration log for instrument calibration and chemical inventory information / documentation.

Reviewed by: _____

Date: _____

Rogers and Callcott Engineers

Field Meter Calibration Record

Client: _____

Date: _____

Conductivity Meter Calibration EPA 9050A

Meter Make / Model: YSI EC300

SN: _____

Probe: _____

Time: _____

Analyst: _____

Cell Constant _____

Chemical Inventory	Conc. of Standard, $\mu\text{mhos/cm}$ @25°C	Actual Reading of Standard,	
		$\mu\text{mhos/cm}$	@ Temperature, °C
	SSS conc:		

Temperature compensation for conductivity meter : _____

Note: Temperature is recorded from the conductivity meter for reporting purposes.

pH Meter Calibration EPA 9040C

Meter Make / Model: YSI pH100

SN: _____

Probe: _____

Time: _____

Analyst: _____

Slope: _____

Chemical Inventory	Conc. of Buffer, units	Actual Reading of Buffer, units
	4.0	
	7.0	
	10.0	
	SSS conc:	

Temperature compensation for pH meter : _____

Note: Temperature is recorded from the conductivity meter for reporting purposes.

Turbidity Meter Calibration Field Screen Method

Meter Make / Model: Hach 2100P

SN: _____

Date of most recent calibration: _____

Time: _____

Analyst: _____

Chemical Inventory	Assigned Conc. of Standard, NTU	Actual Reading of Standard, NTU

Reviewed by: _____ Date: _____

APPENDIX B

MONITORING WELL INSTALLATION DIAGRAMS

**CORRELATION OF PENETRATION RESISTANCE
WITH RELATIVE DENSITY AND CONSISTENCY**

	NO. OF BLOWS, N	RELATIVE DENSITY
SANDS:	0-4	Very Loose
	5-10	Loose
	11-20	Firm
	21-30	Very Firm
	31-50	Dense
	OVER 50	Very Dense

		CONSISTENCY
SILTS & CLAYS:	0-2	Very Soft
	3-4	Soft
	5-8	Firm
	9-15	Stiff
	16-30	Very stiff
	31-50	Hard
	OVER 50	Very Hard

	PARTICAL SIZE IDENTIFICATION
BOULDERS:	Greater than 300 mm
COBBLES:	75 mm to 300 mm
GRAVEL:	Coarse - 19.0 mm to 75 mm
	Fine - 4.75 mm to 19.0 mm
SANDS:	Coarse - 2.00 mm to 4.75 mm
	Medium - 0.425 mm to 2.00 mm
	Fine - 0.075 mm to 0.425 mm
SILTS & CLAYS:	Less than 0.075 mm

KEY TO DRILLING SYMBOLS

	Undisturbed Sample		Water Table 24 HR.		Pressuremeter Test
	Split Spoon Sample		Water Table at Time of Drilling		Loss of Drilling Water

KEY TO SOIL CLASSIFICATIONS

	ASPHALT		CONCRETE
	CL - Low plasticity inorganic clays		GW - Well graded gravels
	CH - High plasticity inorganic clays		OL - Low plasticity organic silts and clays
	ML - Low plasticity inorganic silts and very fine sands		OH - High plasticity organic silts and clays
	MH - High plasticity inorganic silts		SM - Silty sands
	SP - Poorly graded sands		GM - Silty gravels
	SW - Well graded sands		SC - Clayey sands
	GP - Poorly graded gravels		GC - Clayey gravels
	PARTIALLY WEATHERED ROCK - A transitional material between soil and rock which retains the relict structure of the parent rock.		SP-SM - Typical Dual Classification

JOB NAME CHAMPION NO. 6 LANDFILL

JOB NUMBER 2410446501

WELL NUMBER MW-1A

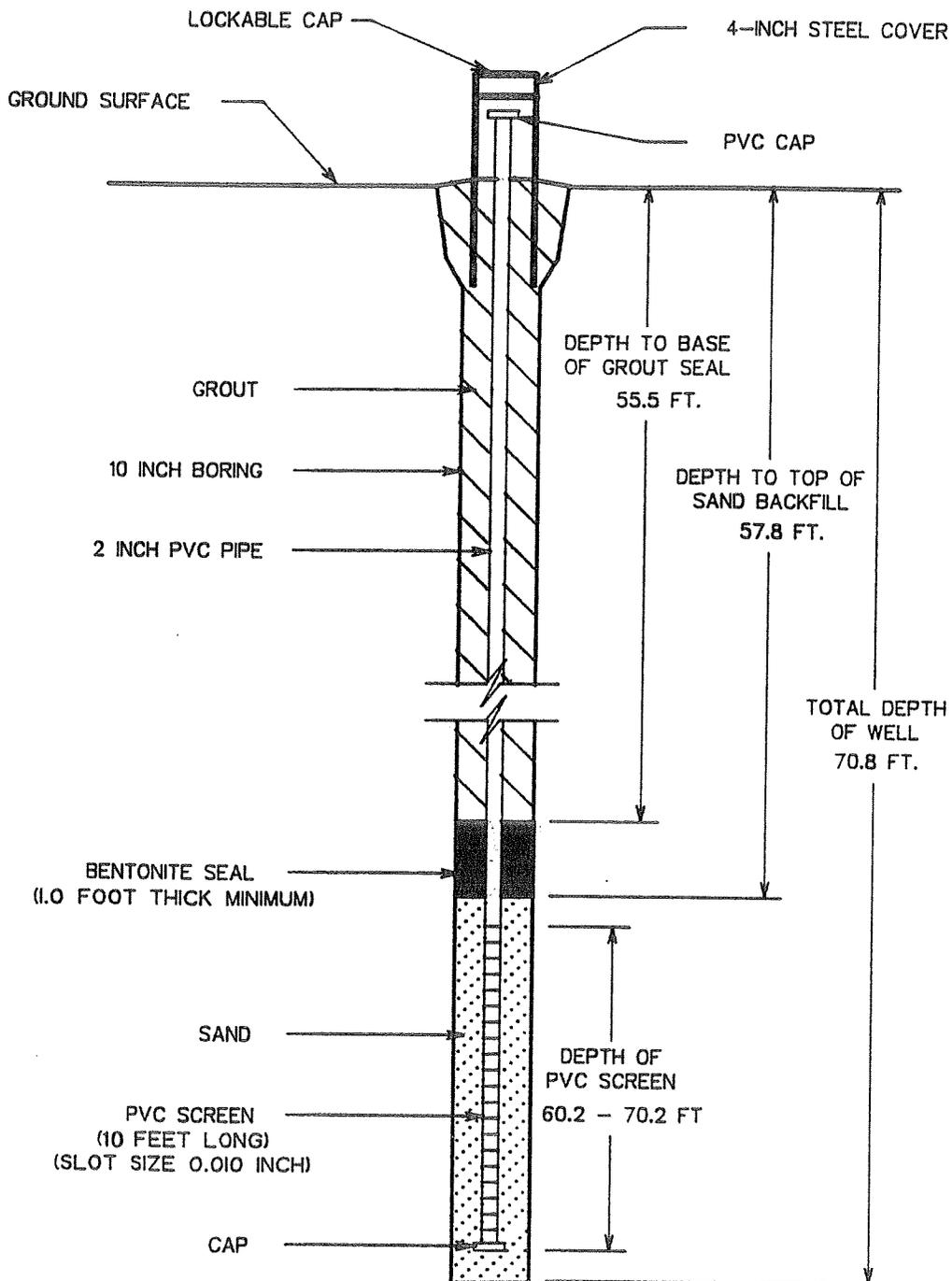
GROUND SURFACE ELEVATION 2765 FT. (MSL)

LOCATION SEE ATTACHED LOCATION MAP

MEASURING POINT ELEVATION _____

INSTALLATION DATE 1/29/92

LATITUDE _____ LONGITUDE _____

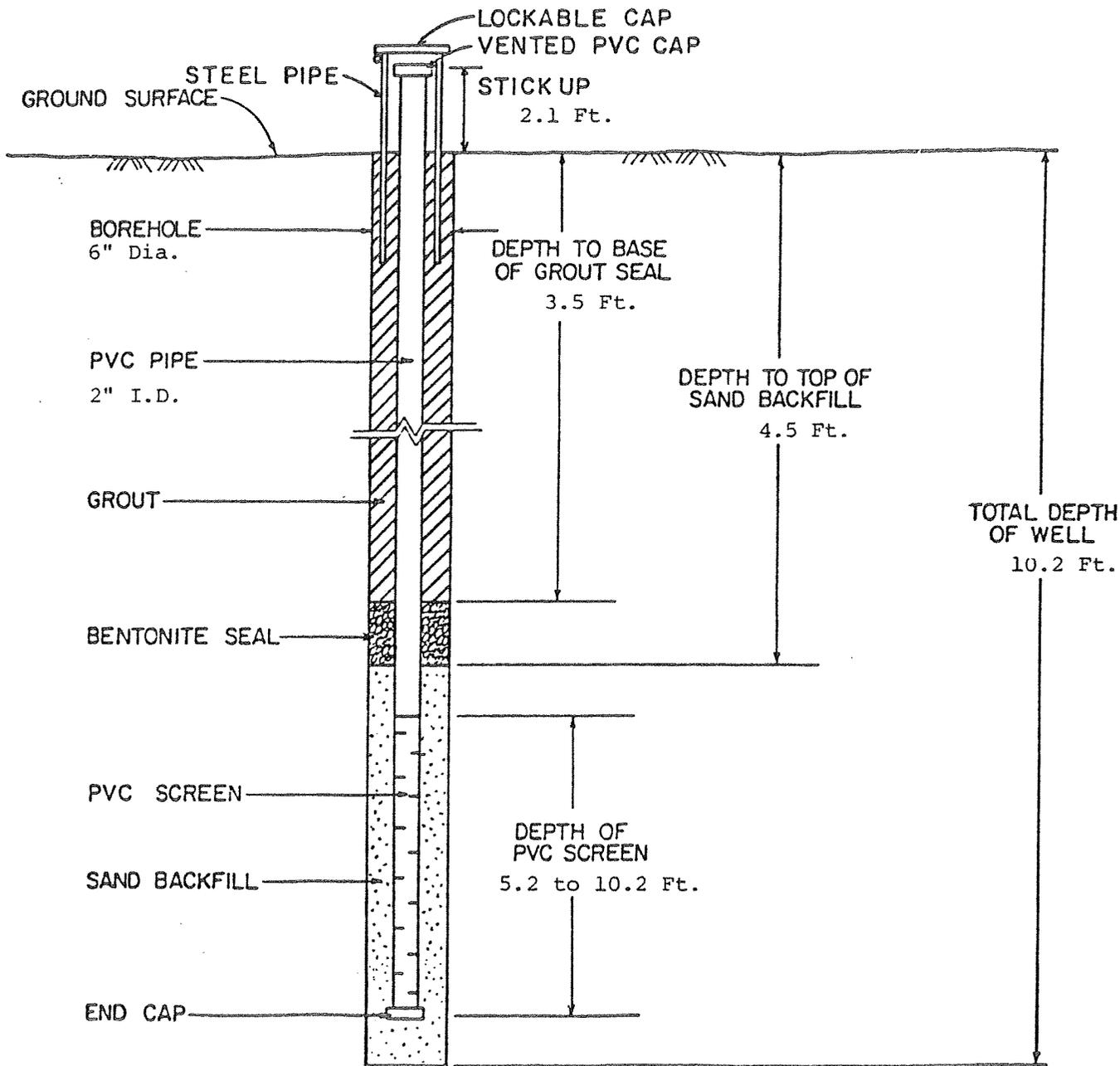


LAW ENGINEERING
GREENVILLE, SOUTH CAROLINA

MONITORING WELL
INSTALLATION RECORD
CHAMPION LANDFILL NO. 6A
CANTON, SOUTH CAROLINA

MONITORING WELL INSTALLATION RECORD

JOB NAME Landfill No. 6 JOB NUMBER CH 4507 C
 WELL NUMBER MW-2 GROUND SURFACE ELEVATION 2595.31 Ft.
 LOCATION Southwest of Area F
 INSTALLATION DATE 7-6-83



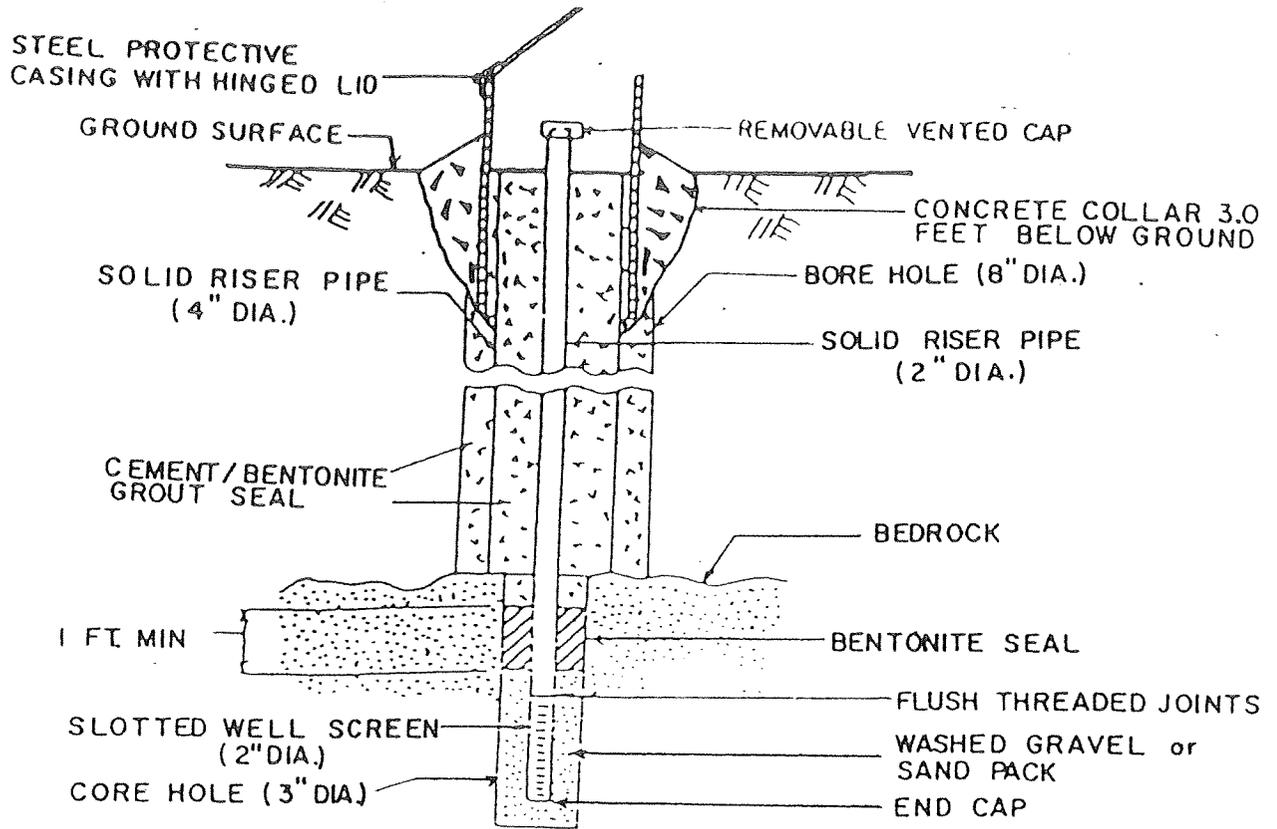
Champion Papers
Canton, North Carolina



LAW ENGINEERING TESTING
COMPANY
CHARLOTTE, NORTH CAROLINA

MONITORING WELL
INSTALLATION RECORD
MW-2

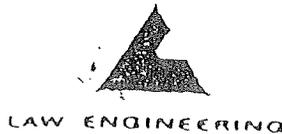
TYPICAL DIAGRAM - TYPE III MONITORING WELL



MONITORING WELL INSTALLATION DETAILS

WELL NUMBER	MW-3A			
GROUND ELEVATION (FT.)	--			
GROUND WATER ELEVATION (FT.) MEASURED ON:	--			
TOTAL DEPTH OF WELL BELOW GROUND SURFACE (FT.)	17.5			
MEASURING POINT ELEVATION (FT.)	--			
SCREEN LENGTH (FT.)	10.0			
SOLID RISER LENGTH BELOW GROUND SURFACE (FT.)	7.5			
PVC HEIGHT ABOVE GROUND (FT.)	2.5			
THICKNESS OF BENTONITE SEAL	1.2			
THICKNESS OF CEMENT SEAL	4.0			
4 INCH DIAMETER PVC LENGTH BELOW GROUND SURFACE (FT.)	5.0			

Champion International
Canton Landfill
Haywood County, N.C.



