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APPENDIX I

ADMINISTRATIVE AGREEMENT ON CONSENT

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

COUNTY OF ASHE IN RE: ASHE COUNTY SANITARY LANDFILL	)))	ADMINISTRATIVE AGREEMENT ON CONSENT DOCKET NUMBER 93-SW-02

I. Jurisdiction

This Administrative Agreement On Consent is entered pursuant to the North Carolina Solid Waste Management Act, N.C.G.S. 130A, Article 9, and Rules, codified at 15A NCAC 13B. William L. Meyer, Director of the Division of Solid Waste Management ("The Division"), has been delegated the authority to implement the Solid Waste Management Program under the Act and Rules.

II. Statement of Purpose

This Consent Agreement is entered for the limited purpose of investigating contamination of the ground water and surface water in the vicinity of the sanitary landfill owned and operated by the County of Ashe, North Carolina. This Agreement is entered without prejudice to any further study or remedial activity which may be necessary at this site.

III. Stipulation of Facts

Based upon information available at the effective date of this Consent Agreement, the following facts are stipulated for the purposes of this Consent Agreement:

A. The County of Ashe owns a sanitary landfill located off State Road 1558 approximately eight miles northeast of Jefferson.

B. Ashe County operated a landfill (open dump) at this general location prior to 1980. Ashe County has operated a sanitary landfill permitted to receive solid, non-hazardous waste for disposal under Solid Waste Permit No. 05-01 since 1980. The permit was amended in June, 1985, expanded and further amended in March, 1986, with an addendum for a lined expansion dated February, 1992.

C. Ground water monitoring analytical results first indicated the possibility of some contamination in the 1988 sampling. Subsequent sampling and analyses by the County,s sampling contractor and the State Solid Waste Section have confirmed the presence of a number of inorganic and organic chemical constituents that exceed the state ground water standards.

D. As of the effective date of this Consent Agreement, the nature and extent of contamination in the vicinity of the Ashe County Sanitary Landfill has not been clearly determined.

IV. Applicable Law

A. 15A NCAC 13B .0503(2)(d)(i) adopts by reference 15A NCAC 2L, Classifications And Water Quality Standards Applicable To The Groundwaters Of North Carolina.

B. 15A NCAC 13B .0503(2)(c)(i) states that "A (landfill) site shall not cause a discharge of pollutants into waters of the state that is in violation of the requirements of the National Pollutant Discharge Elimination System (NPDES), under Section 402 of the Clean Water Act, as amended". Rule 15A NCAC 13B .0503(2)(c)(iii) states

that "a site shall not cause non-point source pollution of waters of the state that violates assigned water quality standards".

C. 15A NCAC 13B .0601(a) states that "The Division shall require a solid waste management facility to provide such ground-water monitoring capability as the Division determines to be necessary to detect the effects of the facility on ground-water in the area".

D. 15A NCAC 13B .0602(a) states that "The Division shall require a solid waste management facility to provide such surface water monitoring capability as the Division determines to be necessary to detect the effects of the facility on surface water in the area".

E. 15A NCAC 13B .0201(d) states that "All solid waste management facilities shall be operated in conformity with these Rules and in such a manner as to prevent the creation of a nuisance, insanitary conditions, or potential public health hazard".

V. Determinations By The Division

Based upon the facts and applicable law, the Division has determined, for purposes of this Consent Agreement only, the following:

A. Analyses of samples of ground water taken at the Ashe County Landfill since 1988 indicate contravention of ground water standards for various inorganic and organic parameters.

B. An investigation of ground water conditions in the vicinity of the Landfill is necessary to identify any plumes of contamination, the direction and rate of movement of the plumes, and to determine the type, concentration, source and extent of contamination.

C. An investigation is necessary to determine the horizontal and vertical extent of ground water contamination and if any contamination has moved across the property boundary.

D. An investigation of surface water conditions at the site is necessary to determine the type, concentration, source and movement of surface water contamination.

E. An investigation of the ground and surface water receptors in the general area of the landfill is necessary to determine the potential impact of ground and surface water contamination on the public health.

VI. Scope of Work

The Division has determined that this Agreement will promote the protection of public health and the environment and is in the public interest. The provisions of this Administrative Agreement shall henceforth govern the actions of Ashe County. Therefore, in an effort to determine the status of ground and surface water quality at its landfill property, Ashe County agrees to perform the following actions:

A. Within sixty (60) calendar days of execution of this Agreement, Ashe County shall develop and submit a plan for a ground and surface water quality investigation which upon approval by the Division, will constitute the approved assessment plan. The plan shall be prepared by a licensed professional geologist with experience in assessment and remediation of ground water contamination. The professional geologist shall consult with the

Solid Waste Section's Hydrogeologist about the landfill site prior to developing the assessment plan. The objective of the assessment plan shall be to determine the following:

(a) The nature and concentration of the contamination in the ground and surface waters.

(b) The horizontal and vertical extent of contamination ("the plumes") and rate of migration of the plumes in the ground water.

(c) The source(s) of contamination detected in ground and surface water.

(d) Potential ground and surface water receptors that could be affected by migration of the contamination.

(e) The possible effects of the contaminated ground water moving off-site.

The assessment plan to be submitted shall contain a detailed plan for the initial phase of the investigation and a strategy and timetable for accomplishing the overall goals of the water quality assessment.

The assessment plan must specify:

1. The procedures and methods necessary to fully determine flow direction and rate of movement of the ground water and surface waters.

2. The methods and techniques to be used in defining the horizontal and vertical extent of the ground water contaminant plumes.

3. The proposed number, location and depth of plume assessment wells. The proposal shall include a discussion of the reasons for the location and depth of each plume assessment monitoring well.
4. A ground and surface water sampling plan prepared in accordance with the N.C. Water Quality Monitoring Guidance Document for Solid Waste Facilities.
5. A ground and surface water analysis plan which specifies parameters to be tested for in the plume assessment wells and surface water samples, including detectable levels and appropriate test methods. Additionally, a description of chain-of-custody and the laboratory's quality control and quality assurance procedures shall be included.

   In implementing the plan, analytical results must be submitted to the Division within 30 calendar days of sample collection and must specify collection date and well numbers (with a corresponding map of the wells).
6. Evaluation procedures, including any use of previously gathered ground water quality data.
7. The location of the nearest downstream surface water intake in the watershed, and the location of all ground water wells within at least one half mile of the landfill site (which could be potentially impacted by the contaminant plumes).
9. A schedule for implementation of the work described in the assessment plan.

B. The Division shall review the submitted plan, approve it, or request more information or amendment, as it deems necessary. The approved plan constitutes the assessment plan which Ashe County shall implement.

C. Any request for modification of the assessment plan must be submitted in writing to the Division and approved by the Division.

D. If the Division determines that any submission of data or evaluation or report made pursuant to the approved assessment plan is inadequate, it will notify Ashe County and submit suggested corrections. If the parties cannot agree, they will proceed in accordance with the provisions of the "Dispute Resolution" Section of this Consent Agreement.

E. All work performed pursuant to the assessment plan shall be performed under the supervision of a licensed professional geologist.

F. Ashe County shall submit to the Division a quarterly report summarizing work completed in the approved assessment plan.

G. Within sixty (60) days of satisfactory completion of all elements of the assessment plan, Ashe County shall submit a final report including any proposals for further actions as may be recommended by the County and its consultants. The Division shall review the report and may request more information or amendment as it deems necessary.

VII. Sampling, Access, and Data/Document Availability

At the request of the Division, the County shall allow split or duplicate samples to be taken by the Division, of any samples collected by the County pursuant to the implementation of this Consent Agreement. The County shall notify the Division not less than ten (10) days in advance of any sample collection activity.

The Division shall also allow split or duplicate samples to be taken by the County of any samples collected by the Division during the period of performance of work associated with this Consent Agreement. The Division shall notify the County not less than ten (10) days in advance of any sample collection activity.

The Division shall have the authority to enter and freely move about all property at the Site at all reasonable times for the purposes of, inter alia: inspecting non-privileged records, operating logs, and contracts related to work under this Consent Agreement: reviewing the progress of the County in carrying out the terms of this Consent Agreement; conducting such tests as the Division deems necessary; and verifying the data submitted to the Division by the County. The County shall permit such persons to inspect and copy all non-privileged records, files, photographs, documents, and other writings including all sampling and monitoring data, in any way pertaining to work undertaken pursuant to this Consent Agreement. Documents subject to the attorney-client privilege or attorney work product doctrine are not subject to inspection and copying.

VIII. Delay in Performance

If any event occurs which causes delay in the achievement of the requirements of this Consent Agreement, Ashe County shall have

the burden of showing that the delay was caused by circumstances beyond the reasonable control of the county, which could not have been overcome by due diligence. Ashe County shall promptly notify the Division's Primary Contact orally and shall, within seven (7) calendar days of oral notification to the Division, notify the Division in writing of the anticipated length and cause of the delay, and the timetable by which the county intends to implement these measures. If the parties can agree that the delay has been or will be caused by circumstances beyond the reasonable control of the county, the time for performance hereunder shall be extended for a period equal to the delay resulting from such circumstances. Ashe County shall adopt all reasonable measures to avoid or minimize delay. Failure of the County to comply with the notice requirements of this paragraph shall render this paragraph void and constitute a waiver of the County's rights to request a waiver of the requirements of this Consent Agreement. Increased costs of performance of the terms of this Consent Agreement or changed economic circumstances shall not be considered circumstances beyond the control of Ashe County.

In the event that the Division and Ashe County cannot agree that any delay in the achievement of the requirements of this Consent Agreement, including the failure to submit any report or document, has been or will be caused by circumstances beyond the reasonable control of the County, the dispute shall be resolved in accordance with the provision of the "Dispute Resolution" Section of this Consent Agreement.

IX. Dispute Resolution

If Ashe County objects to any notice of disapproval or decision made pursuant to this Consent Agreement by the Division, Ashe County shall notify the Division in writing of its objections within fourteen (14) calendar days of receipt of the decision. The Division and Ashe County then have an additional fourteen (14) calendar days from receipt by the Division of the notification of objection to reach agreement. If agreement cannot be reached on any issue within this fourteen (14) calendar day period, the Division shall immediately provide a written statement of its decision to Ashe County.

Thereafter, if the Division and Ashe County cannot agree, the Division reserves its rights to pursue enforcement action against Ashe County. The county reserves the right to respond to such enforcement action.

X. Notice

Any and all written notices to be made pursuant to Sections VII, VIII, and IX of this Consent Agreement shall be sent by certified mail, return receipt requested, or by hand delivery, addressed to the respective primary contact as designated in this Consent Agreement.

The names, addresses, and telephone numbers of the designated primary contacts for the Division and the County are stated below. Should there be any change in the primary contact person during the course of the investigation covered under this Consent Agreement, this must be communicated in writing to the other party immediately.

The primary contact for the Division:

Bobby Lutfy, Hydrogeologist
Division of Solid Waste Management
Department of Environment, Health,
and Natural Resources
P.O. Box 27687
Raleigh, North Carolina 27611-7687

Telephone: (919) 733-0692

For Ashe County:

Don Houck, Environmental
Services Director
P.O. Box 327
West Jefferson, N.C. 28694

Telephone: (919) 246-3721

This Agreement On Consent is entered into on the 2nd. day of April, 1993.

The Division Of Solid Waste Management
North Carolina Department Of Environment, Health, & Natural Resources

By: William L Meyer 4/2/93
William L. Meyer, Director Date

Ashe County

By: Wm. Jeff Miller 4/2/93
Wm. Jeff Miller, Ashe County Date
County Manager

APPENDIX II

GEOTECHNICAL INVESTIGATIONS

Ashe County Landfill Geologic Study
Ashe County, North Carolina

for

Municipal Engineering Service
Garner, North Carolina

S&ME Project Number: 055-84-018-A

SOIL & MATERIAL ENGINEERS INC.

SOIL & MATERIAL ENGINEERS INC. ENGINEERING-TESTING-INSPECTION

1903 Harrison Avenue, Box 609, Cary, NC 27511, Phone (919) 481-0397

January 8, 1985

Municipal Engineering Service
P. O. Box 97
Garner, NC 27529

Attention: Mr. Jimmy D. Woodie

Reference: Ashe County Landfill Geologic Study
Ashe County, North Carolina
S&ME Project Number: 055-84-018-A

Gentlemen:

Based on your authorization, Soil & Material Engineers, Inc. (S&ME) has completed a geological investigation for a proposed 78 acre landfill expansion site which is adjacent to the existing Ashe County landfill. This land is located approximately 1¼ miles northwest of Chestnut Hill, North Carolina, off State Road 1558, as depicted on Figure 1. The purpose of this investigation is to describe the subsurface soil, rock, ground water, and topographic and geologic conditions indicated by the test borings, laboratory analysis, and observations, in accordance with Solid and Hazardous Waste Management Branch, regulations for Solid Waste Management 10NCAC 10G. Discussion is also provided regarding the suitability and limitations of this site for landfilling purposes based on the data developed.

This report will be used by Municipal Engineering Service and the County for submittal of a site approval application and ultimately to develop an operations plan. It is our understanding that this landfill is to be used for the disposal of residential and non-toxic industrial wastes. No hazardous wastes will be disposed at this site.

At this time, no surveyed boundary site plan or topographic map for this site is available to us. The mapping used for this investigation was a U.S.G.S. 7.5 minute quadrangle map with property boundaries sketched. Therefore, the elevations and locations of the boreholes on the site and their relationships to existing site features are approximate. After the site has been surveyed and the boring locations and elevations determined, the contents of this report should be reviewed in light of the survey and appropriate revisions or additions made.

REGIONAL GEOLOGY

The proposed landfill site lies in the Blue Ridge Mountains physiographic province of North Carolina. According to geologic mapping prepared by the North Carolina Geologic Survey and the site reconnaissance, this area lies in a complex of metamorphosed rock, probably Late Precambrian hornblende and mica schists belonging to the Blue Ridge belt. These rocks are thought to have been derived from the metamorphism of sedimentary and volcanic rocks. The Blue Ridge belt schist and gneiss overlie older Precambrian basement rocks. These rocks typically weather to brown and reddish brown micaceous silts and clays with feldspathic rock zones within the soil matrix. The thickness of residual soils varies from a few to 60 feet or more, depending on the relative rates of weathering and erosion. A transition zone of weathered rock is generally found between the residual soils and underlaying sound rock.

FIELD EXPLORATION

Eight soil test boring locations were selected and staked in the field by a representative of S&ME using visual estimation, site features, and topography in relation to the U.S.G.S. 7.5-minute quadrangle map. The approximate locations of the boreholes are shown on the attached borehole location map (Figure 2). Elevations of the boreholes were estimated from the U.S.G.S. map.

The field exploration consisted of drilling five soil test borings to a maximum depth of 60 feet or at the point of auger refusal (N-Standard Penetration Resistance in excess of 100 blows per foot). All test borings were drilled by a CME-45 drill rig mounted on an all-terrain carrier. The boreholes were advanced by means of continuous flight hollow stem auger. Representative soil samples were obtained at approximate 5-foot intervals by means of the

split-barrel sampling procedure (ASTM D-1586). All soil samples collected were classified by the Unified Soil Classification System (ASTM D-2487) and recorded on the attached Test Boring Records. In addition to the soil test borings, three auger probes were performed (Borings 1, 7, and 8) to determine depth to rock in areas that were likely to be used as cover material. Visual soil classification was made during the boring and is also contained on the attached Test Boring Records.

At the completion of drilling each borehole, a temporary piezometer was constructed and observations made for water accumulating in the borehole. A representative of S&ME also measured water levels in the boreholes approximately two weeks later. Based on current solid waste and ground water regulations, these temporary monitoring wells must be grouted closed prior to construction of the landfill or after any further water level observations are completed.

SITE CONDITIONS

The proposed landfill site area is estimated to be approximately 78 acres. However, due to perennial drainage features and buffer zones, only approximately 40 to 50 acres are being considered as a proposed landfill. This tract has a high topographic point along its eastern border (elevation 2,800 to 2,840) with a moderate to steep slope to the northwest and overall topographic relief of approximately 200 feet. The drainage at the site is characterized by three northwest trending drainage swales which connect just to the north of the site to a northward draining perennial stream. These swales divide the site into a series of north to northwest trending ridges. During the field reconnaissance, surface water was noticed at the lower (northern) reaches of the the drainage swales near the property boundaries. The perennial stream also crosses the property to the west of the area proposed for landfilling.

A north-south trending ridge to the west of the perennial stream is tentatively proposed as a future borrow area.

The results of the test borings and auger probes indicate that the surface conditions at this site consist of a very thin organic topsoil cover with a number

of rock boulders across the site. From the results of the borings and in conversations with the superintendent of the landfill, these boulders appear to be isolated and do not represent outcrops. This surface veneer is generally underlain by 15 to 60 feet of residual soils. Approximately the upper 2 feet of soil consists of silty clay and clayey silts with the remaining soils consisting of very micaceous slightly clayey silts with inclusions of fine grained sands and other accessory minerals. Below these depths, auger refusal suggests that the soil grades to weakly competent rock. Using the classifications presented in the Test Boring Records, Figures 4 through 6 present simplified soil cross-sections through the proposed site.

Ground water conditions were recorded in the boreholes at the completion of each test boring and approximately two weeks later. These findings are attached in Table 1. Using the apparently stabilized ground water levels, an estimated potentiometric map is depicted in Figure 7.

LABORATORY ANALYSIS

To evaluate the physical parameters of the soil and hydraulic conductivity of the base and cover soils of the proposed site, relatively undisturbed samples (ASTM D-1587) and bag samples were obtained at locations and depths determined by an S&ME field representative. An undisturbed sample was tested to determine its grain size distribution, and natural hydraulic conductivity (vertical). After determining the grain size distribution and moisture density relationships of the bulk samples, one sample was tested to determine its remolded hydraulic conductivity at 95 percent of the maximum laboratory density.

EVALUATION AND CONCLUSIONS

To consider siting of a sanitary landfill, S&ME considered technical factors such as ground water levels, excavation, availability and suitability of cover soils, permeability of base materials, and environmental protection and monitoring. Each of these factors are discussed below regarding use of the site for landfilling.

Ground Water

Ground water was observed in four boreholes ranging between 8.8 and 40.7 feet below ground surface. The phreatic surface is apparently below the bottom of the boreholes at the other test borings. Ground water levels may be expected to fluctuate due to many factors, including precipitation, evapotranspiration, and surface drainage. The North Carolina Department of Human Resources requires that the bottom of the landfill be a minimum of 4 feet above the seasonal high phreatic surface.

It is understood that the proposed method of landfilling at this site will be similar to the adjacent existing site. This is a "terracing" or "stair-stepping" method which will involve disposal in the dry upper portions of the existing swales with cover being excavated from the adjoining ridges. Based on observed water levels, the lower (northern) reaches of the three drainage swales cannot be used for landfilling since ground water is expected to exist at/or within 4 feet of the ground surface.

Excavation

One of the major considerations regarding the use of a landfill site is whether difficult excavation will be encountered due to weathered or sound rock. Although thin rock lenses were encountered in some borings, overall results indicate that the general depth of weathered rock ranges between 15 to 60 feet below land surface. When examining the weathered rock on existing highwalls of the present landfill, there is also a 10 to 20 foot section of weathered saprolite. In communication with the superintendent of the landfill, he explained that the front end loader presently used for excavation has historically had no problems excavating the weathered saprolite. Therefore, S&ME feels that the 15 to 60 foot excavation depths are reasonable figures and that the limiting criteria for depth in most areas will apparently be ground water.

Excavation to the proposed depths will create a number of high temporary slopes. No laboratory soil strength testing or slope stability analysis has been performed as a part of this study. Most soils of this type will stand on 1(v):1(h) temporary slope to heights of 30 to 50 feet. However, all such slopes should be

treated with caution, based on previous experience with the existing landfill. These silty soils are susceptible to sheet erosion and suitable erosion control methods should be used. Final slopes should not exceed 1(v):3(h) unless stabilized for erosion and analysed for stability.

Cover Soils

In several locations, an approximate 2 foot thick silty clay layer was found at the surface at boring locations B-2, B-3, and B-6. This soil appears to be suitable for final cover. These soils should be identified and stockpiled for construction of dikes, landfill base, and especially for use as final cover. The most clayey soils available should be used for final cover. The micaceous slightly clayey silts have been analyzed (see Table 2) and saturated hydraulic conductivity was approximately 5.0×10^{-4} cm/sec. Due to the similarity in natural moisture and grain size distribution, these slightly clayey silts appear to exist rather uniformly throughout the site and will be suitable for use as daily cover.

Landfill Base Permeability

Saturated hydraulic conductivities of the base soils tested are approximately 7.0×10^{-4} cm/sec. The hydraulic conductivity of the weathered rock may be in excess of this range. This may possibly provide a path for leachate to seep beneath the landfill and into the adjoining stream or ground water. We recommend that where excavation is carried to or into weathered rock, the base of the landfill be lined with a minimum of 3 feet of compacted fine grained silty soil to help seal off the bottom of the landfill. These soils should be, if possible, compacted to about 95 percent of the maximum laboratory density as determined in Table 2 or by testing of the actual soils used.

Environmental Protection and Monitoring

Due to the potential of contamination to the ground water, suitable measures must be taken to prevent seepage from the landfill. The lowest permeability soil available should be used as final cover over the landfill. The final surface must be well compacted and sloped to minimize infiltration, and erosion must be controlled to prevent re-exposure of the refuse. Periodic regrading of the final surface will be required as the wastes decompose. Also,

ground water monitoring wells will be required hydraulically downgradient from the landfill to detect any leachate infiltrating into the ground water.

Also, several deep domestic ground water wells exist along the eastern border of the proposed landfill property. Solid Waste Management Regulations require a minimum distance of 500 feet between domestic wells and buried wastes. It is recommended that at least one ground water monitoring well be located along this boundary and that periodic ground water quality sampling also be performed from the domestic wells to assess any possible contamination. good

CONCLUSIONS

Overall, this site appears suitable for a properly designed and operated sanitary landfill. Careful design and operation will be required due to the nearby domestic wells, topographic slopes, and the proximity of shallow ground and surface water at the lower elevations.

We appreciate the opportunity to be of service to you. If you have any questions or if we can be of further assistance, please contact us.

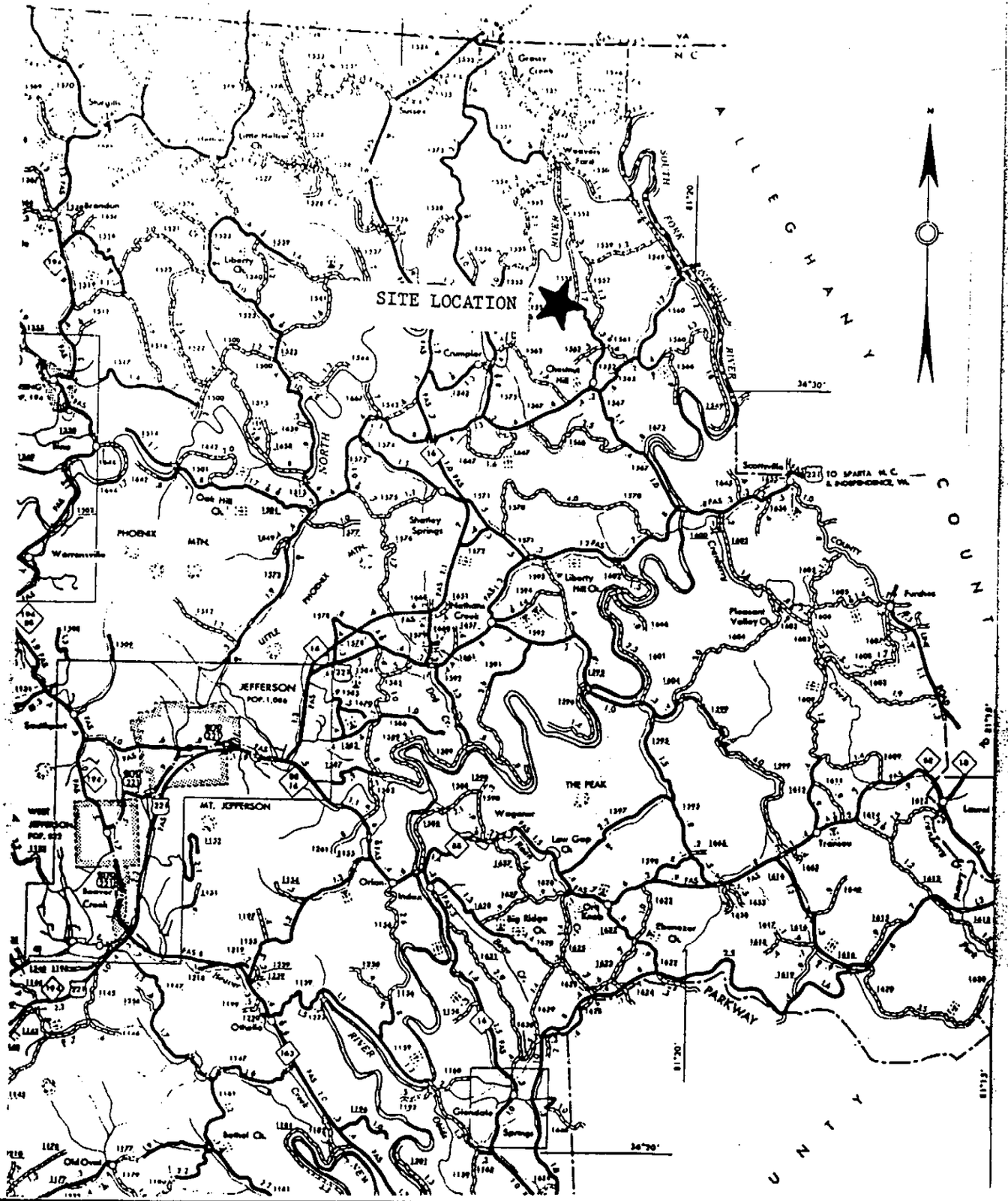
Sincerely yours,
Soil & Material Engineers, Inc.

Phillip L. Rahn, Geologist

Ernest F. Parker, Jr. P.E.