INSTALLATION DETAILS
TYPE III MONITORING WELLS

JOB NO. AV-1834 FIGURE 2

DEPTH
FT.

DESCRIPTION

CORE
% @ TIME
SIZE MIN. ELEV.

REMARKS

R.Q.D.

5.0

Partially weathered rock sampled as red brown and black gray fine to coarse sandy SILT
Auger refusal at 5 feet, moved 20 feet. Auger **

NQ

N = $\frac{50}{1}$ "
N = $\frac{50}{0}$ "

Hard to very hard white and light gray mica gneiss

100

Weathering slight to fresh 5.0 to 35.3 ft.

100

100

Severly iron stained and soil filled joint
Steep dip 15.6 to 17.1 ft

100

100

◁ S

95

** bore 0 to 5 feet. Auger refusal at 5 feet, set and grouted 4" PVC casing to 5 feet. Begin NQ coring

100

Iron and manganize stained joint
Steep dip 25.3 to 25.5 ft.

100

100

◁ S

Closely to very closely spaced joints
Low dip 32.5 to 33.4 ft.

100

100

Very closely spaced Healed joints 33.4 to 33.798

5.3

◁ L

Coring terminated at 35.3 feet
Boring terminated at 35.3 feet

100

Monitoring well installed to 17.5 feet (see Figure 2 for details)
Ground water measured at 0.5 feet after 24 hours

NOTE: Boring MW-3B was backfilled with soil.

TEST BORING RECORD

BORING NO. MW-3A, B

DATE DRILLED 10-30-87

JOB NO. AV-1834

LAW ENGINEERING TESTING CO.

◁ ROCK JOINT:

L = LOW DIP 0-30°

M = MED. DIP 30-60°

S = STEEP DIP 60-90°

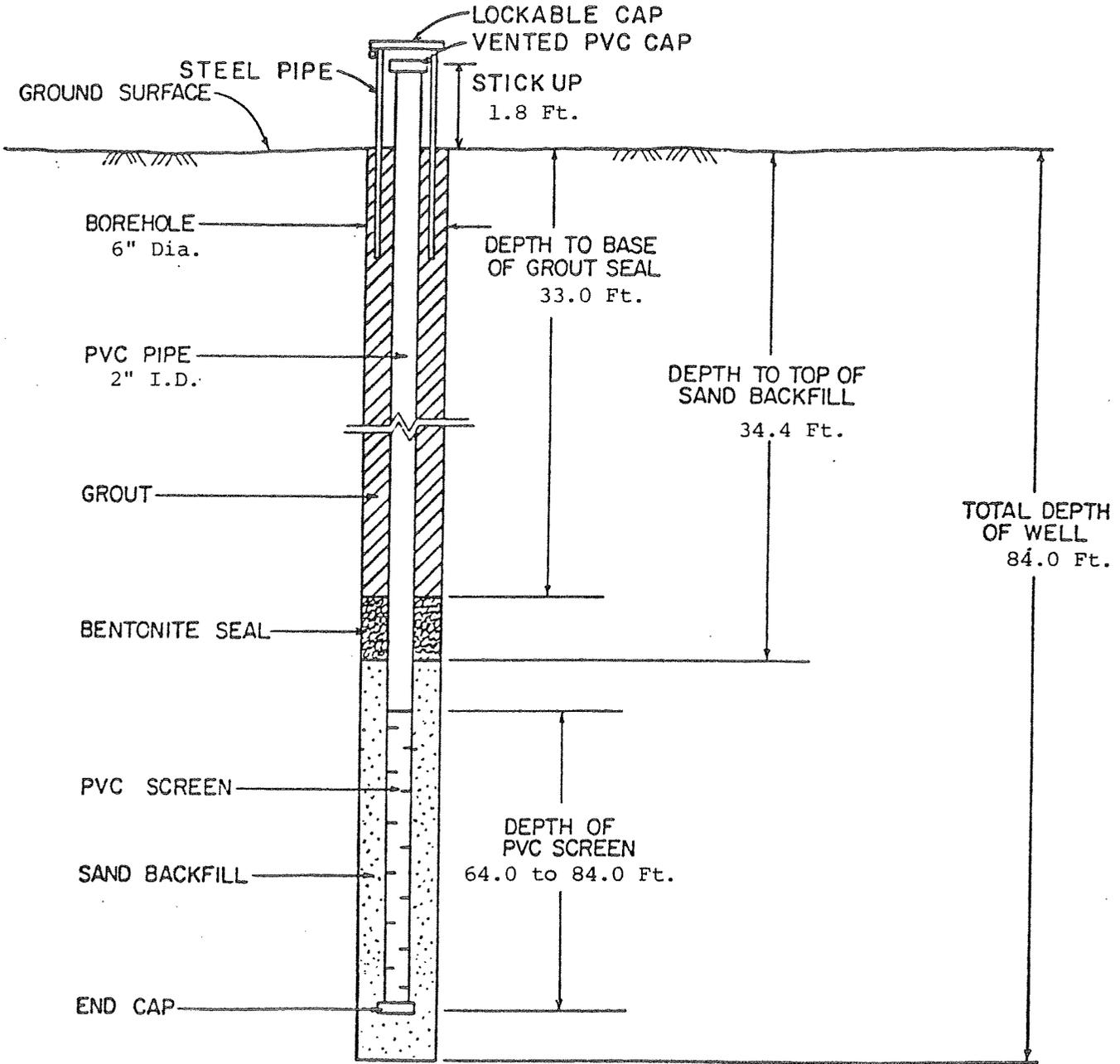
100% ROCK CORE RECOVERY WATER TABLE, 1 HR.

N STANDARD PENETRATION LOSS OF DRILLING WATER

R.Q.D. ROCK QUALITY DESIGNATION

MONITORING WELL INSTALLATION RECORD

JOB NAME Landfill No. 6 JOB NUMBER CH 4507 C
WELL NUMBER MW-4 GROUND SURFACE ELEVATION 2629.63 Ft.
LOCATION Southeast of Area B
INSTALLATION DATE 7-7-83

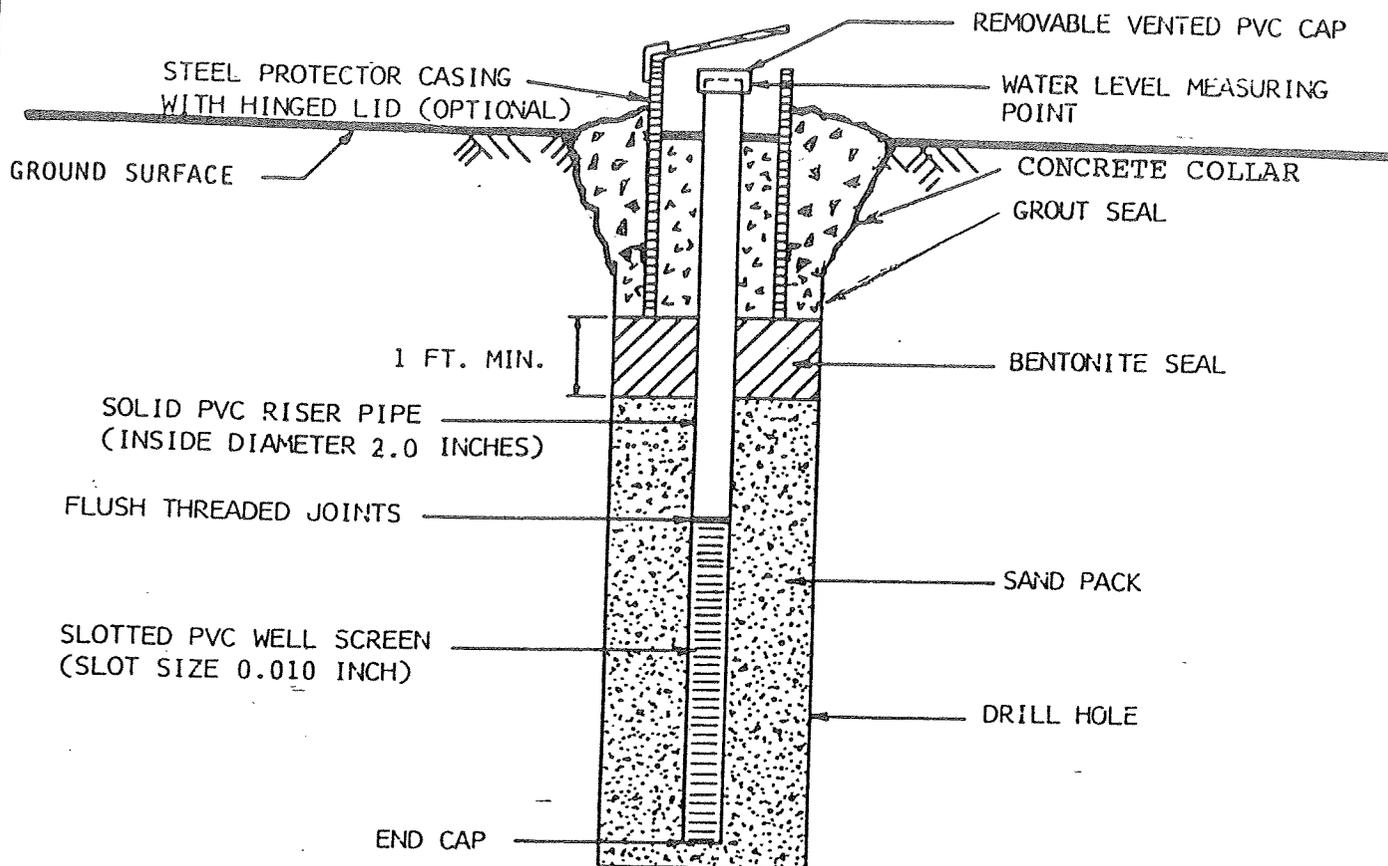


Champion Papers
Canton, North Carolina



LAW ENGINEERING TESTING
COMPANY
CHARLOTTE, NORTH CAROLINA

MONITORING WELL
INSTALLATION RECORD
MW-4



TYPICAL DIAGRAM OF MONITORING WELLS
(NOT TO SCALE)

MONITORING WELL INSTALLATION DETAILS

WELL NUMBER	MW-5A	MW-7A	MW-13		
GROUND ELEVATION (FT.)	---	---	---		
GROUND WATER ELEVATION (FT.) MEASURED ON:	---	---	---		
TOTAL DEPTH OF WELL BELOW GROUND SURFACE (FT.)	42.0	23.5	34.0		
MEASURING POINT ELEVATION (FT.)	---	---	---		
SCREEN LENGTH (FT.)	10.0	10.0	10.0		
SOLID RISER LENGTH BELOW GROUND SURFACE (FT.)	32.0	13.5	24.0		
PVC HEIGHT ABOVE GROUND (FT.)	2.5	2.5	2.5		
THICKNESS OF BENTONITE SEAL (FT.)	1.1	1.3	1.5		
THICKNESS OF CEMENT SEAL (FT.)	28.3	9.5	19.6		

NOTES:

Champion International
Canton Landfill
Haywood County, N.C.



LAW ENGINEERING

MONITORING WELL
INSTALLATION DETAILS

JOB NO. AV-1834

FIGURE 3

DEPTH
FT.

DESCRIPT

STRATIFICATION-BLOWS PER FT.

0.0

0 10 20 30 40 60 80 100

6-inches of pea gravel underlain by firm to stiff brown micaceous fine to medium sandy SILT with rock fragments - Fill

10.0

Stiff red brown and tan brown micaceous fine to medium sandy SILT - Fill

22.0

Stiff brown clayey micaceous fine to coarse sandy SILT-Fill

27.0

Firm brown micaceous fine to coarse sandy SILT - Fill

33.0

Stiff gray brown micaceous fine to medium sandy SILT - Residuum

38.0

Partially weathered rock sampled as tan gray brown silty micaceous fine to coarse SAND

50
6"

BORING AND SAMPLING MEETS ASTM D-1586

CORE DRILLING MEETS ASTM D-2113

PENETRATION 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

WATER TABLE, 24 HR.

WATER TABLE, 1 HR.

50 % ROCK CORE RECOVERY

LOSS OF DRILLING WATER

TEST BORING RECORD

BORING NO. MW-5A

DATE DRILLED 10-29-87

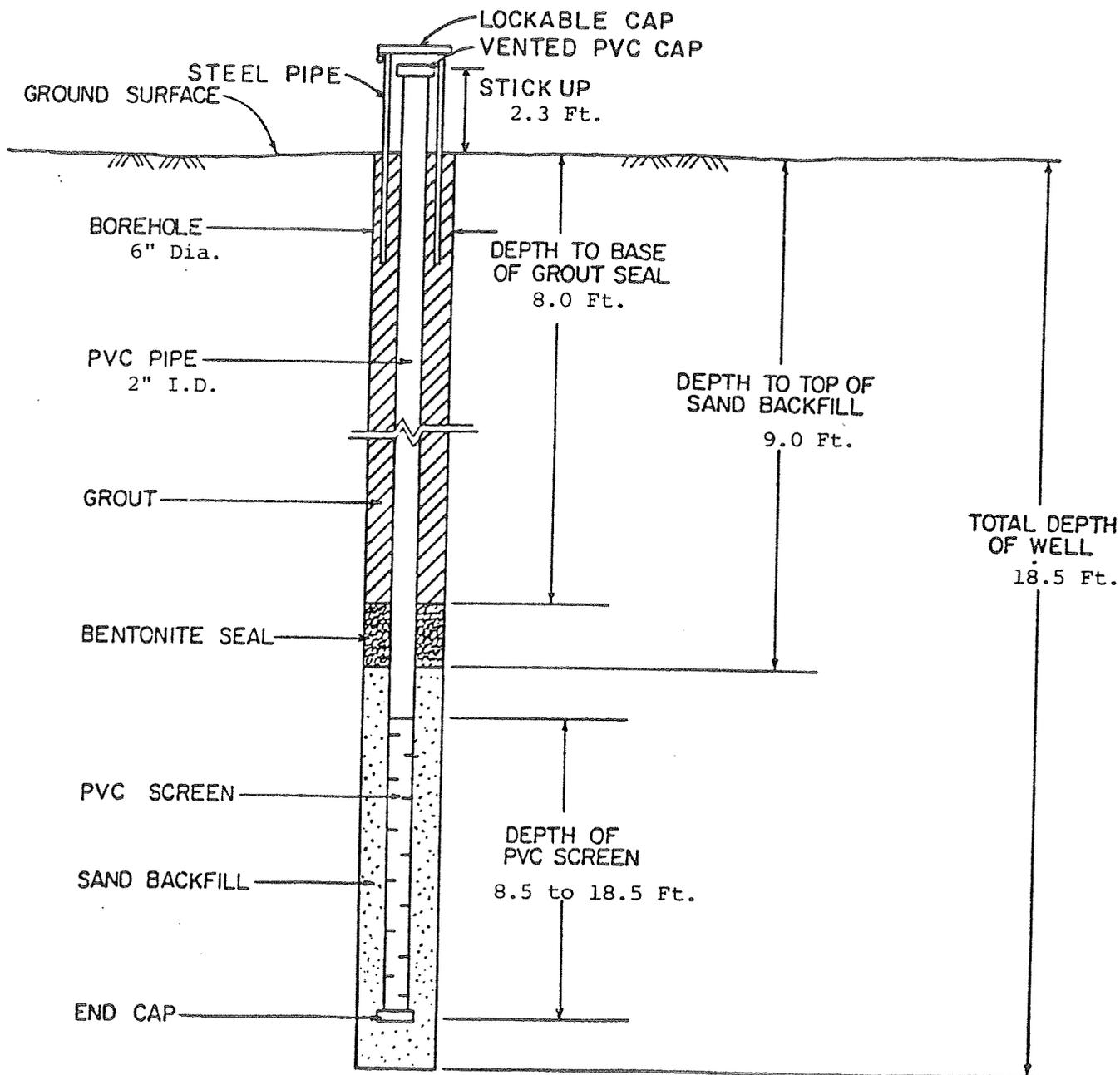
JOB NO. AV-1834

PAGE 1 OF 2

LAW ENGINEERING TESTING COMPANY

MONITORING WELL INSTALLATION RECORD

JOB NAME Landfill No. 6 JOB NUMBER CH 4507 C
WELL NUMBER MW-6 GROUND SURFACE ELEVATION 2549.72 Ft.
LOCATION South - Southeast of Area C
INSTALLATION DATE 7-7-83

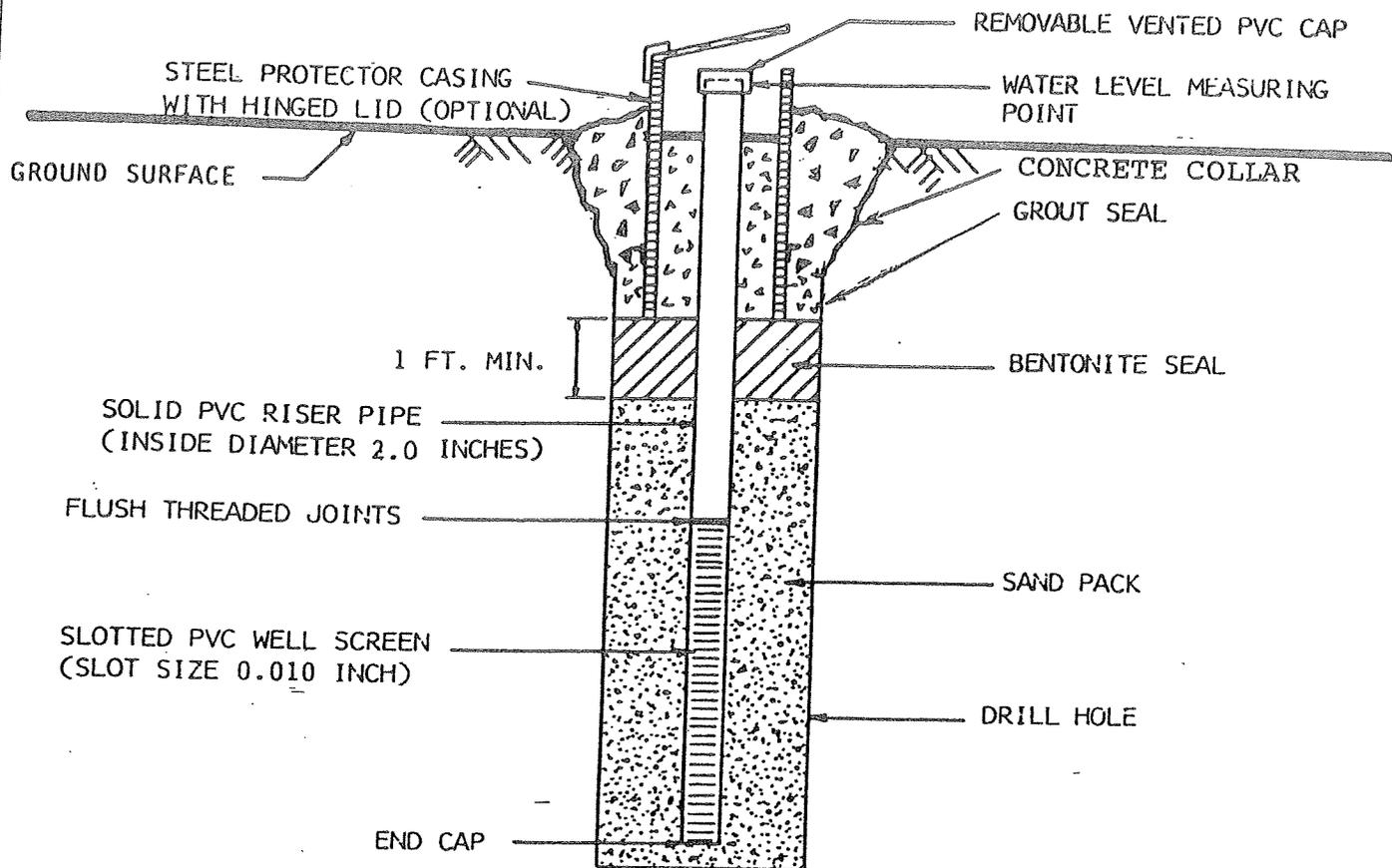


Champion Papers
Canton, North Carolina



LAW ENGINEERING TESTING
COMPANY
CHARLOTTE, NORTH CAROLINA

MONITORING WELL
INSTALLATION RECORD
MW-6



TYPICAL DIAGRAM OF MONITORING WELLS
(NOT TO SCALE)

MONITORING WELL INSTALLATION DETAILS

WELL NUMBER	MW-5A	MW-7A	MW-13		
GROUND ELEVATION (FT.)	---	---	---		
GROUND WATER ELEVATION (FT.)					
MEASURED ON:	---	---	---		
TOTAL DEPTH OF WELL BELOW GROUND SURFACE (FT.)	42.0	23.5	34.0		
MEASURING POINT ELEVATION (FT.)	---	---	---		
SCREEN LENGTH (FT.)	10.0	10.0	10.0		
SOLID RISER LENGTH BELOW GROUND SURFACE (FT.)	32.0	13.5	24.0		
PVC HEIGHT ABOVE GROUND (FT.)	2.5	2.5	2.5		
THICKNESS OF BENTONITE SEAL (FT.)	1.1	1.3	1.5		
THICKNESS OF CEMENT SEAL (FT.)	28.3	9.5	19.6		

NOTES:

Champion International
Canton Landfill
Haywood County, N.C.



LAW ENGINEERING

MONITORING WELL
INSTALLATION DETAILS

JOB NO. AV-1834

FIGURE 3

DEPTH
FT.

DESCRIPTI

PERCENTRATION-BLOWS PER FT.

0.0 0 10 20 30 40 60 80 100

Firm brown clayey micaceous
fine to coarse sandy SILT -
Fill

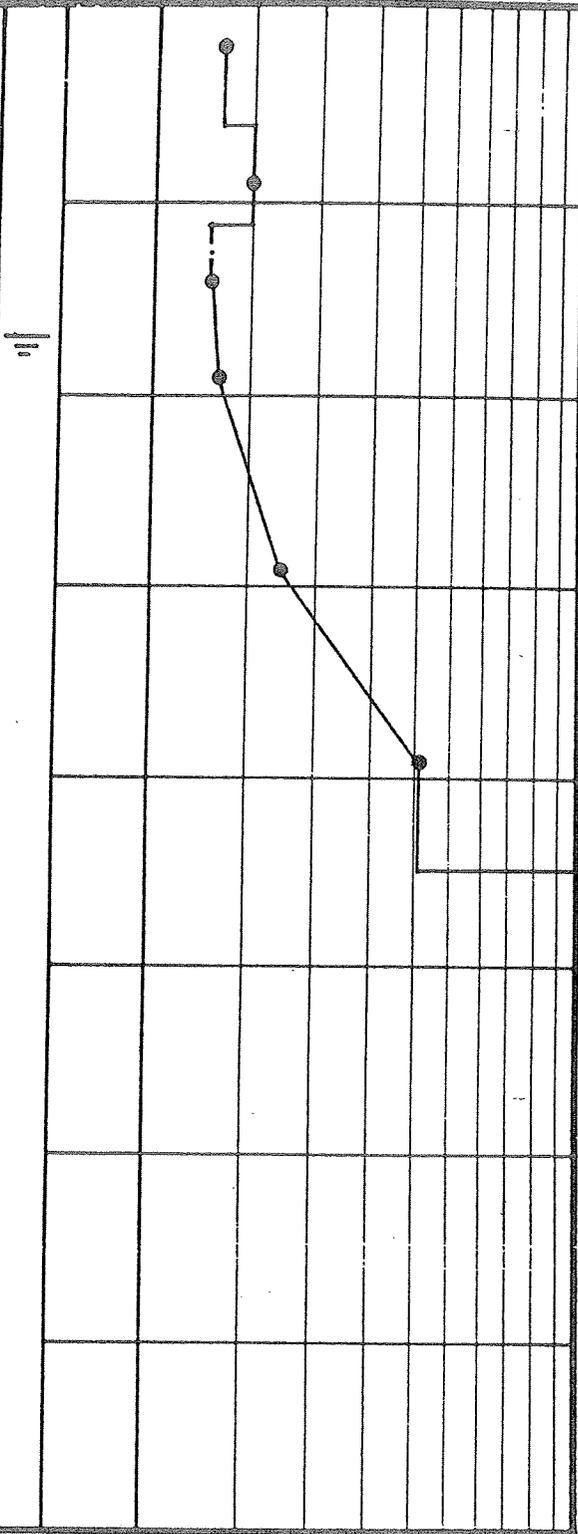
Stiff gray tan micaceous fine to
medium sandy SILT - Possible
Residuum or Alluvium

Firm gray brown fine sandy SILT
- Residuum
Boulders 11 feet to 12.5 feet

Stiff to hard gray tan micaceous
fine to coarse sandy SILT with
rock fragments

Partially weathered rock sampled
as tan brown fine to coarse
sandy SILT

Boring terminated at 25.0 feet
Monitoring well installed to
23.5 feet (see Figure 3 for
details)
Ground water measured at 8.5
feet after 24 hours



50
2"

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER
FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I. D. SAMPLER 1 FT.

TEST BORING RECORD

BORING NO. MW-7A
DATE DRILLED 10-27-87
JOB NO. AV-1834

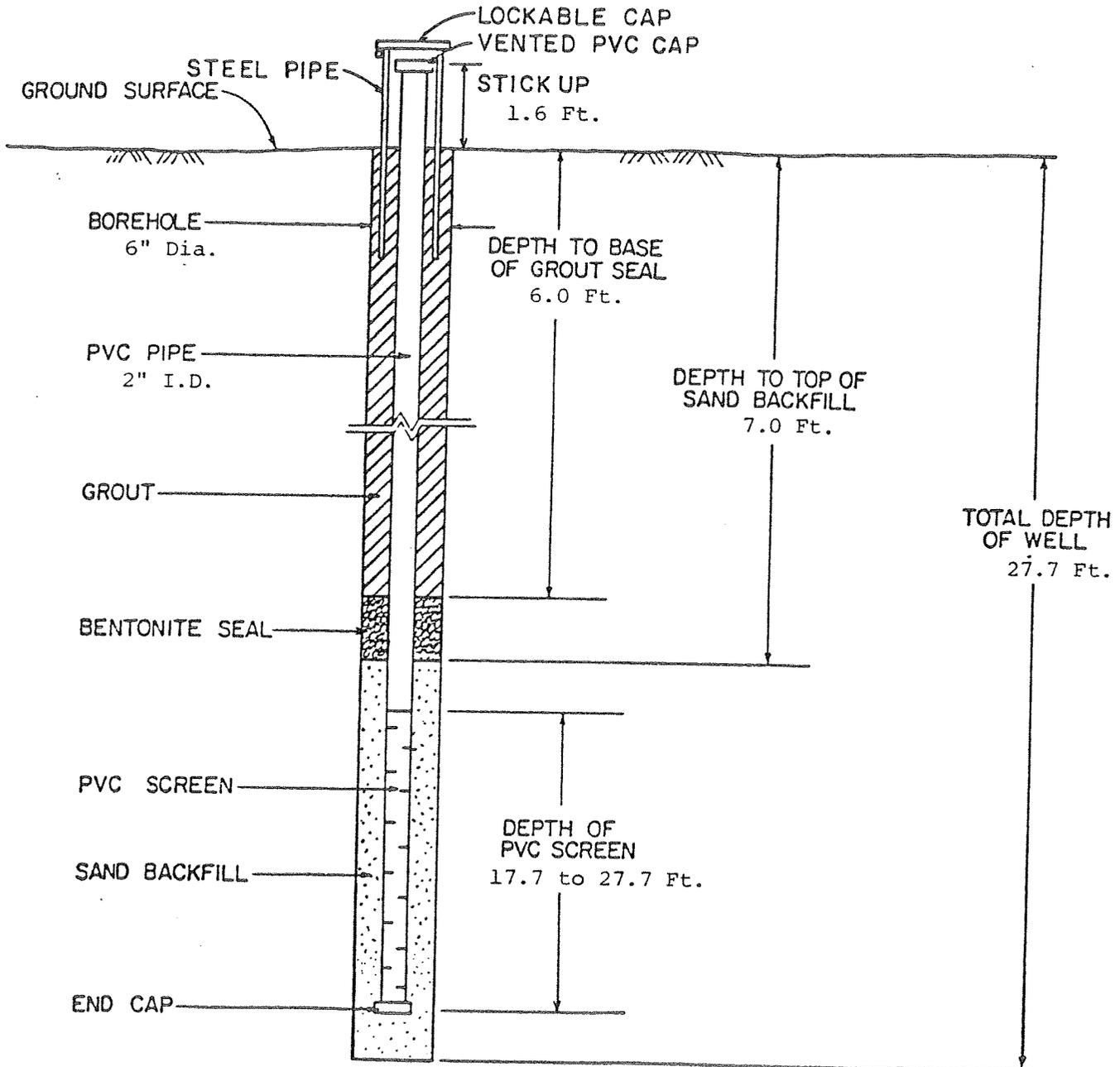
PAGE 1 OF 1

LAW ENGINEERING TESTING COMPANY

-  UNDISTURBED SAMPLE
-  WATER TABLE, 24 HR.
-  WATER TABLE, 1 HR.
-  LOSS OF DRILLING WATER
-  50 % ROCK CORE RECOVERY

MONITORING WELL INSTALLATION RECORD

JOB NAME Landfill No. 6 JOB NUMBER CH 4507 C
 WELL NUMBER MW-8 GROUND SURFACE ELEVATION 2594.39 Ft.
 LOCATION South of Area D
 INSTALLATION DATE 7-8-83



Champion Papers
Canton, North Carolina

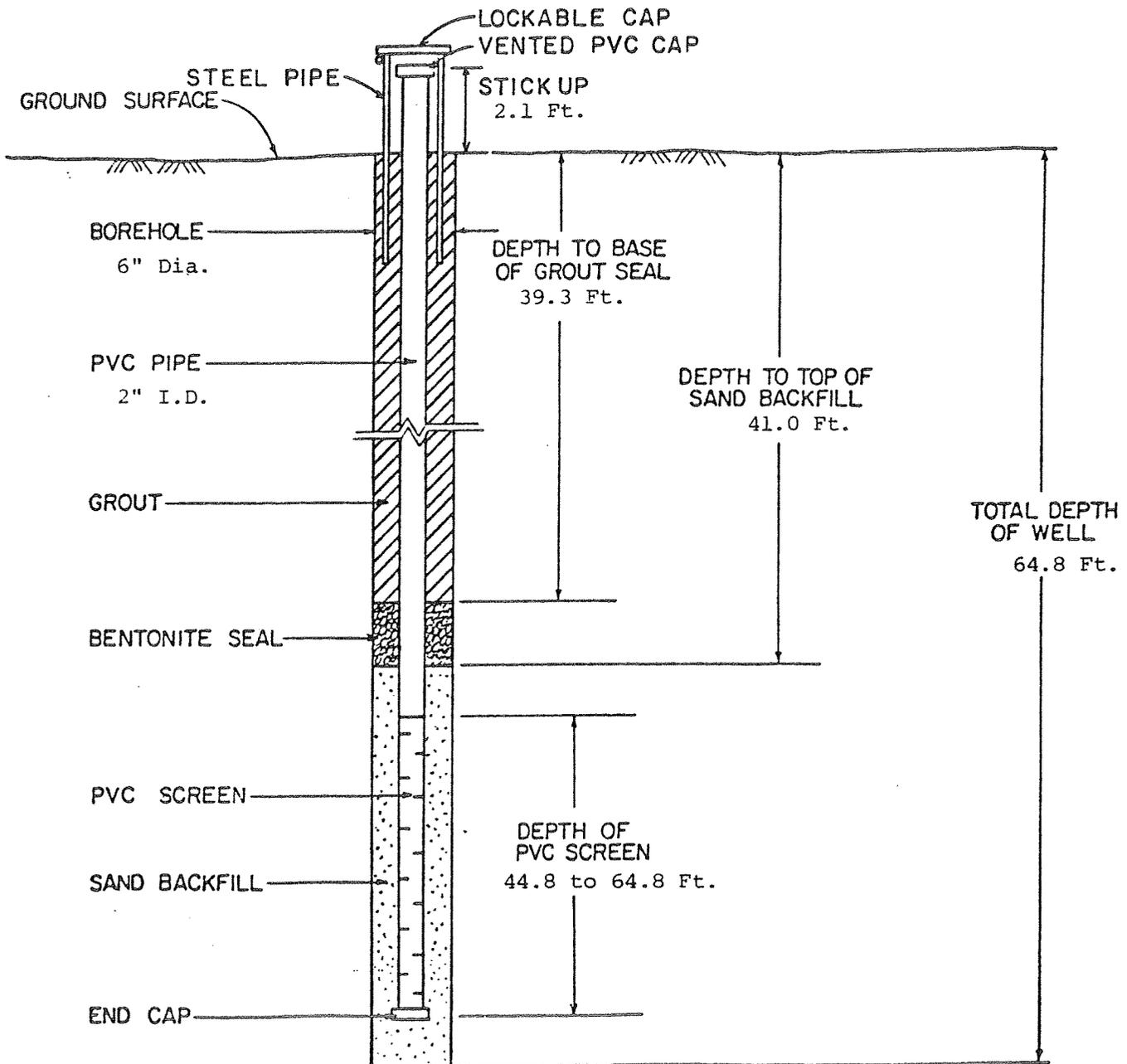


LAW ENGINEERING TESTING
COMPANY
CHARLOTTE, NORTH CAROLINA

MONITORING WELL
INSTALLATION RECORD
MW-8

MONITORING WELL INSTALLATION RECORD

JOB NAME Landfill No. 6 JOB NUMBER CH 4507 C
WELL NUMBER MW-9 GROUND SURFACE ELEVATION 2684.02 Ft.
LOCATION West of Area D
INSTALLATION DATE 7-6-83