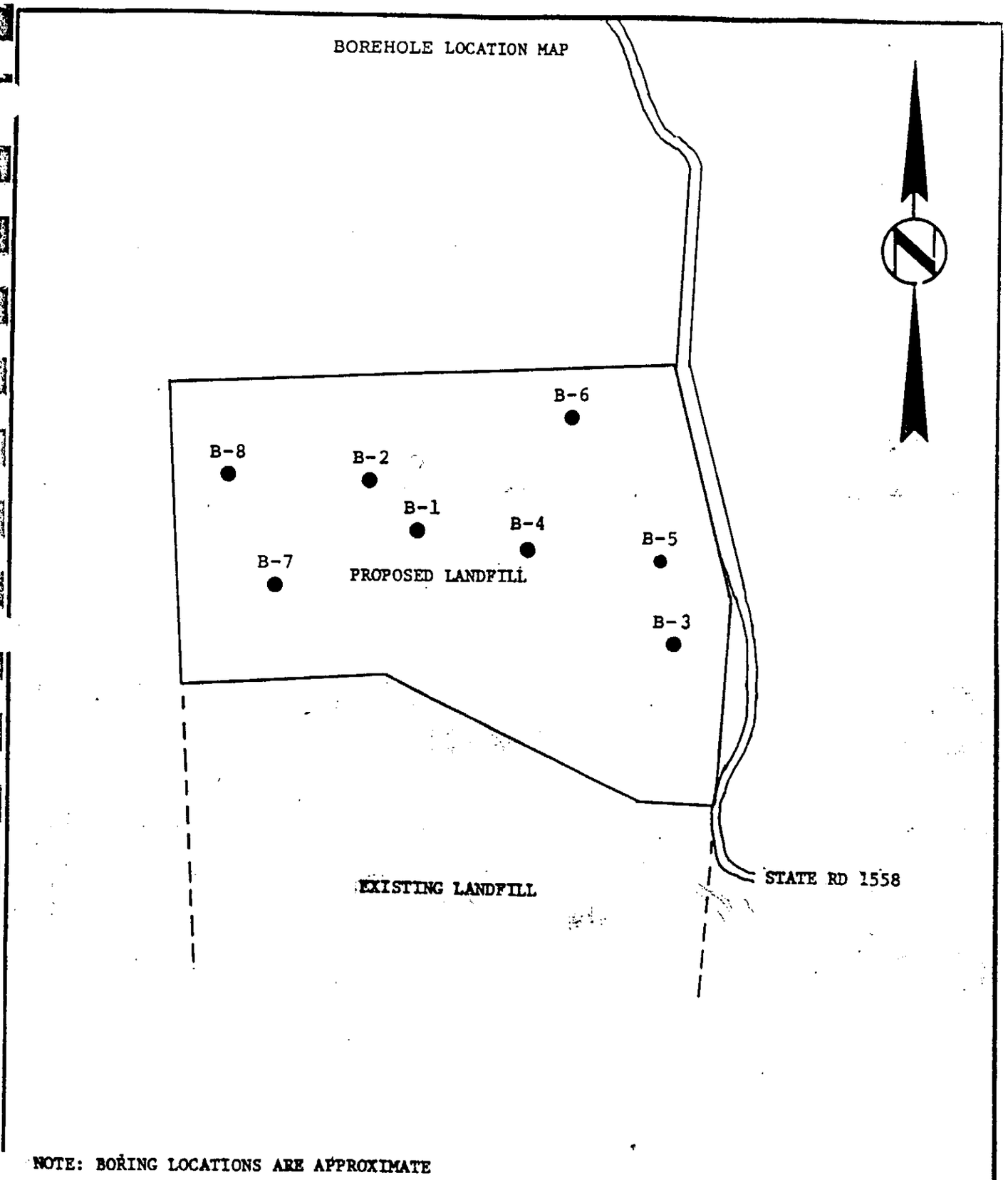
PLR/pjc

Figures



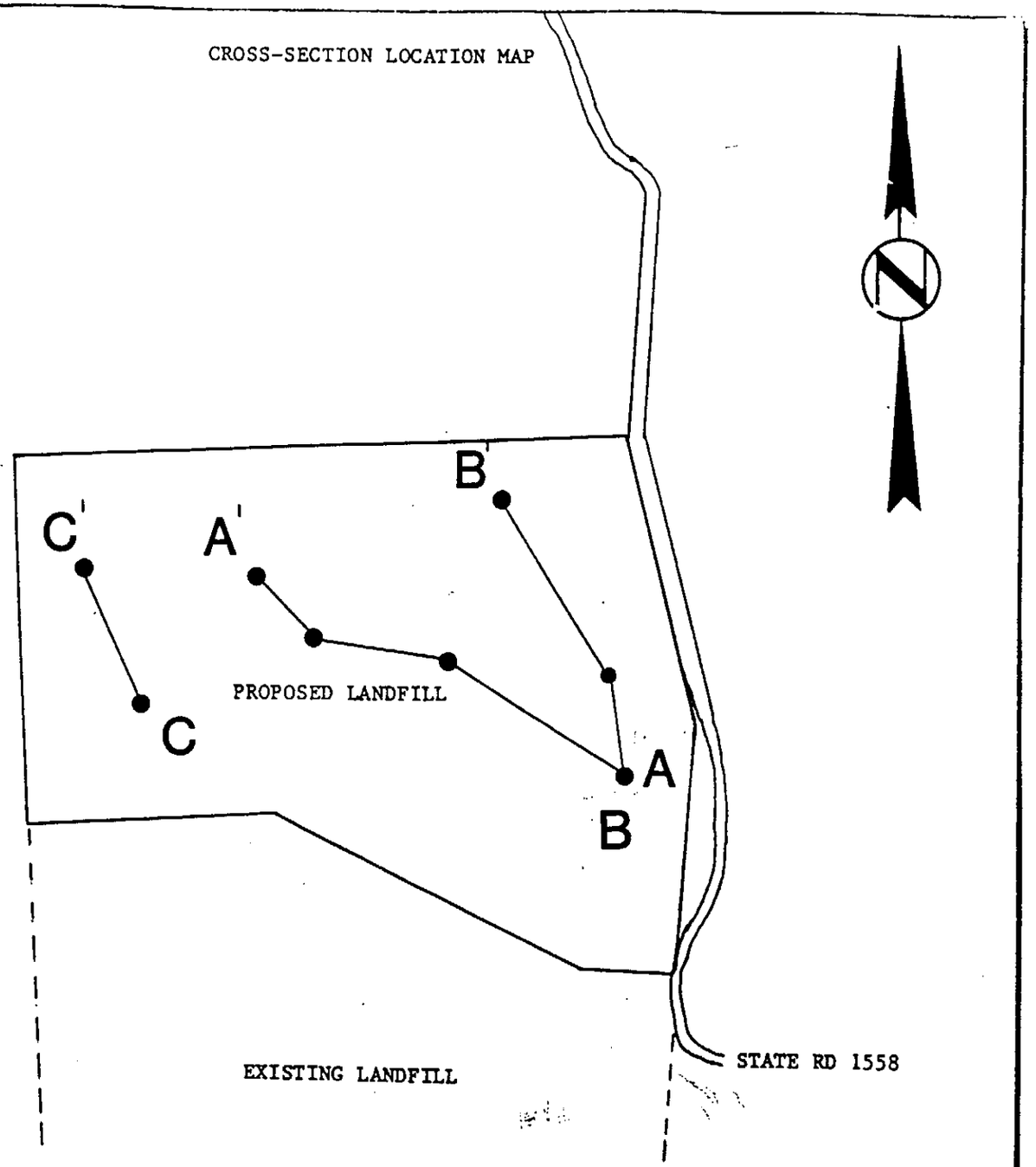
PROJECT	SOIL & MATERIAL ENGINEERS, INC.	SCALE: N.T.S.
ASHE COUNTY LANDFILL GEOLOGIC STUDY CHESTNUT HILL, N.C.	RALEIGH, NORTH CAROLINA	JOB NO: 055-84-018A FIG. NO: 1

DUNCAN-PARNELL, INC., RALEIGH 2/84



NOTE: BORING LOCATIONS ARE APPROXIMATE

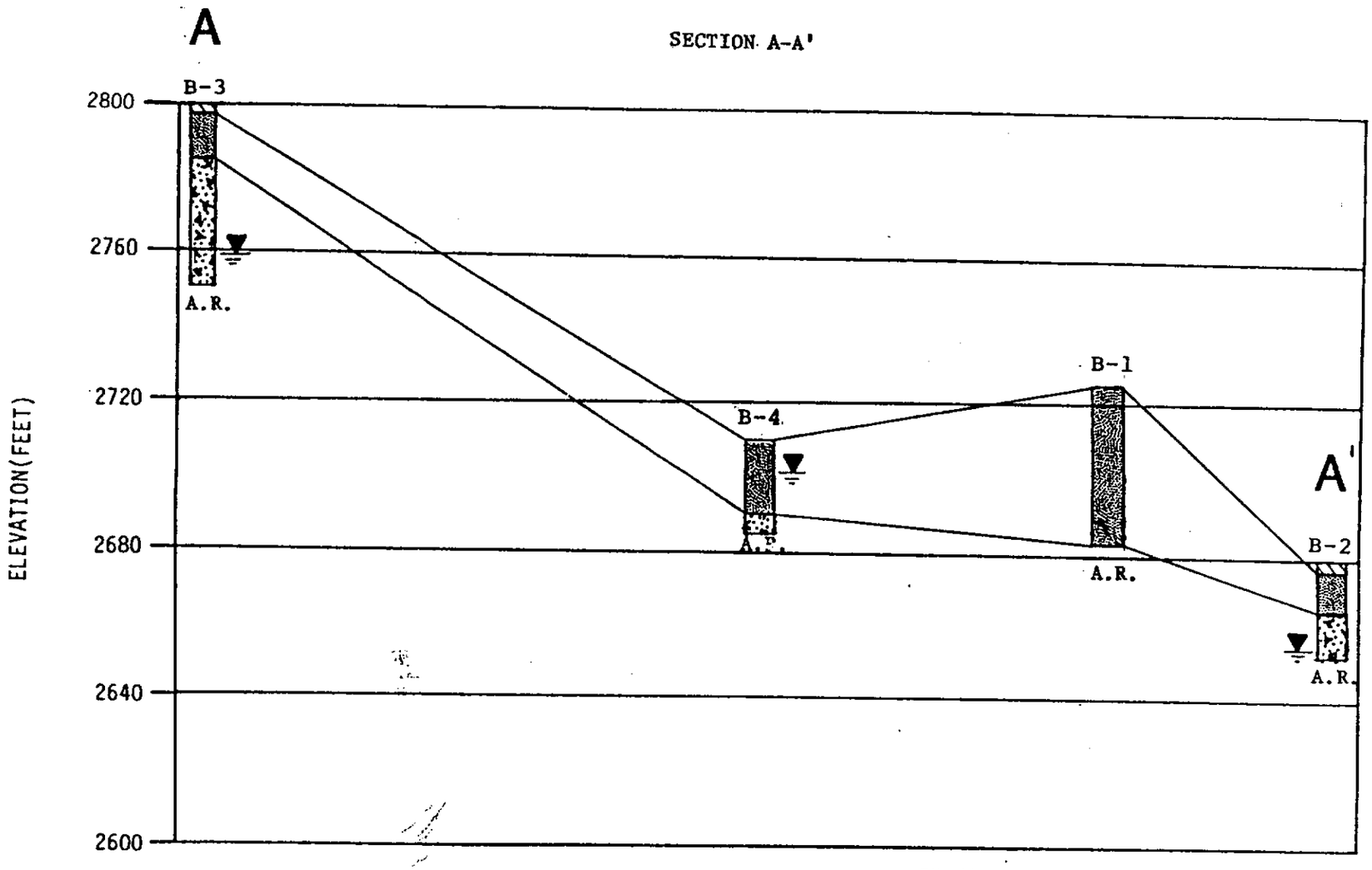
PROJECT	SOIL & MATERIAL ENGINEERS, INC.	SCALE: APPROX. 1"=500'
ASHE COUNTY LANDFILL GEOLOGIC STUDY CHESTNUT HILL, N.C.	RALEIGH, NORTH CAROLINA	JOB NO: 055-84-018A FIG. NO: 2



NOTE: BORING LOCATIONS ARE APPROXIMATE

ROJECT ASHE COUNTY LANDFILL GEOLOGIC STUDY CHESTNUT HILL, N.C.	SOIL & MATERIAL ENGINEERS, INC. RALEIGH, NORTH CAROLINA	SCALE: APPROX. 1"=500' JOB NO: 055-84-018A FIG. NO: 3

DUNCAN-PARNELL, INC., RALEIGH 2/84



A.R.=AUGER REFUSAL

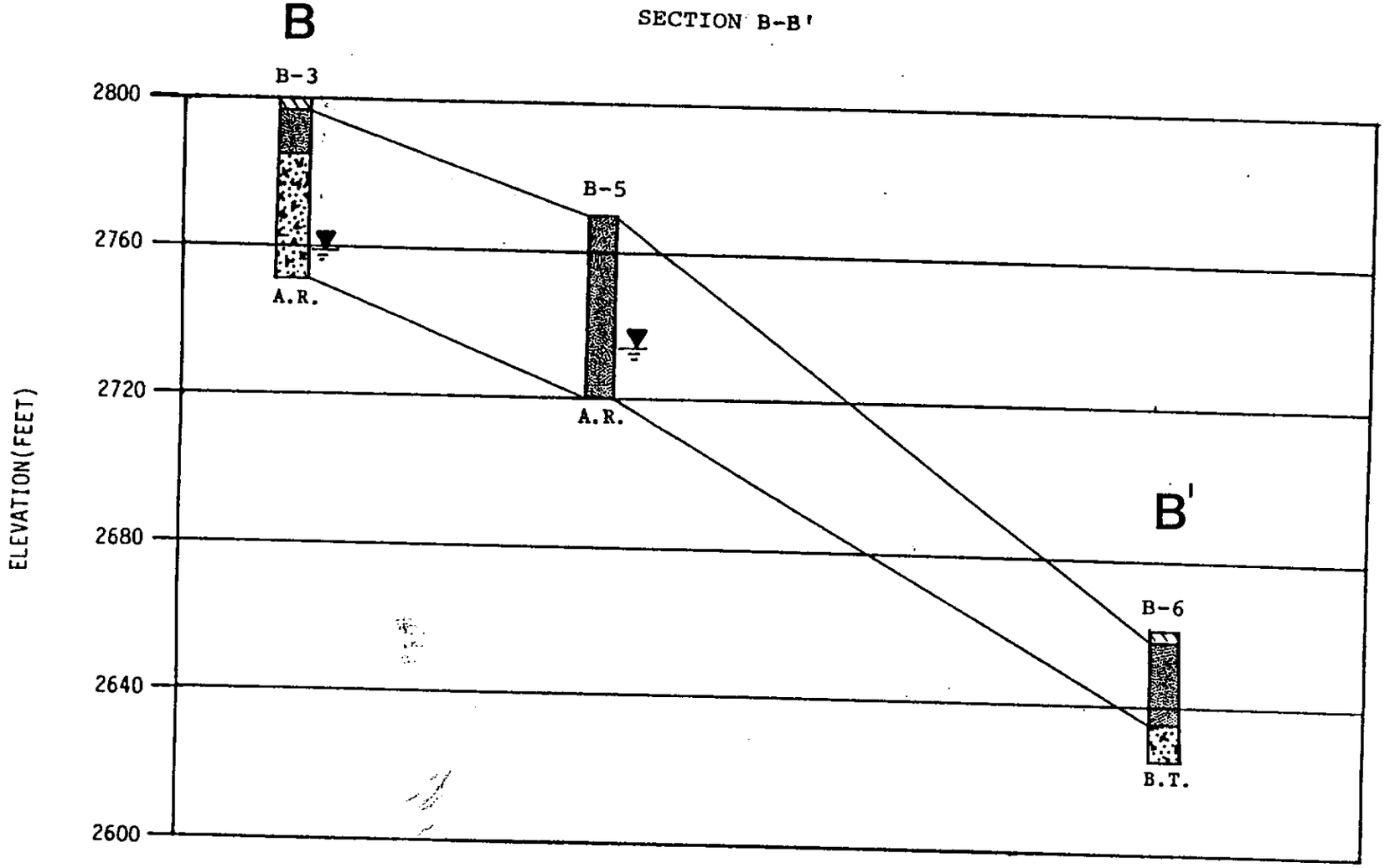
B.T.=BORING TERMINATED

NOTE: TEST BORING ELEVATIONS ARE ESTIMATED

LEGEND:
- CLAY, SAND-SILT-CLAY MIXTURE
- SILT, CLAY-SAND-SILT MIXTURE
- WEATHERED ROCK

PROJECT ASHE COUNTY LANDFILL GEOLOGIC STUDY CHESTNUT HILL, N.C.	SOIL & MATERIAL ENGINEERS, INC. RALEIGH, NORTH CAROLINA	SCALE: H:1"=200' V:1"=40' JOB NO: 055-84-018A FIG NO: 4

SM-B1



A.R.=AUGER REFUSAL

B.T.=BORING TERMINATED

NOTE: TEST BORING ELEVATIONS ARE ESTIMATED

LEGEND:

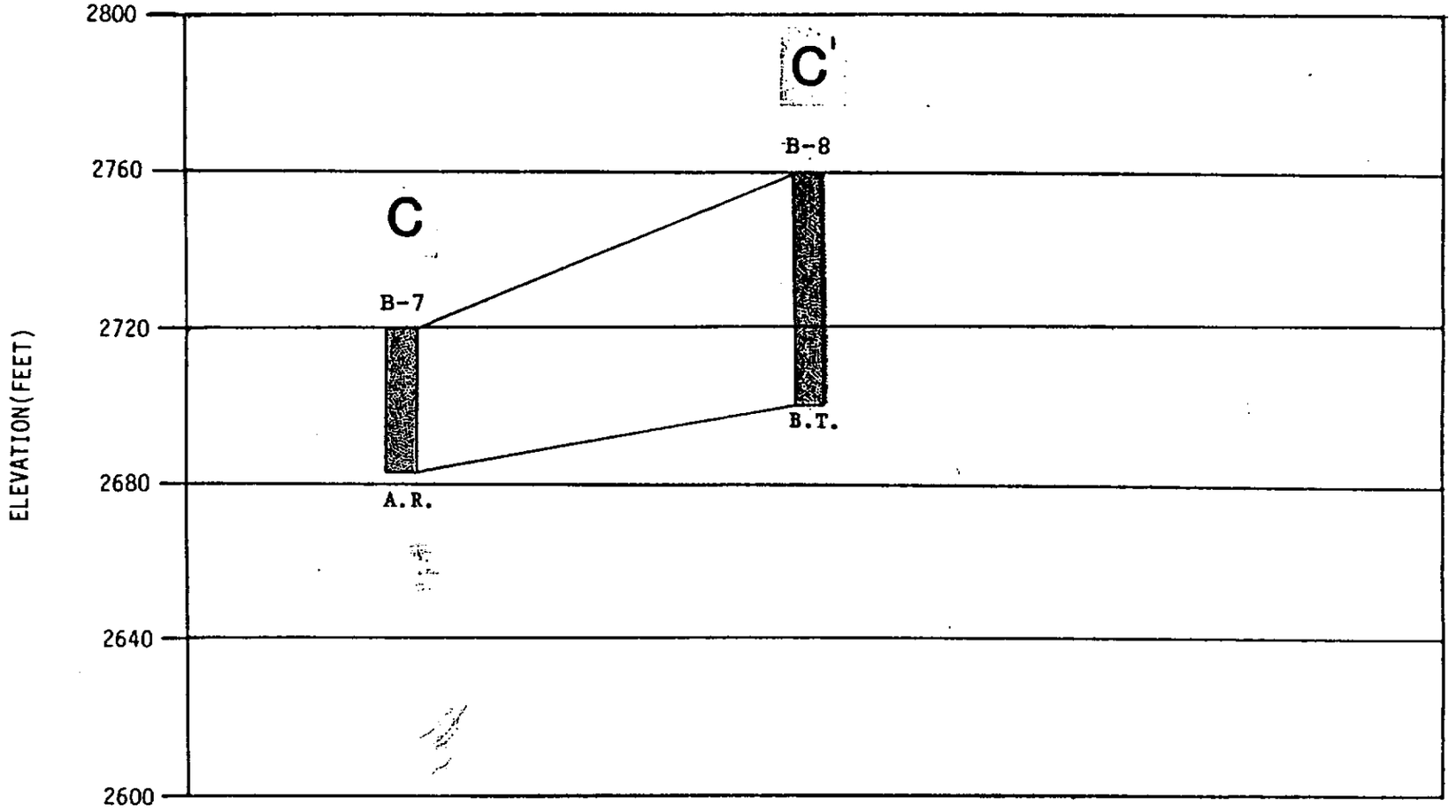
CLAY, SAND-SILT-CLAY MIXTURE

SILT, CLAY-SAND-SILT MIXTURE

WEATHERED ROCK

PROJECT		
ASHE COUNTY LANDFILL GEOLOGIC STUDY CHESTNUT HILLS, N.C.	SOIL & MATERIAL ENGINEERS, INC. RALEIGH, NORTH CAROLINA	SCALE: H:1"=200' V:1"=40'
		JOB NO: 055-84-018A
		FIG NO: 5

SECTION C-C'



A.R.=AUGER REFUSAL

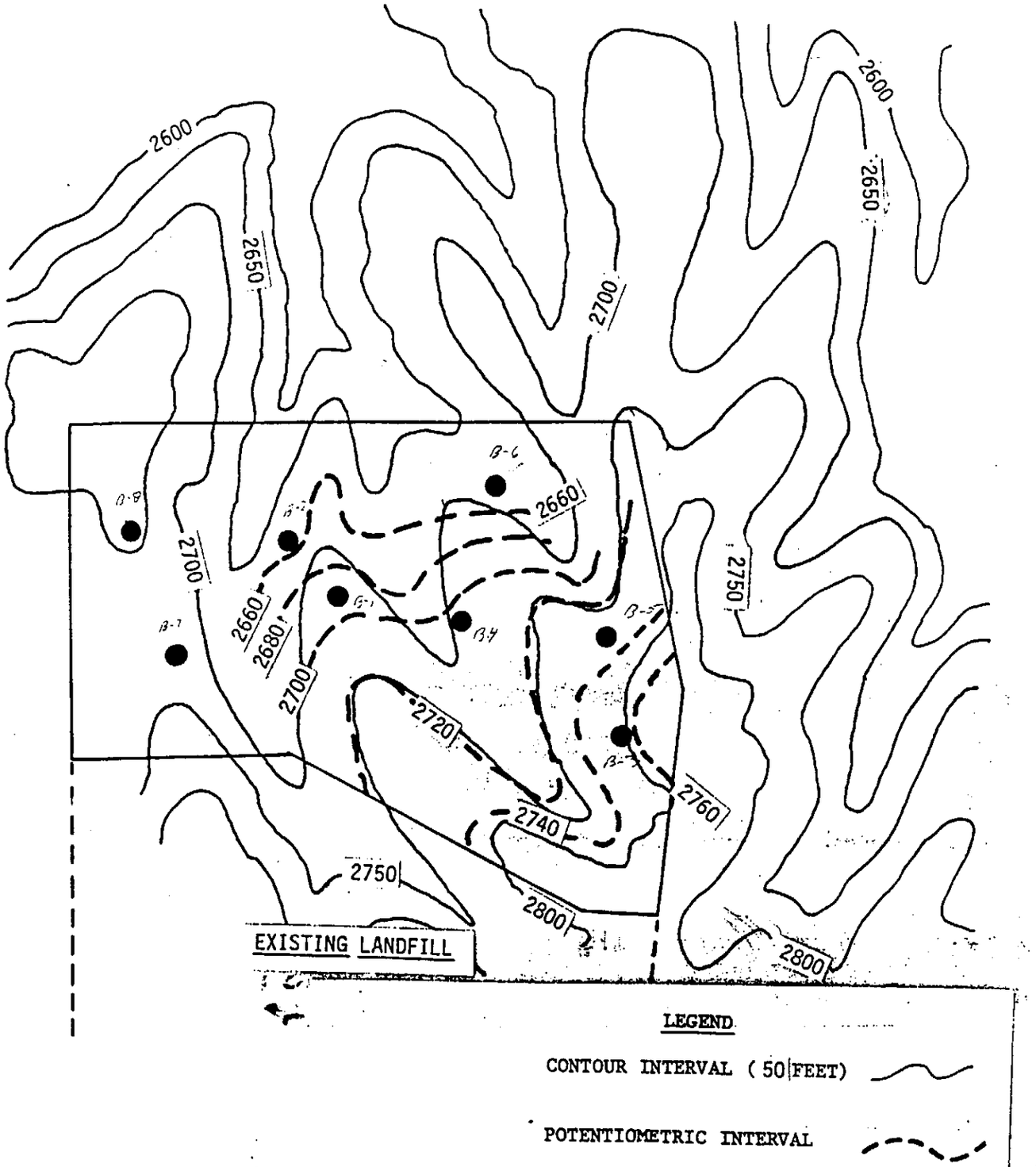
B.T.=BORING TERMINATED

NOTE: TEST BORING ELEVATIONS ARE ESTIMATED

LEGEND:
- CLAY, SAND-SILT-CLAY MIXTURE
- SILT, CLAY-SAND-SILT MIXTURE
- WEATHERED ROCK

PROJECT ASHE COUNTY LANDFILL GEOLOGIC STUDY CHESTNUT HILL, N.C.	SOIL & MATERIAL ENGINEERS, INC. RALEIGH, NORTH CAROLINA	SCALE: H:1"=200' V:1"=40' JOB NO: 055-84-018A FIG NO: 6

ESTIMATED POTENTIOMETRIC CONTOUR MAP



PROJECT		
ASHE COUNTY LANDFILL GEOLOGIC STUDY CHESTNUT HILL, N.C.	SOIL & MATERIAL ENGINEERS, INC. RALEIGH, NORTH CAROLINA	SCALE: APPROX. 1"=500' JOB NO: 055-84-018A FIG. NO: 7

DUNCAN-PARNELL, INC., RALEIGH 668

Test Boring Records

DEPTH FT.	DESCRIPTION	ELEV.	●PENETRATION-BLOWS PER FT. 0 10 20 30 40 60 80 100
0.0	Auger Probe		
	Red-Tan Micaceous Slightly Clayey Sandy SILT (ML)		

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

TEST BORING RECORD

BORING NO. B-1
DATE DRILLED 12/11/84
JOB NO. 055-84-018-A

SOIL & MATERIAL ENGINEERS, INC.

DEPTH FT.	DESCRIPTION	ELEV.	●PENETRATION-BLOWS PER FT. 0 10 20 30 40 60 80 100
0'	Auger Probe Refusal at 42.0 feet. No Water Encountered at Time of Boring		

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

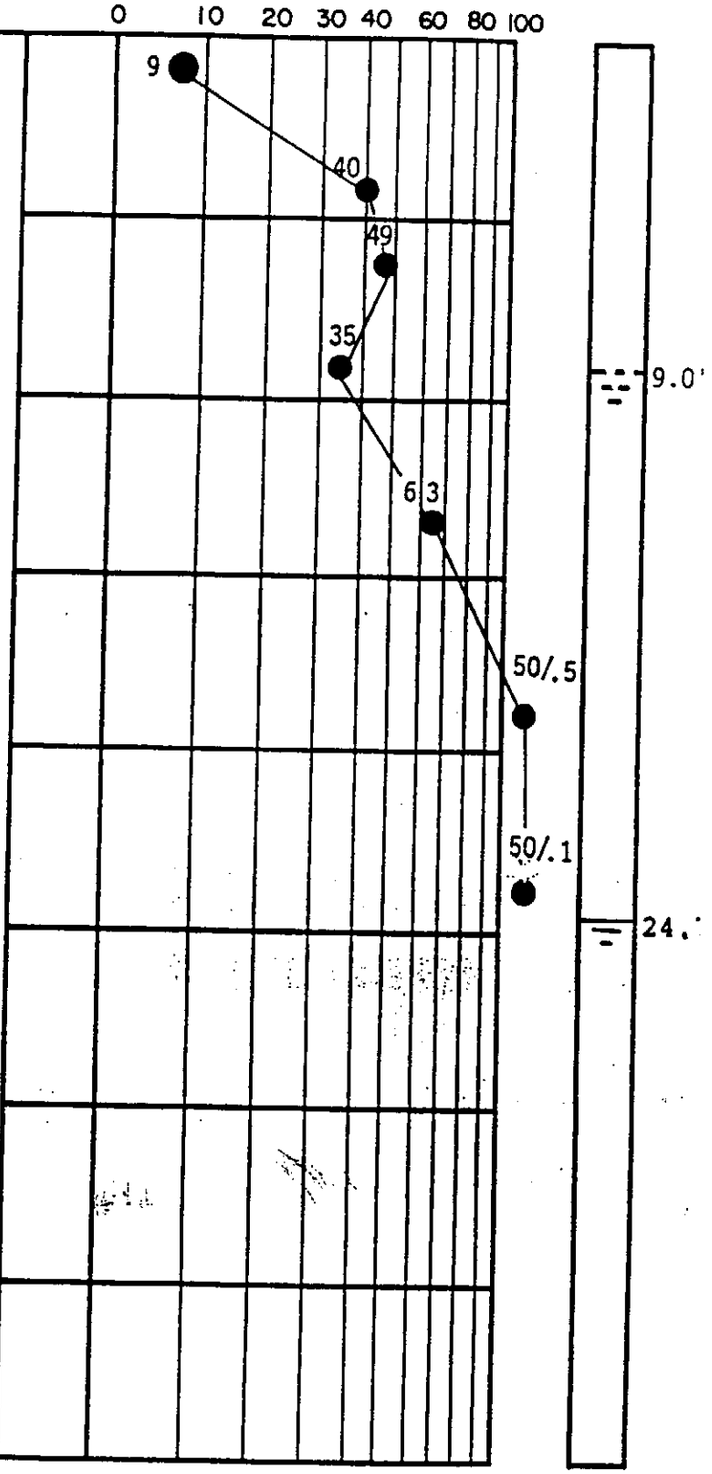
TEST BORING RECORD

BORING NO. B-1
DATE DRILLED 12/11/84
JOB NO. 055-84-018-A

SOIL & MATERIAL ENGINEERS, INC.