Champion Papers
Canton, North Carolina

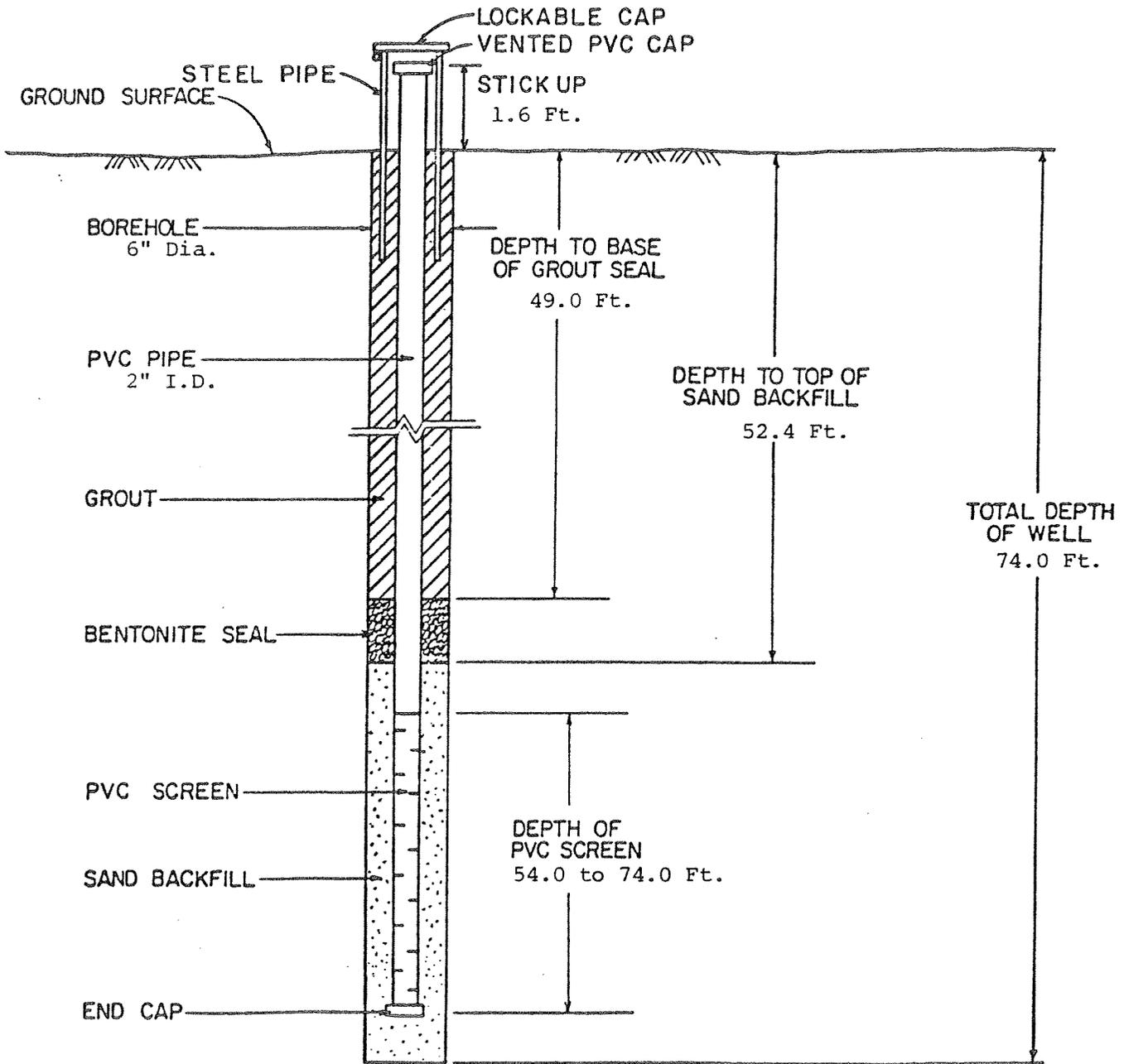


LAW ENGINEERING TESTING
COMPANY
CHARLOTTE, NORTH CAROLINA

MONITORING WELL
INSTALLATION RECORD
MW-9

MONITORING WELL INSTALLATION RECORD

JOB NAME Landfill No. 6 JOB NUMBER CH 4507 C
WELL NUMBER MW-10 GROUND SURFACE ELEVATION 2677.78 Ft.
LOCATION West of Area E
INSTALLATION DATE 7-7-83



Champion Papers
Canton, North Carolina



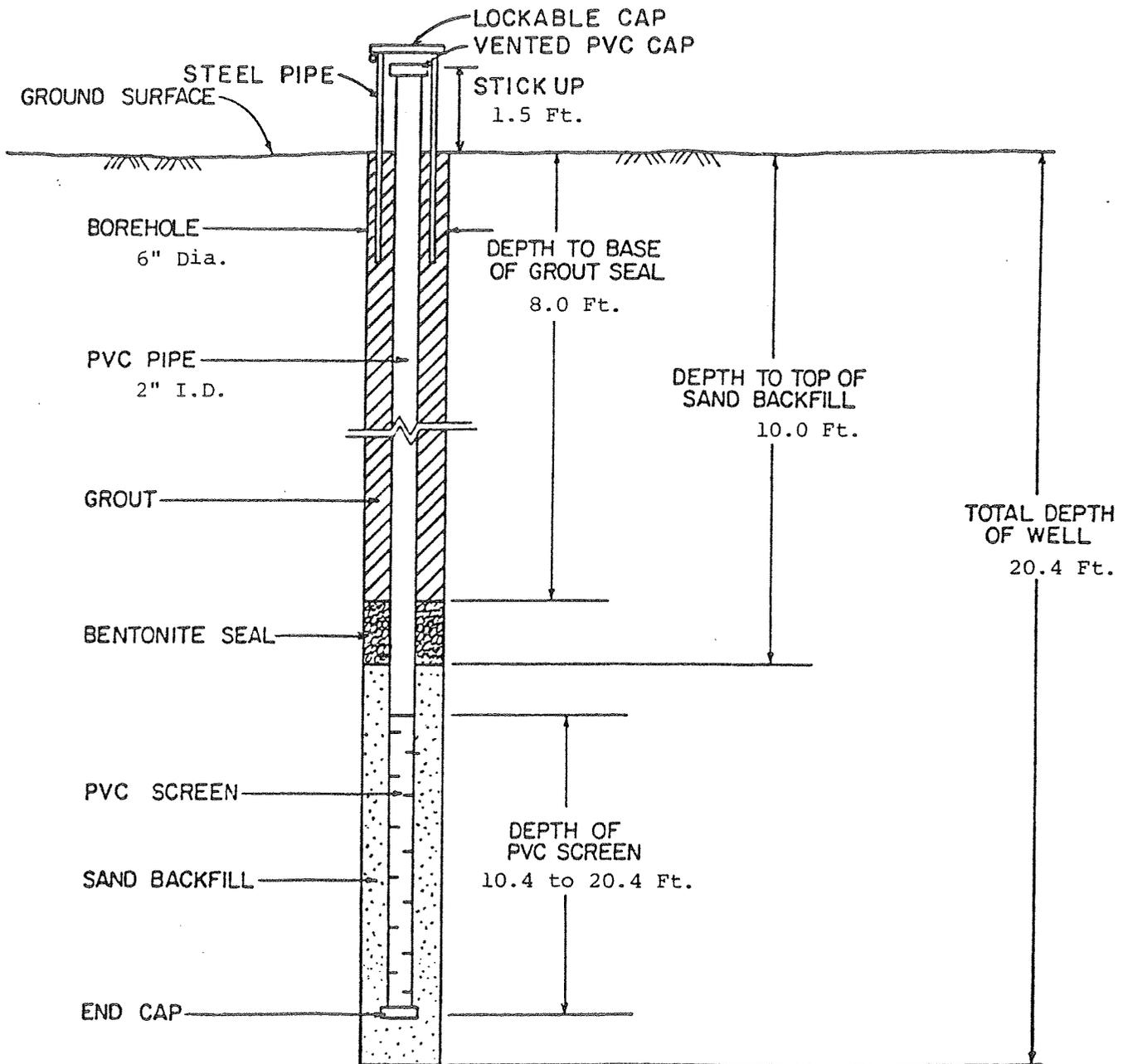
LAW ENGINEERING TESTING
COMPANY

CHARLOTTE, NORTH CAROLINA

MONITORING WELL
INSTALLATION RECORD
MW-10

MONITORING WELL INSTALLATION RECORD

JOB NAME Landfill No. 6 JOB NUMBER CH 4507 C
WELL NUMBER MW-11 GROUND SURFACE ELEVATION 2639.44 Ft.
LOCATION West of Area E
INSTALLATION DATE 7-8-83



Champion Papers
Canton, North Carolina



LAW ENGINEERING TESTING
COMPANY
CHARLOTTE, NORTH CAROLINA

MONITORING WELL
INSTALLATION RECORD
MW-11

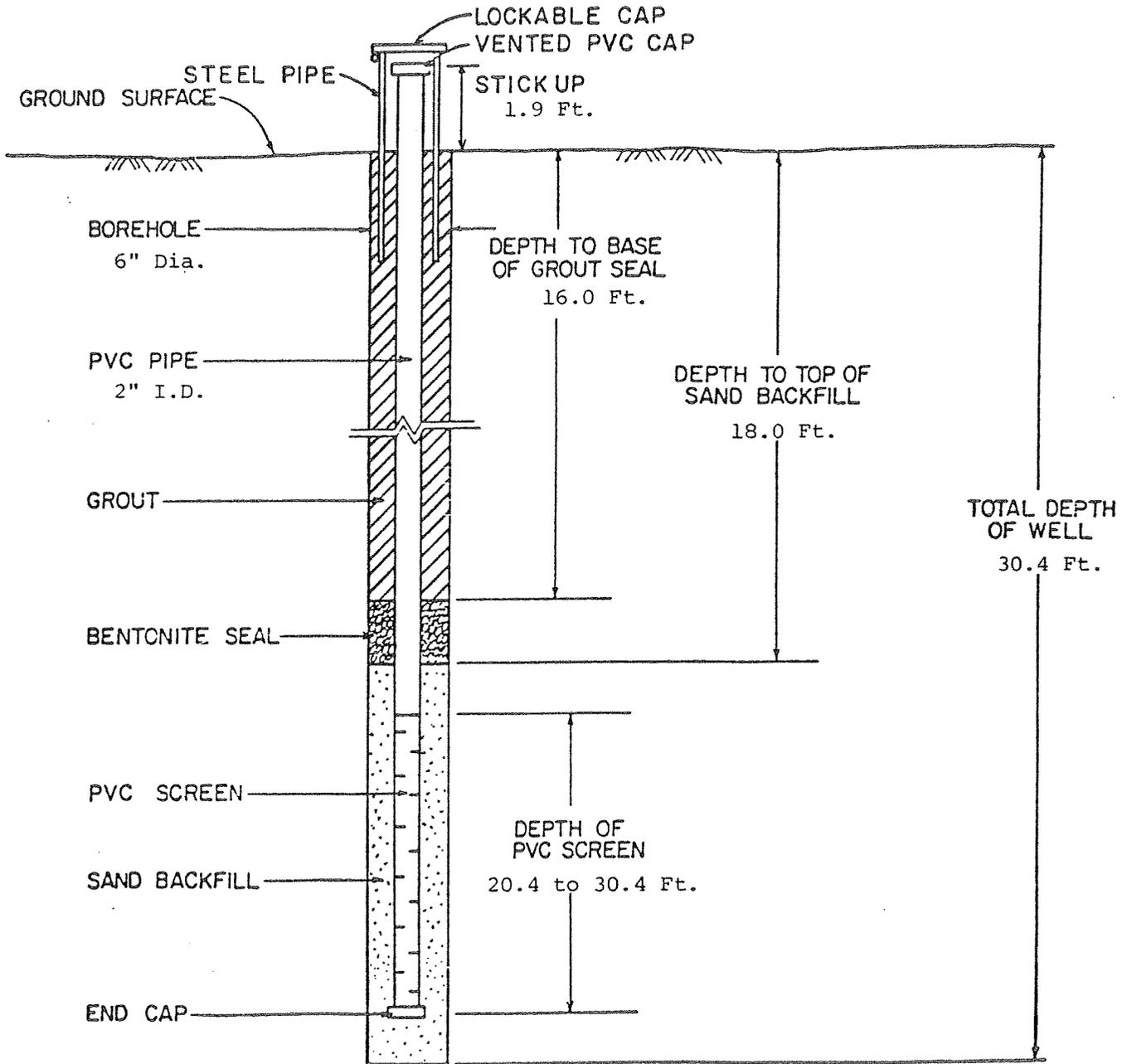
MONITORING WELL INSTALLATION RECORD

JOB NAME Landfill No. 6 JOB NUMBER CH 4507 C

WELL NUMBER MW-12 GROUND SURFACE ELEVATION 2543.73 Ft.

LOCATION Northwest of Junction of Bowen Branch and Pigeon River

INSTALLATION DATE 7-6-83



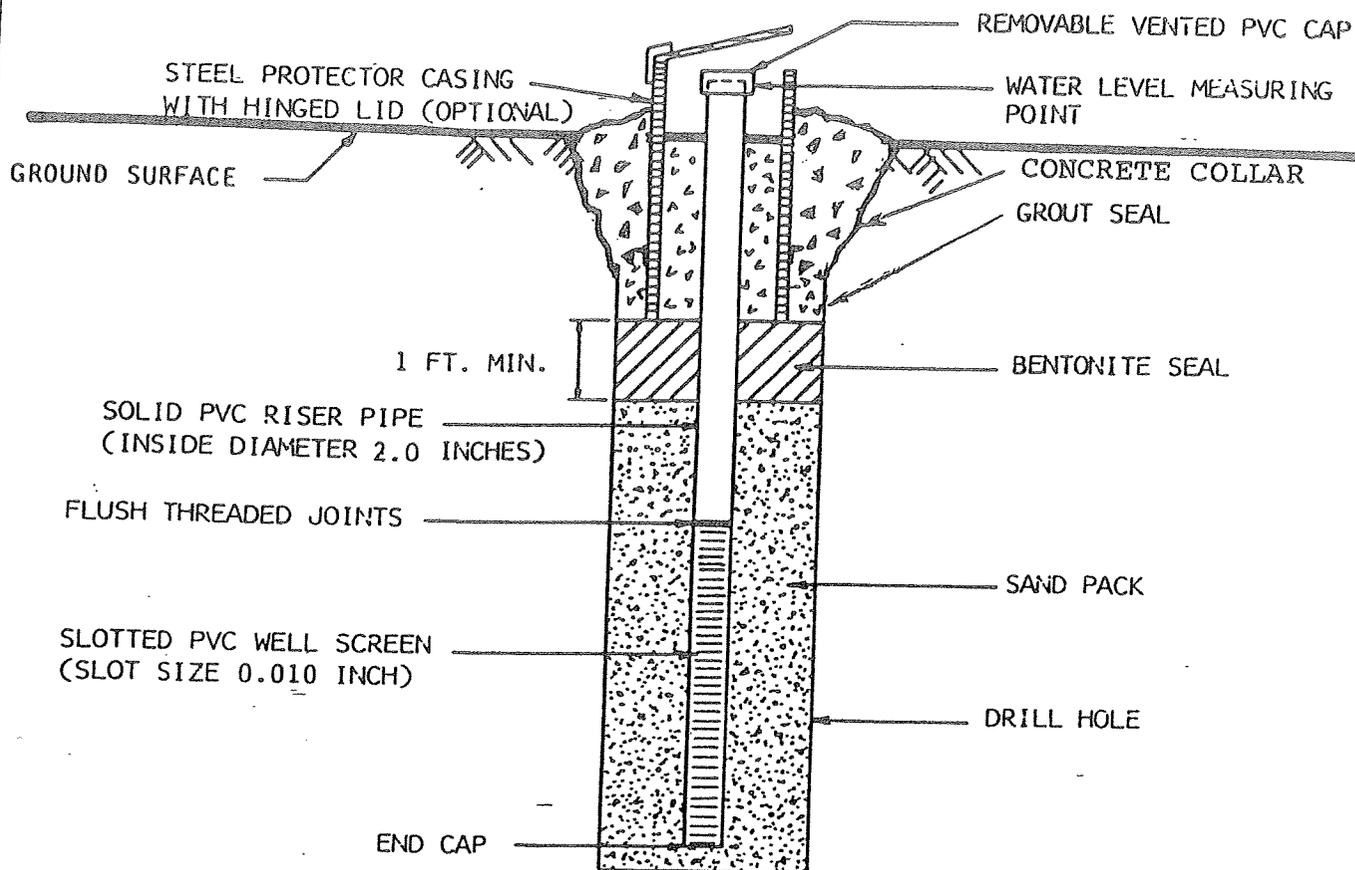
Champion Papers
Canton, North Carolina



LAW ENGINEERING TESTING
COMPANY

CHARLOTTE, NORTH CAROLINA

MONITORING WELL
INSTALLATION RECORD
MW-12



TYPICAL DIAGRAM OF MONITORING WELLS
(NOT TO SCALE)

MONITORING WELL INSTALLATION DETAILS

WELL NUMBER	MW-5A	MW-7A	MW-13		
GROUND ELEVATION (FT.)	---	---	---		
GROUND WATER ELEVATION (FT.) MEASURED ON:	---	---	---		
TOTAL DEPTH OF WELL BELOW GROUND SURFACE (FT.)	42.0	23.5	34.0		
MEASURING POINT ELEVATION (FT.)	---	---	---		
SCREEN LENGTH (FT.)	10.0	10.0	10.0		
SOLID RISER LENGTH BELOW GROUND SURFACE (FT.)	32.0	13.5	24.0		
PVC HEIGHT ABOVE GROUND (FT.)	2.5	2.5	2.5		
THICKNESS OF BENTONITE SEAL (FT.)	1.1	1.3	1.5		
THICKNESS OF CEMENT SEAL (FT.)	28.3	9.5	19.6		

NOTES:

Champion International
Canton Landfill
Haywood County, N.C.



LAW ENGINEERING

MONITORING WELL
INSTALLATION DETAILS

JOB NO. AV-1834

FIGURE 3

DEPTH
FT.

DESCRIPTI

● PENETRATION-BLOWS PER FT.

0.0

0 10 20 30 40 60 80 100

Stiff red brown clayey micaceous
fine to coarse sandy SILT with
gravel and roots - Fill

5.5

Stiff tan brown clayey fine to
medium sandy SILT - Possible
Residuum or Fill

9.0

Rock seam 8.5 to 9.0 feet

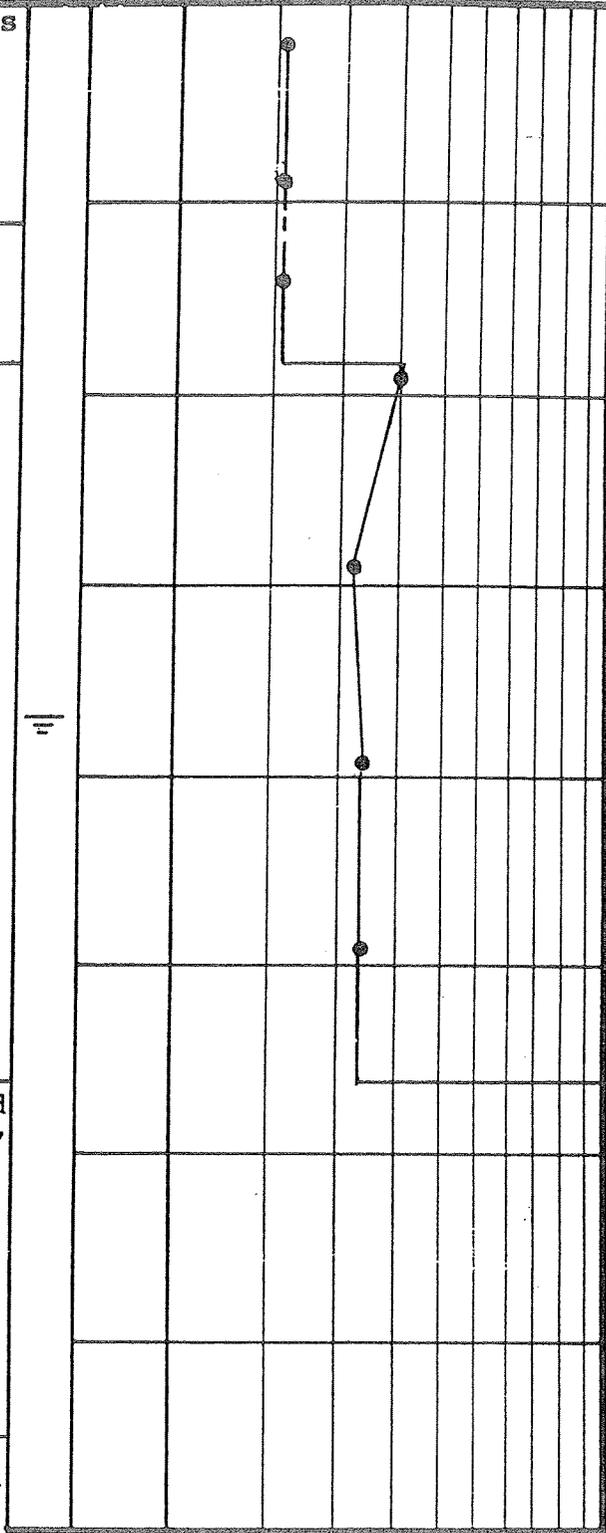
Very stiff gray brown and tan
micaceous fine to medium and
fine to coarse sandy SILT with
rock fragments - Residuum

28.0

Partially weathered rock sampled
as tan gray fine to medium sandy
SILT

37.5

Boring terminated at 37.5 feet
Monitoring well set to 34.0 feet
(see Figure 3 for details)
Ground water measured at 18.3
feet after 24 hours



50
2"
50
2"

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

PENETRATION 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

WATER TABLE, 24 HR.

WATER TABLE, 1 HR.

50 % ROCK CORE RECOVERY

LOSS OF DRILLING WATER

TEST BORING RECORD

BORING NO. MW-13
DATE DRILLED 10-28-87
JOB NO. AV-1834

PAGE 1 OF 1

LAW ENGINEERING TESTING COMPANY

JOB NAME CHAMPION NO. 6 LANDFILL

JOB NUMBER 2410446501

WELL NUMBER MW-14

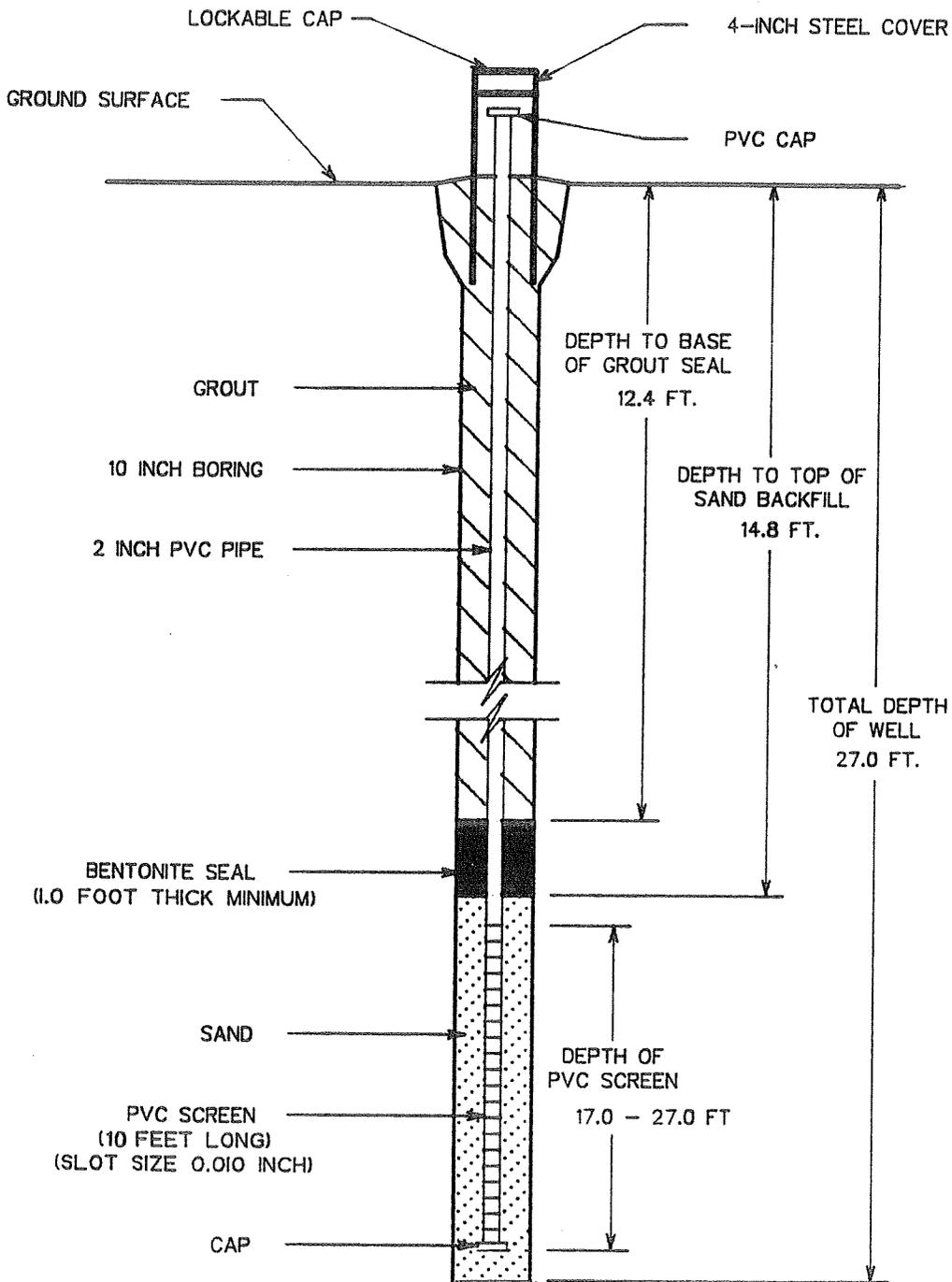
GROUND SURFACE ELEVATION 2650 FT. (MSL)

LOCATION SEE ATTACHED LOCATION MAP

MEASURING POINT ELEVATION _____

INSTALLATION DATE 1/24/92

LATITUDE _____ LONGITUDE _____



LAW ENGINEERING
GREENVILLE, SOUTH CAROLINA

MONITORING WELL
INSTALLATION RECORD
CHAMPION LANDFILL NO. 6A
CANTON, SOUTH CAROLINA

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	PENETRATION - BLOWS/FOOT											
			0	10	20	30	40	60	80	100				
0.0														
0.5	Grass and topsoil. Stiff moist light brown fine to medium sandy micaceous SILT - Residuum.													
7.0	Stiff moist white to gray medium to coarse sandy micaceous SILT.													
12.0	Firm wet light to medium brown fine to medium sandy micaceous SILT with relic foliation.													
17.0	Firm wet light to medium brown micaceous silty medium to coarse SAND with relic structure.													
22.0	Hard wet brown to black minor fine sand very micaceous SILT with relic foliation.													
27.0	Boring terminated at 27.0 feet. Auger refusal at 27.0 feet. Ground water encountered at 10.43 feet at time of boring. Monitoring well installed to 27.0 feet on January 24, 1992.													

REMARKS:

TEST BORING RECORD

BORING NUMBER MW-14
DATE DRILLED January 24, 1992
PROJECT NUMBER 2410446501
PROJECT CHAMPION #6A LANDFILL
PAGE 1 OF 1

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

JOB NAME CHAMPION NO. 6 LANDFILL

JOB NUMBER 2410446501

WELL NUMBER MW-15

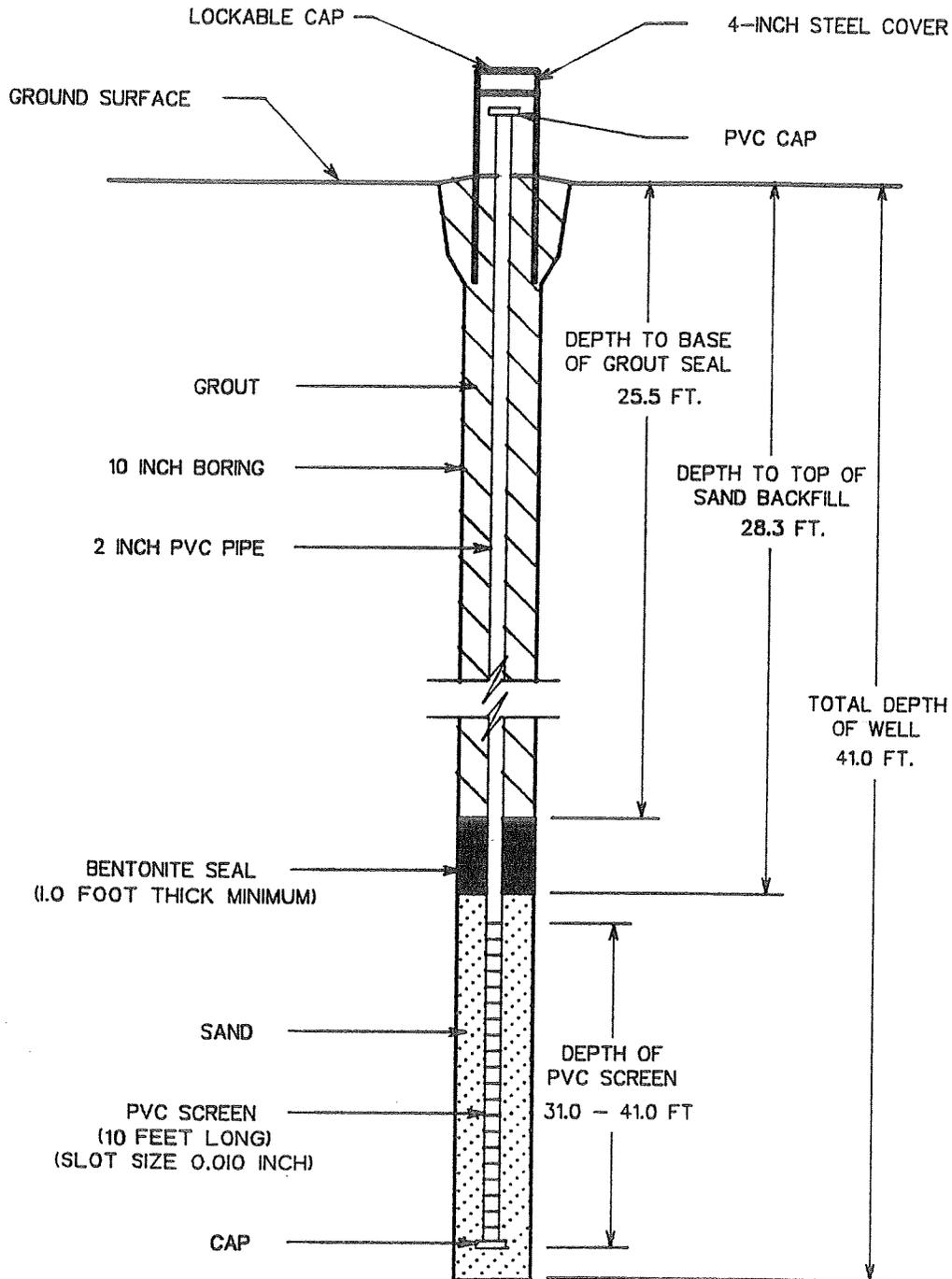
GROUND SURFACE ELEVATION 2610 FT. (MSL)

LOCATION SEE ATTACHED LOCATION MAP

MEASURING POINT ELEVATION _____

INSTALLATION DATE 1/27/92

LATITUDE _____ LONGITUDE _____



LAW ENGINEERING
GREENVILLE, SOUTH CAROLINA

MONITORING WELL
INSTALLATION RECORD
CHAMPION LANDFILL NO. 6A
CANTON, SOUTH CAROLINA

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	PENETRATION - BLOWS/FOOT																	
			0	10	20	30	40	60	80	100										
0.0	Drilling platform of fill soil.																			
8.0	Very stiff moist light to medium brown fine sandy very micaceous SILT - Residuum.				17															
11.0	Very stiff moist gray to brown minor fine sandy very micaceous SILT with relic foliation.				21															
17.0	Very stiff moist gray very micaceous SILT with relic foliation.				23															
22.0	Very stiff wet gray very micaceous SILT with minor white clayey inclusions.				18															
27.0	Very stiff wet dark gray to dark brown fine sandy very micaceous SILT with relic foliation.				25															
33.0	Very stiff wet dark gray very micaceous SILT with minor white clayey layering.				26															
38.0	Very hard wet dark gray medium to coarse sandy micaceous SILT.				50/5"															
40.0	Boring terminated at 40.0 feet. Auger refusal at 40.0 feet. Monitoring well installed to 41.0 feet on January 27, 1992. No ground water encountered at time of boring.																			