DEPTH FT.	DESCRIPTION
0.0'	Stiff Brown Micaceous Slightly Sandy Silty CLAY (CL)
2.0'	Brown Gray-White Very Micaceous Slightly Clayey Slighty Sandy SILT (ML) with Feldspar and Pyrite Fragments
5.0'	Weathered Rock-Sampled Same as Above.
25.0'	Auger Refusal at 25.0 feet. No Water Encountered at Time of Boring.

ELEV. ●PENETRATION-BLOWS PER FT.



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.

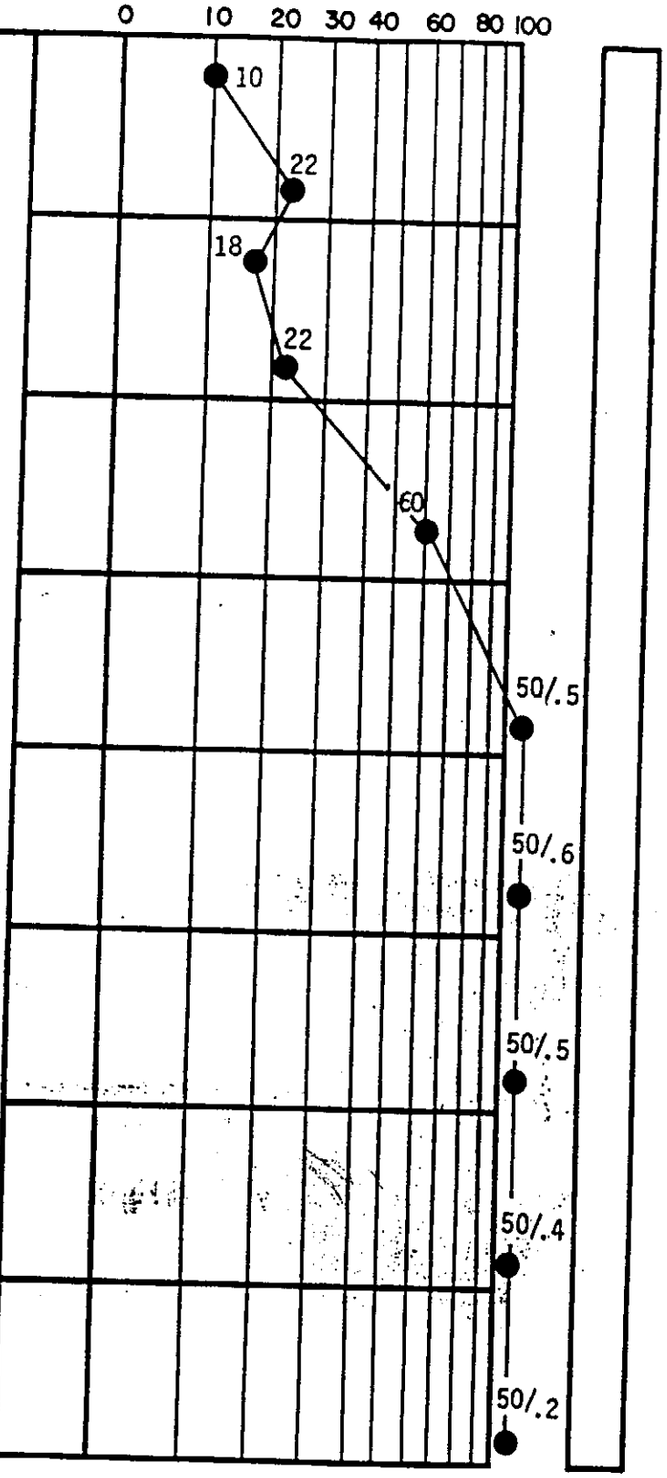
UNDISTURBED SAMPLE
50 % ROCK CORE RECOVERY
◀ LOSS OF DRILLING WATER
WATER TABLE-24HR.
WATER TABLE-1HR.

TEST BORING RECORD

BORING NO. B-2
DATE DRILLED 12/07/84
JOB NO. 055-84-018-A

SOIL & MATERIAL ENGINEERS, INC.

DEPTH FT.	DESCRIPTION
0.0'	Stiff Brown Micaceous Silty CLAY (CL)
2.0'	Very Stiff Red-Brown Clayey SILT (ML) with Feldspar, Pyrite, and Mica Fragments
7.5'	Very Stiff-Hard Gray-White Micaceous Slightly Clayey SILT (ML)
15.0'	Weathered Rock-Sampled as Brown-Gray White Micaceous Slightly Sandy SILT (ML) with Feldspar and Hornblende Fragments



BORING AND SAMPLING MEETS ASTM D-1586
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
% ROCK CORE RECOVERY
LOSS OF DRILLING WATER
WATER TABLE-24HR.
WATER TABLE-1HR.

TEST BORING RECORD

BORING NO. B-3
DATE DRILLED 12/04/84
JOB NO. 055-84-018-A

SOIL & MATERIAL ENGINEERS, INC.

DEPTH FT.	DESCRIPTION	ELEV.	●PENETRATION-BLOWS PER FT. 0 10 20 30 40 60 80 100
	Continued		50/.1
			50/.1
49.0'	Auger refusal at 49.0 feet.		

40

46.

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
50 % ROCK CORE RECOVERY
◀ LOSS OF DRILLING WATER
WATER TABLE-24 HR.
WATER TABLE-1 HR.

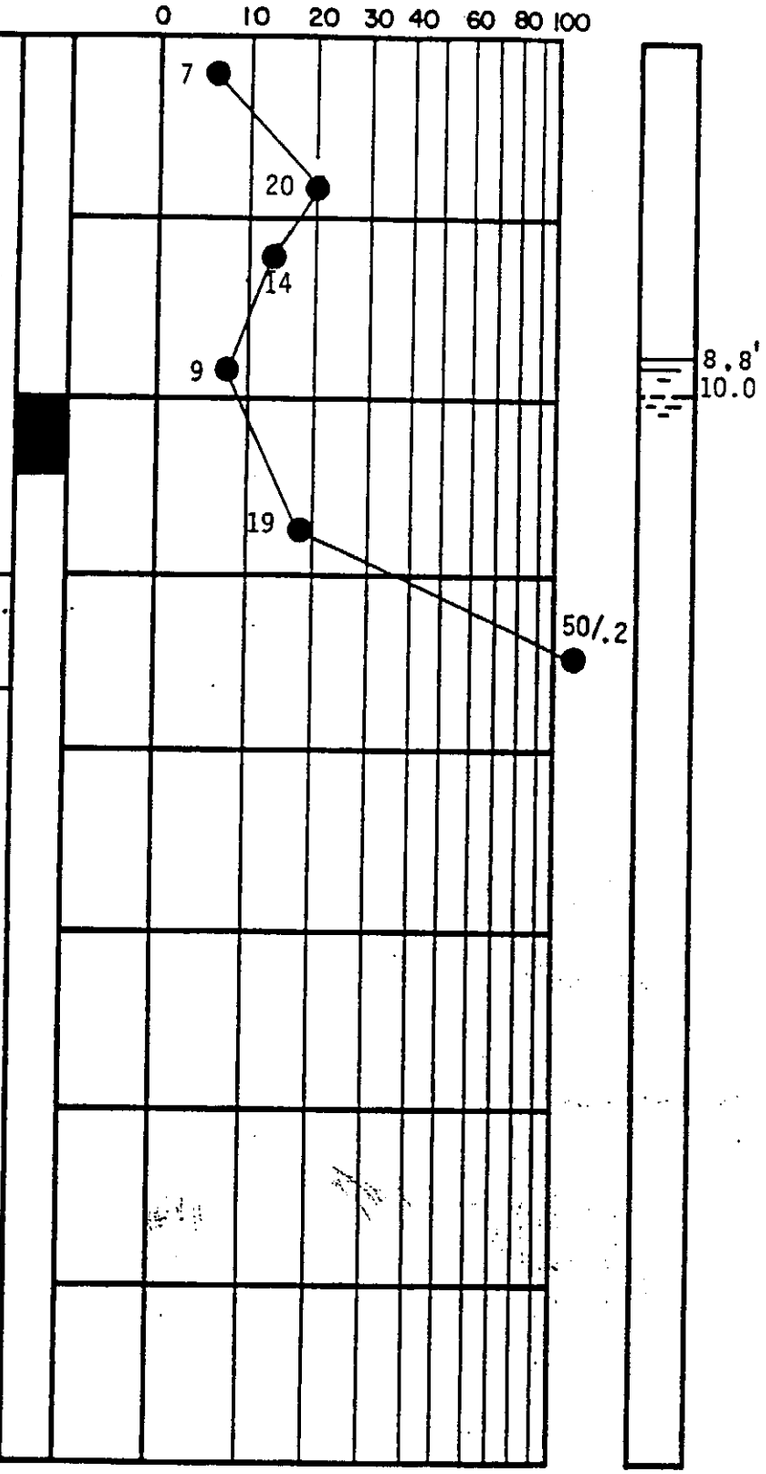
TEST BORING RECORD

BORING NO. B-3
DATE DRILLED 12/04/84
JOB NO. 055-84-018-A

SOIL & MATERIAL ENGINEERS, INC.

SM-14

DEPTH FT.	DESCRIPTION
0.0'	Firm-Very Stiff Red-Brown Very Micaceous Clayey SILT (ML) with Fragments of Pyrite
10.0'	Weathered Rock - Sampled Same as Above.
23.0'	Auger Refusal at 23.0 feet.



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

ENETRATION 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
80% ROCK CORE RECOVERY
LOSS OF DRILLING WATER
WATER TABLE-24HR.
WATER TABLE-1HR.

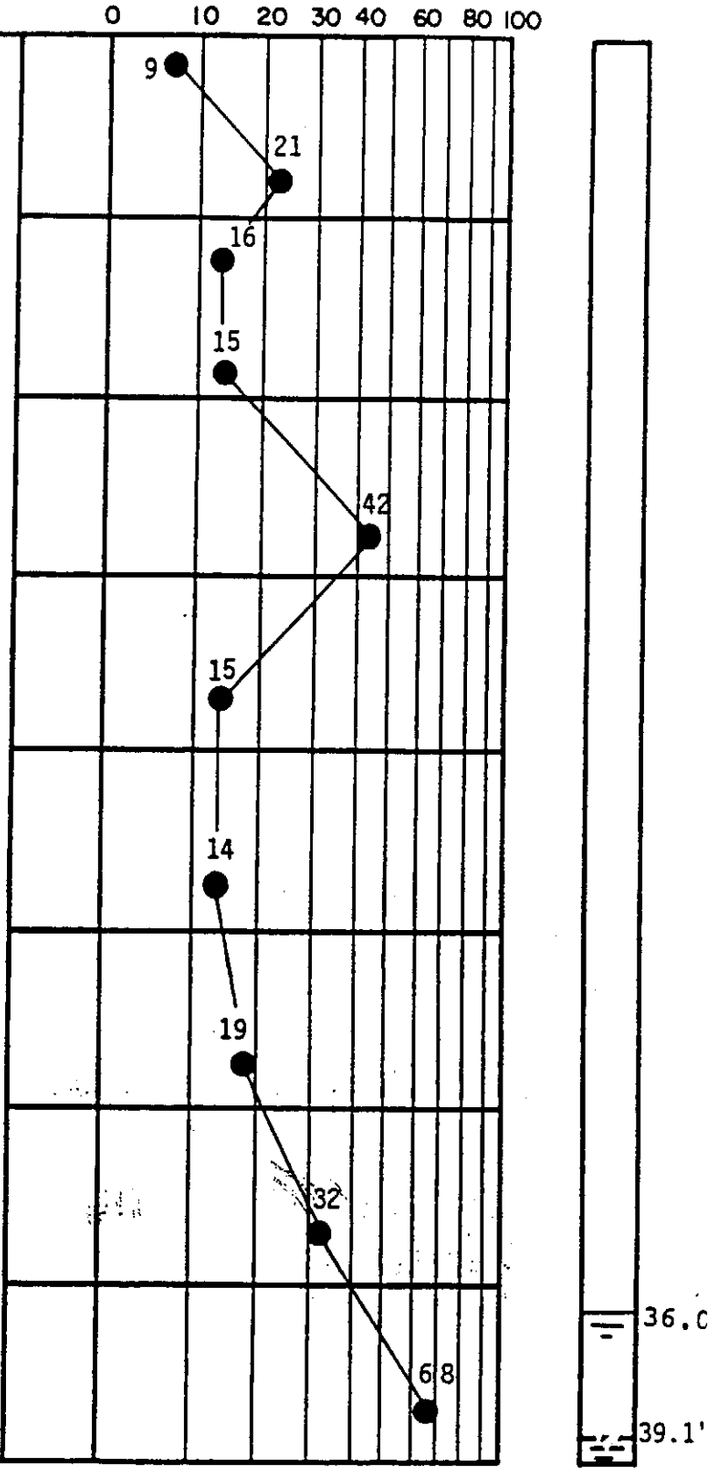
TEST BORING RECORD

BORING NO. B-4
DATE DRILLED 12/07/84
JOB NO. 055-84-018-A

SOIL & MATERIAL ENGINEERS, INC.

DEPTH FT.	DESCRIPTION
0.0'	Stiff-Hard Orange-Tan-White Slightly Clayey Sandy SILT (ML) with Feldspar Fragments
5.0'	Stiff-Hard Brown Micaceous Clayey SILT (ML) with Pyrite and Feldspar Fragments

ELEV. ●PENETRATION-BLOWS PER FT.



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

TEST BORING RECORD

BORING NO. B-5
DATE DRILLED 12/06/84
JOB NO. 055-84-018-A

SOIL & MATERIAL ENGINEERS, INC.

DEPTH FT.	DESCRIPTION	ELEV.	●PENETRATION-BLOWS PER FT. 0 10 20 30 40 60 80 100
	Continued		50/.2 ●
50.0'	Auger Refusal at 50.0 feet. No Water Encountered at Time of Boring.		

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
80% ROCK CORE RECOVERY
LOSS OF DRILLING WATER
WATER TABLE-24HR.
WATER TABLE-1HR.

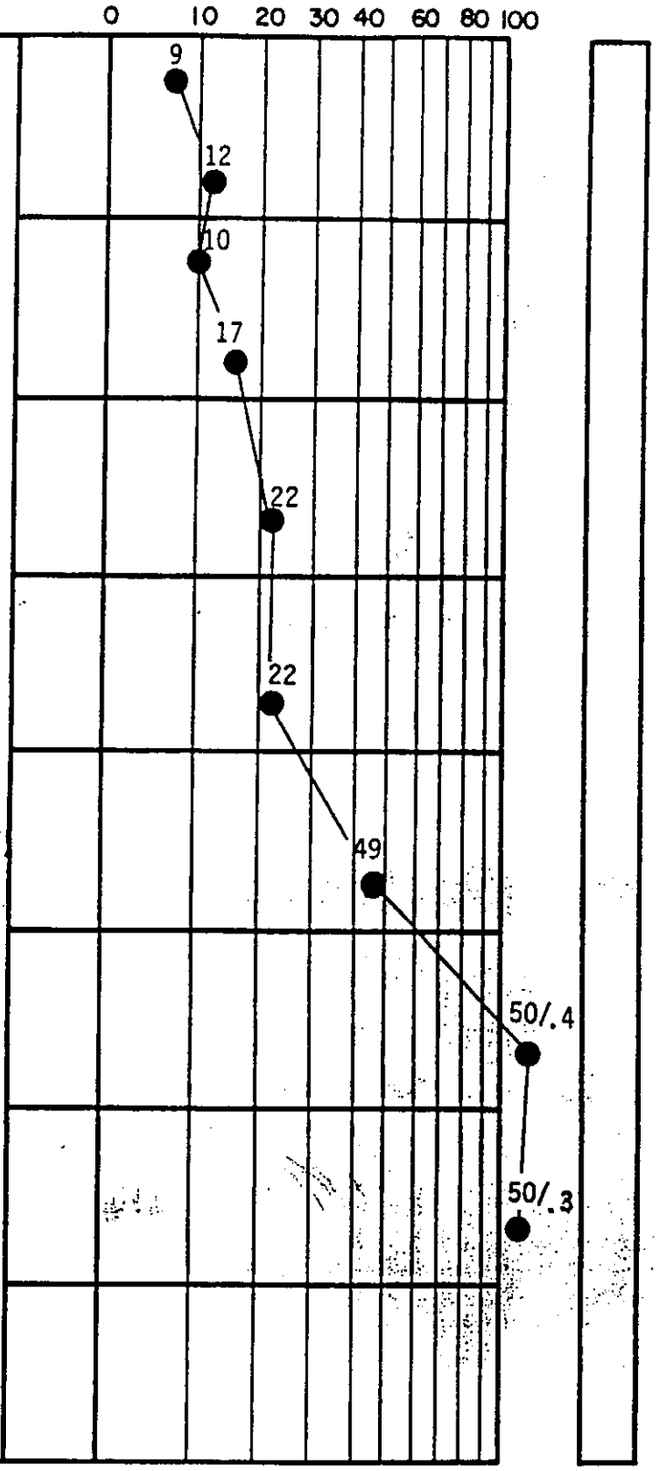
TEST BORING RECORD

BORING NO. B-5
DATE DRILLED 12/06/84
JOB NO. 055-84-018-A

SOIL & MATERIAL ENGINEERS, INC.

DEPTH FT.	DESCRIPTION
0.0'	Stiff Red-Brown Micaceous Silty CLAY (CL)
2.0'	Stiff-Hard Tan-Brown and Gray-White Micaceous Slightly Clayey Slightly Sandy SILT (ML) with Feldspar and Pyrite Fragments
25.0'	Weathered Rock - Sampled Same as Above
35.0'	Boring Terminated at 35.0 feet. No Water Encountered at Time of Boring.

ELEV. ●PENETRATION-BLOWS PER FT.



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

ENETRATION 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
50 % ROCK CORE RECOVERY
LOSS OF DRILLING WATER
WATER TABLE-24 HR.
WATER TABLE-1 HR.

TEST BORING RECORD

BORING NO. B-6
DATE DRILLED 12/07/84
JOB NO. 055-84-018-A

SOIL & MATERIAL ENGINEERS, INC.

DEPTH FT.	DESCRIPTION	ELEV.	●PENETRATION-BLOWS PER FT. 0 10 20 30 40 60 80 100
0.0	Auger Probe		
	Brown-Tan Micaceous Slightly Clayey Slightly Sandy SILT (ML)		
36.0'	Auger Probe Refusal at 36.0 feet No Water Encountered at Time of Boring		

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
50 % ROCK CORE RECOVERY
◀ LOSS OF DRILLING WATER
WATER TABLE-24 HR.
WATER TABLE-1 HR.

TEST BORING RECORD

BORING NO. B-7
DATE DRILLED 12/11/84
JOB NO. 055-84-018-A

SOIL & MATERIAL ENGINEERS, INC.

DEPTH FT.	DESCRIPTION	ELEV.	●PENETRATION-BLOWS PER FT. 0 10 20 30 40 60 80 100
0.0'	Brown-Orange Micaceous Slightly Clayey Slightly Sandy SILT (ML)		

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

TEST BORING RECORD

BORING NO. B-8
DATE DRILLED 12/11/84
JOB NO. 055-84-018-A

SOIL & MATERIAL ENGINEERS, INC.

DEPTH FT.	DESCRIPTION	ELEV.	●PENETRATION-BLOWS PER FT. 0 10 20 30 40 60 80 100
	Continued		
60.0'	Auger Probe Terminated at 60.0 feet (No Rock) No Water Encountered During Boring.		

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
50 % ROCK CORE RECOVERY
◀ LOSS OF DRILLING WATER
WATER TABLE-24HR.
WATER TABLE-1HR.

TEST BORING RECORD

BORING NO. B-8
DATE DRILLED 12/11/84
JOB NO. 055-84-018-A

SOIL & MATERIAL ENGINEERS, INC.

Tables

TABLE 1

BOREHOLE WATER LEVELS
ASHE COUNTY LANDFILL FEASIBILITY STUDY
S&ME JOB NO.: 055-84-018-A

BORING NUMBER	ELEVATION (FEET)	0-HOURS DEPTH	0-HOURS ELEVATION	12/20/84 DEPTH	12/20/84 ELEVATION
B-1	2725	DRY	-----	DRY	-----
B-2	2680	9.0	2671	24.7'	2655.3
B-3	2800	46.0'	2754	40.7'	2759.3
B-4	2710	10.0'	2700	8.8'	2701.2
B-5	2770	39.1'	2730.9	36.0'	2734.0
B-6	2680	DRY	---	DRY	---
B-7	2720	DRY	---	DRY	---
B-8	2760	DRY	---	DRY	---

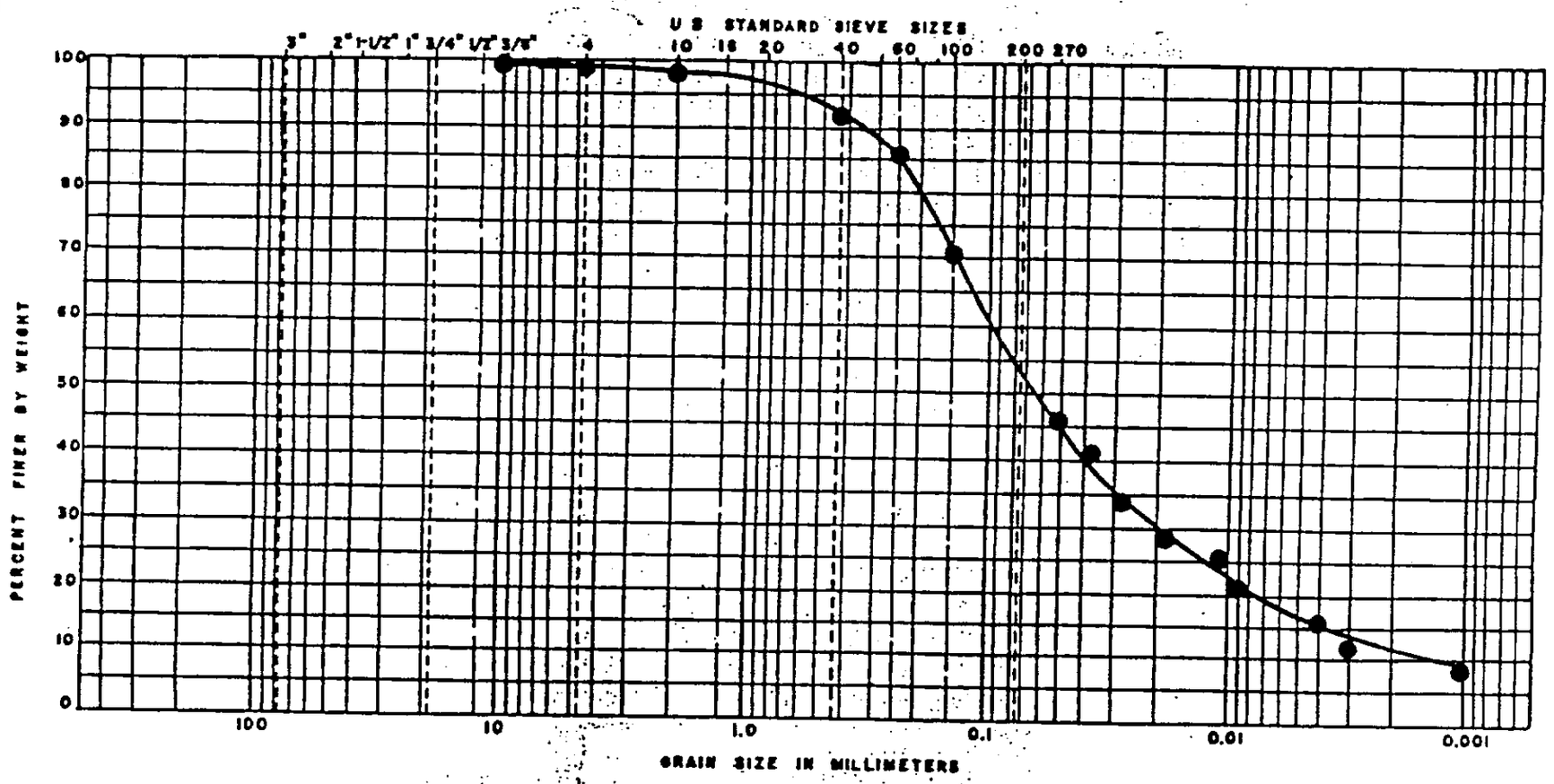
Table 2
Laboratory Data Summary
Ashe County Proposed Landfill
Chestnut Hill, North Carolina
S&ME Project Number: 055-84-018-A

Boring Number	Sample Type	Sample Depth (ft)	Natural Moisture (%)	Liquid Limit	Plasticity Index	Specific Gravity	Dry Unit Weight (pcf)	Saturated Conductivity(cm/sec)
B-1	Bag	0 - 2'	6.2	32	5	2.712	108.4	5.0×10^{-4} * X Remolded
B-3	Bag	0 - 2'	5.2	-	N.P.	2.676		
B-4	U.D.	10 - 12'	22.06	-	N.P.	2.872	108.02	7.0×10^{-4}
B-8	Bag	0 - 2'	7.3	36	1.0	2.733		

U.D. = Undisturbed Sample
N.P. = Non-Plastic

* Remolded to Approximately 95% of Maximum Dry Density

Grain Size Distribution Curves



BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO	ELEV OR DEPTH	NAT WC	LL	PL	PI	DESCRIPTION OR CLASSIFICATION
B-1	0-2'	6.2	32	27	5	Brown Micaceous ~~Silty SAND~~ ML Sdy. Silt A-4

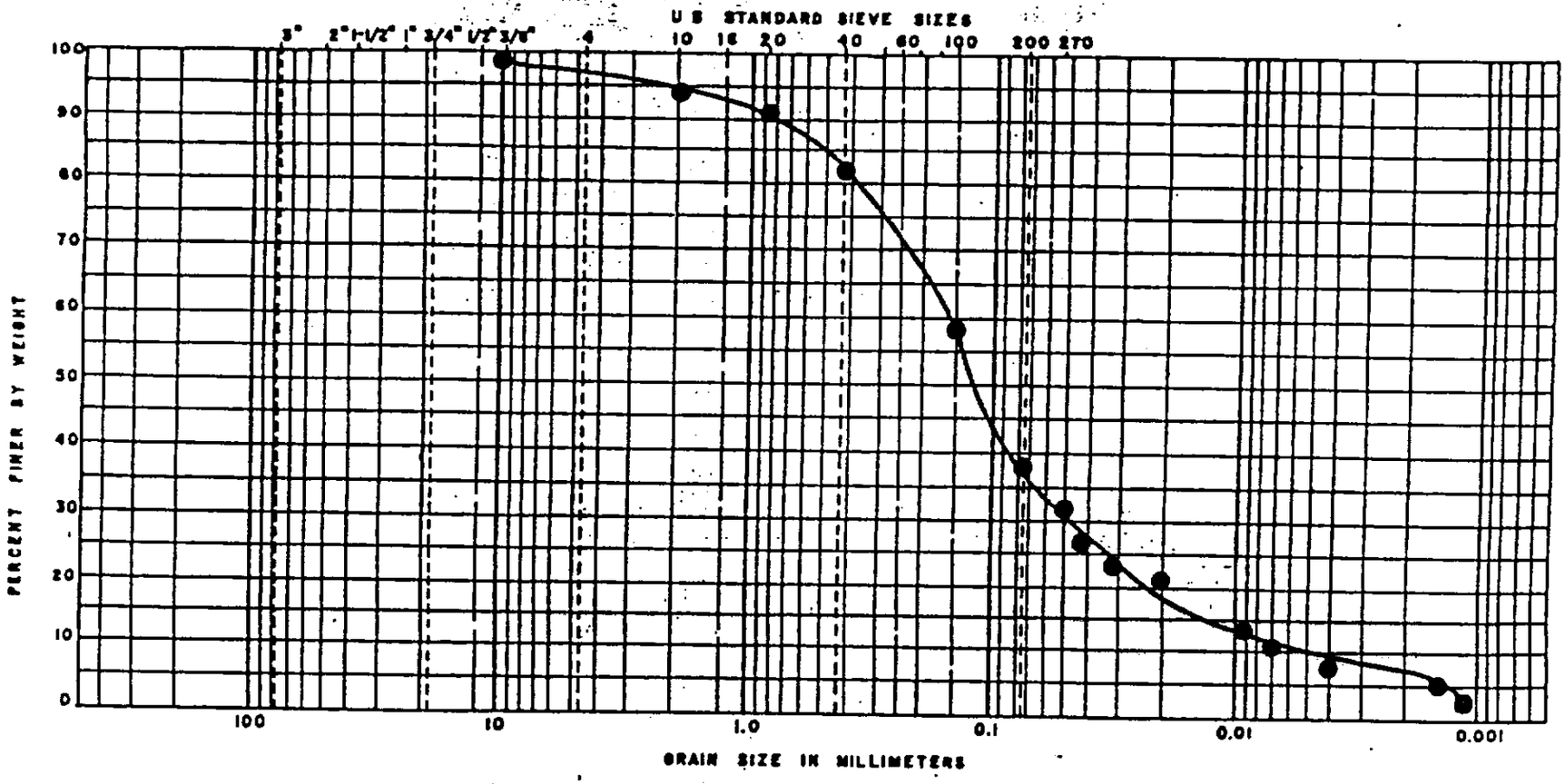
GRAIN SIZE DISTRIBUTION

JOB NO. 055-84-018-A

SOIL & MATERIAL ENGINEERS, INC.