REMARKS:

TEST BORING RECORD	
BORING NUMBER	MW-15
DATE DRILLED	January 24, 1992
PROJECT NUMBER	2410446501
PROJECT	CHAMPION #6A LANDFILL
PAGE 1 OF 1	
 LAW ENGINEERING	

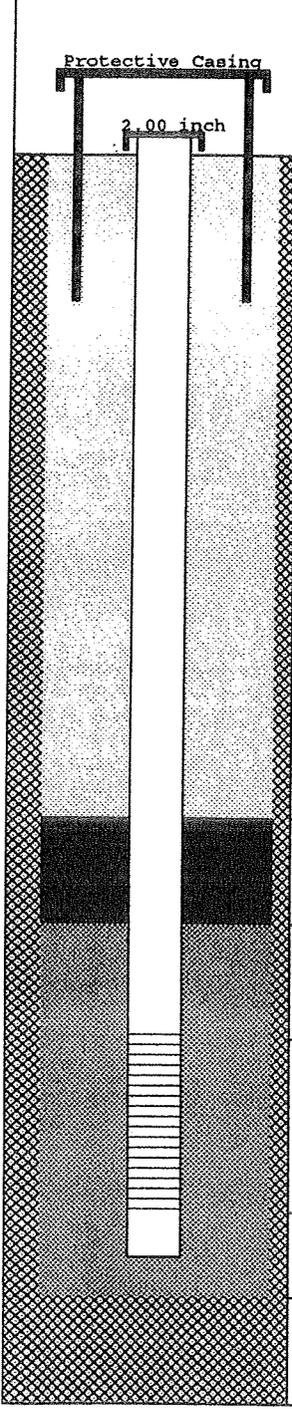
SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

Well Completion Summary

Roy F. WESTON, Inc.

CLIENT	CHAMPION	DRILLING FIRM	GROUNDWATER PROTECTION INC.
SITE NAME	CHAMPION/LF-6	INSPECTOR	R.WILLIS

WELL ID	MW-16S	WATER LEVELS
START DATE	01/24/96	
COMPLETION DATE	01/24/96	

	DEPTH		ELEV.	DRILLING SUMMARY	
	Protective Casing 2.00 inch	2.00	TC	2.00	Driller
	0.00	GS	0.00	Drilling Fluid	NONE
				Well Type	SINGLE CASSED SCREENED
WELL DESIGN CONSTRUCTION					
				Casing #1 Diameter:	2.00 inch Interval: 0.00 to 58.00 ft.
				Type	: PVC SCH 40
				Stick Up Inner Casing:	2.00 ft. Protective Casing: 3.00 ft.
				Casing Grout:	CEMT/BENT Interval: 0.00 to 54.00 ft.
				Seal Type:	BENTONITE Interval: 54.00 to 56.00 ft.
				Sand Pack Type:	#1 SAND Interval: 56.00 to 68.00 ft.
				Grain Size:	UNIFORM Median Diameter:
				Screen Diameter:	2.00 Interval: 58.00 to 68.00 ft.
				Type	: PVC Slots: 0.010 inches
54.00	BN		-54.00	Silt Trap Interval:	0.00 to 0.00 ft.
56.00	SP		-56.00	Backfill Type:	Interval: 0.00 to 0.00 ft.
58.00	SC		-58.00		
68.00	BS		-68.00		
68.00	TD		0.00		
COMMENTS					
				TC = Top of Casing	SP = Top Sand Pack
				GS = Ground Surface	SC = Top Screen
				BN = Top Seal	BS = Bottom Screen
				TD = Total Depth	
					 = Grout
					 = Seal
					 = Sand Pack
					 = Formation
Additional Comments:					

NOTE: Well Diagram not to Scale

Elevations are feet above mean sea level

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 68.00
SITE NAME : CHAMPION/LF-6	LOGGER : R.WILLIS
BORING ID : MW-16S	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPEEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/24/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 01/24/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-1	1			Interval Not Sampled						AUGERED INTERVAL.
-2	2									
-3	3									
-4	4			Sandy silt, ML	REDDISH BROWN	LSE	MST			
-5	5									
-6	6			Interval Not Sampled						AUGERED INTERVAL.
-7	7									
-8	8									
-9	9									
-10	10									
-11	11									
-12	12									
-13	13									
-14	14									
-15	15									
-16	16									
-17	17									
-18	18									
-19	19									
-20	20			Sandy silt, ML	RED	SFT	MST			

Borehole Log

Roy F. WESTON, Inc.

PROJECT :	CHAMPION	TOTAL DEPTH :	68.00
SITE NAME :	CHAMPION/LF-6	LOGGER :	R. WILLIS
BORING ID :	MW-16S	DRILLING COMPANY :	GROUNDWATER PROTECTION INC.
NORTHING :	0.0000 estimated	DRILLING RIG :	SPEEDSTAR 300
EASTING :	0.0000 estimated	DATE STARTED :	01/24/96
ELEVATION :	0.000 estimated	DATE COMPLETED :	01/24/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-21	21			Sandy silt, ML	RED	SPT	MST			
-22	22			Interval Not Sampled						AUGERED INTERVAL.
-23	23									
-24	24									
-25	25									
-26	26									
-27	27									
-28	28									
-29	29									
-30	30									
-31	31									
-32	32									
-33	33									
-34	34									
-35	35									
-36	36									
-37	37									
-38	38									
-39	39									
-40	40									

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 68.00
SITE NAME : CHAMPION/LF-6	LOGGER : R.WILLIS
BORING ID : MW-16S	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPEEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/24/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 01/24/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-41	41			Interval Not Sampled						AUGURED INTERVAL.
-42	42									
-43	43									
-44	44									
-45	45									
-46	46									
-47	47									
-48	48									
-49	49									
-50	50									
-51	51									
-52	52									
-53	53									
-54	54									
-55	55									
-56	56									
-57	57									
-58	58									
-59	59									
-60	60									

Borehole Log

Roy F. WESTON, Inc.

PROJECT :	CHAMPION	TOTAL DEPTH :	68.00
SITE NAME :	CHAMPION/LP-6	LOGGER :	R.WILLIS
BORING ID :	MW-168	DRILLING COMPANY :	GROUNDWATER PROTECTION INC.
NORTHING :	0.0000 estimated	DRILLING RIG :	SPEEDSTAR 300
EASTING :	0.0000 estimated	DATE STARTED :	01/24/96
ELEVATION :	0.000 estimated	DATE COMPLETED :	01/24/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-61	61			Interval Not Sampled						AUGERED INTERVAL.
-62	62									
-63	63									
-64	64			Sandy elastic silt, MH	REDDISH BROWN	NA	WET			STARTING TO SHOW MOISTURE TD AT 68 FT.BGS.
-65	65									
-66	66									
-67	67									
-68	68									
-69	69									
-70	70									
-71	71									
-72	72									
-73	73									
-74	74									
-75	75									
-76	76									
-77	77									
-78	78									
-79	79									
-80	80									

Well Completion Summary

Roy F. WESTON, Inc.

CLIENT	CHAMPION	DRILLING FIRM	GROUNDWATER PROTECTION INC.
SITE NAME	CHAMPION/LP-6	INSPECTOR	B. MACKAY
WELL ID	MW-16D	WATER LEVELS	
START DATE	01/23/96		
COMPLETION DATE	01/24/96		

DEPTH	TC	ELEV.	DRILLING SUMMARY	
			0.00	TC
0.00	GS	0.00	Drilling Fluid	AIR
			Well Type	SINGLE CASED SCREENED

WELL DESIGN CONSTRUCTION		
Casing #1 Diameter:	4.00 inch	Interval: 0.00 to 99.00 ft.
Type	: PVC SCH 40	
Stick Up Inner Casing:	0.00 ft.	Protective Casing: 0.00 ft.
Casing Grout:	CBMT/BENT	Interval: 0.00 to 95.00 ft.
Seal Type:	BENTONITE MED. CHIPS	Interval: 95.00 to 97.00 ft.
Sand Pack Type:	#2 SAND	Interval: 97.00 to 109.50 ft.
Grain Size:	UNIFORM	Median Diameter:
Screen Diameter:	4.00	Interval: 99.00 to 109.50 ft.
Type	: PVC	Slots: 0.010 inches
Silt Trap Interval:	0.00 to 0.00 ft.	
Backfill Type:		Interval: 0.00 to 0.00 ft.

DEPTH		ELEV.
95.00	BN	-95.00
97.00	SP	-97.00
99.00	SC	-99.00
109.50	BS	-109.50
109.50	TD	0.00

COMMENTS		
TC = Top of Casing	SP = Top Sand Pack	[Symbol] = Grout
GS = Ground Surface	SC = Top Screen	[Symbol] = Seal
BN = Top Seal	BS = Bottom Screen	[Symbol] = Sand Pack
TD = Total Depth		[Symbol] = Formation

Additional Comments:

NOTE: Well Diagram not to Scale

Elevations are feet above mean sea level

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 109.50
SITE NAME : CHAMPION/LF-6	LOGGER : E. MACKKEY/R. WILLIS
BORING ID : MW-16D	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPEEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/23/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 01/24/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-1	1		75	Sandy silt, ML	REDDISH BROWN	SFT	MST	6 12 12 12		
				No Sample Recovered						
-2	2		50	Sandy silt, ML	REDDISH BROWN	SFT	MST	10 12 13 15		
				No Sample Recovered						
-3	3									
-4	4		70	Sandy silt, ML	YELLOWISH RED	SFT	MST	132 14 16 20		
				No Sample Recovered						
-5	5									
-6	6		70	Sandy elastic silt, MH	RED	FRM	MST	42 10 12 13		TOP 6" WAS OLD ROADWAY WITH GRAVEL, SOIL BELOW WELL COMPACTED.
				No Sample Recovered						
-7	7									
-8	8		95	Sandy silt, ML	YELLOWISH RED	SFT	MST	7 13 20 27		SLIGHTLY MICACEOUS.
				No Sample Recovered						
-9	9									
-10	10		90	Sandy silt, ML	STRONG BROWN	SFT	MST	9 16 16 20		IRON STAINING, LARGE MICA FLAKES PRESENT.
				No Sample Recovered						
-11	11									
-12	12		95	Sandy silt, ML	STRONG BROWN	FRM	MST	8 8 9 12		
				No Sample Recovered						
-13	13									
-14	14		95	Sandy silt, ML	BROWN	FRM	MST	12 15 17 22		SOME SAPROLITIC CHARACTERISTICS PRESENT.
				No Sample Recovered						
-15	15									
-16	16		80	Sandy elastic silt, MH	RED	STF	MST	12 32 18 21		CLAY CONTENT INCREASES WITH DEPTH.
				No Sample Recovered						
-17	17									
-18	18		75	Sandy elastic silt, MH	RED	FRM	MST	9 16 19 19		
				No Sample Recovered						
-19	19									
-20	20		70	Sandy elastic silt, MH	RED	FRM	MST	10 19 22 27		

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 109.50
SITE NAME : CHAMPION/LP-6	LOGGER : E. MACKEY/R. WILLIS
BORING ID : MW-16D	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPEEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/23/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 01/24/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-21	21			Sandy elastic silt, MH	RED	FRM	MST			
				Sandy silt, ML	DARK BROWN	SFT	MST			IRON STAINING.
				No Sample Recovered						
-22	22		75	Sandy silt, ML	BROWN	SFT	MST	6		
								12		
								14		
								20		
				No Sample Recovered						
-24	24		75	Sandy silt, ML	BROWN	FRM	MST	10		MICACEOUS.
								18		
								19		
								21		
				No Sample Recovered						
-26	26		65	Silty sand, SM	LT. YELLOW BROWN	FRM	MST	11		SAPROLITIC SOIL.
								19		
								20		
								22		
				No Sample Recovered						
-28	28		70	Sandy silt, ML	LT. YELLOW BROWN	FRM	MST	15		FOLIATION AND BANDING PRESENT, SAPROLITIC SOIL.
								17		
								18		
								22		
				No Sample Recovered						
-30	30		65	Sandy silt, ML	LT. YELLOW BROWN	FRM	MST	11		BANDING AND FOLIATION PRESENT.
								18		
								19		
								21		
				No Sample Recovered						
-32	32		75	Sandy silt, ML	OLIVE YELLOW	FRM	MST	11		SAPROLITIC SOIL.
								15		
								19		
								25		
				No Sample Recovered						
-34	34		70	Sandy silt, ML	OLIVE YELLOW	FRM	MST	15		
								18		
								19		
								25		
				No Sample Recovered						
-36	36		100	Sandy silt, ML	DK. YELLOW BROWN	SFT	MST	12		
								32		
								39		
								37		
				No Sample Recovered						
-38	38		65	Sandy silt, ML	BROWN	LSE	MST	28		
								22		
								34		
								39		
				No Sample Recovered						
-40	40		100	Sandy silt, ML	BROWN	SFT	MST	19		SPOON REFUSAL AT 40.7'.
								50		
								0		
								0		

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 109.50
SITE NAME : CHAMPION/LF-6	LOGGER : E. MACKAY/R. WILLIS
BORING ID : MW-16D	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPEEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/23/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 01/24/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-41	41			Sandy silt, ML	BROWN	SFT	MST			SPOON REFUSAL AT 40.7'. AUGURED INTERVAL.
				Interval Not Sampled						
-42	42									
-43	43			Sandy silt, ML	BROWN	LSE	WBT			AUGER REFUSAL AT 72'. SATURATION AT 64'.
-44	44									
-45	45									
-46	46									
-47	47									
-48	48									
-49	49									
-50	50									
-51	51									
-52	52									
-53	53									
-54	54									
-55	55									
-56	56									
-57	57									
-58	58									
-59	59									
-60	60									

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 109.50
SITE NAME : CHAMPION/LF-6	LOGGER : B.MACKEY/R.WILLIS
BORING ID : MW-16D	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPEEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/23/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 01/24/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-61	61			Sandy silt, ML	BROWN	LSR	WET			AUGER REFUSAL AT 72'. SATURATION AT 64'.
-62	62									
-63	63									
-64	64									
-65	65									
-66	66									
-67	67									
-68	68									
-69	69									
-70	70									
-71	71									
-72	72			Gneiss						BIOTITE GNEISS.WATER BEARING FRACTURE 105'- 106'.TD AT 109.5 FT.BGS.
-73	73									
-74	74									
-75	75									
-76	76									
-77	77									
-78	78									
-79	79									
-80	80									

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 109.50
SITE NAME : CHAMPION/LP-6	LOGGER : E. MACKAY/R. WILLIS
BORING ID : MW-16D	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPEEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/23/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 01/24/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-81	81			Gneiss						BIOTITE GNEISS. WATER BEARING FRACTURE 105'-106'. TD AT 109.5 FT. BGS.
-82	82									
-83	83									
-84	84									
-85	85									
-86	86									
-87	87									
-88	88									
-89	89									
-90	90									
-91	91									
-92	92									
-93	93									
-94	94									
-95	95									
-96	96									
-97	97									
-98	98									
-99	99									
-100	100									

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 109.50
SITE NAME : CHAMPION/LF-6	LOGGER : B.MACKAY/R.WILLIS
BORING ID : MW-16D	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPEEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/23/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 01/24/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-101	101			Gneiss						BIOTITE GNEISS. WATER BEARING FRACTURE 105'-106'. TD AT 109.5 FT. BGS.
-102	102									
-103	103									
-104	104									
-105	105									
-106	106									
-107	107									
-108	108									
-109	109									
-110	110									
-111	111									
-112	112									
-113	113									
-114	114									
-115	115									
-116	116									
-117	117									
-118	118									
-119	119									
-120	120									

Well Completion Summary

Roy F. WESTON, Inc.

CLIENT CHAMPION
 SITE NAME CHAMPION/LF-6
 DRILLING FIRM GROUNDWATER PROTECTION INC.
 INSPECTOR E. MACKEY

WELL ID MW-17
 START DATE 02/01/96
 COMPLETION DATE 02/01/96
 WATER LEVELS
 38.06 FT (TOC) ON 01/31/96

DEPTH	TC	ELEV.	DRILLING SUMMARY	
			Driller	M. SEILER
0.00	TC	0.00	Drilling Fluid	AIR
0.00	GS	0.00	Well Type	SINGLE CASED SCREENED
WELL DESIGN CONSTRUCTION				
Casing #1 Diameter: 4.00 inch Interval: 0.00 to 43.00 ft. Type : PVC SCH 40				
Stick Up Inner Casing: 0.00 ft. Protective Casing: 0.00 ft.				
Casing Grout: CBMT/BENT Interval: 0.00 to 38.00 ft.				
Seal Type: BENTONITE MED.CHIPS Interval: 38.00 to 41.00 ft.				
Sand Pack Type: #1 SAND Interval: 41.00 to 63.00 ft. Grain Size: UNIFORM Median Diameter:				
Screen Diameter: 4.00 Interval: 43.00 to 63.00 ft. Type : PVC Slots: 0.010 inches				
38.00	BN	-38.00	Silt Trap Interval:	0.00 to 0.00 ft.
41.00	SP	-41.00	Backfill Type:	Interval: 0.00 to 0.00 ft.
43.00	SC	-43.00		
63.00	BS	-63.00		
63.00	TD	0.00		
COMMENTS				
TC = Top of Casing		SP = Top Sand Pack		 = Grout
GS = Ground Surface		SC = Top Screen		 = Seal
BN = Top Seal		BS = Bottom Screen		 = Sand Pack
		TD = Total Depth		 = Formation
Additional Comments:				

NOTE: Well Diagram not to Scale

Elevations are feet above mean sea level

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION
 SITE NAME : CHAMPION/LP-6
 BORING ID : MW-17
 NORTHING : 0.0000 estimated
 EASTING : 0.0000 estimated
 ELEVATION : 0.000 estimated

TOTAL DEPTH : 63.00
 LOGGER : B.MACKKEY
 DRILLING COMPANY : GROUNDWATER PROTECTION INC.
 DRILLING RIG : SPREDSTAR 300
 DATE STARTED : 01/25/96
 DATE COMPLETED : 02/01/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-1	1		75	Sandy silt, ML	YELLOWISH RED	FRM	MST	3 9 10 12		
-2	2			No Sample Recovered						
-3	3		65	Sandy elastic silt, MH	LIGHT BROWN	FRM	MST	12 18 32 35		FILL VERY MICACEOUS, MORE CLAY.
-4	4			No Sample Recovered						
-5	5		60	Sandy silt, ML	RED	FRM	MST	14 38 33 34		HIGHLY MICACEOUS SAPROLITIC SOIL.
-6	6			No Sample Recovered						
-7	7		65	Sandy silt, ML	DK. RED BROWN	FRM	MST	8 18 33 49		SAPROLITE, BANDING AND FOLIATION PRESENT, MICACEOUS.
-8	8			No Sample Recovered						
-9	9		100	Silty sand, SM	DARK BROWN	FRM	MST	18 98 50 0		SAPROLITE.
-10	10			Interval Not Sampled						AUGERED INTERVAL.
-11	11			No Sample Recovered						
-11	11			Interval Not Sampled				50 0 0 0		SPOON REFUSAL AT 10.2'. SAPROLITE, WELL CEMENTED. AUGERED INTERVAL. SAPROLITE.
-12	12									
-13	13									
-14	14									
-15	15									
-16	16									
-17	17									
-18	18									
-19	19									
-20	20									

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 63.00
SITE NAME : CHAMPION/LF-6	LOGGER : R.MACKBY
BORING ID : MW-17	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPEEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/25/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 02/01/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-21	21			Interval Not Sampled						AUGERED INTERVAL. SAPROLITE.
-22	22									
-23	23									
-24	24									
-25	25									
-26	26									
-27	27									
-28	28									
-29	29									
-30	30									
-31	31									
-32	32									
-33	33									
-34	34									
-35	35									
-36	36									
-37	37									
-38	38									
-39	39			Gneiss		MOD				BIOTITE GNEISS. FRACTURE @ 58-59' TD AT 63 FT. BGS.
-40	40									

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 63.00
SITE NAME : CHAMPION/LF-6	LOGGER : E. MACKKY
BORING ID : MW-17	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPEEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/25/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 02/01/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-41	41			Gneiss		MOD				BIOTITE GNEISS. FRACTURE @ 58-59' TD AT 63 FT. BGS.
-42	42									
-43	43									
-44	44									
-45	45									
-46	46									
-47	47									
-48	48									
-49	49									
-50	50									
-51	51									
-52	52									
-53	53									
-54	54									
-55	55									
-56	56									
-57	57									
-58	58									
-59	59									
-60	60									

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 63.00
SITE NAME : CHAMPION/LF-6	LOGGER : E. MACKAY
BORING ID : MW-17	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPEEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/25/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 02/01/96

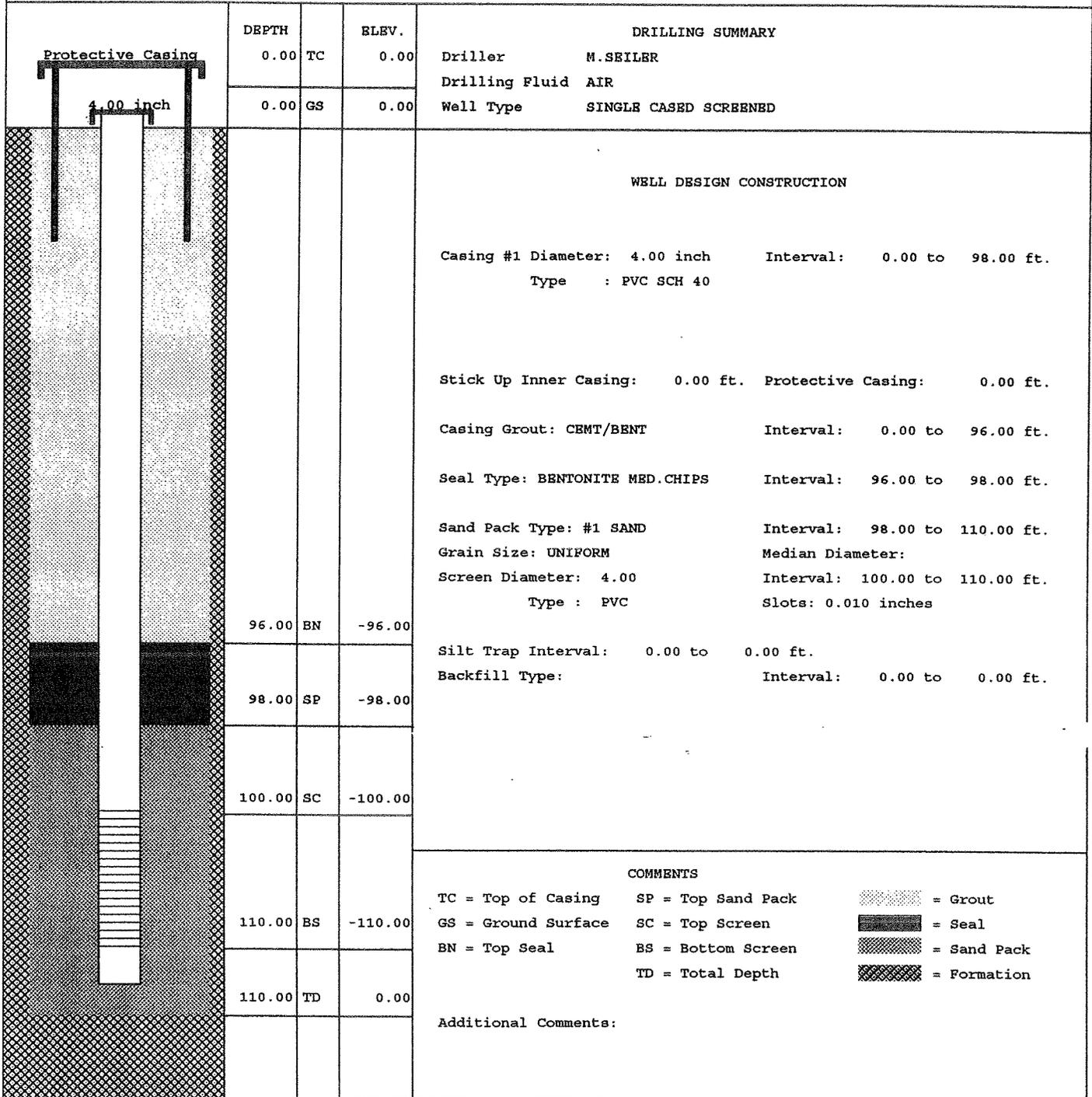
ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-61	61			Gneiss		MOD				BIOTITE GNEISS FRACTURE @ 58-59' TD AT 63 FT. BGS.
-62	62									
-63	63									
-64	64									
-65	65									
-66	66									
-67	67									
-68	68									
-69	69									
-70	70									
-71	71									
-72	72									
-73	73									
-74	74									
-75	75									
-76	76									
-77	77									
-78	78									
-79	79									
-80	80									

Well Completion Summary

Roy F. WESTON, Inc.

CLIENT CHAMPION DRILLING FIRM GROUNDWATER PROTECTION INC.
 SITE NAME CHAMPION/LP-6 INSPECTOR E. MACKBY

WELL ID MW-18 WATER LEVELS
 START DATE 01/22/96
 COMPLETION DATE 01/22/96



NOTE: Well Diagram not to Scale

Elevations are feet above mean sea level

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 110.00
SITE NAME : CHAMPION/LP-6	LOGGER : B. MACKKEY
BORING ID : MW-18	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPHEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/19/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 01/22/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-1	1		60	Elastic silt with sand, MH	RED	FRM	MST	3 4 4 3		
				No Sample Recovered						
-2	2		60	Sandy silt, ML	RED	FRM	MST	2 4 4 6		SLIGHTLY MICACEOUS.
-3	3			No Sample Recovered						
-4	4		70	Sandy silt, ML	RED	FRM	MST	8 9 12 13		SLIGHTLY MICACEOUS, LESS CLAY.
-5	5			No Sample Recovered						
-6	6		70	Silty sand, SM	REDDISH YELLOW	FRM	MST	23 20 25 30		SAPROLITIC SOIL.
-7	7			No Sample Recovered						
-8	8		85	Silty sand, SM	YELLOWISH RED	FRM	MST	23 50 50 52		SAPROLITIC SOIL.
-9	9			No Sample Recovered						
-10	10		60	Silty sand, SM	DARK BROWN	FRM	MST	16 30 32 33		SAPROLITIC SOIL, NO STRUCTURE OBSERVED.
-11	11			No Sample Recovered						
-12	12		65	Sandy silt, ML	RED	SPT	MST	9 14 14 14		SAME SAPROLITIC SOIL, LESS CEMENTED, SOME BANDING STRUCTURE VISIBLE.
-13	13			No Sample Recovered						
-14	14		75	Silty sand, SM	RED	FRM	MST	12 13 27 31		WELL FOLIATED, CEMENTED GNEISSIC BANDING.
-15	15			No Sample Recovered						
-16	16		40	Silty sand, SM	YELLOWISH RED	FRM	MST	20 24 25 25		
-17	17			No Sample Recovered						
-18	18		85	Silty sand, SM	REDDISH YELLOW	FRM	MST	13 40 52 33		SAPROLITIC SOIL, SOME FOLIATION.
-19	19			No Sample Recovered						
-20	20		65	Silty sand, SM	LIGHT BROWN	FRM	MST	18 21 28 29		WELL FOLIATED, BETTER CEMENTATION NEAR BOTTOM.

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 110.00
SITE NAME : CHAMPION/LF-6	LOGGER : E.MACKKEY
BORING ID : MW-18	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPEEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/19/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 01/22/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-21	21			Silty sand, SM	LIGHT BROWN	FRM	MST			WELL FOLIATED, BETTER CEMENTATION NEAR BOTTOM.
				No Sample Recovered						
-22	22		58	Silty sand, SM	LIGHT BROWN	STF	MST	18		MORE CEMENTED AT BOTTOM. GNEISSIC SAPROLITE.
				No Sample Recovered				24		
-23	23							34		
				No Sample Recovered				50		
-24	24		70	Interval Not Sampled						AUGERED INTERVAL.
				Silty sand, SM	YELLOW	SFT	MST			LESS CEMENTED ZONE. SOME BANDING PRESENT.
-25	25							16		
				No Sample Recovered				19		
-26	26		75	Silty sand, SM	STRONG BROWN	FRM	MST	12		BANDED LAYERS W/CHANGING CEMENTATION.
								16		
-27	27							24		
				No Sample Recovered				28		
-28	28		75	Silty sand, SM	STRONG BROWN	FRM	MST	9		SAPROLITIC GNEISS.
								10		
-29	29							50		
				No Sample Recovered				78		
-30	30		83	Silty sand, SM	BROWN	FRM	WET	57		SAPROLITIC GNEISS.
				No Sample Recovered				50		
-31	31			Interval Not Sampled				0		AUGERED INTERVAL.
								0		
-32	32			Silty sand, SM	BROWN	FRM	WET			SPOON REFUSAL AT 32'. AUGER REFUSAL AT 33'.
-33	33			Silty sand, SM	BROWN	FRM	WET			SAPROLITE.
-34	34									
-35	35			Gneiss			MOD			BIOTITE GNEISS. TD AT 110 FT.BGS.
-36	36									
-37	37									
-38	38									
-39	39									
-40	40									

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 110.00
SITE NAME : CHAMPION/LF-6	LOGGER : E.MACKKEY
BORING ID : MW-18	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPEEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/19/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 01/22/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-41	41			Gneiss		MOD				BIOTITE GNEISS. TD AT 110 FT.BGS.
-42	42									
-43	43									
-44	44									
-45	45									
-46	46									
-47	47									
-48	48									
-49	49									
-50	50									
-51	51									
-52	52									
-53	53									
-54	54									
-55	55									
-56	56									
-57	57									
-58	58									
-59	59									
-60	60									

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 110.00
SITE NAME : CHAMPION/LF-6	LOGGER : E. MACKEY
BORING ID : MW-18	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPREDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/19/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 01/22/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-61	61			Gneiss		MOD				BIOTITE GNEISS. TD AT 110 FT.BGS.
-62	62									
-63	63									
-64	64									
-65	65									
-66	66									
-67	67									
-68	68									
-69	69									
-70	70									
-71	71									
-72	72									
-73	73									
-74	74									
-75	75									
-76	76									
-77	77									
-78	78									
-79	79									
-80	80									

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 110.00
SITE NAME : CHAMPION/LF-6	LOGGER : E. MACKBY
BORING ID : MW-18	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPEEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/19/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 01/22/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-81	81			Gneiss		MOD				BIOTITE GNEISS. TD AT 110 FT. BGS.
-82	82									
-83	83									
-84	84									
-85	85									
-86	86									
-87	87									
-88	88									
-89	89									
-90	90									
-91	91									
-92	92									
-93	93									
-94	94									
-95	95									
-96	96									
-97	97									
-98	98									
-99	99									
-100	100									