DUNCAN-PARNELL, INC., RALEIGH

SM-19



BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO	ELEV OR DEPTH	NAT WC	LL	PL	PI	DESCRIPTION OR CLASSIFICATION
B-3	0-2'	5.2	NON-PLASTIC			Tan Silty Sand SM
						Sdy. Silt A-4

GRAIN SIZE DISTRIBUTION

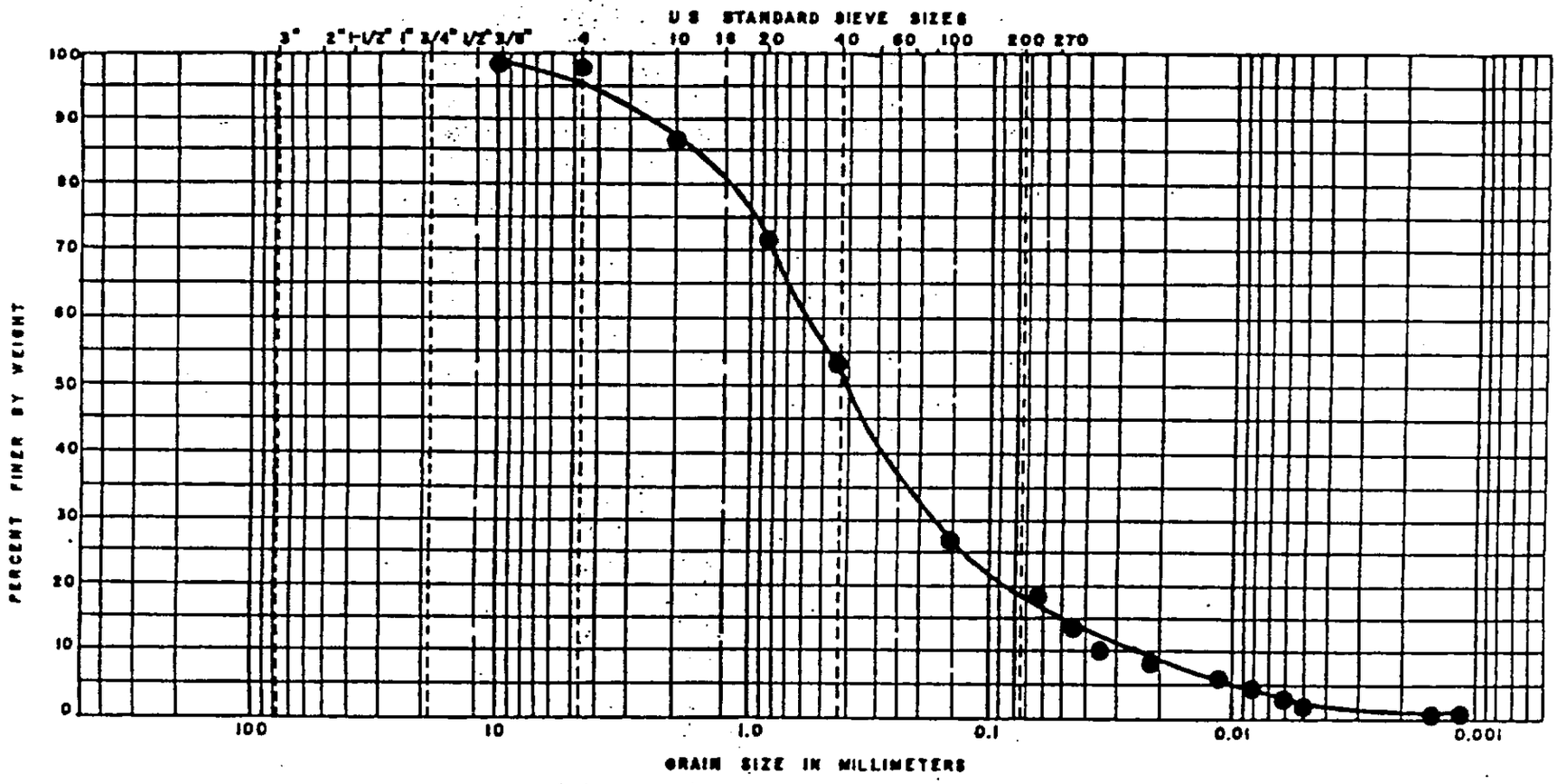
JOB NO. 055-84-018-A

SOIL & MATERIAL ENGINEERS, INC.

DUNCAN-PARNELL, INC., RALEIGH 982

SM-19

does not match boring log description



BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO	ELEV. OR DEPTH	NAT WC	LL	PL	PI	DESCRIPTION OR CLASSIFICATION
B-4	10 - 12'	22.06%	Non-Plastic			Brown Micaceous Silty SAND SM Sand A-2-4

GRAIN SIZE DISTRIBUTION

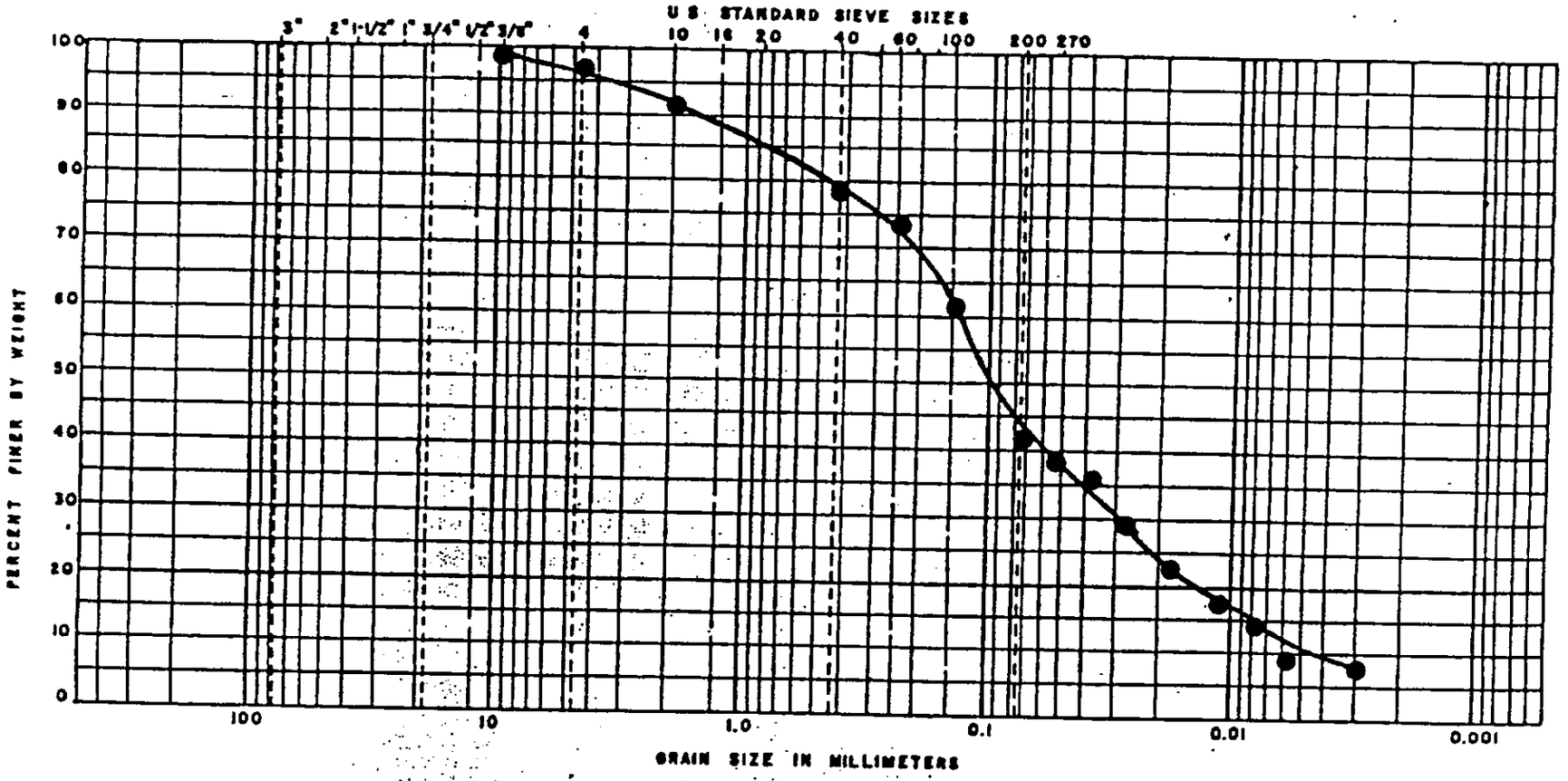
JOB NO. 055-84-006-A

SOIL & MATERIAL ENGINEERS, INC.

DUNCAN-PARNELL, INC., RALEIGH

SM-19

does not match boring log description



BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO	ELEV. OR DEPTH	NAT WC	LL	PL	PI	DESCRIPTION OR CLASSIFICATION
B-8	0-2'	7.3	36	35	1	Brown Micaceous Silty SAND SM Sdy. Silt A-4

GRAIN SIZE DISTRIBUTION

JOB NO. 055-84-018-A

SOIL & MATERIAL ENGINEERS, INC.

DUNCAN-PARNELL, INC., RALEIGH 982

SM-19

Proctor Test Results

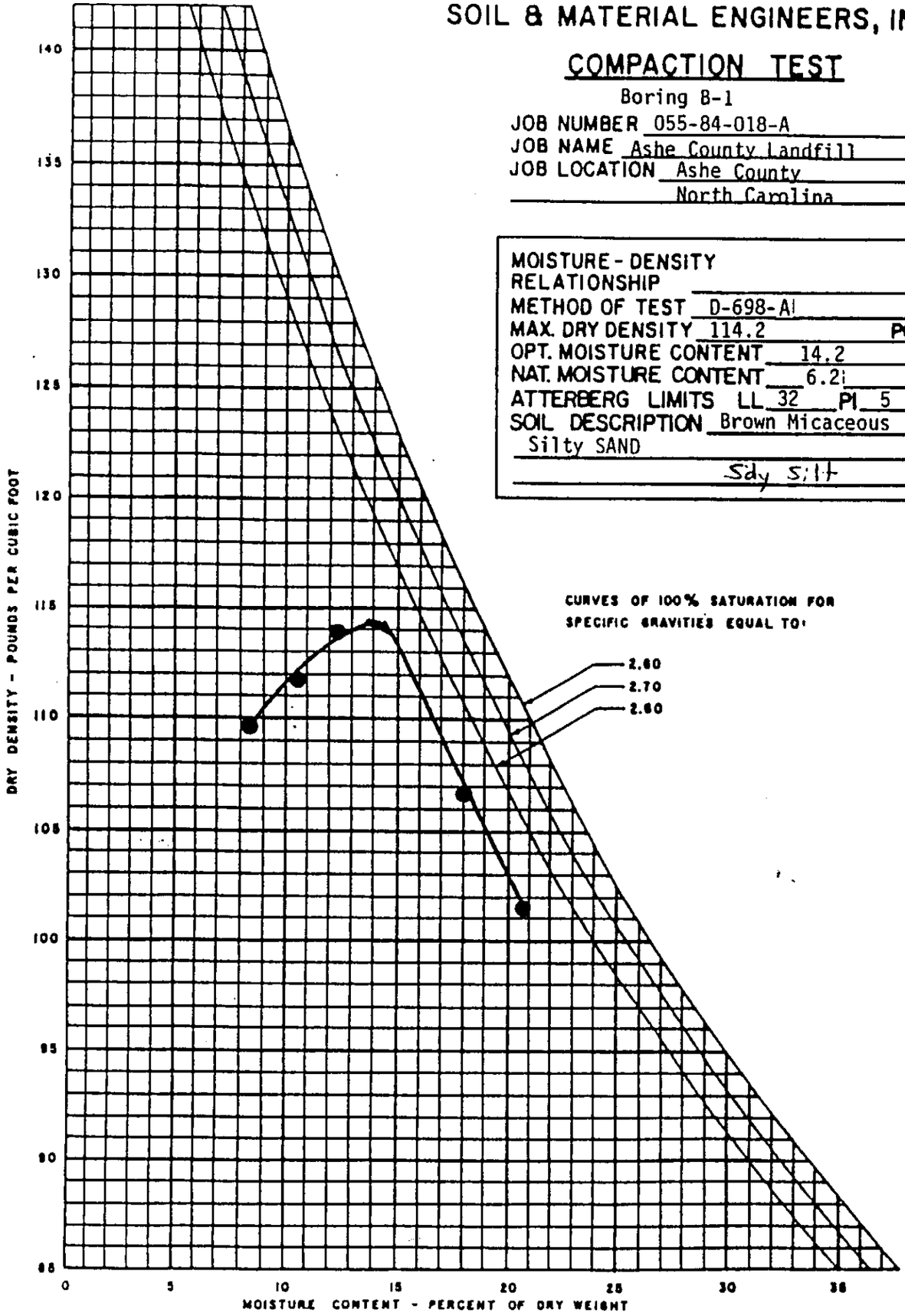
SOIL & MATERIAL ENGINEERS, INC.

COMPACTION TEST

Boring B-1

JOB NUMBER 055-84-018-A
JOB NAME Ashe County Landfill
JOB LOCATION Ashe County
North Carolina

MOISTURE - DENSITY
RELATIONSHIP
METHOD OF TEST D-698-A
MAX. DRY DENSITY 114.2 PCF
OPT. MOISTURE CONTENT 14.2 %
NAT. MOISTURE CONTENT 6.2 %
ATTERBERG LIMITS LL 32 PI 5
SOIL DESCRIPTION Brown Micaceous
Silty SAND
Sdy Silt



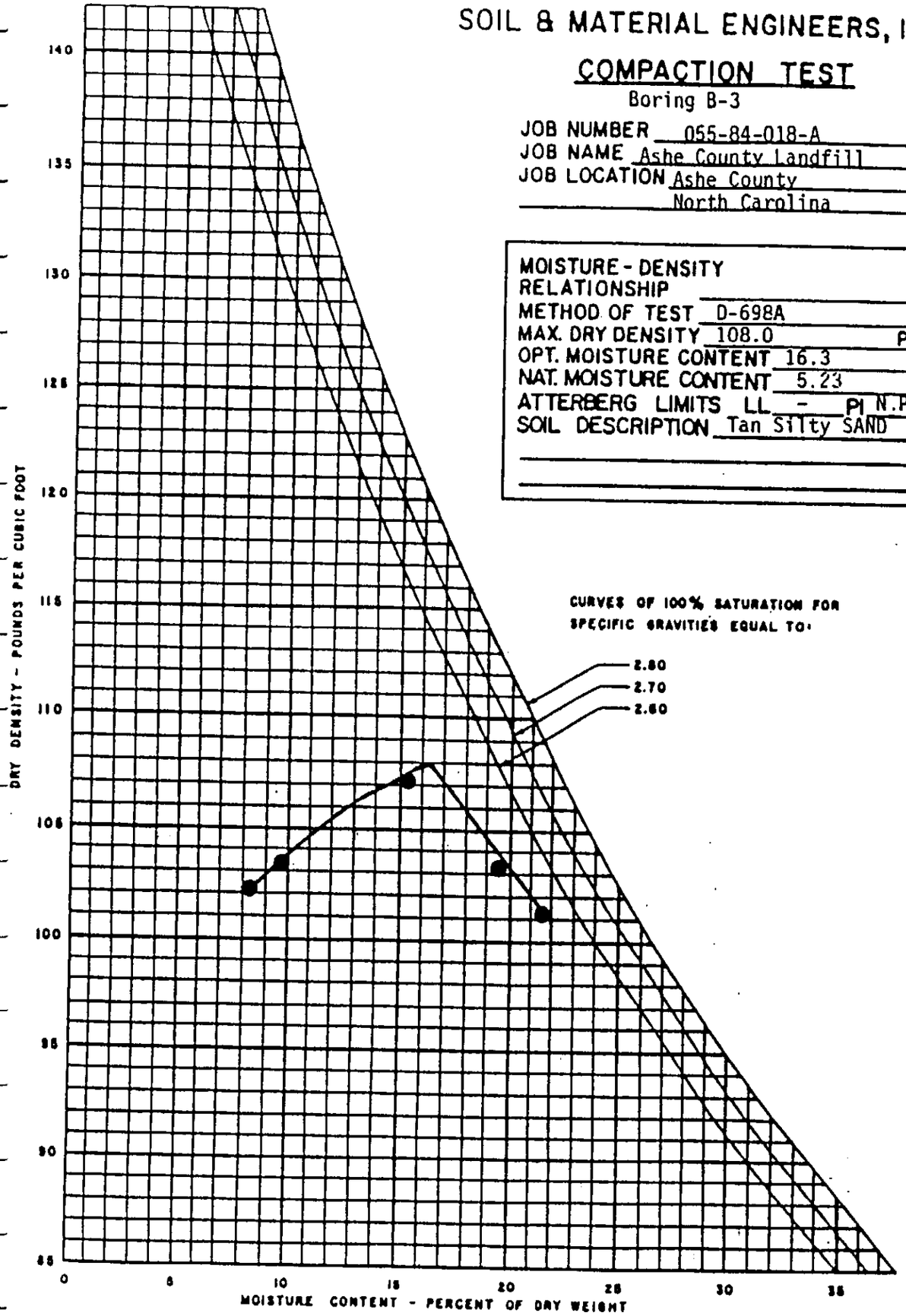
SOIL & MATERIAL ENGINEERS, INC.

COMPACTION TEST

Boring B-3

JOB NUMBER 055-84-018-A
JOB NAME Ashe County Landfill
JOB LOCATION Ashe County
North Carolina

MOISTURE - DENSITY RELATIONSHIP
METHOD OF TEST D-698A
MAX. DRY DENSITY 108.0 PCF
OPT. MOISTURE CONTENT 16.3 %
NAT. MOISTURE CONTENT 5.23 %
ATTERBERG LIMITS LL - PI N.P.
SOIL DESCRIPTION Tan Silty SAND



DUNCAN-PARNELL, INC., RALEIGH 4/84

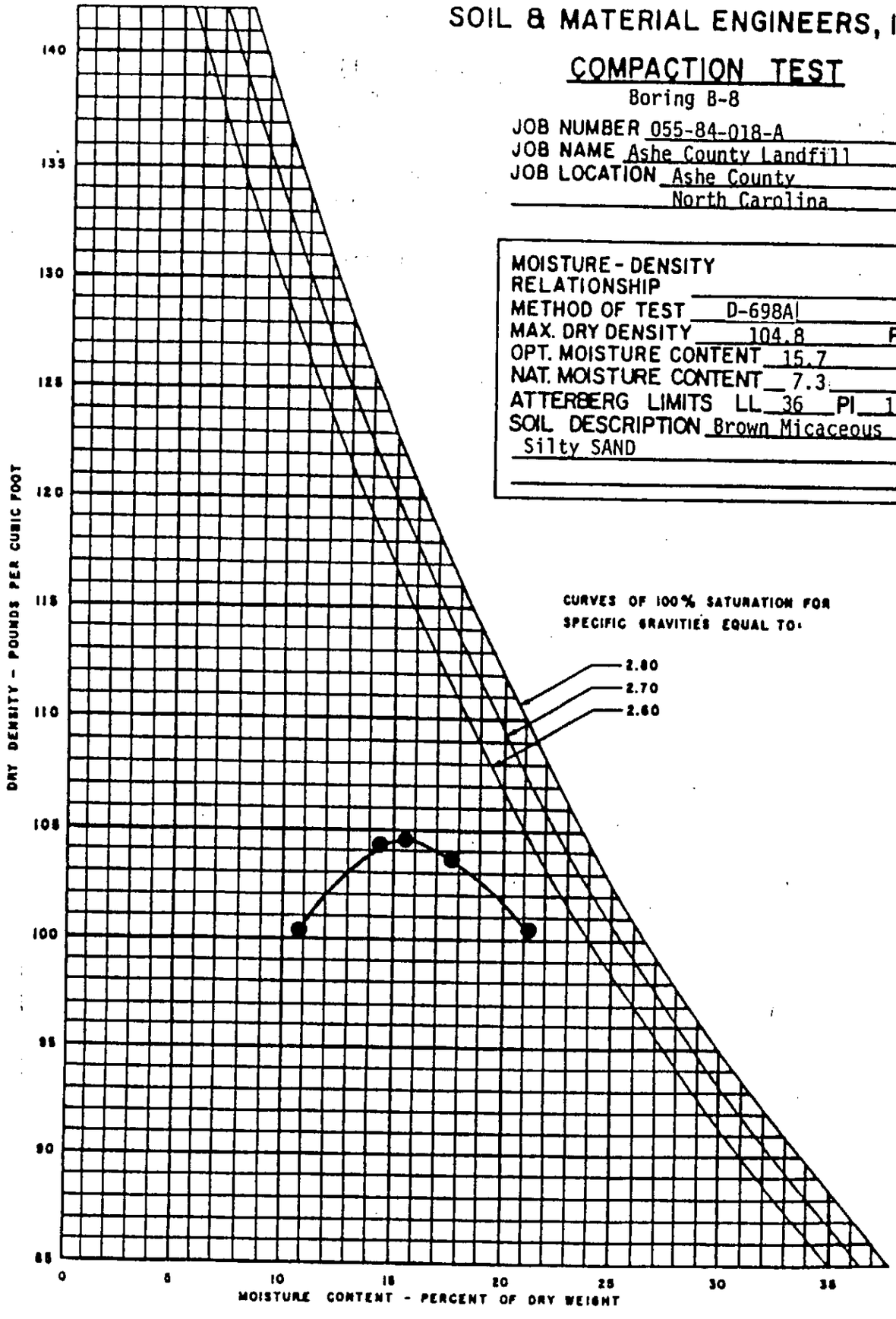
SOIL & MATERIAL ENGINEERS, INC.

COMPACTION TEST

Boring B-8

JOB NUMBER 055-84-018-A
JOB NAME Ashe County Landfill
JOB LOCATION Ashe County
North Carolina

MOISTURE - DENSITY RELATIONSHIP
METHOD OF TEST D-698A
MAX. DRY DENSITY 104.8 PCF
OPT. MOISTURE CONTENT 15.7 %
NAT. MOISTURE CONTENT 7.3 %
ATTERBERG LIMITS LL 36 PI 1
SOIL DESCRIPTION Brown Micaceous Silty SAND



SOILS INFORMATION

ASHE COUNTY

SANITARY LANDFILL

BY: Edward O. Brewer, Soil Scientist
Toy N. Campbell, Jr., District Conservationist
In Cooperation With: New River Soil & Water
Conservation District

SOIL INVESTIGATION
ASHE COUNTY SANITARY LANDFILL

A soil investigation was made of the proposed area of additional landfill. (See attached map.) The test borings were numbered 1 through 8.

The soil over the entire area is developed from mica schist and is in the Watauga or Fannin series. These are similar soils with clay loam subsoils over fairly deeply weathered micaceous fine sandy loam saprolite.

Borings were made with a well drilling machine making it difficult to determine the exact hardness of the saprolite or weathered rock in borings.

The borings are shown on the following chart:

BORING DEPTH, UNIFIED CLASSIFICATION, DEPTH TO FREE WATER AFTER 24 HRS. ON 8 TEST HOLES ASHE COUNTY LANDFILL

(Depth in feet)

Hole #	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
1	ML	ML	SM	→	→	→	→	→	→	→	→	→	→	→	→	W	→	→	→	→	→	→	R	R
2	ML	ML	SM	→	→	→	→	→	→	→	→	→	W	→	→	→	→	→	→	→	→	→	→	R
3	ML	ML	SM	→	→	→	→	→	→	→	→	→	→	→	→	→	W	→	→	→	R	R	R	
4	ML	SM	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	R	R	
5	ML	ML	SM	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	R	SM	R	
6	ML	SM	→	→	→	→	→	→	→	→	→	→	W	→	→	→	→	RSM	SM	SM	SM	SM	R	R
7	ML	ML	SM	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	R	R	SM	R
8	ML	ML	SM	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	W R	RSM		SM	R	

(W) Depth to free water after 24 hours.

1. The permeability of these soils are moderate to moderately rapid. This applies only to the solum depth of the soil as no permeability data is available for weathered rock material below 5 feet.

2. The particle size analysis for most of the material in the 8 holes showed about 74 percent sand, 20 percent silt and 6 percent clay. A large portion of the silt sized fractions would appear to be mica. The USDA Soil Texture is sandy loam and the unified classification is S.M. The material is non-plastic.

3. The soil material has a low liquid limit, around 20.

4. The specific gravity of the soil material is 2.63 as compared water which is 1.

N

CONSERVATION MAP
Approximate Scale 1" = 660'

UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

ASHE COUNTY, NORTH CAROLINA

APPENDIX III

WELL CONSTRUCTION RECORDS

MW-1

North Carolina - Department of Environment, Health, and Natural Resources
Division of Environmental Management - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

FOR OFFICE USE ONLY
QUAD. NO. _____ SERIAL NO. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: GAI Consultants-NC

DRILLER REGISTRATION NUMBER: 446

STATE WELL CONSTRUCTION PERMIT NUMBER: 04-0117-WM-0033

1. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Chestnut Hill County: Ashe
   NCSR 1558
   (Road, Community, or Subdivision and Lot No.)
2. OWNER Ashe County
   ADDRESS Post Office Box 633
   (Street or Route No.)
   Jefferson, North Carolina 28640
   City or Town State Zip Code
3. DATE DRILLED 8-6-91 USE OF WELL GW Monitoring
4. TOTAL DEPTH 60.0 ft
5. CUTTINGS COLLECTED YES [ ] NO [X]
6. DOES WELL REPLACE EXISTING WELL? YES [ ] NO [X]
7. STATIC WATER LEVEL Below Top of Casing: 52.0 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS 2.0 FT. Above Land Surface*
   * Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118
9. YIELD (gpm): N/A METHOD OF TEST _____
10. WATER ZONES (depth): 52.0 ft to bottom
    CHLORINATION: Type N/A Amount _____

DEPTH From	DEPTH To	DRILLING LOG Formation Description
0'	30'	Silty sand
30'	48.5'	Sandy silt
48.5'	58.5'	Rock

If additional space is needed use back of form

12. CASING:

	Depth From	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
	+2.0	43.0	2 in.	SCH 40	PVC

13. GROUT:

	Depth From	Depth To	Material	Method
	0	41.0	cement	tremie
	41.0	42.0	bentonite	pellets

SEE BACK OF PAGE

14. SCREEN:

	Depth From	Depth To	Diameter	Slot Size	Material
	43.0	58.0	2.0 in.	0.010 in.	PVC
			in.	in.	
			in.	in.	

15. SAND/GRAVEL PACK:

	Depth From	Depth To	Size	Material
	42.0	58.5	NC #2S	sand

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)

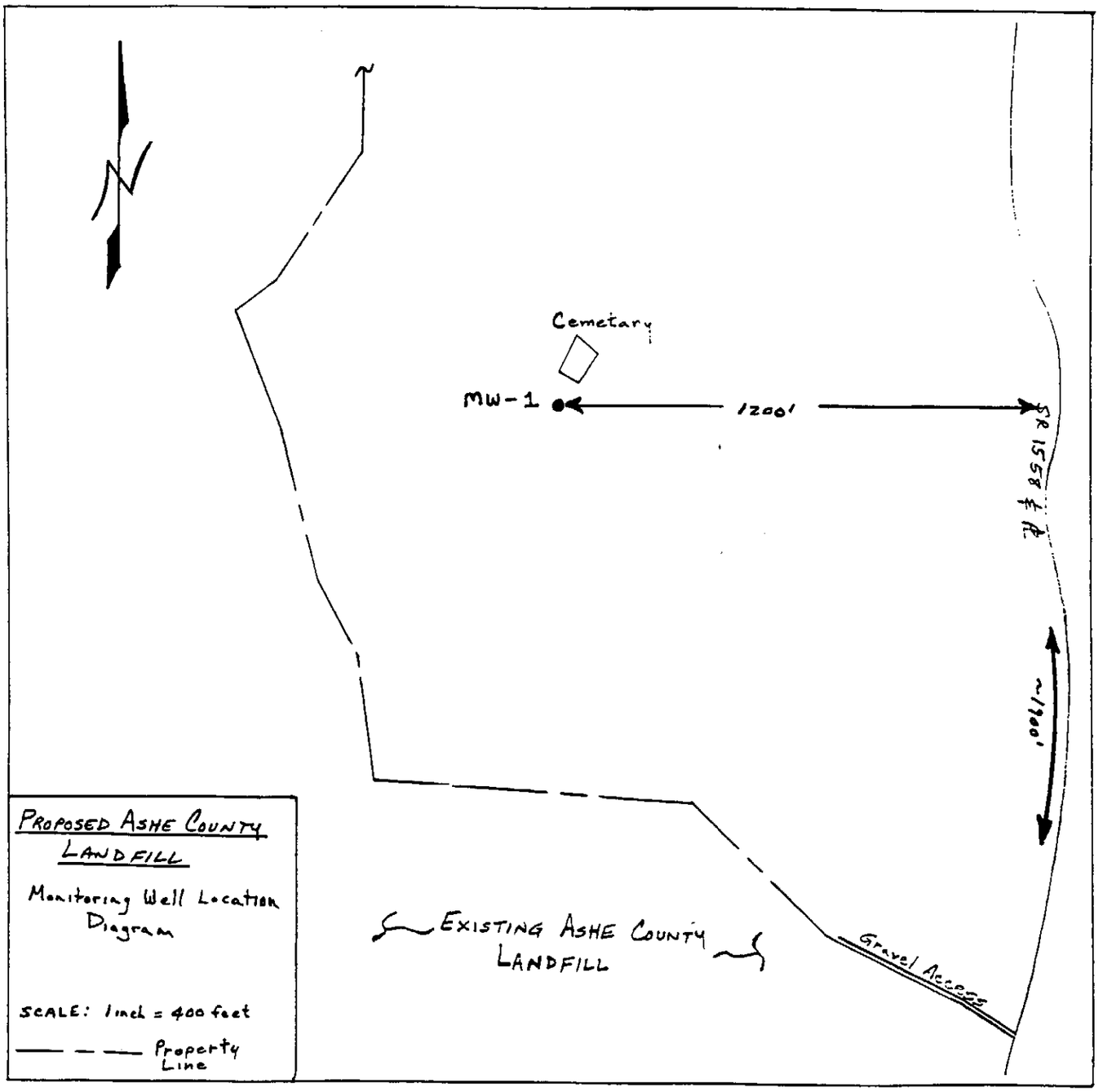
16. REMARKS: Water levels are at time of installation

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Wendell W. Parks 9-5-91
SIGNATURE OF CONTRACTOR OR AGENT DATE

Submit original to Division of Environmental Management and copy to well owner.

GW-1 REV. 5/91


Cemetary
MW-1
1200'
SR 1558 ℄
~1900'
Existing Ashe County Landfill
Gravel Access
Proposed Ashe County Landfill
Monitoring Well Location Diagram
SCALE: 1 inch = 400 feet
Property Line

MW-2

North Carolina - Department of Environment, Health, and Natural Resources
Division of Environmental Management - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

FOR OFFICE USE ONLY
QUAD. NO. _____ SERIAL NO. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: GAI Consultants-NC

DRILLER REGISTRATION NUMBER: 446

STATE WELL CONSTRUCTION PERMIT NUMBER: 04-0117-WM-0033

1. WELL LOCATION: (Show sketch of the location below)
Nearest Town: Chestnut Hill County: Ashe
NCSR 1558
(Road, Community, or Subdivision and Lot No.)

2. OWNER Ashe County
ADDRESS Post Office Box 633
(Street or Route No.)
Jefferson, North Carolina 28640
City or Town State Zip Code

3. DATE DRILLED 8-3-91 USE OF WELL GW Monitoring
4. TOTAL DEPTH 27.0 ft.
5. CUTTINGS COLLECTED YES [ ] NO [X]
6. DOES WELL REPLACE EXISTING WELL? YES [ ] NO [X]
7. STATIC WATER LEVEL Below Top of Casing: 19.0 FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS 2.0 FT. Above Land Surface*
* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118
9. YIELD (gpm): N/A METHOD OF TEST
10. WATER ZONES (depth): 19.0 ft to bottom

CHLORINATION: Type N/A Amount

DEPTH From	DEPTH To	DRILLING LOG Formation Description
0'	25'	Silty sand

If additional space is needed use back of form

12. CASING:

From	To	Ft.	Diameter	Wall Thickness or Weight/Ft.	Material
+2.0	10.0		2 in.	SCH 40	PVC

13. GROUT:

From	To	Ft.	Material	Method
0	8.0		cement	tremie
8.0	9.0		bentonite	pellets

14. SCREEN:

From	To	Ft	Diameter in.	Slot Size in.	Material
10.0	25.0		2.0	0.010	PVC

15. SAND/GRAVEL PACK:

From	To	Ft.	Size	Material
9.0	25.5		NC #25	sand

16. REMARKS: Water levels are at time of installation

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)

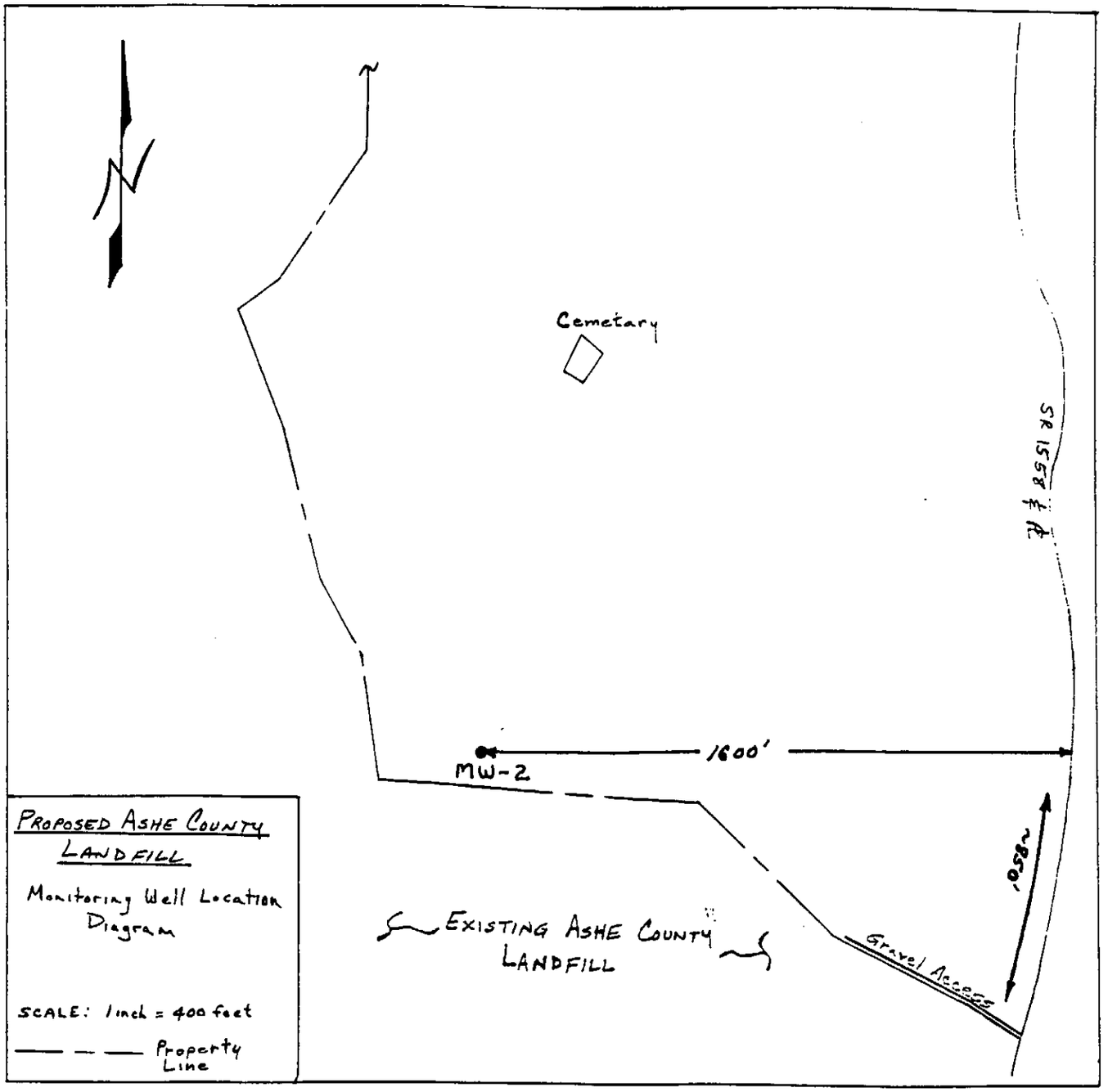
SEE BACK OF PAGE

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Wendell W. Parks 9-5-91
SIGNATURE OF CONTRACTOR OR AGENT DATE

Submit original to Division of Environmental Management and copy to well owner.

GW-1 REV. 5/91


Cemetary
SR 1558 ℄ ℞
1600'
MW-2
~850'
EXISTING ASHE COUNTY LANDFILL
Gravel Access
PROPOSED ASHE COUNTY LANDFILL
Monitoring Well Location Diagram
SCALE: 1 inch = 400 feet
Property Line

MW-3

North Carolina - Department of Environment, Health, and Natural Resources
Division of Environmental Management - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

FOR OFFICE USE ONLY
QUAD. NO. _____ SERIAL NO. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: GAI Consultants-NC

DRILLER REGISTRATION NUMBER: 446

STATE WELL CONSTRUCTION PERMIT NUMBER: 04-0117-WM-0034

1. WELL LOCATION: (Show sketch of the location below)
Nearest Town: Chestnut Hill County: Ashe
NCSR 1558
(Road, Community, or Subdivision and Lot No.)

2. OWNER Ashe County
ADDRESS Post Office Box 633
(Street or Route No.)
Jefferson, North Carolina 28640
City or Town State Zip Code

3. DATE DRILLED 9-19-91 USE OF WELL GW Monitoring
4. TOTAL DEPTH 72.0 ft
5. CUTTINGS COLLECTED YES [ ] NO [X]
6. DOES WELL REPLACE EXISTING WELL? YES [ ] NO [X]
7. STATIC WATER LEVEL Below Top of Casing: 64.0 FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS 2.0 FT. Above Land Surface*
* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118
9. YIELD (gpm): N/A METHOD OF TEST _____
10. WATER ZONES (depth): 64.0 ft to bottom
11. CHLORINATION: Type N/A Amount _____
12. CASING:

Depth From	To	Ft.	Diameter	Wall Thickness or Weight/Ft.	Material
+2.0	55.0		2 in.	SCH 40	PVC

13. GROUT:

Depth From	To	Ft.	Material	Method
0	53.0		cement	tremie
53.0	54.0		bentonite	pellets

14. SCREEN:

Depth From	To	Ft.	Diameter	Slot Size	Material
55.0	70.0		2.0 in.	0.010 in.	PVC
			in.	in.	
			in.	in.	

15. SAND/GRAVEL PACK:

Depth From	To	Ft.	Size	Material
54.0	70.5		NC #2S	sand

16. REMARKS: Water levels are at time of installation

DEPTH From	To	DRILLING LOG Formation Description
0'	8'	Sandy silt
8'	20'	Sandy silt with weathered rock layers
20'	50'	Sandy silt
50'	70'	Weathered rock

If additional space is needed use back of form

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)

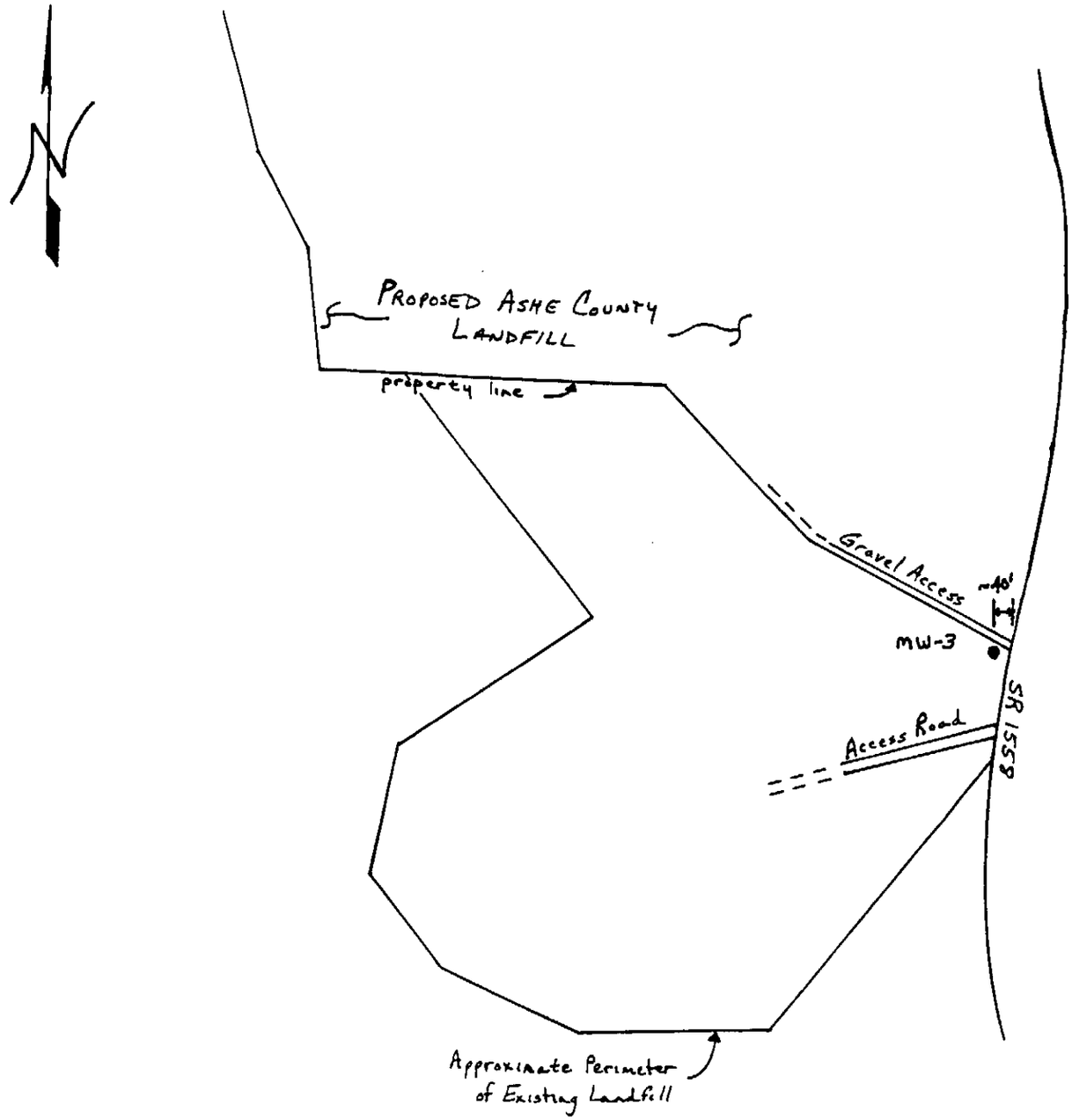
See Back Of Page

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Gary J. [illegible] 9/23/91
SIGNATURE OF CONTRACTOR OR AGENT DATE

Submit original to Division of Environmental Management and copy to well owner.

GW-1 REV. 5/91



EXISTING ASHE COUNTY LANDFILL

Monitoring Well Location Diagram

scale: 1 inch = 400 feet

MW-4

North Carolina - Department of Environment, Health, and Natural Resources
Division of Environmental Management - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

FOR OFFICE USE ONLY
QUAD. NO. _____ SERIAL NO. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: GAI Consultants-NC

DRILLER REGISTRATION NUMBER: 446

STATE WELL CONSTRUCTION PERMIT NUMBER: 04-0117-WM-0034

1. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Chestnut Hill County: Ashe
   NCSR 1558
   (Road, Community, or Subdivision and Lot No.)
2. OWNER Ashe County
   ADDRESS Post Office Box 633
   (Street or Route No.)
   Jefferson, North Carolina 28640
   City or Town State Zip Code
3. DATE DRILLED 9-19-91 USE OF WELL GW Monitoring
4. TOTAL DEPTH 27.5 ft
5. CUTTINGS COLLECTED YES [ ] NO [X]
6. DOES WELL REPLACE EXISTING WELL? YES [ ] NO [X]
7. STATIC WATER LEVEL Below Top of Casing: 19.5 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS 2.0 FT. Above Land Surface*
   * Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118
9. YIELD (gpm): N/A METHOD OF TEST _____
10. WATER ZONES (depth): 19.5 ft to bottom
11. CHLORINATION: Type N/A Amount _____
12. CASING:

	Depth From	Depth To	Ft.	Diameter	Wall Thickness or Weight/Ft.	Material
	+2.0	10.5		2 in.	SCH 40	PVC

13. GROUT:

	Depth From	Depth To	Ft.	Material	Method
	0	8.5		cement	tremie
	8.5	9.5		bentonite	pellets

14. SCREEN:

	Depth From	Depth To	Ft	Diameter	Slot Size	Material
	10.5	25.5		2.0 in.	0.010 in.	PVC
				in.	in.	
				in.	in.	

15. SAND/GRAVEL PACK:

	Depth From	Depth To	Ft.	Size	Material
	9.5	26.0		NC #2S	Sand

16. REMARKS: Water levels are at time of installation

DEPTH From	DEPTH To	DRILLING LOG Formation Description
0'	25.5'	Sandy silt
25.5'	26'	Rock

If additional space is needed use back of form

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)

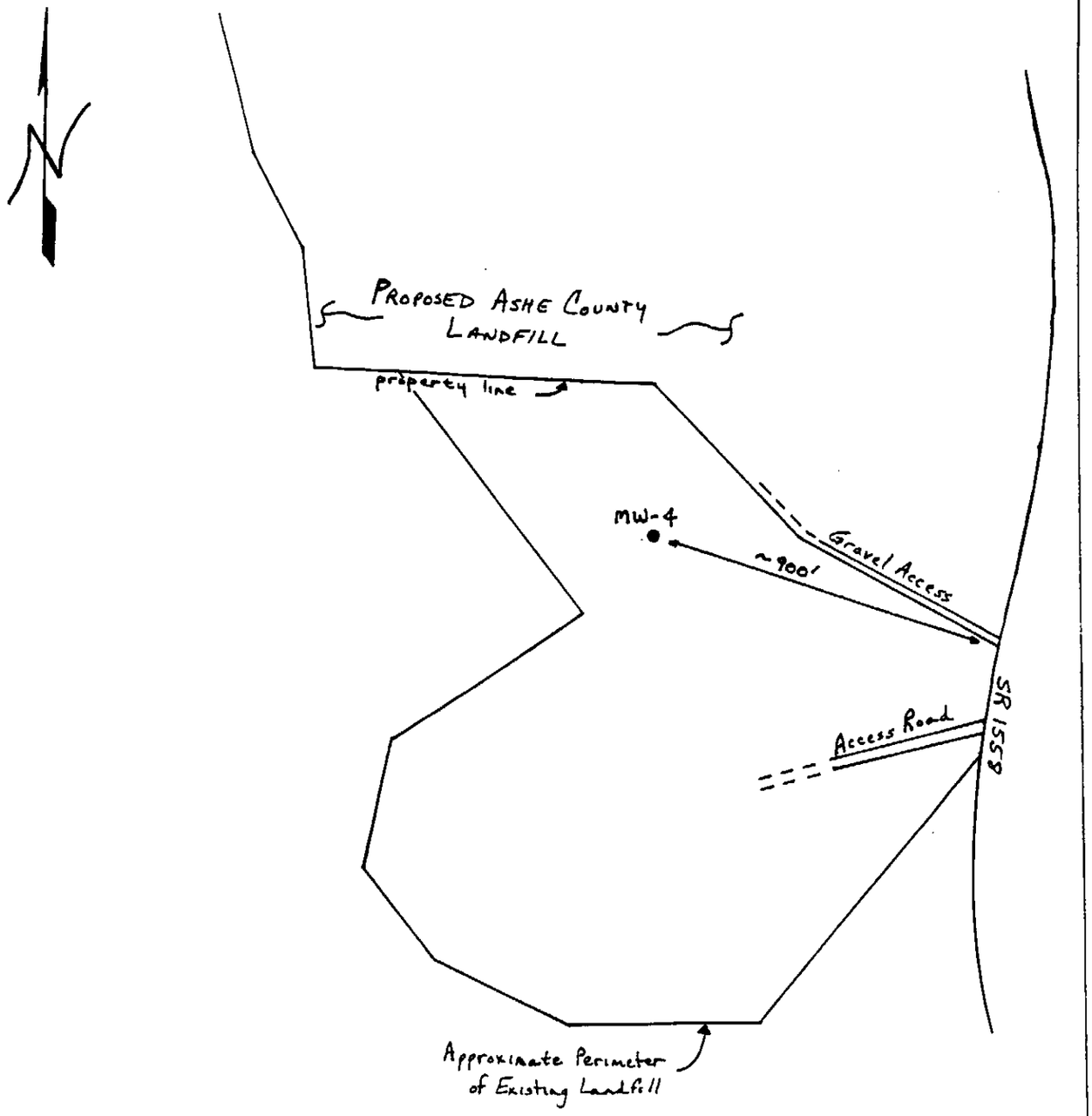
See Back Of Page

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Gary J. [illegible] 9/23/91
SIGNATURE OF CONTRACTOR OR AGENT DATE

Submit original to Division of Environmental Management and copy to well owner.

GW-1 REV. 5/91



EXISTING ASHE COUNTY LANDFILL

Monitoring Well Location Diagram

scale: 1 inch = 400 feet

MW-5

North Carolina - Department of Environment, Health, and Natural Resources
Division of Environmental Management - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

FOR OFFICE USE ONLY
QUAD. NO. _____ SERIAL NO. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: GAI Consultants-NC

DRILLER REGISTRATION NUMBER: 446

STATE WELL CONSTRUCTION PERMIT NUMBER: 04-0117-WM-0034

1. WELL LOCATION: (Show sketch of the location below)
Nearest Town: Chestnut Hill County: Ashe
NCSR 1558
(Road, Community, or Subdivision and Lot No.)

2. OWNER Ashe County
ADDRESS Post Office Box 633
(Street or Route No.)
Jefferson, North Carolina 28640
City or Town State Zip Code

3. DATE DRILLED 9-20-91 USE OF WELL GW Monitoring
4. TOTAL DEPTH 35.0 ft
5. CUTTINGS COLLECTED YES [ ] NO [X]
6. DOES WELL REPLACE EXISTING WELL? YES [ ] NO [X]
7. STATIC WATER LEVEL Below Top of Casing: 18.5 FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS 1.5 FT. Above Land Surface*
* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118
9. YIELD (gpm): N/A METHOD OF TEST _____
10. WATER ZONES (depth): 18.5 ft to bottom
11. CHLORINATION: Type N/A Amount _____

DEPTH From	DEPTH To	DRILLING LOG Formation Description
0'	27'	Sandy silt
27'	34'	Weathered Rock

If additional space is needed use back of form

12. CASING:

From	To	Ft.	Diameter	Wall Thickness or Weight/Ft.	Material
+1.5	18.5		2 in.	SCH 40	PVC

13. GROUT:

From	To	Ft.	Material	Method
0	16.5		cement	tremie
16.5	17.5		bentonite	pellets

14. SCREEN:

From	To	Ft.	Diameter	Slot Size	Material
18.5	33.5		2.0 in.	0.010 in.	PVC
			in.	in.	
			in.	in.	

15. SAND/GRAVEL PACK:

From	To	Ft.	Size	Material
17.5	34.0		NC #2S	Sand

16. REMARKS: Water levels are at time of installation.

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)

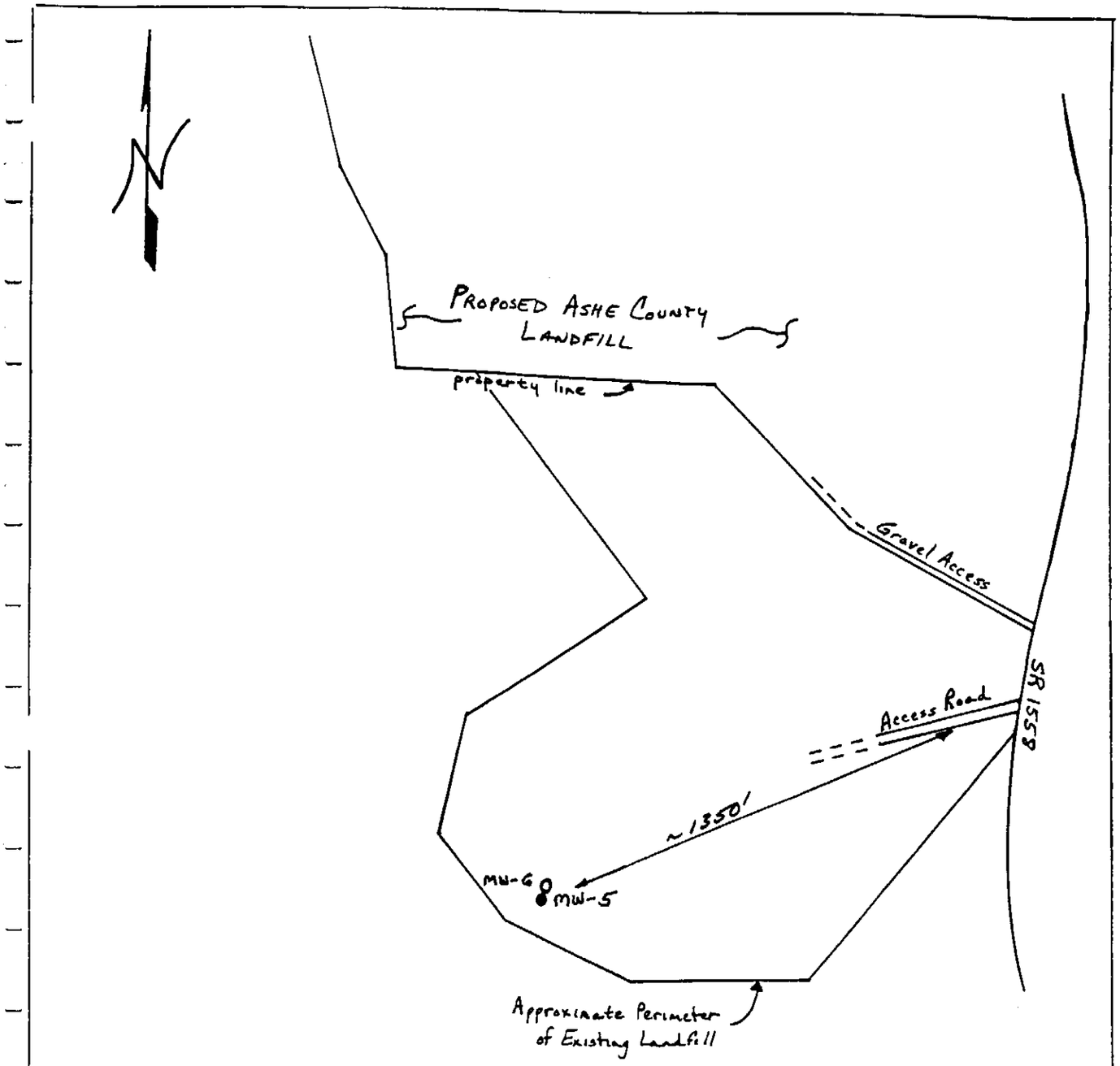
See Back Of Page

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Gary J. [illegible] 9/23/91
SIGNATURE OF CONTRACTOR OR AGENT DATE

Submit original to Division of Environmental Management and copy to well owner.

GW-1 REV. 5/91



EXISTING ASHE COUNTY LANDFILL

Monitoring Well Location Diagram

scale: 1 inch = 400 feet

MW-6

North Carolina - Department of Environment, Health, and Natural Resources
Division of Environmental Management - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

FOR OFFICE USE ONLY
QUAD. NO. _____ SERIAL NO. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: GAI Consultants-NC

DRILLER REGISTRATION NUMBER: 446

STATE WELL CONSTRUCTION PERMIT NUMBER: 04-0117-WM-0034

1. WELL LOCATION: (Show sketch of the location below)
Nearest Town: Chestnut Hill County: Ashe
NCSR 1558
(Road, Community, or Subdivision and Lot No.)

2. OWNER Ashe County
ADDRESS Post Office Box 633
(Street or Route No.)
Jefferson, North Carolina 28640
City or Town State Zip Code

3. DATE DRILLED 9-20-91 USE OF WELL GW Monitoring
4. TOTAL DEPTH 71.0 ft
5. CUTTINGS COLLECTED YES [ ] NO [X]
6. DOES WELL REPLACE EXISTING WELL? YES [ ] NO [X]
7. STATIC WATER LEVEL Below Top of Casing: 19.0 FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS 2.0 FT. Above Land Surface*
* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118
9. YIELD (gpm): N/A METHOD OF TEST _____
10. WATER ZONES (depth): 19.0 ft to bottom
11. CHLORINATION: Type N/A Amount _____

DEPTH From	DEPTH To	DRILLING LOG Formation Description
0'	34'	Sandy silt
34'	69.5'	Rock

If additional space is needed use back of form

12. CASING:

From	To	Ft.	Diameter	Wall Thickness or Weight/Ft.	Material
+2.0	54.0		2 in.	SCH 40	PVC

13. GROUT:

From	To	Ft.	Material	Method
0	52.0		cement	tremie
52.0	53.0		bentonite	pellets

14. SCREEN:

From	To	Ft.	Diameter	Slot Size	Material
54.0	69.0		2.0 in.	0.010 in.	PVC
			in.	in.	
			in.	in.	

15. SAND/GRAVEL PACK:

From	To	Ft.	Size	Material
53.0	69.5		NC #2S	Sand

16. REMARKS: Water levels are at time of installation.

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)

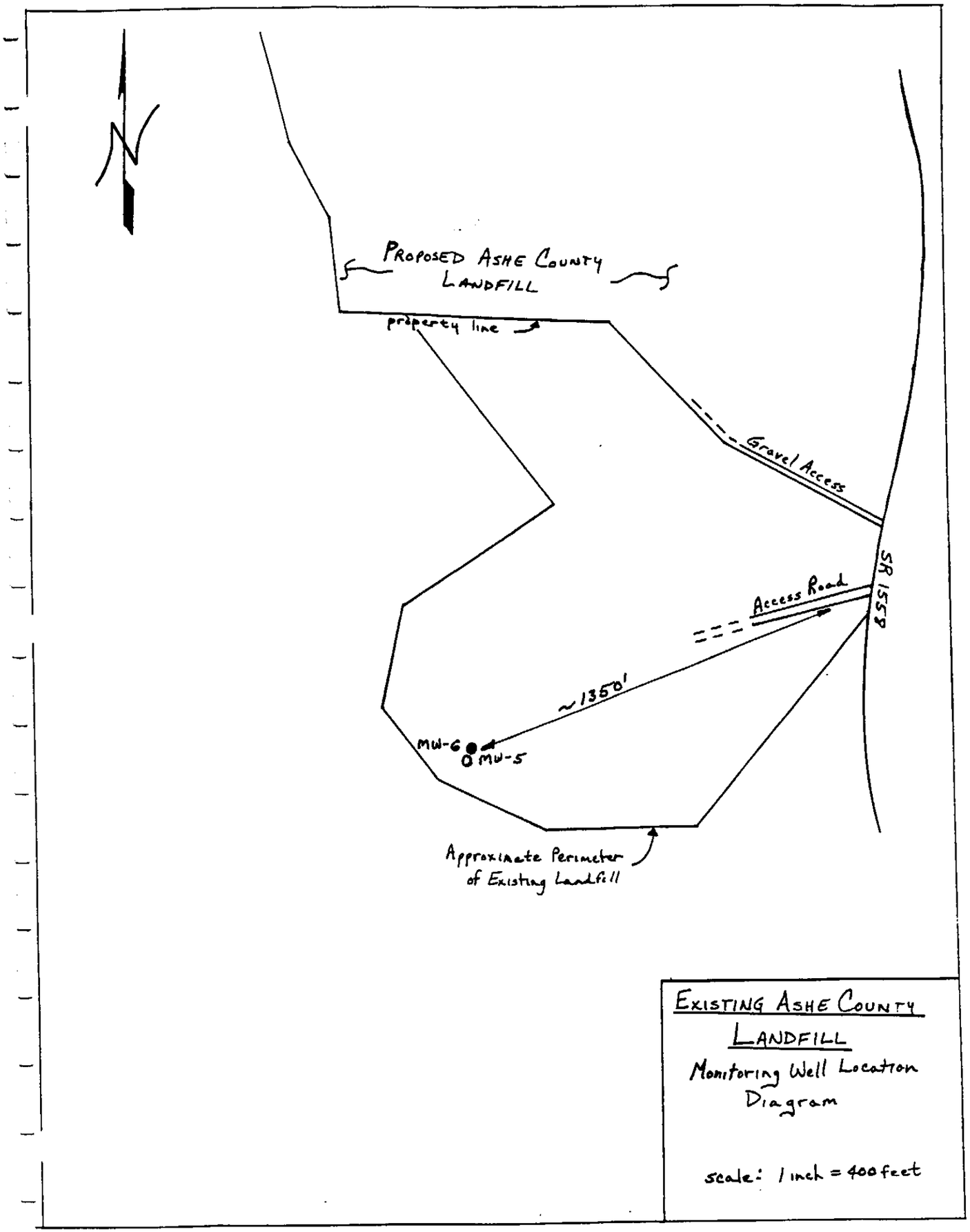
See Back Of Page

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CONTRACTOR OR AGENT _____ DATE 9/23/91

Submit original to Division of Environmental Management and copy to well owner.

GW-1 REV. 5/91


PROPOSED ASHE COUNTY LANDFILL
property line
Gravel Access
SR 1558
Access Road
~1350'
MW-6
MW-5
Approximate Perimeter of Existing Landfill
EXISTING ASHE COUNTY LANDFILL
Monitoring Well Location Diagram
scale: 1 inch = 400 feet

North Carolina
Department of Natural Resources and Community Development
Division of Environmental Management
P. O. Box 27687 - Raleigh, N. C. 27611

MW-7

WELL ABANDONMENT RECORD

CONTRACTOR GAI Consultants - NC REG. NO. 446

1. WELL LOCATION: (Show a sketch of the location on back of form.)
   Nearest Town: Chestnut Hill County Ashe
   NCSR 1558 Quadrangle No.
   (Road, Community, Subdivision, Lot No.)
2. OWNER: Ashe County
3. ADDRESS: P.O.Box 633 Jefferson, NC 28640
4. TOPOGRAPHY: draw, slope, hilltop, valley, flat
5. USE OF WELL: supply/monitor DATE: 7-1-92
6. TOTAL DEPTH: 133 ft DIAMETER: 6 in.
7. CASING REMOVED:

feet	diameter
none	6 in.

8. SEALING MATERIAL:

Neat cement	Sand cement
bags of cement 10	bags of cement
gals. of water 50	yds. of sand
	gals. of water

Other
Type material Bentonite Hole Plug
Amount 23 bags (1150#)

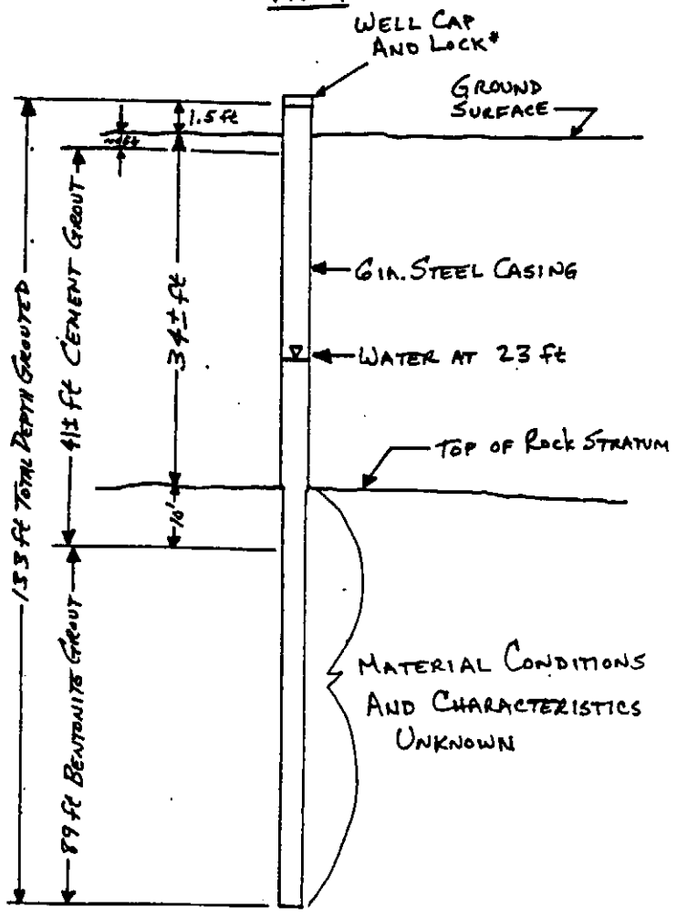
9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL
Chlorinated, pumped bentonite by tremie to 10 ft. below rock stratum surface, then pumped cement grout by tremie to 1 ft below ground surface.

I do hereby certify that this well abandonment record is true and exact.

Gary Langley 7-9-92
Signature of Contractor or Agent Date

WELL DIAGRAM: Draw a detailed sketch of the well showing total depth, depth and diameter of screens remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.

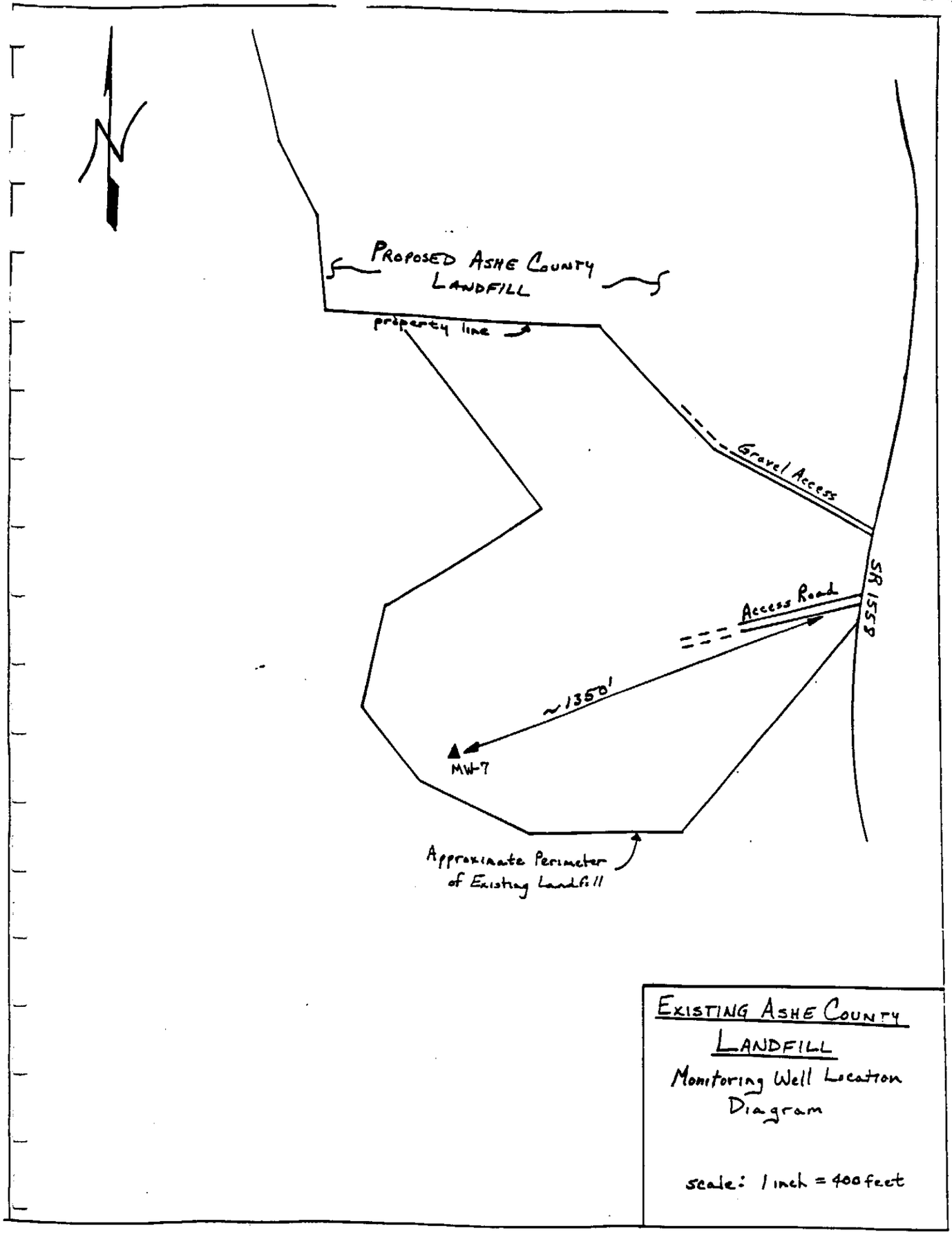
MW-7



*Stick-up to be cut off by owner.

Submit original to the Division of Environmental Management, one copy to the Driller, and one copy to the Owner.

GW-30 Revised 10/1/80


PROPOSED ASHE COUNTY LANDFILL
property line
Gravel Access
SR 1558
Access Road
~1350'
MW-7
Approximate Perimeter of Existing Landfill
EXISTING ASHE COUNTY LANDFILL
Monitoring Well Location Diagram
scale: 1 inch = 400 feet

MW 9 Mi

North Carolina - Department of Environment, Health, and Natural Resources
Division of Environmental Management - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

FOR OFFICE USE ONLY
QUAD. NO. SERIAL NO.
Lat. Long. Pc.
Minor Basin
Basin Code
Header Ent. GW-1 Ent.

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: GAI Consultants-NC

DRILLER REGISTRATION NUMBER: 446

STATE WELL CONSTRUCTION PERMIT NUMBER: 04-0117-WM-0036

1. WELL LOCATION: (Show sketch of the location below)
Nearest Town: CRUMPLER County: ASHE
NCSR 1558 (LANDFILL)
(Road, Community, or Subdivision and Lot No.)

2. OWNER ASHE COUNTY
ADDRESS P.O. Box 633
(Street or Route No.)
JEFFERSON NC 28640
City or Town State Zip Code

3. DATE DRILLED 8-13-92 USE OF WELL GW Monitoring
4. TOTAL DEPTH 17 ft
5. CUTTINGS COLLECTED YES ☐ NO ☒
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing: 11.5 FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS 2 FT. Above Land Surface*
* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118
9. YIELD (gpm): N/A METHOD OF TEST
10. WATER ZONES (depth): 11.5 ft to bottom
11. CHLORINATION: Type N/A Amount
12. CASING:

	Depth From	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
	+2	7	2 in	SCH 40	PVC

13. GROUT:

	Depth From	Depth To	Material	Method
	0	5	CEMENT	TREMIE
	5	6	BENTONITE	PELLETS

14. SCREEN:

	Depth From	Depth To	Diameter	Slot Size	Material
	7	17	2 in.	0.010 in.	PVC
			in.	in.	
			in.	in.	

15. SAND/GRAVEL PACK:

	Depth From	Depth To	Size	Material
	6	17	NC #2S	SAND

16. REMARKS:

DEPTH / DRILLING LOG

Depth From	Depth To	Formation Description
0	6"	TOPSOIL
6"	17'	SANDY SILT

If additional space is needed use back of form

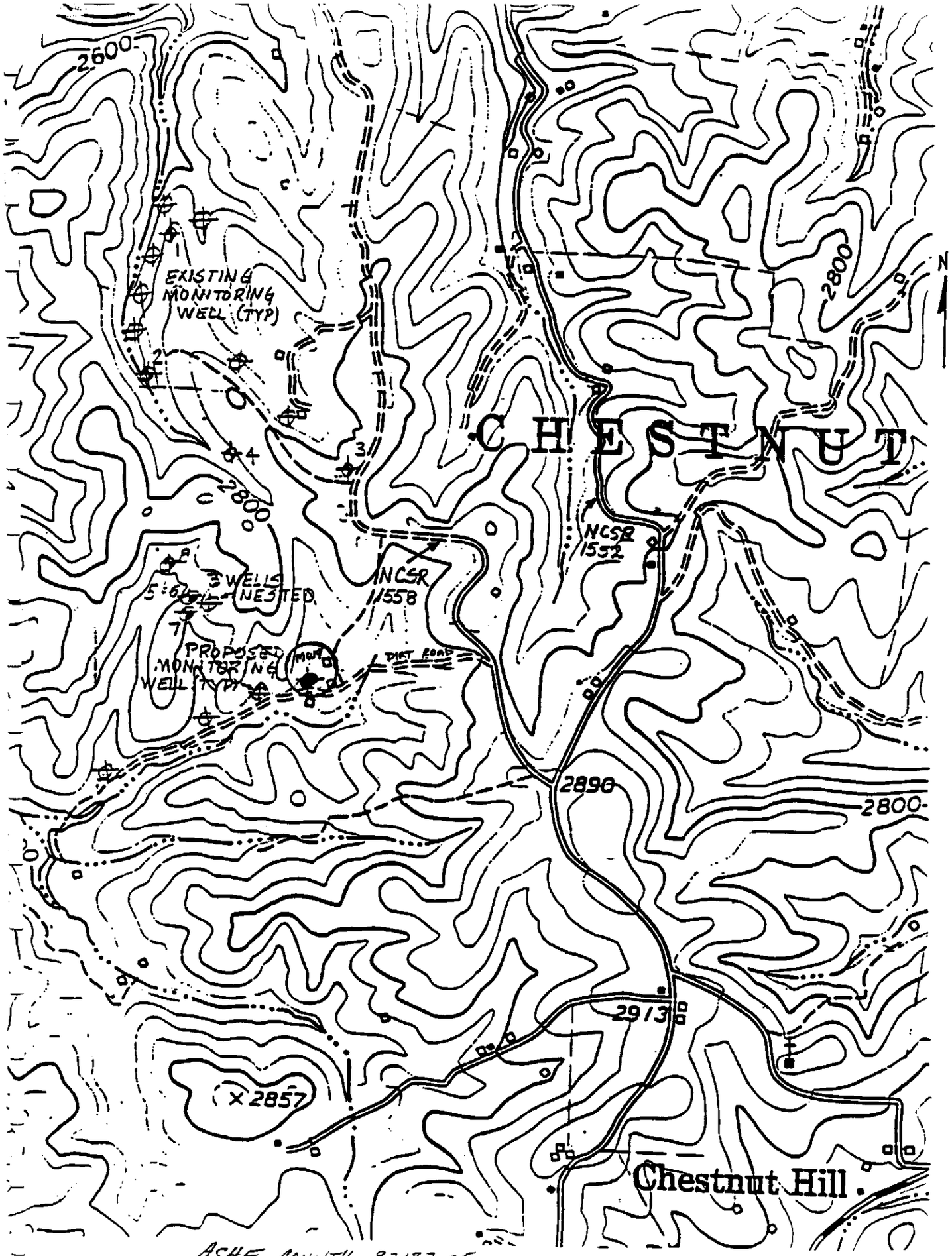
LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)
SEE BACK OF PAGE

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CONTRACTOR OR AGENT 8-19-92 DATE

Submit original to Division of Environmental Management and copy to well owner.

GW-1 REV. 5/91



ASHE COUNTY 92182.05

MW 10 MW 20

North Carolina - Department of Environment, Health, and Natural Resources
Division of Environmental Management - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

FOR OFFICE USE ONLY
QUAD. NO. SERIAL NO.
Lat. Long.
Minor Basin
Basin Code
Header Ent. GW-1 Ent.

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: GAI Consultants - NC

DRILLER REGISTRATION NUMBER: 446

STATE WELL CONSTRUCTION PERMIT NUMBER: 04-0117-WM-0036

1. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Chandler County: Ashe
   NCSR 1558 (Landfill)
   (Road, Community, or Subdivision and Lot No.)
2. OWNER Ashe County
   ADDRESS P.O. Box 633
   (Street or Route No.)
   Jefferson
   City or Town State Zip Code
3. DATE DRILLED 8-11-92 USE OF WELL GW Monitoring
4. TOTAL DEPTH 23 ft
5. CUTTINGS COLLECTED YES ☐ NO ☒
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing: 17 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS 2 FT. Above Land Surface*
   * Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118
9. YIELD (gpm): N/A METHOD OF TEST
10. WATER ZONES (depth): 17 ft to Bottom
11. CHLORINATION: Type N/A Amount
12. CASING:

Depth From	To	Ft.	Diameter	Wall Thickness or Weight/Ft.	Material
+2	12		2in	SCH 40	PVC

13. GROUT:

Depth From	To	Ft.	Material	Method
0	10		Cement	Tremie
10	11		Bentonite	Pellets

14. SCREEN:

Depth From	To	Ft.	Diameter	Slot Size	Material
12	22		2 in.	0.010 in.	PVC
			in.	in.	
			in.	in.	

15. SAND/GRAVEL PACK:

Depth From	To	Ft.	Size	Material
11	23		NC #2S	Sand

16. REMARKS:

DEPTH From	To	DRILLING LOG Formation Description
0	6"	Topsoil
6"	23'	Sandy Silt

If additional space is needed use back of form

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)

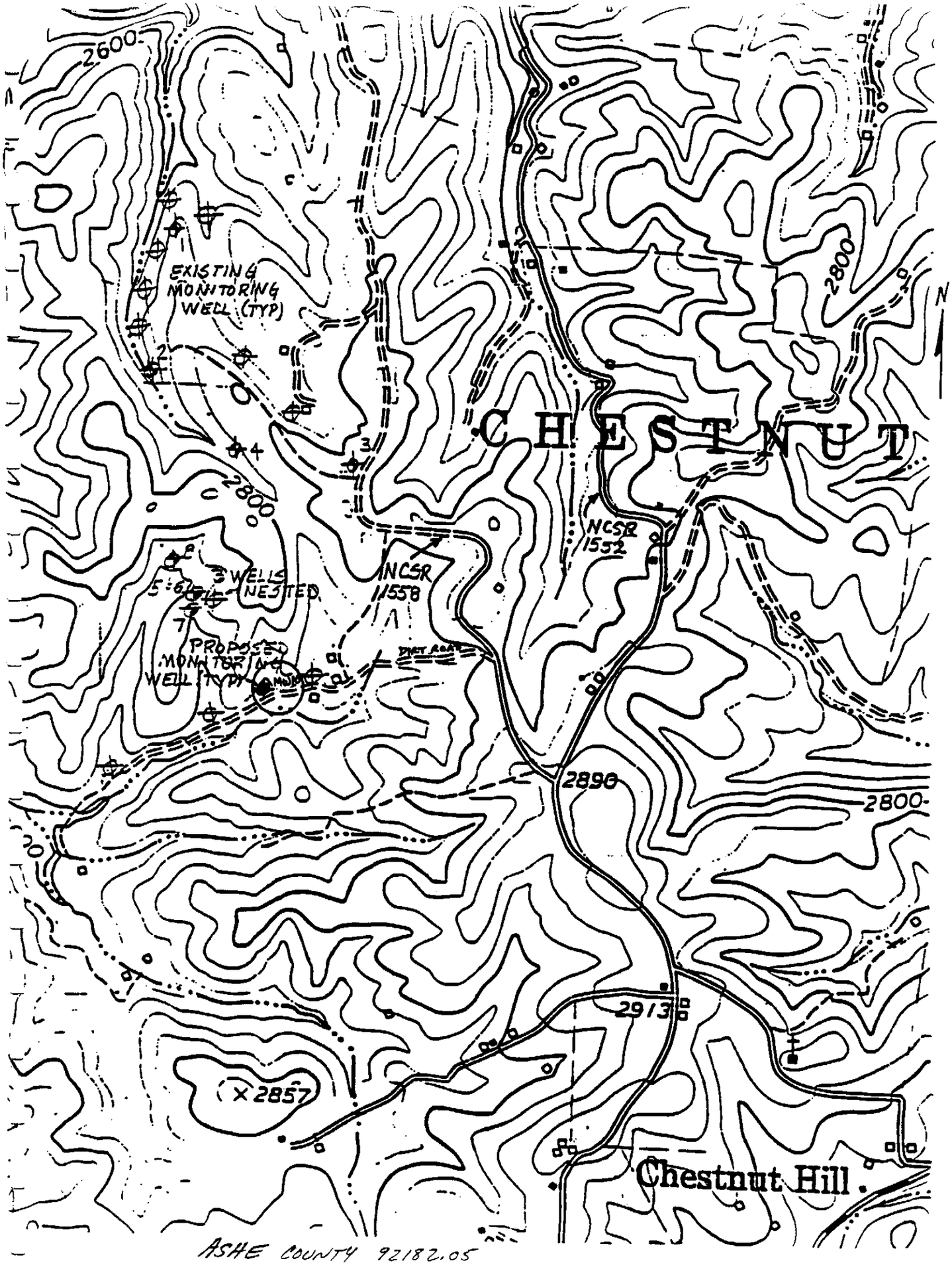
SEE BACK OF PAGE

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CONTRACTOR OR AGENT 8-19-92 DATE

Submit original to Division of Environmental Management and copy to well owner.

GW-1 REV. 5/91



ASHE COUNTY 92182.05

MW 11

North Carolina - Department of Environment, Health, and Natural Resources
Division of Environmental Management - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

FOR OFFICE USE ONLY
QUAD. NO. ____ SERIAL NO. ____
Lat. ____ Long. ____ Pc ____
Minor Basin ____
Basin Code ____
Header Ent. ____ GW-1 Ent. ____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: GAI CONSULTANTS-NC

DRILLER REGISTRATION NUMBER: 446

STATE WELL CONSTRUCTION PERMIT NUMBER: 04-0117-WM-0036

1. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: CRUMPLER County: ASHE
   NC SR 1558 (LANDFILL)
   (Road, Community, or Subdivision and Lot No.)
2. OWNER ASHE COUNTY
   ADDRESS P.O. BOX 673
   (Street or Route No.)
   JEFFERSON NC 28640
   City or Town State Zip Code
3. DATE DRILLED 8-12-92 USE OF WELL GW MONITORING
4. TOTAL DEPTH 15 ft
5. CUTTINGS COLLECTED YES ☐ NO ☒
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing: 7 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS 2 FT. Above Land Surface*
   * Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118
9. YIELD (gpm): N/A METHOD OF TEST ____
10. WATER ZONES (depth): 7 ft to bottom
11. CHLORINATION: Type N/A Amount ____
12. CASING:

From	To	Ft.	Diameter	Wall Thickness or Weight/Ft.	Material
+2	4		2in	SCH 40	PVC

13. GROUT:

From	To	Ft.	Material	Method
0	2		CEMENT	TREMIE
2	3		BENTONITE	PELLETS

14. SCREEN:

From	To	Ft.	Diameter	Slot Size	Material
4	14		2 in.	0.010 in.	PVC
			in.	in.	
			in.	in.	

15. SAND/GRAVEL PACK:

From	To	Ft.	Size	Material
3	15		NC #2S	SAND

16. REMARKS: ____

DEPTH From	DEPTH To	DRILLING LOG Formation Description
0	6"	TOPSOIL
6"	15'	SANDY SILT

If additional space is needed use back of form

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)

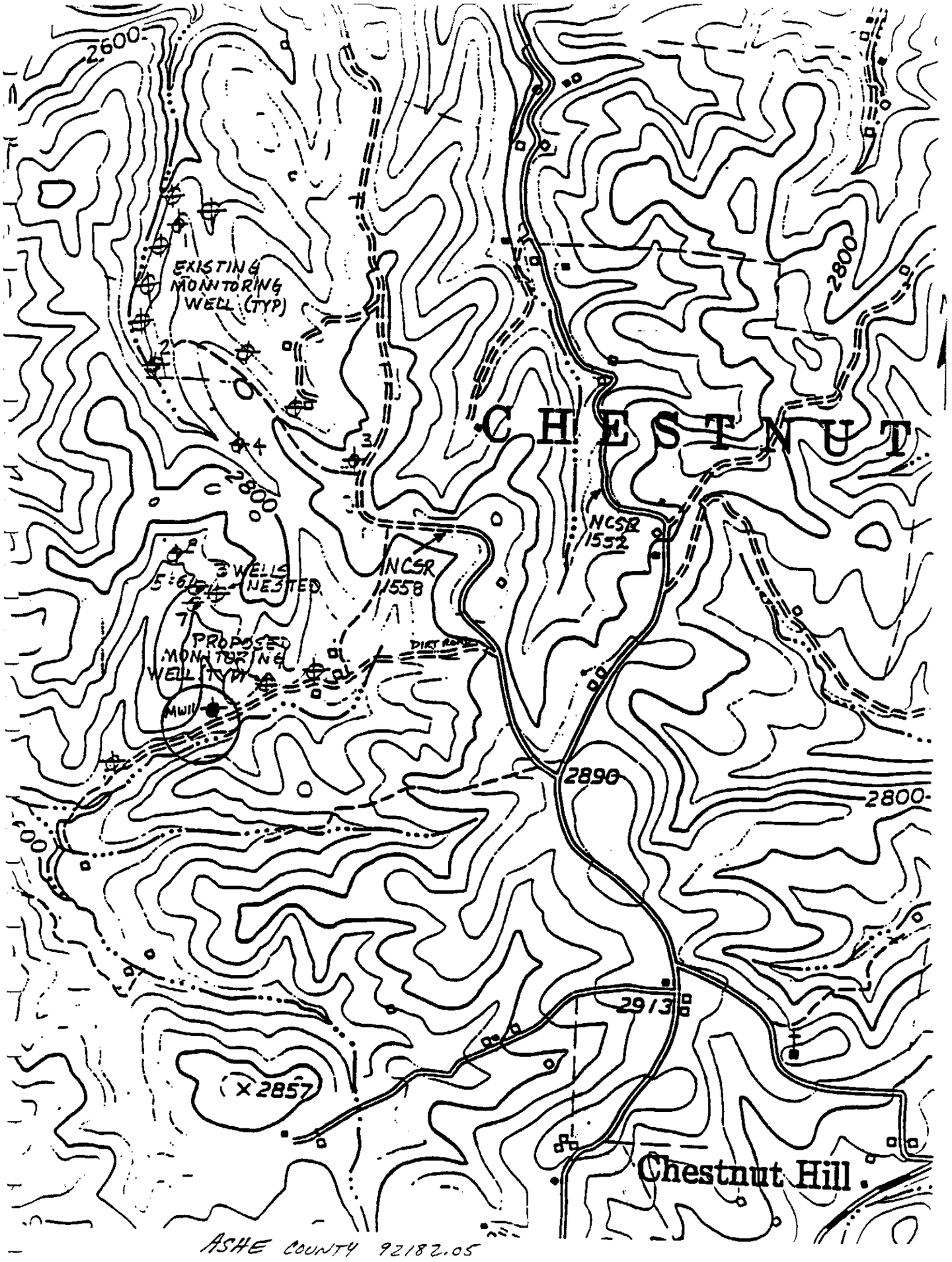
SEE BACK OF PAGE

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CONTRACTOR OR AGENT — DATE 8-19-92

Submit original to Division of Environmental Management and copy to well owner.

GW-1 REV. 5/91



ASHE COUNTY 92182.05

MW 1C MW-

North Carolina - Department of Environment, Health, and Natural Resources
Division of Environmental Management - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

FOR OFFICE USE ONLY
QUAD. NO. SERIAL NO.
Lat. Long. Pc
Minor Basin
Basin Code
Header Ent. GW-1 Ent.

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: GAI CONSULTANTS-NC

DRILLER REGISTRATION NUMBER: 446

STATE WELL CONSTRUCTION PERMIT NUMBER: 04-0117-WM-0036

1. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: CRUMPLER County: ASHE
   NCSR 1558 (LANDFILL)
   (Road, Community, or Subdivision and Lot No.)
2. OWNER ASHE COUNTY
   ADDRESS P.O. BOX 633
   (Street or Route No.)
   JEFFERSON NC 28640
   City or Town State Zip Code
3. DATE DRILLED 8-12-92 USE OF WELL GW MONITORING
4. TOTAL DEPTH 19.5 ft
5. CUTTINGS COLLECTED YES ☐ NO ☒
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing: 14 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS 2 FT. Above Land Surface*
   * Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118
9. YIELD (gpm): N/A METHOD OF TEST
10. WATER ZONES (depth): 14 ft to Bottom
11. CHLORINATION: Type N/A Amount
12. CASING:

Depth From	To	Ft.	Diameter	Wall Thickness or Weight/Ft.	Material
+2	9		2in	SCH40	PVC

13. GROUT:

Depth From	To	Ft.	Material	Method
0	7		CEMENT	TREMIE
7	8		BENTONITE	PELLETS

14. SCREEN:

Depth From	To	Ft	Diameter	Slot Size	Material
9	19		2 in.	0.010 in.	PVC
			in.	in.	
			in.	in.	

15. SAND/GRAVEL PACK:

Depth From	To	Ft.	Size	Material
8	19.5		NC #2S	SAND

16. REMARKS:

Depth From	To	Drilling Log Formation Description
0	6"	TOPSOIL
6"	19.5'	SANDY SILT

If additional space is needed use back of form

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)

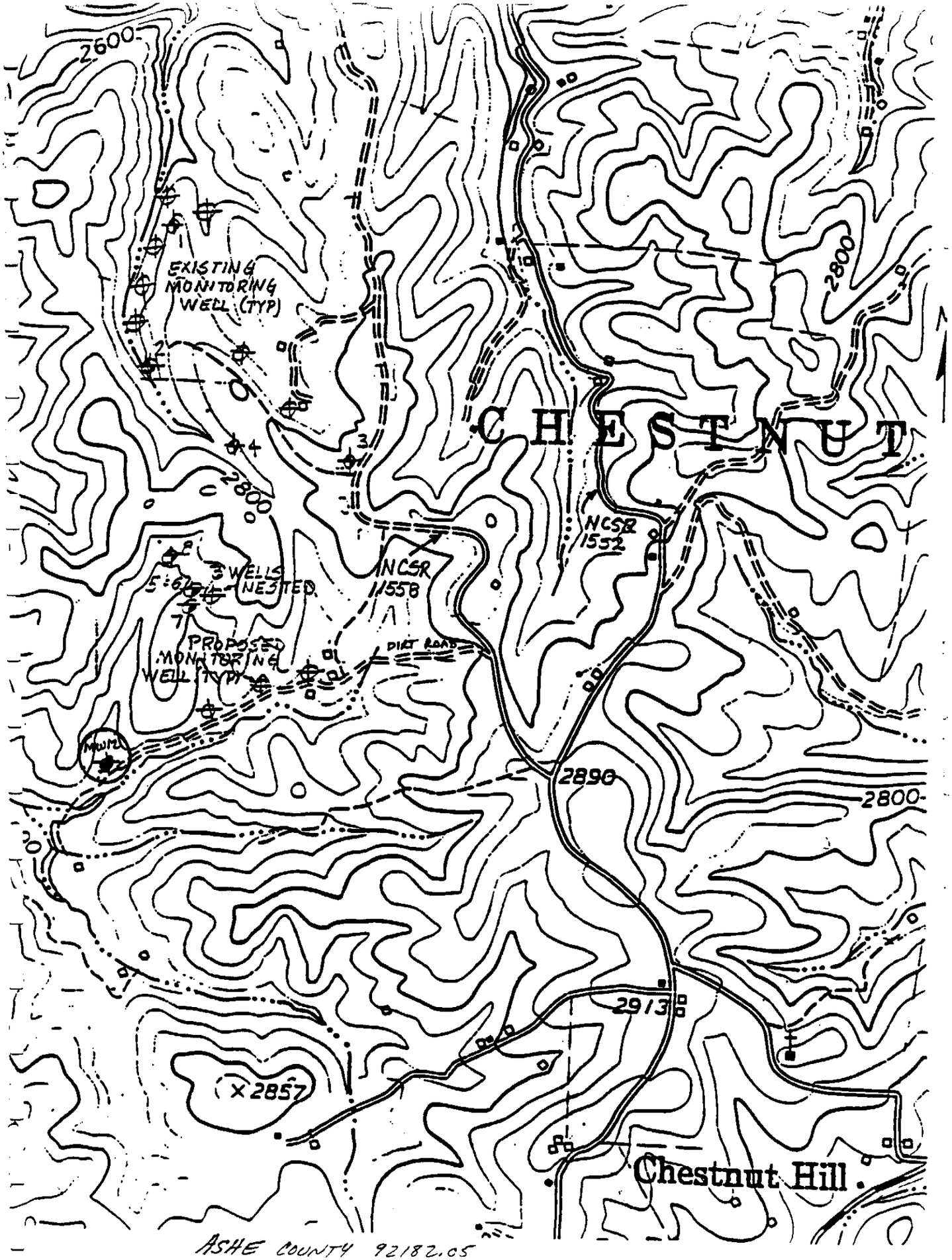
SEE BACK OF PAGE

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Gary [illegible] 8-19-92
SIGNATURE OF CONTRACTOR OR AGENT DATE

Submit original to Division of Environmental Management and copy to well owner.

GW-1 REV. 5/91



ASHE COUNTY 92182.05

MW 13 #1

North Carolina - Department of Environment, Health, and Natural Resources
Division of Environmental Management - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

FOR OFFICE USE ONLY
QUAD. NO. _____ SERIAL NO. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent.

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: GAI CONSULTANTS - NC

DRILLER REGISTRATION NUMBER: 446

STATE WELL CONSTRUCTION PERMIT NUMBER: 04-0117-WM-0036

1. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Crumpler County: ASHE
   NCSR 1558 (LANDFILL)
   (Road, Community, or Subdivision and Lot No.)
2. OWNER ASHE COUNTY
   ADDRESS P.O. Box 633
   (Street or Route No.)
   JEFFERSON (City or Town) NC (State) 28640 (Zip Code)
3. DATE DRILLED 11-30-92 USE OF WELL GW MONITORING
4. TOTAL DEPTH 13
5. CUTTINGS COLLECTED YES ☐ NO ☒
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing: 6.0 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS 2 FT. Above Land Surface*
   * Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118
9. YIELD (gpm): N/A METHOD OF TEST _____
10. WATER ZONES (depth): 6.0 ft to bottom
11. CHLORINATION: Type N/A Amount _____
12. CASING:

Depth From	To	Ft.	Diameter	Wall Thickness or Weight/Ft.	Material
+2	3		2.0 IN	SCH 40	PVC

13. GROUT:

Depth From	To	Ft.	Material	Method
0	1		Cement	Tremie
1	2		Bentonite	Pellets

14. SCREEN:

Depth From	To	Ft.	Diameter	Slot Size	Material
3	13		2 in.	0.010 in.	PVC
			in.	in.	
			in.	in.	

15. SAND/GRAVEL PACK:

Depth From	To	Ft.	Size	Material
2	13		NC #2S	SAND

16. REMARKS: _____

DEPTH From	To	DRILLING LOG Formation Description
0	1'	TOPSOIL
1'	6.5'	SANDY SILT
6.5'	13'	ROCK

If additional space is needed use back of form

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)

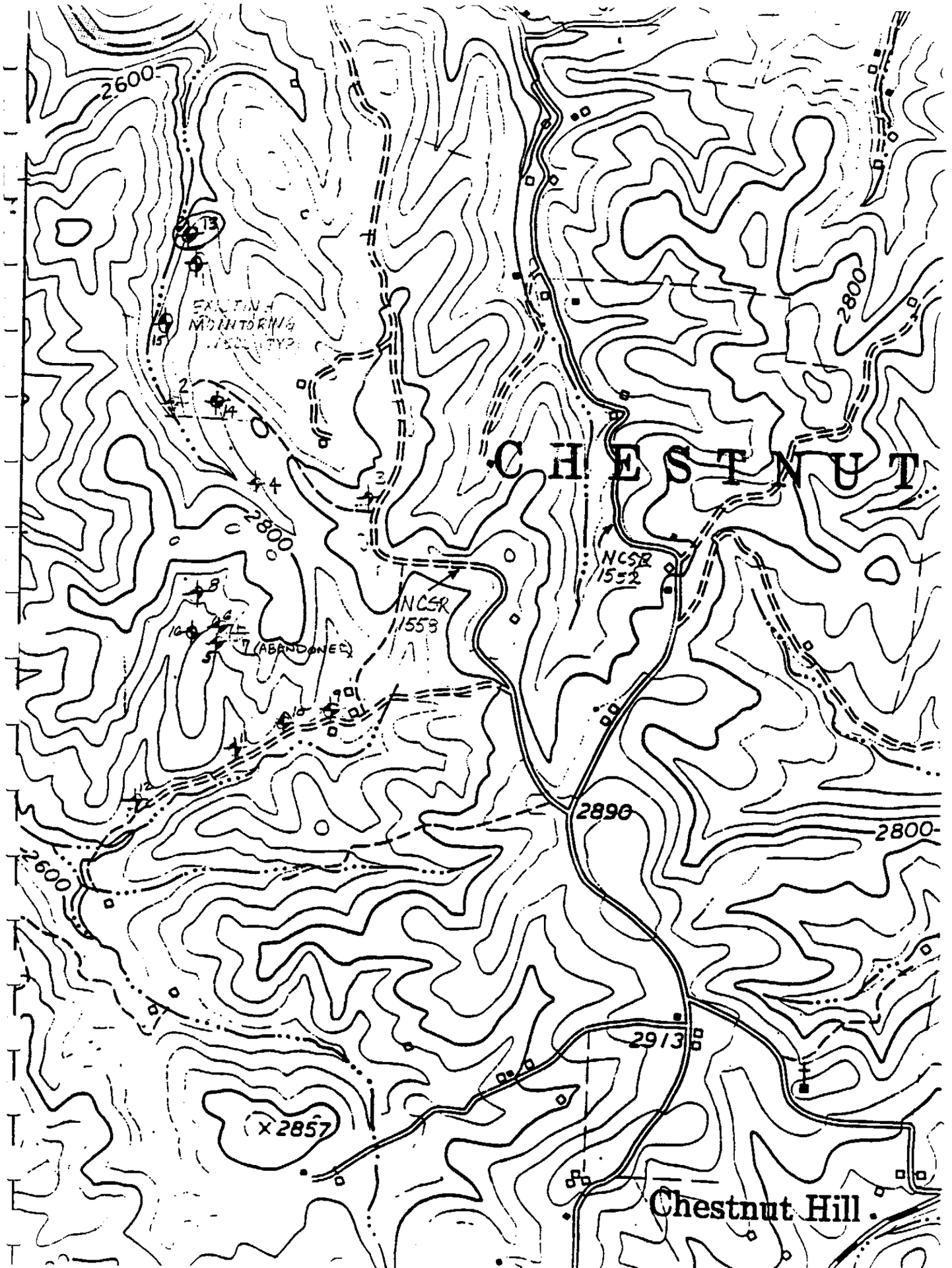
SEE BACK OF PAGE

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

[signature] 12-22-92
SIGNATURE OF CONTRACTOR OR AGENT DATE

Submit original to Division of Environmental Management and copy to well owner.

GW-1 REV. 5.91



2600
2800
CHESTNUT
NCSR 1552
NCSR 1553
7 (ABANDONED)
2890
2800
2600
2913
X 2857
Chestnut Hill

North Carolina - Department of Environment, Health, and Natural Resources
Division of Environmental Management - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

FOR OFFICE USE ONLY
QUAD. NO. _____ SERIAL NO. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: GAI CONSULTANTS-NC

DRILLER REGISTRATION NUMBER: 446

STATE WELL CONSTRUCTION PERMIT NUMBER: 04-0117-WM-0036

1. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Crumpler County: ASHE
   NCSR 1558 (LANDFILL)
   (Road, Community, or Subdivision and Lot No.)
2. OWNER ASHE COUNTY
   ADDRESS P.O. BOX 633
   (Street or Route No.)
   JEFFERSON NC 28640
   City or Town State Zip Code
3. DATE DRILLED 12-2-92 USE OF WELL GW MONITORING
4. TOTAL DEPTH 50.5
5. CUTTINGS COLLECTED YES ☐ NO ☒
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing: 45 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS 2 FT. Above Land Surface*
   * Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118
9. YIELD (gpm): N/A METHOD OF TEST _____
10. WATER ZONES (depth): 45 ft to bottom
11. CHLORINATION: Type N/A Amount _____
12. CASING:

	Depth From	Depth To	Ft.	Diameter	Wall Thickness or Weight/Ft.	Material
	+2	40.5		2.0 IN	SCH 40	PVC

13. GROUT:

	Depth From	Depth To	Ft.	Material	Method
	0	38.5		CEMENT	TREMIE
	38.5	39.5		Bentonite	Pellets

14. SCREEN:

	Depth From	Depth To	Ft.	Diameter	Slot Size	Material
	40.5	50.5		2.0 in.	0.010 in.	PVC
				in.	in.	
				in.	in.	

15. SAND/GRAVEL PACK:

	Depth From	Depth To	Ft.	Size	Material
	39.5	50.5		NC#25	SAND

16. REMARKS: _____

DEPTH From	DEPTH To	DRILLING LOG Formation Description
0	47.5	SANDY SILT
47.5	50.5	Rock

If additional space is needed use back of form

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)

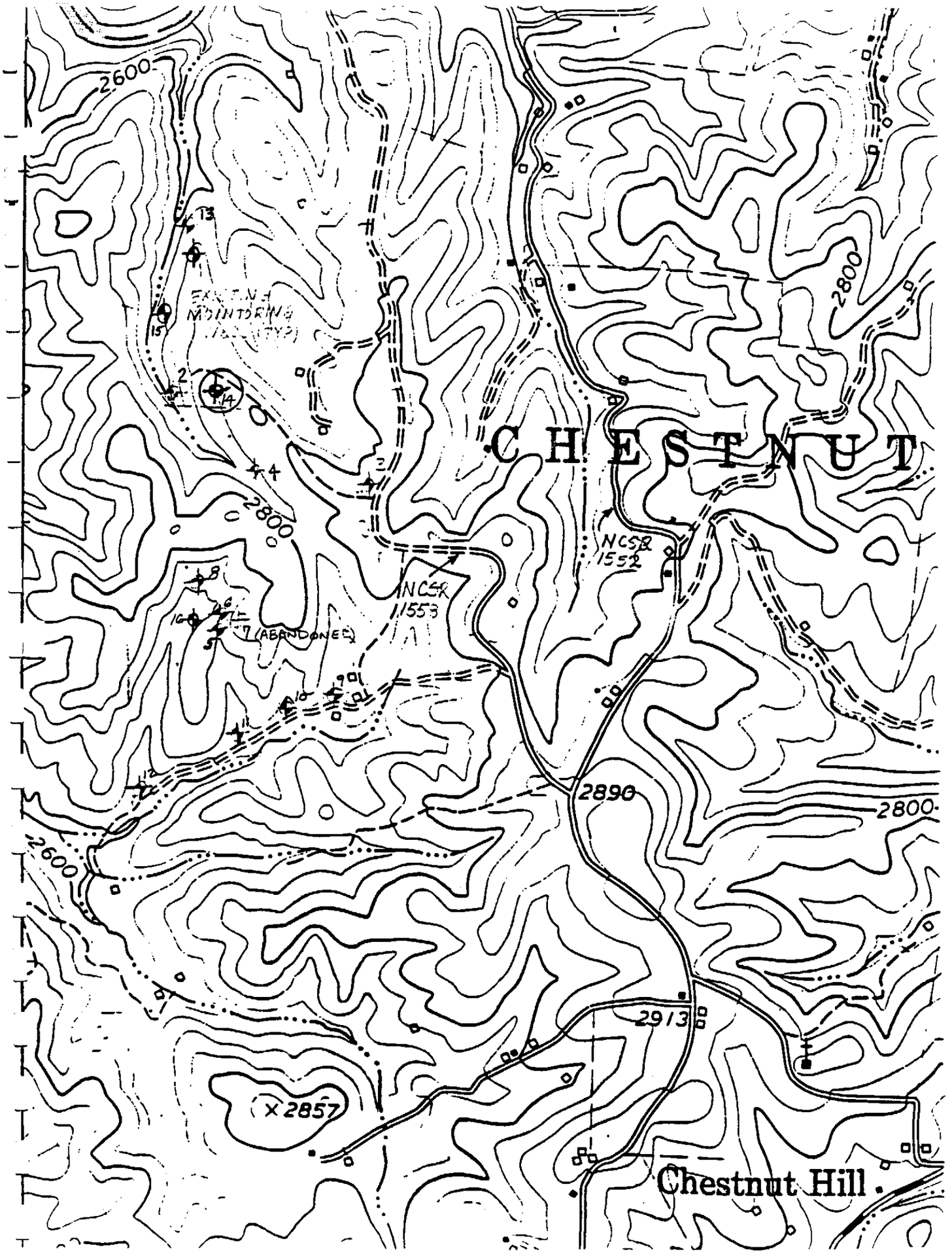
SEE BACK OF PAGE

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

[signature] 12-22-92
SIGNATURE OF CONTRACTOR OR AGENT DATE

GW-1 REV. 5/91

Submit original to Division of Environmental Management and copy to well owner.



2600
2800
CHESTNUT
NCSR 1552
NCSR 1553
7 (ABANDONED)
2890
2800
2600
2913
2857
Chestnut Hill

#15

North Carolina - Department of Environment, Health, and Natural Resources
Division of Environmental Management - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

FOR OFFICE USE ONLY
QUAD. NO. _____ SERIAL NO. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: GAI CONSULTANTS-NC

DRILLER REGISTRATION NUMBER: 446

STATE WELL CONSTRUCTION PERMIT NUMBER: 04-0117-WM-0036

1. WELL LOCATION: (Show sketch of the location below)
Nearest Town: CRUMPLER County: ASHE
NCSR 1558 (LANDFILL)
(Road, Community, or Subdivision and Lot No.)

2. OWNER ASHE COUNTY
ADDRESS P.O. BOX 633
(Street or Route No.)
JEFFERSON NC 28640
City or Town State Zip Code

3. DATE DRILLED 12-3-92 USE OF WELL GW MONITORING
4. TOTAL DEPTH 13.0 ft
5. CUTTINGS COLLECTED YES ☐ NO ☒
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing: 9.0 FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS 2.0 FT. Above Land Surface*
* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118
9. YIELD (gpm): N/A METHOD OF TEST _____
10. WATER ZONES (depth): 9.0 ft to bottom
11. CHLORINATION: Type N/A Amount _____
12. CASING:

From	To	Diameter	Wall Thickness or Weight/Ft.	Material
+2	3.0	2 IN	SCH 40	PVC

13. GROUT:

From	To	Material	Method
0	2.0	Cement	Tremie
2.0	3.0	Bentonite	Pellets

14. SCREEN:

From	To	Diameter	Slot Size	Material
3.0	13.0	2 in.	0.010 in.	PVC
		in.	in.	
		in.	in.	

15. SAND/GRAVEL PACK:

From	To	Size	Material
2.0	13.0	NC#25	SAND

16. REMARKS: _____

DEPTH From	DEPTH To	DRILLING LOG Formation Description
0	13	SANDY SILT

If additional space is needed use back of form

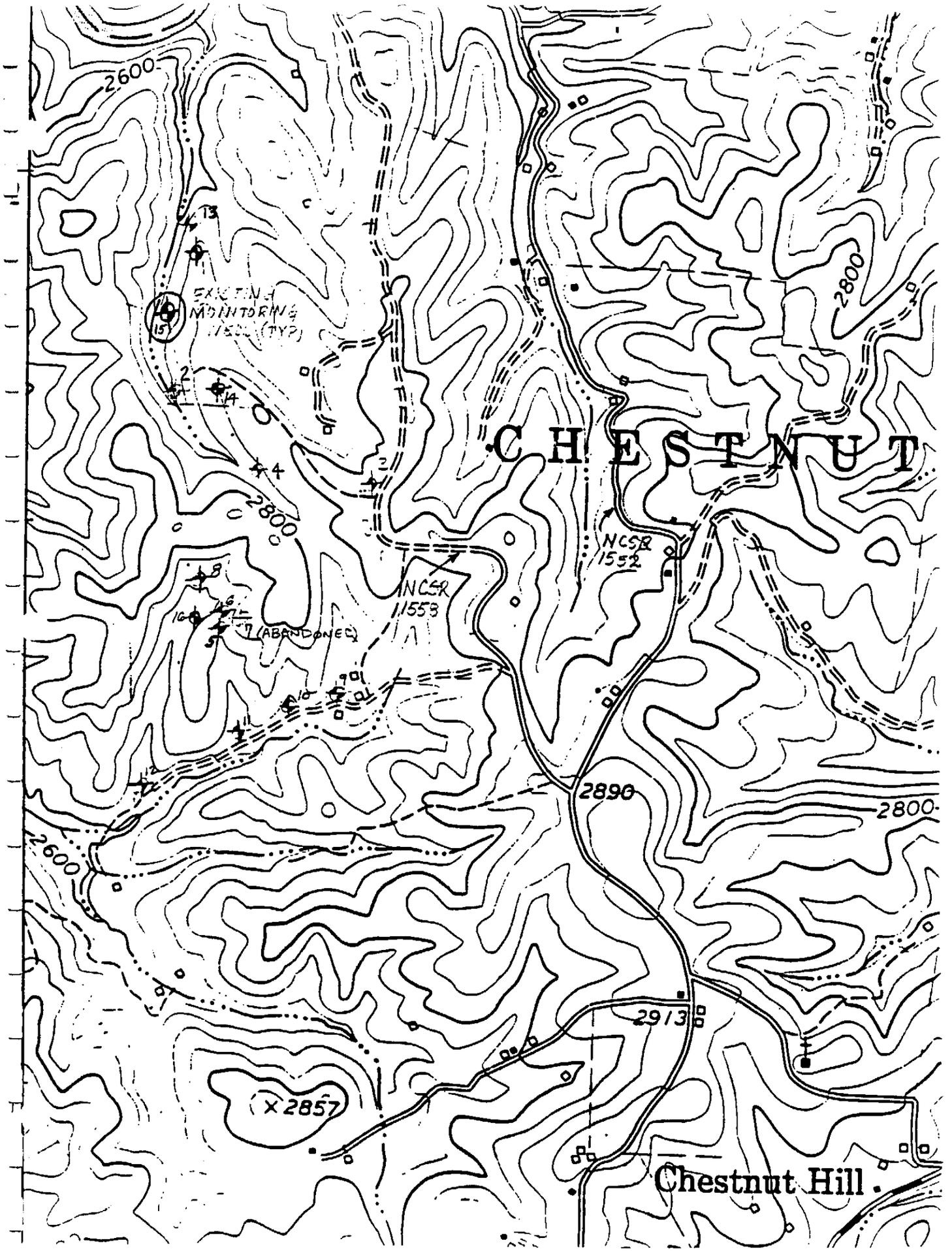
LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)
SEE BACK OF PAGE

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Harry Jordan 12-22-92
SIGNATURE OF CONTRACTOR OR AGENT DATE

GW-1 REV. 5/91

Submit original to Division of Environmental Management and copy to well owner.


CHESTNUT
2600
2800
2890
2913
X 2857
NCSR 1553
NCSR 1552
(ABANDONED)
Chestnut Hill

#16

North Carolina - Department of Environment, Health, and Natural Resources
Division of Environmental Management - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

FOR OFFICE USE ONLY
QUAD. NO. _____ SERIAL NO. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: GAI Consultants - NC

DRILLER REGISTRATION NUMBER: 446

STATE WELL CONSTRUCTION PERMIT NUMBER: 04-0117-WM-0036

1. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: CRUMPLER County: ASHE
   NCSR 1558 (LANDFILL)
   (Road, Community, or Subdivision and Lot No.)
2. OWNER Ashe County
   ADDRESS P.O. Box 633
   (Street or Route No.)
   JEFFERSON NC 28640
   City or Town State Zip Code
3. DATE DRILLED 12-8-92 USE OF WELL GW Monitoring
4. TOTAL DEPTH 27 ft
5. CUTTINGS COLLECTED YES ☐ NO ☒
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing: 20.5 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS 2.0 FT. Above Land Surface*
   * Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118
9. YIELD (gpm): N/A METHOD OF TEST _____
10. WATER ZONES (depth): 20.5 ft to bottom
11. CHLORINATION: Type N/A Amount _____
12. CASING:

	Depth From	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
	+2	11.5	2.0 in	SCH 40	PVC

13. GROUT:

	Depth From	Depth To	Material	Method
	0	9.5	Cement	Tremie
	9.5	10.5	Bentonite	Pellets

14. SCREEN:

	Depth From	Depth To	Diameter	Slot Size	Material
	11.5	26.5	2 in.	0.010 in.	PVC
			in.	in.	
			in.	in.	

15. SAND/GRAVEL PACK:

	Depth From	Depth To	Size	Material
	10.5	27	NC#2S	Sand

16. REMARKS: _____

DEPTH From	DEPTH To	DRILLING LOG Formation Description
0	12'	Sandy Silt
12'	27'	Rock

If additional space is needed use back of form

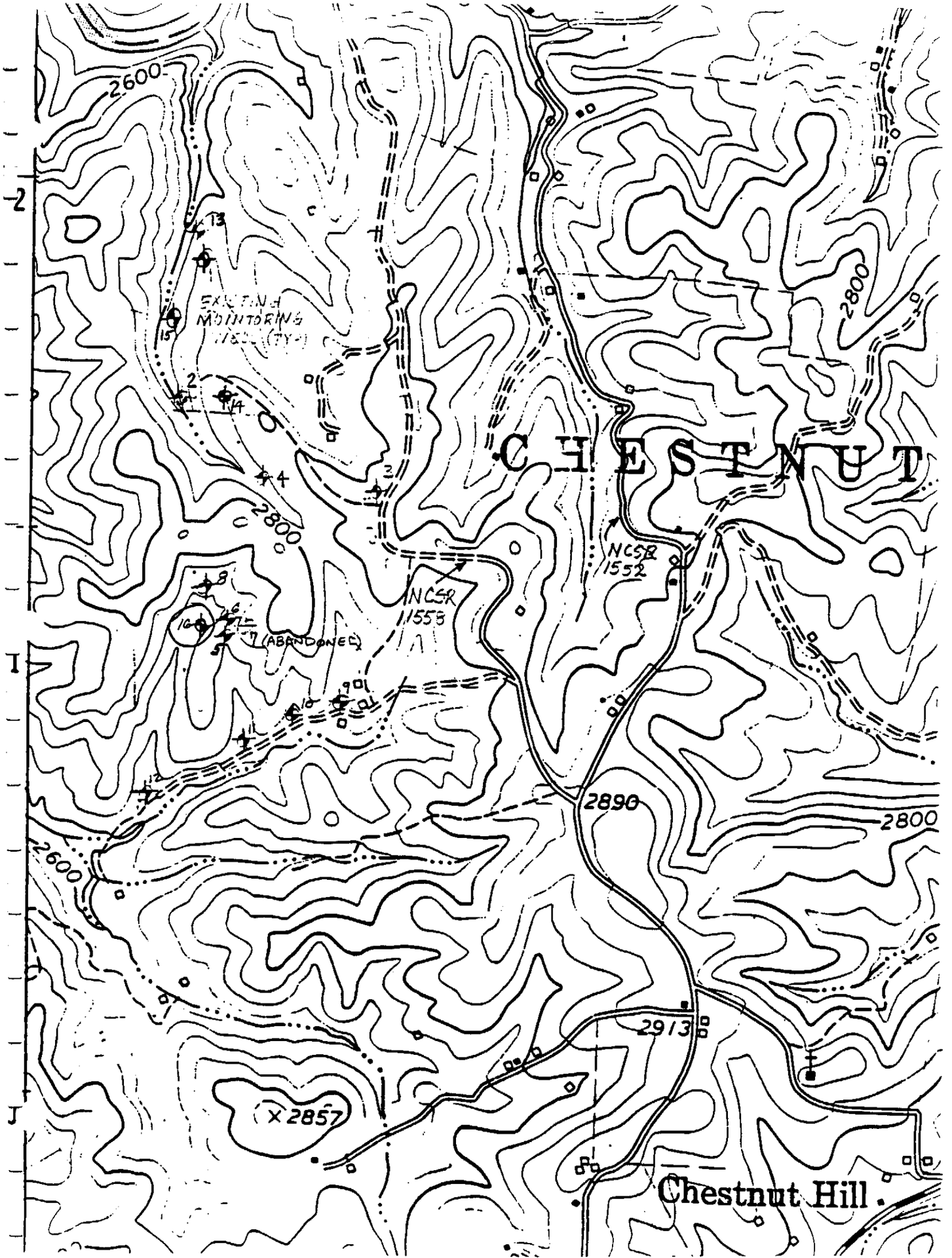
LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)
SEE BACK OF PAGE

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

[signature] 12-22-92
SIGNATURE OF CONTRACTOR OR AGENT DATE

Submit original to Division of Environmental Management and copy to well owner.

GW-1 REV. 5/91


2600
2800
CHESTNUT
NCSR 1552
NCSR 1553
(ABANDONED)
2890
2800
2600
2913
X 2857
Chestnut Hill.

nonpotable water supply well @ dogpound.

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL MANAGEMENT - GROUNDWATER SECTION
P.O. BOX 27687 - RALEIGH, NC 27611-7687
PHONE (919)733-3221

FOR OFFICE USE ONLY

Quad. No. _____ Serial No. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR Ray Taylor Well Drlg Co INC.
DRILLER REGISTRATION NUMBER 81

STATE WELL CONSTRUCTION PERMIT NUMBER: _____

1. WELL LOCATION: (Show sketch of the location below)
Nearest Town: Crumpler NC.
LAND fill Rd.
(Road, Community, or Subdivision and Lot No.)

County: Ashe.

2. OWNER County of Ashe. (Animal Shelter)
ADDRESS Jefferson NC. 28640.
(Street or Route No.)
City or Town State Zip Code

3. DATE DRILLED Oct 89. USE OF WELL Animal Shelt.
4. TOTAL DEPTH 405 CUTTINGS COLLECTED ☐ Yes ☒ No
5. DOES WELL REPLACE EXISTING WELL? ☐ Yes ☒ No
6. STATIC WATER LEVEL: 160' FT. ☐ above ☒ below TOP OF CASING,
TOP OF CASING IS 1 FT. ABOVE LAND SURFACE.
7. YIELD (gpm): 1 METHOD OF TEST Return Air
8. WATER ZONES (depth): 160
9. CHLORINATION: Type H+H Amount 3-03.

Depth From	Depth To	DRILLING LOG Formation Description
0	84.	Dirt Clay + Boulders.
84.	405	Granit + Quartz

If additional space is needed use back of form.

10. CASING:

	Depth From	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
	0	84	6 1/4	188	Baker

11. GROUT:

	Depth From	Depth To	Material	Method
	0	20	Cement	Pumped

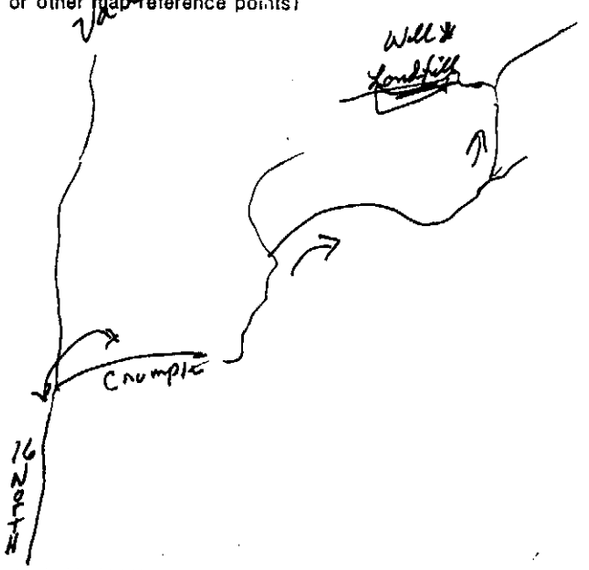
12. SCREEN:

	Depth From	Depth To	Diameter	Slot Size	Material
			in.	in.	
			in.	in.	
			in.	in.	

13. GRAVEL PACK:

	Depth From	Depth To	Size	Material

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)



14. REMARKS:

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15 NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Michael Dare — Oct 89
SIGNATURE OF CONTRACTOR/OR AGENT — DATE

GW 1 REVISED 2/90

Submit original to Division of Environmental Management and copy to well owner.

LOG OF PROBE NO. P-1

PROJECT : Ashe County Landfill
Ashe County, North Carolina

JOB NO.: 91185.05

TYPE : Solid Auger

LOCATION : See Plan

DEPTH (FT)	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WT LB/CU FT	WATER CONTENT %	LIQUID LIMIT	PLASTIC LIMIT	COHESION LB / SQ FT: PENETRO-METER	COHESION LB / SQ FT: UNCONFINED COMPRESSION	REMARKS
			SILTY SAND; Fine to medium								
5											
10											
15											
20											
25			End of Probe at Auger Refusal								
30											
35											
40											

COMPLETION DEPTH: 25.0 ft

DEPTH TO WATER IN BORING: 17.0 ft.; 0 hrs. AD, 16.5 ft.; 24 hrs. AD

DATE: 7-30-91

LOG OF PROBE NO. P-2

PROJECT : Ashe County Landfill
Ashe County, North Carolina

JOB NO.: 91185.05

TYPE : Solid Auger

LOCATION : See Plan

DEPTH (FT)	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WT LB/CU FT	WATER CONTENT %	LIQUID LIMIT	PLASTIC LIMIT	COHESION LB / SQ FT: PENETRO-METER	COHESION LB / SQ FT: UNCONFINED COMPRESSION	REMARKS
			SILTY SAND; Fine to medium								
5											
10											
15											
20			End of Probe								
25											
30											
35											
40											

COMPLETION DEPTH: 18.0 ft

DEPTH TO WATER IN BORING: 12.0 ft.; 0 hrs. AD, 9.2 ft.; 24 hrs. AD

DATE: 7-30-91

LOG OF PROBE NO. P-3

PROJECT : Ashe County Landfill
Ashe County, North Carolina

JOB NO.: 91185.05

TYPE : Solid Auger

LOCATION : See Plan

DEPTH (FT)	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WT LB/CU FT	WATER CONTENT %	LIQUID LIMIT	PLASTIC LIMIT	COHESION LB / SQ FT: PENETRO-METER	COHESION LB / SQ FT: UNCONFINED COMPRESSION	REMARKS
			SANDY SILT; Brown, fine, with mica								
5											
10											
15			-hard layer at 16.0 ft.								
20											
25											
30											
35			End of Probe at Auger Refusal								
40											

COMPLETION DEPTH: 33.5 ft **DEPTH TO WATER IN BORING:** 27.0 ft.; 1 hr. AD

DATE: 8-2-91

PLATE 3

GAI CONSULTANTS

APPENDIX IV

CHEMICAL TEST REPORTS

Listing of Inorganic Water Quality Results

COUNTY Ashe

SITE #	FACILITY NAME	SAMPLING DATE	WATER SURFACE [S] GROUND [G]	WELL #	CONTAMINATION Y/N	PARAMETER	LEVEL
05-01	Ashe County LandFill	2-16-79	S Leachate at Base of Dyke		Yes	Iron	498.0
					"	Manganese	1.55
					"	Lead	.07
					"	Zinc	24.0
05-01	Ashe County LandFill	2-16-79	S Stream Below LandFill		Yes	Iron	13.50
					"	Manganese	2.70
05-01	Ashe County LandFill	2-16-79	W	Well Located Approx 1/4 mile Below Ashe Ldfl	None		
05-01	Ashe County LandFill	5-10-82	S Spring Below LandFill		Yes	Arsenic	<.1
					"	Iron	.38
05-01	Ashe County LandFill	3-8-83	S Spring Below LandFill		Yes	Iron	2.6
05-01	Ashe County LandFill	3-8-83	S Discharge at Base of old LandFill		Yes	Iron	25
					"	Manganese	18.76
					"	Conductivity	1600
					"	TDS	988
					"	TOC	271.1
05-01	Ashe County LandFill	8-2-84	G	A	Yes	Iron	12.0
						Manganese	1.72

Listing of Inorganic Water Quality Results

COUNTY Ashe

SITE #	FACILITY NAME	SAMPLING DATE	WATER SURFACE [S] GROUND [G]	WELL #	CONTAMINATION Y/N	PARAMETER	LEVEL
05-01	Ashe County Landfill	8-2-84	G	B	Yes	Iron	2.38
					"	Manganese	1.37
					"	Zinc	32.40

N. C. DEPARTMENT OF HUMAN RESOURCES
DIVISION OF HEALTH SERVICES
STATE LABORATORY OF PUBLIC HEALTH
P. O. BOX 28047 - 306 N. WILMINGTON ST., RALEIGH 27611

Site Number 05000000001A
Field Sample Number 27
Name of Site Ashe Co I F
Site Location W. Jefferson
Collected By Master Patterson Glaser ID#
Date Collected 8/2/84 Time 1100

Type of Sample:

Environmental	Concentrate	Comments
✓ Groundwater	___ Solid	Well A
___ Surface Water	___ Liquid	
___ Soil	___ Sludge	
___ Other	___ Other	

INORGANIC CHEMISTRY

Extractables Parameter	Results mg/l	Total Parameter	Results mg/l	Parameter	Results mg/l
___ Arsenic		✓ Arsenic	<0.01	✓ Chloride	1
___ Barium		✓ Barium	0.3	✓ Conductivity	143 µmhos
___ Cadmium		✓ Cadmium	<0.005	✓ Copper	<0.05
___ Chromium		✓ Chromium	0.01	✓ Fluoride	0.13
___ Lead		✓ Lead	<0.03	✓ Iron	12.00
___ Mercury		✓ Mercury	<0.0002	✓ Manganese	1.72
___ Selenium		✓ Selenium	<0.005	✓ Nitrate	1.25
___ Silver		✓ Silver	<0.05	✓ pH	6.8
				✓ Sulfates	4
				✓ TDS	93
				✓ Zinc	0.06
				✓ TOC	8

RECEIVED SEP 14 1984 SOLID & HAZARDOUS WASTE MANAGEMENT BRANCH

ORGANIC CHEMISTRY

Parameter	Results mg/l	Parameter	Results mg/l	Parameter	Results mg/l
___ Endrin		___ Toxaphene		___ PCB's	
___ Lindane		___ 2,4-D		___ Petroleum	
___ Methoxychlor		___ 2,4,5-TP(Silvex)		___ EDB	
✓ ~~VOA~~				✓ TOX	

MICROBIOLOGY

Parameter
___ (MF) Coliform Colonies/100mls
___ (MPN) Coliform Colonies/100mls

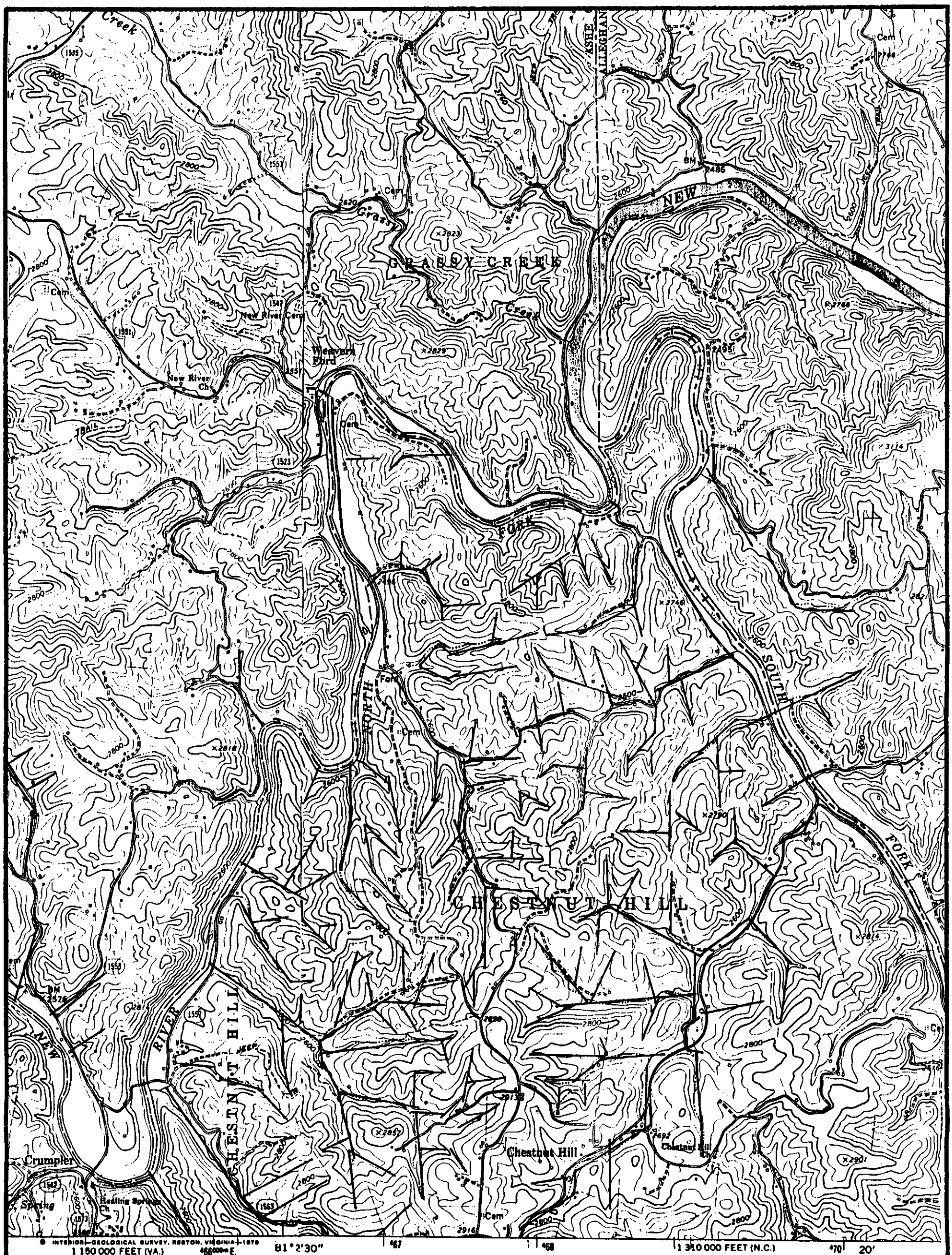
RADIOCHEMISTRY

Parameter	Results PCi/l
___ Gross Alpha	
___ Gross Beta	

Date Received
Date Reported 8/29/84
Date Extracted
Date Analyzed
Reported By
Lab Number 39692 AUG 6 84

DHS 3191 (Revised 2/84)
Solid and Hazardous Waste

92182.07



SCALE 1:24 000

1 MILE

7000 FEET

1 KILOMETER

CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

MN GN
2½° 44 MILS
0°11' 3 MILS

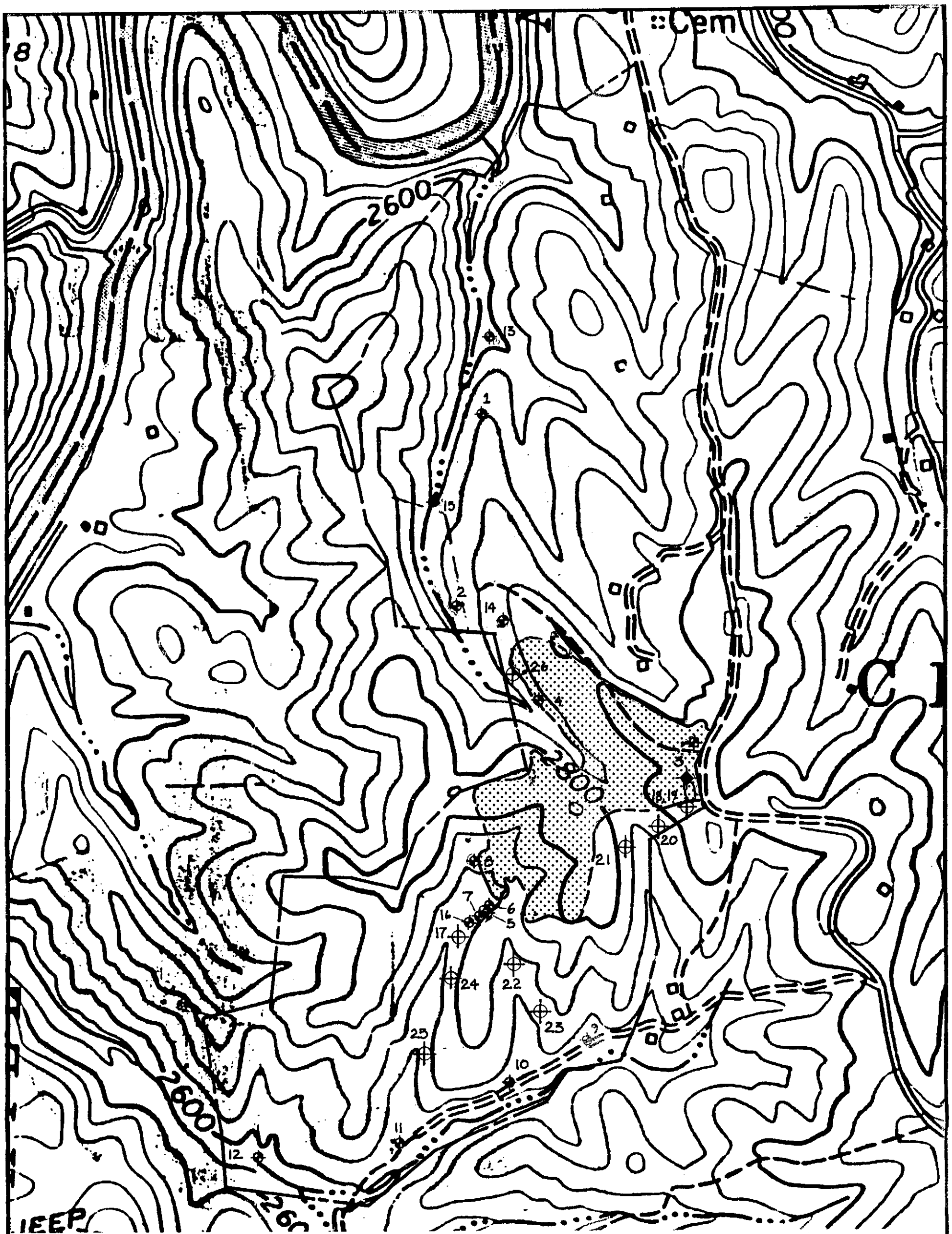
UTM GRID AND 1966 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
AND VIRGINIA DIVISION OF MINERAL RESOURCES, CHARLOTTESVILLE, VIRGINIA 22903
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Linear Traces
Plate 8

Map photoinspected 1988
No major culture or drainage changes observed

92182.07



Proposed Monitoring Well

Existing Monitoring Well

Property Line

Fill Area

Propose Piezometer

N

Scale: 1"=500'

Groundwater Monitoring Plan
Plate 10