Borehole Log

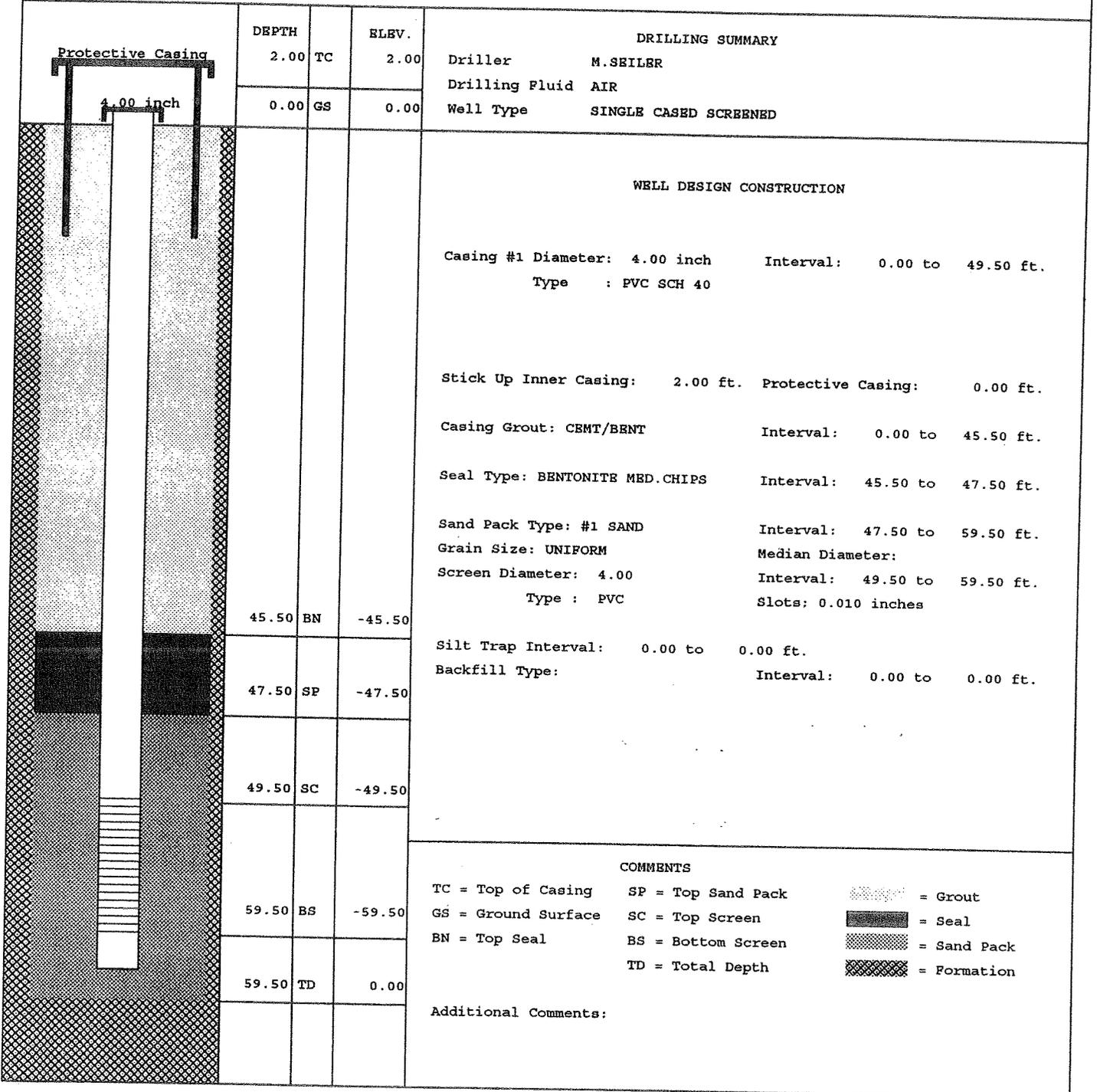
Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 110.00
SITE NAME : CHAMPION/LF-6	LOGGER : E. MACKEY
BORING ID : MW-18	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPEEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/19/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 01/22/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-101	101			Gneiss		MOD				BIOTITE GNEISS. TD AT 110 FT.BGS.
-102	102									
-103	103									
-104	104									
-105	105									
-106	106									
-107	107									
-108	108									
-109	109									
-110	110									
-111	111									
-112	112									
-113	113									
-114	114									
-115	115									
-116	116									
-117	117									
-118	118									
-119	119									
-120	120									

CLIENT CHAMPION
 SITE NAME CHAMPION/LF-6
 DRILLING FIRM GROUNDWATER PROTECTION INC.
 INSPECTOR E. MACKKEY

WELL ID MW-20
 START DATE 01/18/96
 COMPLETION DATE 01/18/96
 WATER LEVELS
 46.04 FT (TOC) ON 01/18/96



NOTE: Well Diagram not to Scale

Elevations are feet above mean sea level

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 59.50
SITE NAME : CHAMPION/LF-6	LOGGER : E. MACKRY
BORING ID : MW-20	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPEEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/18/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 01/18/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-1	1		60	Sandy silt, ML	RED	SPT	MST	4 3 2		
				No Sample Recovered						
-2	2		60	Elastic silt with sand, MH	DK. RED BROWN	FRM	MST	4 5 5		SLIGHTLY MICACEOUS. MORE CLAY.
				No Sample Recovered						
-3	3		65	Sandy silt, ML	DUSKY RED	FRM	MST	5 13 13 21		IRON STAINING.
				No Sample Recovered						
-4	4		100	Silty sand with gravel, SM	DARK RED	FRM	MST	25 56 50 0		SLIGHTLY MICACEOUS. IRON STAINING.
				Interval Not Sampled						AUGERED INTERVAL.
-5	5		60	Silty sand, SM	DARK BROWN	FRM	MST	20 40 30 22		VERY MICACEOUS SAPROLITE WITH YELLOWISH WHITE BANDING.
				No Sample Recovered						
-6	6		50	Silty sand, SM	DARK BROWN	FRM	MST	7 10 10 14		
				No Sample Recovered						
-7	7		55	Silty sand, SM	DARK BROWN	FRM	MST	5 9 13 20		SAME SAPROLITE. BIOTITE GNEISS.
				No Sample Recovered						
-8	8		100	Silty sand, SM	DARK BROWN	FRM	MST	10 14 19 23		SAPROLITIC BIOTITE GNEISS
				No Sample Recovered						
-9	9		65	Silty sand, SM	DK. YELLOW BROWN	FRM	MST	11 24 26 16		SAPROLITIC BIOTITE GNEISS
				No Sample Recovered						
-10	10		100	Silty sand, SM	DK. YELLOW BROWN	FRM	MST	20 42 50 0		SPOON REFUSAL AT 19.3'. SAPROLITIC BIOTITE GNEISS
				Interval Not Sampled						AUGERED INTERVAL.
				Interval Not Sampled						AUGERED INTERVAL. CUTTINGS INDICATE SAPROLITE. TEXTURE CHANGE AT 35'. STILL DRY.

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 59.50
SITE NAME : CHAMPION/LP-6	LOGGER : E.MACKBY
BORING ID : MW-20	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPEEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/18/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 01/18/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-21	21			Interval Not Sampled						AUGERED INTERVAL. CUTTINGS INDICATE SAPROLITE. TEXTURE CHANGE AT 35'. STILL DRY.
-22	22									
-23	23									
-24	24									
-25	25									
-26	26									
-27	27									
-28	28									
-29	29									
-30	30									
-31	31									
-32	32									
-33	33									
-34	34									
-35	35			Gneiss	WHITE	STR				FRACTURE AT 54-55'.
-36	36									
-37	37									
-38	38									
-39	39									
-40	40									

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 59.50
SITE NAME : CHAMPION/LF-6	LOGGER : E.MACKEY
BORING ID : MW-20	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPEEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/18/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 01/18/96

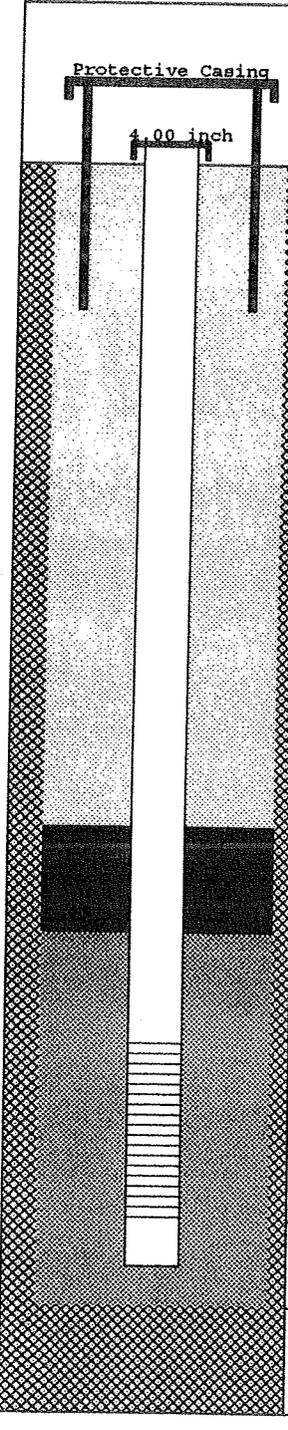
ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-41	41			Gneiss	WHITE	STR				FRACTURE AT 54-55'.
-42	42									
-43	43									
-44	44									
-45	45									
-46	46									
-47	47									
-48	48									
-49	49									
-50	50									
-51	51									
-52	52									
-53	53									
-54	54				Gneiss	WHITE	STR			
-55	55									
-56	56									
-57	57									
-58	58									
-59	59									
-60	60									

Well Completion Summary

Roy F. WESTON, Inc.

CLIENT	CHAMPION	DRILLING FIRM	GROUNDWATER PROTECTION INC.
SITE NAME	CHAMPION/LP-6	INSPECTOR	E.MACKBY

WELL ID	MW-21	WATER LEVELS
START DATE	01/18/96	
COMPLETION DATE	01/18/96	

	DEPTH		ELEV.	DRILLING SUMMARY													
	0.00	TC		0.00	Driller	M. SEILER											
0.00	GS		0.00	Drilling Fluid	AIR												
				Well Type	SINGLE CASED SCREENED												
WELL DESIGN CONSTRUCTION																	
				Casing #1 Diameter:	4.00 inch Interval: 0.00 to 16.00 ft. Type : PVC SCH 40												
				Stick Up Inner Casing:	0.00 ft. Protective Casing: 0.00 ft.												
				Casing Grout:	CEMT/BENT Interval: 0.00 to 12.00 ft.												
				Seal Type:	BENTONITE MED.CHIPS Interval: 12.00 to 14.00 ft.												
				Sand Pack Type:	#1 SAND Interval: 14.00 to 26.00 ft. Grain Size: UNIFORM Median Diameter:												
				Screen Diameter:	4.00 Interval: 16.00 to 26.00 ft. Type : PVC Slots: 0.010 inches												
12.00	BN		-12.00	Silt Trap Interval:	0.00 to 0.00 ft.												
14.00	SP		-14.00	Backfill Type:	Interval: 0.00 to 0.00 ft.												
16.00	SC		-16.00														
26.00	BS		-26.00														
26.00	TD		0.00														
<p style="text-align: center;">COMMENTS</p> <table border="0"> <tr> <td>TC = Top of Casing</td> <td>SP = Top Sand Pack</td> <td> = Grout</td> </tr> <tr> <td>GS = Ground Surface</td> <td>SC = Top Screen</td> <td> = Seal</td> </tr> <tr> <td>BN = Top Seal</td> <td>BS = Bottom Screen</td> <td> = Sand Pack</td> </tr> <tr> <td></td> <td>TD = Total Depth</td> <td> = Formation</td> </tr> </table> <p>Additional Comments:</p>						TC = Top of Casing	SP = Top Sand Pack	 = Grout	GS = Ground Surface	SC = Top Screen	 = Seal	BN = Top Seal	BS = Bottom Screen	 = Sand Pack		TD = Total Depth	 = Formation
TC = Top of Casing	SP = Top Sand Pack	 = Grout															
GS = Ground Surface	SC = Top Screen	 = Seal															
BN = Top Seal	BS = Bottom Screen	 = Sand Pack															
	TD = Total Depth	 = Formation															

NOTE: Well Diagram not to Scale

Elevations are feet above mean sea level

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 26.00
SITE NAME : CHAMPION/LF-6	LOGGER : E.MACKKEY
BORING ID : MW-21	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPEEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/18/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 01/18/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-1	1		70	Silty sand with gravel, SM	RED	LSE	WET	8 23 30 50		PROBABLE COBBLE ZONE AS DRILLING IS NEXT TO STREAM CHANNEL.
				No Sample Recovered						
-2	2		100	Silty sand with gravel, SM	RED	LSE	MST			AUGERED INTERVAL. COBBLE LAYER. RIG BOUNCING ON COBBLE.
				Interval Not Sampled				33		
-3	3			Interval Not Sampled				50		AUGERED INTERVAL.
								0		
								0		
-4	4		40	Silty gravel with sand, GM	DARK BROWN	SFT	WET	35		COBBLE LAYER WITH SOIL BETWEEN COBBLES.
				No Sample Recovered				22		
-5	5			Interval Not Sampled				30		
								35		
-6	6		66	Silty sand with gravel, SM	DARK BROWN	SFT	WET	47		COBBLE LAYER. SOME POCKETS OF MOIST-WET SOIL, BUT ALSO DRY-MOIST POCKETS. AUGER REFUSAL AT 7.5'.
				No Sample Recovered				35		
-7	7			Interval Not Sampled				13		
								50		
-8	8			Gneiss	WHITE	STR				DRILLED INTERVAL. BIOTITE GNEISS. FRACTURE AT 21-21.5'. GROUNDWATER AT 21'.
-9	9									
-10	10									
-11	11									
-12	12									
-13	13									
-14	14									
-15	15									
-16	16									
-17	17									
-18	18									
-19	19									
-20	20									

Borehole Log

Roy F. WESTON, Inc.

PROJECT : CHAMPION	TOTAL DEPTH : 26.00
SITE NAME : CHAMPION/LF-6	LOGGER : E.MACKEY
BORING ID : MW-21	DRILLING COMPANY : GROUNDWATER PROTECTION INC.
NORTHING : 0.0000 estimated	DRILLING RIG : SPEEDSTAR 300
EASTING : 0.0000 estimated	DATE STARTED : 01/18/96
ELEVATION : 0.000 estimated	DATE COMPLETED : 01/18/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
-21	21	[Hatched Pattern]		Gneiss	WHITE	STR				BIOTITE GNEISS FRACTURE AT 21-21.5' GROUNDWATER AT 21'. BIOTITE GNEISS. TD AT 26 FT. BGS.
-22	22			Gneiss	WHITE	STR				
-23	23									
-24	24									
-25	25									
-26	26									
-27	27									
-28	28									
-29	29									
-30	30									
-31	31									
-32	32									
-33	33									
-34	34									
-35	35									
-36	36									
-37	37									
-38	38									
-39	39									
-40	40									

APPENDIX D

FIRE OCCURRENCE NOTIFICATION FORM

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



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

NAME OF FACILITY: _____ PERMIT # _____

DATE AND TIME OF FIRE: _____ @ _____

HOW WAS THE FIRE REPORTED AND BY WHOM:

LIST ACTIONS TAKEN:

WHAT WAS THE CAUSE OF THE FIRE:

DESCRIBE AREA, TYPE, AND AMOUNT OF WASTE INVOLVED:

WHAT COULD HAVE BEEN DONE TO PREVENT THIS FIRE:

DESCRIBE PLAN OF ACTIONS TO PREVENT FUTURE INCIDENTS:

NAME: _____ TITLE: _____ DATE: _____

 THIS SECTION TO BE COMPLETED BY SOLID WASTE SECTION REGIONAL STAFF
 DATE RECEIVED _____
 List any factors not listed that might have contributed to the fire or that might prevent occurrence of future fires:

FOLLOW-UP REQUIRED:
 NO PHONE CALL SUBMITTAL MEETING RETURN VISIT BY: _____ (DATE)

ACTIONS TAKEN OR REQUIRED:
