



US Army Corps
of Engineers
Baltimore District

CONSTRUCTION SPECIFICATIONS

RHODES POINT, SECTION 107, SMALL NAVIGATION PROJECT,

**SMITH ISLAND, SOMERSET COUNTY,
MARYLAND**

REQUEST FOR PROPOSAL: **W912DR-04-R-0072**

DATE: **SEP 10, 2004**

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SECTION 01000

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Title Evidence

Proof of purchase for equipment and/or materials.

Invoice Copies

Proof of rental equipment costs.

Payment Evidence

Proof of full payment.

Photographs

Photographs and, as applicable, negatives showing construction progress.

SD-03 Product Data

Cost or Pricing Data

Proof of actual equipment costs.

SD-05 Design Data

Progress Schedule; G AR.

A schedule that shows the manner in which the Contractor intends to prosecute the work.

1.2 PROGRESS SCHEDULING AND REPORTING (JUN 1975)

The Contractor, shall within five days or as otherwise determined by the Contracting Officer, after date of commencement of work, submit for approval a practicable progress schedule showing the manner in which he intends to prosecute the work. Contractor prepared form shall contain the same information as shown on the attached NADB Form 1153 ("Physical Construction Progress Chart") will be furnished upon request for use in preparing this schedule. If a Contractor form is used, the same

information as shown in the NADB Form 1153 shall be provided. Preparation and updating of the schedule shall be as follows:

1.2.1 Preparation

The progress schedule shall be prepared in the form of time-scaled summary network diagram graphically indicating the sequence proposed to accomplish each work activity or operation, and appropriate interdependencies between the various activities. The chart shall show the starting and completion dates of all activities on a linear horizontal time scale beginning with the dates of Notice to Proceed and indicating calendar days to completion. Each activity in the construction shall be represented by an arrow and shall have a beginning and ending node (event). The entire project shall have only one beginning node and one ending node. The arrangement of arrows shall be such that they flow from left to right. Each arrow representing an activity shall be annotated to show the activity description, duration and cost. The Contractor shall indicate on the chart the important work activities that are critical to the timely overall completion of the project. Key dates for important features or portions of work features are milestone dates and shall be so indicated on the chart. Based on this chart, the Contractor shall prepare an earnings-time curve ("S" Curve) showing the rate of progress in terms of money and percent completion. Schedule progress may not include the value of materials or equipment delivered to the job site but not yet incorporated into the work. This schedule shall be the medium through which the timeliness of the Contractor's construction effort is appraised.

1.2.2 Updating

The Contractor shall update the schedule by entering actual progress thereon at monthly intervals. The status of activities completed or partially completed as of the end of each period shall be shown, as well as the percentage of work completed. In computing actual progress, the value of material and equipment on site but not incorporated into the work may not be considered. When changes are authorized that result in contract time extensions, the Contractor shall submit a modified chart for approval by the Contracting Officer. The Contract Clause entitled "SCHEDULES FOR CONSTRUCTION CONTRACTS" with reference to overtime, extra shifts, etc., may be invoked when the Contractor fails to start or complete work activities or portions of same by the dates indicated on the approved progress chart, or when it is apparent to the Contracting Officer from the Contractor's actual progress that these dates will not be met. (CENAB-CO-E)

1.3 PAYMENTS TO CONTRACTORS: (NOV 1976)

For payment purposes only, an allowance will be made by the Contracting Officer of 100 percent of the invoiced cost of materials or equipment delivered to the site but not incorporated into the construction, pursuant to the Contract Clause entitled "PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS". The Contracting Officer may also, at his discretion, take into consideration the cost of materials or equipment stored at locations other than the jobsite, when making progress payments under the contract. In order to be eligible for payment, the Contractor must provide satisfactory evidence that he has acquired title to such material or equipment, and that it will be utilized on the work covered by this contract. Further, all items must be properly stored and protected. Earnings will be computed using 100% of invoiced value. (CENAB-CO-E)

1.4 PURCHASE ORDER: (SEP 1975)

One readable copy of all purchase orders for material and equipment, showing firm names and addresses, and all shipping bills, or memoranda of shipment received regarding such material and equipment, shall be furnished the appointed Contracting Officer's Representative as soon as issued. Such orders, shipping bills or memoranda shall be so worded or marked that all material and each item, piece or member of equipment can be definitely identified on the drawings. Where a priority rating is assigned to a contract, this rating, the required delivery date, and the scheduled shipping date shall also be shown on the purchase order. At the option of the Contractor, the copy of the purchase order may or may not indicate the purchase price. (CENAB-CO-E)

1.5 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE (EFARS 52.0231.5000 (OCT 1995))

(a) This clause does not apply to terminations. See 52.249-5000, Basis for settlement of proposals and FAR Part 49.

(b) Allowable cost for construction and marine plant and equipment in sound workable conditions owned or controlled and furnished by a contractor or subcontractor at any tier shall be based on actual costs data for each piece of equipment or groups of similar serial and services for which the government can determine both ownership and operating costs from the contractor's accounting records. When both ownership and operating costs can not be determined for any piece of equipment or groups of similar serial or series equipment from the contractor's accounting records, costs for that equipment shall be based upon the applicable provisions of EP1110-1-8 Construction Equipment Ownership and Operating Expenses Schedule, Region East. Working conditions shall be considered to be average for determining equipment rates using the schedule unless specified otherwise by the contracting officer. For equipment not included in the schedule, rates for comparable pieces of equipment may be used or a rate may be developed using the formula provided in the schedule. For forward pricing, the schedule in effect at the time of negotiations shall apply. For retroactive pricing, the schedule in effect at the time the work was performed shall apply.

(c) Equipment rental costs are allowable, subject to the provisions of FAR 31.105(d) (ii) and Far 31.205-36. Rates for equipment rented from an organization under common control, lease-purchase arrangements, and sale-leaseback arrangements, will be determined using the schedule, except that actual rates will be used for equipment leased from an organization under common control that has an established proactive of leasing the same or similar equipment to unaffiliated leasees.

(d) When actual equipment costs are proposed and the total amount of the pricing action exceeds the small purchase threshold, the contracting officer shall request the contractor to submit either certified cost or pricing data, or partial/limited data, as appropriate. The data shall be submitted on Standard Form 1411, Contract Pricing Proposal Cover Sheet. CENAB-CT/SEP 95 (EFARS 52.231-5000)

1.6 NEGOTIATED MODIFICATIONS: (OCT 84)

Whenever profit is negotiated as an element of price for any modification to this contract with either prime or subcontractor, a reasonable profit shall be negotiated or determined by using the OCE Weighted Guidelines method outlined in EFARS 15.902. (Sugg. NAB 84-232)

1.7 PHOTOGRAPHS

PHOTOGRAPHIC COVERAGE: (SEP 85) The Contractor shall furnish ten each 8" x 10" (commercial grade color photographs of the project (with negatives) to the Contracting Officer. These photographs shall be taken at systematic intervals during the contract where and when directed by the Contracting Officer. (CENAB-CO)

1.8 PARTNERING: (NOV 92)

In order to most effectively accomplish this contract, the Government is willing to form a cohesive partnership with the Contractor and its subcontractors. This partnership would strive to draw on the strengths of each organization in an effort to achieve a quality project done right the first time, within budget and on schedule. This partnership would be bilateral in make-up and participation will be totally voluntary. Any cost associated with effectuating this partnership will be agreed to by both parties and will be shared equally with no change in contract price. (CENAB-EN-DT)

1.9 PERMITS

The permits listed below have been obtained by the Government or are in the approval process and may require additional action by the Contractor to become complete. After final approvals by the respective state agencies are received, the Government will furnish approval letters and permits to the Contracting Officer who will furnish the Contractor all such permits before or during construction. The Contractor shall abide by all permit requirements.

- a. State of Maryland, Water Quality Certification 03-WQ-003

PART 2 PRODUCTS

NOT APPLICABLE

PART 3 EXECUTION

NOT APPLICABLE

ATTACHMENTS:

NADB Form 1153 ("Physical Construction Progress Chart")

-- End of Section --

SECTION 01050

JOB CONDITIONS

PART 1 GENERAL

1.1 LAYOUT OF WORK

ALTERNATE 1: CIVIL WORK PROJECTS

LAYOUT OF WORK: (APR 1965 OCE)

The Government has established bench marks and horizontal control points at the site of the work. These are described and indicated on contract drawings.

From these control points the Contractor shall lay out the work by establishing all lines and grades at the site necessary to control the work and shall be responsible for all measurements that may be required for the execution of the work to the location and limit marks prescribed in the specifications or on the contract drawings.

These control points are minimum requirements and the Contractor shall place and establish such additional stakes and markers as may be necessary for control and guidance of his construction operations. All survey data shall be recorded in accordance with standard and approved methods. All field notes, sketches, recordings and computations made by the Contractor in establishing above horizontal and vertical control points shall be available at all times during the progress of the work for ready examination by the Contracting Officer or his duly authorized representative.

The Contractor shall furnish, at his own expense, all such stakes, spikes, steel pins, templates, platforms, equipment tools and material and all labor as may be required in laying out any part of the work from the control points established by the Government. It shall be the responsibility of the Contractor to maintain and preserve all stakes and other markers established by him until authorized to remove them. If any of the control points established at the site by the Government are destroyed by or through the negligence of the Contractor prior to their authorized removal, they may be replaced by the Contracting Officer, and the expense of replacement will be deducted from any amount due or which may become due the Contractor. The Contracting Officer may require that work be suspended at any time when horizontal and vertical control points established at the site by the Contractor are not reasonably adequate to permit checking the work. Such suspension will be withdrawn upon proper replacement of the control points. (ECI 7-672.2)

1.2 PHYSICAL DATA: (APR 1984)

Data and information furnished or referred to below is for the Contractor's information. The Government shall not be responsible for any interpretation or conclusion drawn from the data or information by the Contractor. (CENAB)

1.2.1 Transportation Facilities

Smith Island is located in the Chesapeake Bay and is accessible only by boat. A water taxi service is available from Crisfield, Maryland to Tylerton and Ewell. The other community on Smith Island, Rhodes Point, is only accessible by boat from Tylerton. The Contractor shall make his own investigation and determinations as to the availability and adequacy of the transportation for his use for construction purposes.

1.2.2 Explorations

The physical conditions indicated on the drawings and in the specifications are the result of site investigations by surveys and drill holes. Foundation exploration logs are inserted immediately at the end of Section 2 in the dredging portion of these specifications. Whenever subsurface exploration logs are presented in the contract documents, soil test results are available for inspection in the Baltimore District, Corps of Engineers, Geotechnical Branch, Room 9250, City Crescent Building, 10 South Howard Street, Baltimore, Maryland. Soils samples are also available for inspection; however, prospective bidders are required to call (410) 962-4045 between the hours of 9:00 a.m. and 3:30 p.m., Monday through Friday (excluding Federal Holidays), a minimum of 24 hours in advance to arrange a time and date for the inspection of the samples.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

Survey Data; G AR

The establishing of bench marks and horizontal control points.

1.4 UTILITIES

1.4.1 Availability of Utilities Including Lavatory Facilities: (JUN 1980)

It shall be the responsibility of the Contractor to provide all utilities he may require during the entire life of the contract. He shall make his own investigation and determinations as to the availability and adequacy of utilities for his use for construction purposes and domestic consumption. He shall install and maintain all necessary supply lines, connections, piping, and meters if required, but only at such locations and in such manner as approved by the Contracting Officer. Before final acceptance of work under this contract, all temporary supply lines, connections and piping installed by the Contractor shall be removed by him in a manner satisfactory to the Contracting Officer. (CENAB)

1.5 DISPOSAL OF EXISTING MATERIAL AND EQUIPMENT: (DEC 1975)

All removed, dismantled or demolished material and/or equipment including rubble, scrap and debris not specified or indicated to be Government

salvaged, reinstalled under this contract or otherwise retained for disposal on Government land will become the property of the Contractor and shall be promptly removed from the site and disposed of by the Contractor at his own expense and responsibility. (CENAB)

1.6 COMPLIANCE WITH SMITH ISLAND, SOMERSET COUNTY REGULATIONS: (JUL 1980)

The site of the work is on Smith Island in Somerset County, MD and all rules and regulations issued by the county representative covering general safety, security, sanitary requirements, pollution control, traffic regulations and parking, shall be observed by the Contractor. Information regarding these requirements may be obtained by contacting the Contracting Officer, who will provide such information or assist in obtaining same from appropriate authorities. (MEMO)

1.7 MAINTENANCE OF ACCESS: (DEC 1975)

The Contractor shall not block passage through roads, navigable channels during performance of work under this contract.

1.8 PROTECTION OF GOVERNMENT AND PRIVATELY OWNED PROPERTY AND PERSONNEL: (DEC 1975)

1.8.1 Protection of Personnel

The Contractor shall protect personnel and onlookers by installing barricades as applicable to prevent injury from unauthorized entry of personnel into work areas from the landward side. Warning signs shall be erected as necessary to indicate Construction areas or hazardous zones. Work shall proceed in such manner as to prevent the undue spread of dust and flying particles.

1.8.2 Measures to Prevent Damage/Injury

The Contractor shall take such additional measures as may be directed by the Contracting Officer to prevent damage or injury to Government property or personnel. (CENAB)

1.9 ORDER OF WORK AND COORDINATION WITH OTHER CONTRACTORS: (FEB 1979)

Other Contractors may be presently working in the same area. After award of this contract a meeting will be held with all contractor representatives and the Contracting Officer to develop a plan of work coordination. In case of disagreement regarding use of an area the decision of the Contracting Officer will control. (CENAB)

1.10 MAINTENANCE OF UTILITIES: (FEB 1985)

Throughout construction, the Contractor shall provide and/or maintain toilet facilities for Government personnel. The Contractor shall provide alternate space heating for Government personnel when necessary during shutdown of the heating system. (CENAB)

1.11 ASBESTOS HANDLING AND REMOVAL (FEB 85)

Through site investigations, friable asbestos has not been found, however if asbestos is encountered, its testing, removal and disposal is covered in

"CHANGES" clause of the Contract Clauses. (CENAB)

1.12 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER

1.12.1 Procedure for Determination

This provision specifies the procedure for determination of time extensions for unusually severe weather in accordance the contract clause entitled "Default: (Fixed Price Construction)". In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

- a. The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.
- b. The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the contractor.

1.12.2 Anticipated Adverse Weather Delays

The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY
WORK DAYS BASED ON (5) DAY WORK WEEK

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
7	6	6	7	7	6	4	5	3	5	4	4

1.12.3 Impact

Upon acknowledgment of the Notice to Proceed (NTP) and continuing throughout the contract, the contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the contractor's scheduled work day. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph "Anticipated Adverse Weather Delays", above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the contract clause entitled "Default (Fixed Price Construction)".

1.13 WORKING HOURS

WORKING HOURS: (DEC 93) It shall be the Contractors responsibility to obtain the working hours other than the normal five (5) day work week 08:00 am to 4:30 pm.

1.14 LIMITS OF WORK AREAS

The limits of work areas as shown on the drawings are necessarily approximate. In case of doubt as to the actual limits of any work area, determination as to the actual limits will be made by the Contracting Officer.

1.15 DAMAGE TO WORK (1966 MAR OCE)

ALTERNATE 1:

The responsibility for damage to any part of the permanent work shall be as set forth in the "Permits and Responsibilities" clause of the Contract Clauses. However, if, in the judgment of the Contracting Officer, any part of the permanent work performed by the Contractor is damaged by flood, earthquake, hurricane or tornado which damage is not due to the failure of the Contractor to take reasonable precautions or to exercise sound engineering and construction practices in the conduct of the work, the Contractor will make the repairs as ordered by the Contracting Officer and full compensation for such repairs will be made at the applicable contract unit or lump sum prices as fixed and established in the contract. If, in the opinion of the Contracting Officer, there are no contract unit or lump sum prices applicable to any part of such work an equitable adjustment pursuant to the "Changes" clauses of the Contract Clauses, will be made as full compensation for the repairs of that part of the permanent work for which there are no applicable contract unit or lump sum prices. Except as herein provided, damage to all work (including temporary construction), utilities, materials, equipment and plant shall be repaired to the satisfaction of the Contracting Officer at the Contractor's expense, regardless of the cause of such damage. (CENAB)

1.16 ENVIRONMENTAL LITIGATION (1974 NOV OCE)

If the performance of all or any part of the work is suspended, delayed, or interrupted due to an order of a court of competent jurisdiction as a result of environmental litigation, as defined below, the Contracting Officer, at the request of the Contractor, shall determine whether the order is due in any part to the acts or omissions of the Contractor or a Subcontractor at any tier not required by the terms of this contract. If it is determined that the order is not due in any part to acts or omissions of the Contractor or a Subcontractor at any tier other than as required by the terms of this contract, such suspension, delay, or interruption shall be considered as if ordered by the Contracting Officer in the administration of this contract under the terms of the "Suspension of Work" clause of the Contract Clauses. The period of such suspension, delay or interruption shall be considered unreasonable, and an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) as provided in that clause, subject to all the provisions thereof.

The term "environmental litigation", as used herein, means a lawsuit alleging that the work will have an adverse effect on the environment or that the Government has not duly considered, either substantively or procedurally, the effect of the work on the environment. (CENAB)

1.17 MEASUREMENT AND PAYMENT

No separate measurement and payment will be made for the work performed in this Section 01050, JOB CONDITIONS, specified herein; and all costs in connection therewith shall be considered a subsidiary obligation of the Contractor, and shall be included in the overall cost of the work.(CENAB)

PART 2 PRODUCTS

NOT APPLICABLE

PART 3 EXECUTION

NOT APPLICABLE

-- End of Section --

SECTION 01060

SAFETY

PART 1 GENERAL

1.1 APPLICABLE PUBLICATION

The publications listed below form a part of this specification and are referred to in the text by the basic designation only. All interim changes (changes made between publications of new editions) to the U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, will be posted on the Headquarters Website. The date that it is posted shall become the official effective date of the change and contracts awarded after this date shall require to comply accordingly. The website location where these changes can be found is under the button entitled "Changes to EM", located at: "http://www.hq.usace.army.mil/soh/hqusace_soh.htm".

U.S. ARMY CORPS OF ENGINEERS:

EM 385-1-1 (3 Sep 1996) U.S. Army Corps of Engineers
Safety and Health Requirements Manual

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Safety Supervisor; G AR.

A safety supervisor shall be responsible for overall supervision of accident prevention activities.

Accident Prevention Plan; G AR.

The Contractor shall submit his Accident Prevention Plan for review and approval a minimum of 15 days prior to commencing work at the job site.

Activity Phase Hazard Analysis Plan; G AR.

The addressing of the activity phase hazard analysis plan for each activity performed in a phase of work.

Outline Report

A report for each past activities review.

OSHA Log

A log shall be reported monthly for injuries.

SD-07 Certificates

Language Certification

It is the Contractors responsibility to ensure that all employees understand the basic english language.

1.3 GENERAL

The U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, and all subsequent revisions referred to in the Contract Clause ACCIDENT PREVENTION of this contract, are hereby supplemented as follows:

a. The Contractor shall designate an employee responsible for overall supervision of accident prevention activities. Such duties shall include: (1) assuring applicable safety requirements are (a) communicated to the workers in a language they understand (reference EM 385-1-1, September 1996, 01.A.04). It is the Contractor's responsibility to ascertain if there are workers on the job who do not speak and/or understand the English language, if such workers are employed by the prime contractor or subcontractors, at any tier, it is the prime contractor's responsibility to insure that all safety programs, signs, and tool box meetings are communicated to the workers in a language they understand, and that a bilingual employee is on site at all time. If the contractor contends that interpreters and/or bilingual signs are not required, language certification must be provided which verifies that all workers (whose native tongue is other than English) have a command of the English language sufficient to understand all direction, training and safety requirements, whether written or oral, and (b) incorporated in work methods, and (2) inspecting the work to ensure that safety measures and instructions are actually applied. The proposed safety supervisor name and qualifications shall be submitted in writing for approval to the Contracting Officer's Representative. This individual must have prior experience as a safety engineer or be able to demonstrate his/her familiarity and understanding of the safety requirements over a prescribed trial period. The safety engineer shall have the authority to act on behalf of the Contractor's general management to take whatever action is necessary to assure compliance with safety requirements. The safety supervisor is required to be on the site when work is being performed.

b. Prior to commencement of any work at a job site, a preconstruction safety meeting shall be held between the Contractor and the Corps of Engineers Area/Resident Engineer to discuss the Contractor's safety program and in particular to review the following submittals:

(1) Contracts Accident Prevention Plan: An acceptable accident prevention plan, written by the prime Contractor for the specific work and implementing in detail the pertinent requirements of EM 385-1-1, shall be submitted for Government approval.

(2) Activity Phase Hazard Analysis Plan: Prior to beginning each major phase of work, an activity hazard analysis (phase plan) shall be prepared by the Contractor for that phase of work and submitted to the Contracting Officer's Representative for approval. A phase is defined as

an operation involving a type of work presenting hazards not experienced in previous operations or where a new subcontractor or work crew is to perform work. The analysis shall address the hazards for each activity performed in the phase and shall present the procedures and safeguards necessary to eliminate the hazards or reduce the risk to an acceptable level.

c. Subsequent jobsite safety meetings shall be held as follows:

(1) A safety meeting shall be held at least once a month for all supervisors on the project to review past activities, to plan ahead for new or changed operations and to establish safe working procedures to anticipated hazards. An outline report of each monthly meeting shall be submitted to the Contracting Officer's Representative.

(2) At least one safety meeting shall be conducted weekly, or whenever new crews begin work, by the appropriate field supervisors or foremen for all workers. An outline report of the meeting giving date, time, attendance, subjects discussed and who conducted it shall be maintained and copies furnished the designated authority on request.

1.4 ACCIDENTS

Chargeable accidents are to be investigated by both Contractor personnel and the Contracting Officer.

1.4.1 Accident Reporting, ENG FORM 3394

Section 1, Paragraph 01.D, OF EM 385-1-1 and the Contract Clause entitled ACCIDENT PREVENTION are amended as follows: The prime Contractor shall report on Eng Form 3394, supplied by the Contracting Officer, all injuries to his employees or subcontractors that result in lost time and all damage to property and/or equipment in excess of \$2,000 per incident. Verbal notification of such accident shall be made to the Contracting Officer within 24 hours. A written report on the above noted form shall be submitted to the Contracting Officer within 72 hours following such accidents. The written report shall include the following:

a. A description of the circumstances leading up to the accident, the cause of the accident, and corrective measures taken to prevent recurrence.

b. A description of the injury and name and location of the medical facility giving examination and treatment.

c. A statement as to whether or not the employee was permitted to return to work after examination and treatment by the doctor, and if not, an estimate or statement of the number of days lost from work. If there have been days lost from work, state whether or not the employee has been re-examined and declared fit to resume work as of the date of the report.

1.4.2 OSHA Requirements

1.4.2.1 OSHA Log

A copy of the Contractor's OSHA Log of Injuries shall be forwarded monthly to the Contracting Officer.

1.4.2.2 OSHA Inspections

Contractors shall immediately notify the Contracting Officer when an OSHA

Compliance official (Federal or State representative) presents his/her credentials and informs the Contractor that the workplace will be inspected for OSHA compliance. Contractors shall also notify the Contracting Officer upon determination that an exit interview will take place upon completion of the OSHA inspection. (NABSA OCT 05, 1976)

1.5 GOVERNMENT APPROVAL

Submittals shall be in accordance with Section 01330 SUBMITTAL PROCEDURES. All required submittals of items specified in this section shall be for information only, except for those items including, but not limited to, the following which shall be submitted for Government approval:

- a. Written designation of safety representative.
- b. Written project specific accident prevention plan.
- c. Written activity phase hazard analysis plan.

PART 2 PRODUCT
NOT APPLICABLE

PART 3 EXECUTION
NOT APPLICABLE

-- End of Section --

SECTION 01330

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SUBMITTAL IDENTIFICATION

Submittals required are identified by SD numbers and titles as follows:

SD-01 Preconstruction Submittals

SD-03 Product Data

SD-04 Samples

SD-05 Design Data

SD-06 Test Reports

SD-07 Certificates

SD-11 Closeout Submittals

1.2 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.2.1 Government Approved

Government approval is required for extensions of design, critical materials, deviations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings."

1.2.2 Information Only

All submittals not requiring Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above. Submittal Register ENG FORM 4288, column labeled "Reviewer", this column is blank and is understood that the reviewer is "AR" (Area Office).

1.3 APPROVED SUBMITTALS

The Contracting Officer's approval of submittals shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the Contractor Quality Control (CQC) requirements of this contract is responsible for dimensions, the design of adequate connections and details, and the satisfactory construction of all work. After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.4 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the Contracting Officer and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, a notice in accordance with the Contract Clause "Changes" shall be given promptly to the Contracting Officer.

1.5 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

PART 2 PRODUCTS (Not used)

PART 3 EXECUTION

3.1 GENERAL

The Contractor shall make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) System Manager and each item shall be stamped, signed, and dated by the CQC System Manager indicating action taken. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

3.2 SUBMITTAL REGISTER

At the end of this section is one set of ENG Form 4288 listing items of equipment and materials for which submittals are required by the specifications; this list may not be all inclusive and additional submittals may be required. The Contractor will also be given the submittal register files, containing the computerized ENG Form 4288 and instructions on the use of the files. These submittal register files will be furnished on a separate diskette. Columns "c" through "f" have been completed by the Government; the Contractor shall complete columns "a" and "g" through "i" and submit the forms (hard copy plus associated electronic file) to the Contracting Officer for approval within 30 calendar days after Notice to Proceed. The Contractor shall keep this diskette up-to-date and shall submit it to the Government together with the monthly payment request. The approved submittal register will become the scheduling document and will be used to control submittals throughout the life of the

contract. The submittal register and the progress schedules shall be coordinated.

3.3 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 30 calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals.

3.4 TRANSMITTAL FORM (ENG FORM 4025)

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 30 calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals.

3.5 SUBMITTAL PROCEDURE

Six (6) copies of submittals shall be made as follows:

3.5.1 Procedures

In the signature block provided on ENG Form 4025 the Contractor certifies that each item has been reviewed in detail and is correct and is in strict conformance with the contract drawings and specifications unless noted otherwise. The accuracy and completeness of submittals is the responsibility of the Contractor. Any costs due to resubmittal of documents caused by inaccuracy, lack of coordination, and/or checking shall be the responsibility of the Contractor. This shall include the handling and review time on the part of the Government. Each variation from the contract specifications and drawings shall be noted on the form; and, attached to the form, the Contractor shall set forth, in writing, the reason for and description of such variations. If these requirements are not met, the submittal may be returned for corrective action.

3.5.2 Responsibility

The Contractor is responsible for the total management of his work. The quantities, adequacy and accuracy of information contained in the submittals are the responsibility of the Contractor. Approval actions taken by the Government will not in any way relieve the Contractor of his quality control requirements.

3.5.3 Additional Requirements

The above is in addition to the requirements set forth in Contract Clause entitled "Specifications and Drawings for Construction". (ER 415-1-10)

3.5.4 Deviations

For submittals which include proposed deviations requested by the Contractor, the column "variation" of ENG Form 4025 shall be checked. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

3.6 CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

3.7 GOVERNMENT APPROVED SUBMITTALS

Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. Four (4) copies of the submittal will be retained by the Contracting Officer and two (2) copies of the submittal will be returned to the Contractor.

3.8 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe.

3.9 STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets contract requirements shall be similar to the following:

<p>CONTRACTOR</p> <p>(Firm Name)</p> <p>_____ Approved</p> <p>_____ Approved with corrections as noted on submittal data and/or attached sheets(s).</p> <p>SIGNATURE: _____</p> <p>TITLE: _____</p> <p>DATE: _____</p>
--

3.10 CERTIFICATES OF COMPLIANCE: (MAY 1969)

Any Certificate required for demonstrating proof of compliance of materials with specification requirements shall be executed in four (4) copies. Each certificate shall be signed by an official authorized to certify in behalf on the manufacturing company and shall contain the name and address of the Contractor, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Contractor from furnishing satisfactory material, if, after tests are performed on selected samples, the material is found not to meet the specific requirements. (CENAB)

-- End of Section --

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION RHODES PT., SECTION 107, SMALL NAVIGATION PROJECT		CONTRACTOR																
ACTIVITY NO	TRANSMITTAL NO	SPECIES	DESCRIPTION ITEM SUBMITTED	PARRAG#	CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY			REMARKS			
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE FWD TO OTHER REVIEWER	DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	DATE OF ACTION		DATE OF ACTION	DATE RCD FRM APPR AUTH	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	01000		SD-01 Preconstruction Submittals															
			Title Evidence		FIO													
			Invoice Copies		FIO													
			Payment Evidence		FIO													
			Photographs	1.7	FIO													
			SD-03 Product Data		FIO													
			Cost or Pricing Data	1.5	FIO													
			SD-05 Design Data		FIO													
			Progress Schedule	1.2	G AR													
	01060		SD-01 Preconstruction Submittals		FIO													
			Safety Supervisor	1.3	G AR													
			Accident Prevention Plan		G AR													
			Activity Phase Hazard Analysis	1.3	G AR													
			Plan		FIO													
			Outline Report		FIO													
			OSHA Log		FIO													
			SD-07 Certificates		FIO													
			Language Certification	1.3	FIO													
	01451		SD-01 Preconstruction Submittals		FIO													
			CQC Plan	3.2	G AR													
			Phase Notification		FIO													
			Request		G AR													
			CQC Mgr Qualification		G AR													
			SD-05 Design Data		FIO													
			Notification of Changes	3.2.4	FIO													
			Punchlist	3.8.1	FIO													

INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required numbers of copies.
2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.
3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288 for each entry on this form.
4. Submittals requiring expeditious handling will be submitted under a separate form.
5. Separate transmittal form will be used for submittals under separate sections of the specifications.
6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications -- also a written statement to that effect shall be included in the space provided for "Remarks".
7. Form is self transmitting, letter of transmittal is not required.
8. When a sample of a material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I
9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column I to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated in Section I, Column g, to each item submitted.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

- | | | | |
|------|---|-------|--|
| A -- | Approved as submitted | E -- | Disapproved (See Attached) |
| B -- | Approved, except as noted on drawings. | F -- | Receipt acknowledged |
| C -- | Approved except as noted on drawings.
Refer to attached sheet resubmission required. | FX -- | Receipt acknowledged, does not comply
as noted with contract requirements |
| D -- | Will be returned by separate correspondence. | G -- | Other (Specify) |

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

SECTION 01451

CONTRACTOR QUALITY CONTROL

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740	(1999b) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E 329	(1998a) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Price Schedule.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

CQC Plan; G AR.

Identifies personnel, procedures, control, instructions, test, records, and forms to be used.

Phase Notification

The Government shall be notified in a specified amount of time in advance of beginning the preparatory control phase.

Request; G AR.

The requesting of specialized individuals in specific disciplines to perform quality control.

CQC Mgr Qualification; G AR.

The evaluation of the project to determine the level of CQC System Manager required.

SD-05 Design Data

Notification of Changes

Any changes made by the Contractor.

Punchlist

Near the completion of all work, the CQC System Manager shall prepare a list of items which do not conform to the approved drawings and specifications.

Minutes

Prepared by the Government and signed by both the Contractor and the Contracting Officer and shall become a part of the contract file.

SD-06 Test Reports

Tests

Specified or required tests shall be done by the Contractor to verify that control measures are adequate.

Documentation

Daily CQC Reports.

Tests Performed

An information copy provided directly to the Contracting Officer.

QC Records; G AR.

Provide factual evidence that required quality control activities and/or tests have been performed.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including

quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Contracting Officer, and shall be responsible for all construction and construction related activities at the site.

3.2 CQC PLAN

3.2.1 General

The Contractor shall furnish for review by the Government, not later than 30 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Government will consider an interim plan for the first 60 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.2.2 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

- a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.
- b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
- c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Government.
- d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01330 SUBMITTAL PROCEDURES.
- e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. The Contractor shall include a copy of his proposed laboratory's latest Corps of Engineers inspection report in the Quality Control Plan. The inspection

report details the tests that the lab has been validated to perform under Corps of Engineers contracts. (Laboratory facilities will be approved by the Contracting Officer.)

- f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.
- g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.
- h. Reporting procedures, including proposed reporting formats.
- i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

3.2.3 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.4 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 14 calendar days prior to the Coordination Meeting.

During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure safety and contract compliance. The Safety and Health Manager shall receive direction and authority from the CQC System Manager and shall serve as a member of the CQC staff. Personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly will also be included as part of the CQC organization. The Contractor's CQC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Contracting Officer. The Contractor shall provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Complete records of all letters, material submittals, show drawing submittals, schedules and all other project documentation shall be promptly furnished to the CQC organization by the Contractor. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Contracting Officer.

3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a construction person with a minimum of 5 years in related work. This CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned as System Manager but may have duties as project superintendent in addition to quality control. An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager.

3.4.3 CQC Personnel

In addition to CQC personnel specified elsewhere in the contract, the Contractor shall provide as part of the CQC organization specialized personnel to assist the CQC System Manager for the following areas: geology, and submittals clerk. These individuals may be employees of the prime or subcontractor; be responsible to the CQC System Manager; be physically present at the construction site during work on their areas of responsibility; have the necessary education and/or experience in accordance with the experience matrix listed herein. These individuals may perform other duties but must be allowed sufficient time to perform their assigned quality control duties as described in the Quality Control Plan.

Experience Matrix

<u>Area</u>	<u>Qualifications</u>
a. Geology	Graduate Geologist with 2 years experience or a State Licensed Geologist with at least 1 year

Experience Matrix

<u>Area</u>	<u>Qualifications</u>
	experience in assessing stone quality.
b. Submittals	Submittal Clerk with 1 yr experience

3.4.4 Additional Requirement

In addition to the above experience and/or education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management for Contractors" within 45 calendar days after NTP is a mandatory requirement for the position of the Quality Control Systems Manager. Certification is good for five (5) years at which time re-training is required. The Contractor's QC Systems Manager may be appointed and serve fully in that capacity pending certification. If the CQC Systems Manager fails to successfully complete the training, the Contractor should promptly appoint a new CQSM who shall then attend the next available course. The course is nine (9) hours long (1 day). The Construction Quality Management Course (CQMC) will be taught at least nine (9) times per year by the Baltimore District Corps of Engineers, at various locations around Baltimore and Washington, DC, or at another site if conditions warrant. The CQMC cost will be borne by the Contractor and is one hundred and twenty-five dollars (\$125.00) per course, per person. Payment shall be made by check payable to either sponsors of the course: Associated Builders and Contractors, Inc, (ABC) 14120 Park Long Court, Suite 111, Chantilly, Virginia 20151 (Phone: 703-968-6205), or to The Associated General Contractors of America (AGC), Maryland Chapter, 1301 York Road, Heaver Plaza, Suite 202, Lutherville, Maryland 21093 (Phone: 410-321-7870) prior to the start of the course. Reservations to attend the course should be made directly to the organization sponsoring the course they attend. The Contractor has forty-five (45) calendar days to attend the course after the issuance of the NTP. The contractor shall contact the Contracting Officer upon award of the contract for arrangements for the course.

3.4.5 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5 SUBMITTALS

Submittals, if needed, shall be made as specified in Section 01330 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of work as follows:

3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

- a. A review of each paragraph of applicable specifications, reference codes, and standards. A copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field shall be made available by the Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by Government personnel until final acceptance of the work.
- b. A review of the contract drawings.
- c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.
- d. Review of provisions that have been made to provide required control inspection and testing.
- e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
- f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
- g. A review of the appropriate activity hazard analysis to assure safety requirements are met.
- h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.
- i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.
- j. Discussion of the initial control phase.
- k. The Government shall be notified at least 72 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

- a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.
- b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.
- c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
- d. Resolve all differences.
- e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.
- f. The Government shall be notified at least 72 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.
- g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if the quality of on-going work is unacceptable, if there are changes in the applicable CQC staff, onsite production supervision or work crew, if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the

Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

- a. Verify that testing procedures comply with contract requirements.
- b. Verify that facilities and testing equipment are available and comply with testing standards.
- c. Check test instrument calibration data against certified standards.
- d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
- e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2 Testing Laboratories

3.7.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.7.2.2 Laboratory Approval

The Contractor shall use a testing laboratory that has been previously validated by the Corps of Engineers or obtain approval for a laboratory established at the project site. Validated laboratories are listed at the following web site: <http://www.wes.army.mil/SL/MTC/ValStatesTbl.htm> If the Contractor elects to set up an on-site laboratory at the project site, the Contractor will be assessed \$4500.00 for the cost of inspection of this lab by the Corps of Engineers.

3.7.3 Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests, and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.7.4 Furnishing or Transportation of Samples for Testing

Furnishing or Transportation of Samples for Testing: Costs incidental to the transportation of samples or materials will be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the following address:

Field Exploration Unit
or
Materials and Instrumentation Unit
(indicate which on shipping or mailing forms)
Fort McHenry Yard
Baltimore, Maryland 21230"

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

Near the completion of all work or any increment thereof established by a completion time stated in the Special Clause in Section 00800 of the Solicitation entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the CQC System Manager shall conduct an inspection of the work and develop a punchlist of items which do not conform to the approved drawings and specifications. Such a list of deficiencies shall be included in the CQC documentation, as required by paragraph DOCUMENTATION below, and shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2 Pre-Final Inspection

The Government will perform pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at the final acceptance inspection. Additional Government personnel including, but not limited to, those from Maryland Department of Natural Resource, may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all

contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

- a. Contractor/subcontractor and their area of responsibility.
- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.
- d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial, Follow-up). List deficiencies noted along with corrective action.
- e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.
- f. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.
- g. Off-site surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. Instructions given/received and conflicts in plans and/or specifications.
- j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality

control personnel.

3.10 SAMPLE FORMS

Sample forms enclosed at the end of this section.

3.11 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

-- End of Section --

Contractor's Name:	_____
Address:	_____ _____
Phone Number:	_____

CONSTRUCTION QUALITY CONTROL REPORT

PROJECT NAME: _____
 LOCATION: _____ DATE: _____
 CONTRACT NUMBER: _____ REPORT NO.: _____

SUPERINTENDENT: _____			
TYPE OF WORKERS	NUMBER	TYPES OF CONSTRUCTION EQUIPMENT ON SITE	NUMBER
SUBCONTRACTORS			
COMPANY	RESPONSIBILITY	FOREMAN	NO. OF WORKERS
TOTALS			
NO. OF WORKERS TODAY	MANHOURS TODAY	MANHOURS FOR THIS PERIOD	
CONTRACT MATERIALS AND EQUIPMENT DELIVERED TO SITE:			
WEATHER: _____		SITE CONDITIONS: _____	
DID A DELAY OR WORK STOPPAGE OCCUR TODAY? _____ IF YES, EXPLAIN.			
HAS ANYTHING DEVELOPED IN THE WORK WHICH MAY LEAD TO A CHANGE OR FINDING OF FACT? _____ IF YES, EXPLAIN.			

DESCRIPTION OF ALL WORK PERFORMED TODAY
(LIST BY DEFINABLE FEATURES OF WORK)

PREPARATORY INSPECTION:

LIST ALL INSPECTIONS BY SUBJECT AND SPECIFICATION LOCATION.
ATTACH MINUTES OF MEETING AND LIST OF ALL ATTENDEES.

HAVE ALL REQUIRED SUBMITTALS AND SAMPLES OF CONSTRUCTION BEEN
APPROVED.

DO THE MATERIALS AND EQUIPMENT TO BE USED CONFORM TO THE SUBMITTALS?

HAS ALL PRELIMINARY WORK BEEN INSPECTED, TESTED, AND COMPLETED?

TEST REQUIRED AND INSPECTION TECHNIQUES TO BE EXECUTED TO PROVE
CONTRACT COMPLIANCE (INCLUDE BOTH EXPECTED AND ACTUAL RESULTS)

HAS A PHASE HAZARD ANALYSIS BEEN PERFORMED?

COMMENTS AND DEFICIENCIES NOTED AND CORRECTIVE ACTIONS TAKEN:

ALL INSTRUCTIONS RECEIVED FROM QA PERSONNEL AND ACTIONS TAKEN:

JOB SAFETY (INCLUDE MEETINGS HELD AND DEFICIENCIES NOTED WITH CORRECTIVE ACTIONS):

INITIAL INSPECTION:

LIST ALL INSPECTIONS BY SUBJECT AND SPECIFICATION LOCATION.
COMMENTS AND/OR DEFICIENCIES NOTED AND CORRECTIVE ACTION TAKEN:

FOLLOW-UP INSPECTION:

LIST ALL INSPECTIONS BY SUBJECT AND SPECIFICATION LOCATION.
COMMENTS AND/OR DEFICIENCIES NOTED AND CORRECTIVE ACTION TAKEN.

SIGNATURE: _____
QUALITY CONTROL REPRESENTATIVE/MANAGER

THE ABOVE REPORT IS COMPLETE AND CORRECT. ALL MATERIALS AND EQUIPMENT USED AND ALL WORK PERFORMED DURING THIS REPORTING PERIOD ARE IN COMPLIANCE WITH THE CONTRACT SPECIFICATIONS, AND SUBMITTALS, EXCEPT AS NOTED ABOVE.

SIGNATURE: _____
CONTRACTOR'S APPROVED AUTHORIZED REPRESENTATIVE

SECTION 01510

TEMPORARY CONSTRUCTION ITEMS

PART 1 GENERAL

1.1 General

The work covered by this section consists of furnishing all labor, materials, equipment, and services and performing all work required for or incidental to the items herein specified. No separate payment will be made for the construction and services required by this section, and all costs in connection therewith shall be included in the overall cost of the work unless specifically stated otherwise.

1.2 PROJECT SIGN: (AUG 1974)

A project sign shall be provided and erected at a location designated by the Contracting Officer. The sign shall conform to the requirements as shown on Attachment No. 1, a copy of which is attached hereto. The sign shall be erected as soon as possible and within 15 days after the date of receipt of notice to proceed. Upon completion of the project, the sign shall be removed and disposed of by the Contractor. (CENAB)

1.3 SAFETY SIGN (AUG 1974)

A safety sign shall be provided and erected at a location designated by the Contracting Officer. The sign shall conform to the requirements as shown on Attachment No. 2, a copy of which is attached hereto. The sign shall be erected as soon as possible and within 15 days after the date of receipt of notice to proceed. The data required by the sign shall be corrected daily, with light colored metallic or non-metallic numerals. Numerals, including mounting hardware, shall be subject to the approval of the Contracting Officer. Upon completion of the project, the sign shall be removed and disposed of by the Contractor. (CENAB)

1.4 GOVERNMENT FIELD OFFICE

1.4.1 Resident Engineer's Office

The Contractor shall provide the Government Resident Engineer with an office, approximately 200 square feet in floor area, located where directed, and providing space heat, electric light and power, toilet facilities consisting of one lavatory and one water closet complete with connections to water and sewer mains. A mail slot shall be provided in the door, or an apartment-type lockable mail box mounted on the surface of the door. At completion of the project, the office shall remain the property of the Contractor and shall be removed from the site. All utility connections shall be connected and disconnected in accordance with local codes and to the satisfaction of the Contracting Officer. If a window style air conditioner is used then the refrigerant shall be one of the fluorocarbon gases that is in accordance with FS BB-F-1421 and has an Ozone Depletion Potential (ODP) of less than or equal to 0.05.

1.4.2 Trailer-Type Mobile Office (Contractor's Option)

In lieu of constructing, maintaining and, at end of construction period, removing a temporary type field office, the Contractor may, at his option, furnish and maintain a trailer-type mobile office acceptable to the Contracting Officer and providing as a minimum the facilities specified above. The trailer shall be securely anchored to the ground at all four corners to guard against movement during high winds.

1.5 BULLETIN BOARD: (NOV 1983)

Immediately upon beginning of work under this contract, the Contractor shall provide a weatherproof glass-covered bulletin board not less than 36 x 48 inches in size, for displaying the Equal Employment Opportunity Poster, a copy of the wage decision contained in the contract, Wage Rate Information Poster, and other information approved by the Contracting Officer. The bulletin board shall be located at the site of work in a conspicuous place easily accessible to all employees as approved by the Contracting Officer. Legible copies of the aforementioned data shall be displayed until work under the contract is complete. Upon completion of work under this contract the bulletin board shall be removed by and remain the property of the Contractor. (AFRCE)

1.6 PLANT COMMUNICATION (JAN 63)

Whenever the Contractor has the individual elements of his plant so located that operation by normal voice between these elements is not satisfactory, the Contractor shall install a satisfactory means of communication, such as telephone or other suitable devices. The facilities shall be made available for use by Government personnel. (CENAB)

1.7 BARRICADES

The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas. Such barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazardous areas during both day and night. (CENAB)

PART 2 PRODUCT
NOT APPLICABLE

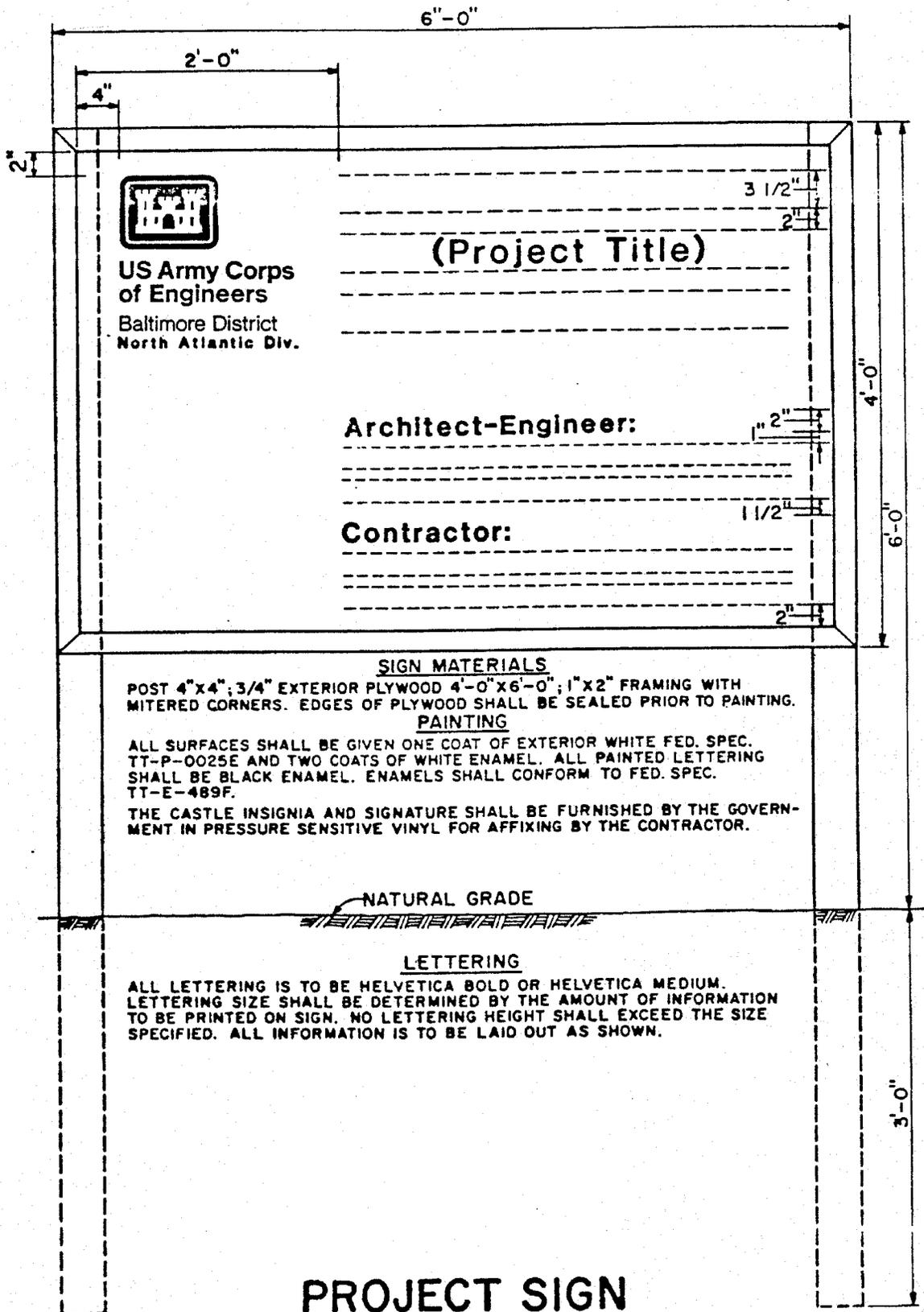
PART 3 EXECUTION
NOT APPLICABLE

ATTACHMENTS:

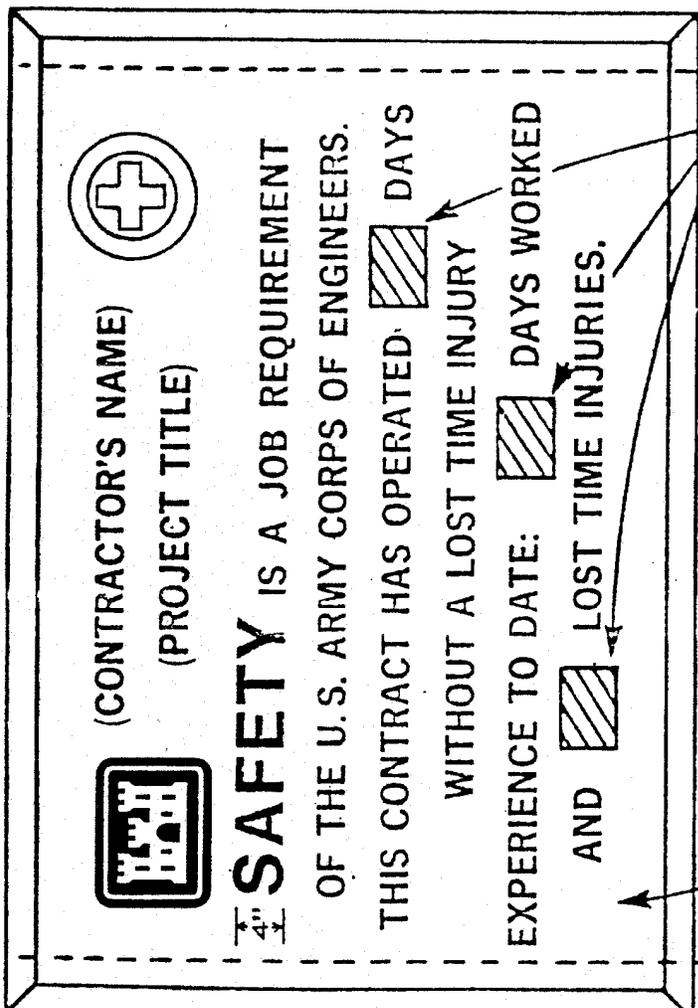
Attachment 1 Project Sign

Attachment 2 Safety Sign

-- End of Section --



6'-0"



3/4" EXTERIOR PLYWOOD 4" x 6" PAINTED BLACK

GRADE

4" x 4" POST

	LETTER HGT	STROKE
CONTRACTORS NAME	4"	3/16"
PROJECT TITLE	3"	3/16"
"SAFETY"	4"	1/2"
REMAINING STATEMENT	2 1/2"	1/4"

SAFETY SIGN

SIGN MATERIALS

POST 4"x4"; 3/4" EXTERIOR PLYWOOD 4'-0"x6'-0", 2"x2" FRAMING WITH MITERED CORNERS. FRAMING ENCLOSED EDGES OF PLYWOOD AND BE INSTALLED FLUSH ON BACK SIDE AND PROJECTING IN FRONT. OUTSIDE WHITE, HOUSE PAINT-2 COATS; BOTH SIDES AND EDGES; COLORS IN OIL FOR LETTERING - LAMP BLACK AND BULLETIN RED; CASTLE SHALL BE RED; LETTERING SHALL BE BLACK; THE CROSS SHALL BE GREEN

THE CASTLE INSIGNIA SHALL BE FURNISHED BY THE GOVERNMENT IN PRESSURE SENSITIVE VINYL FOR AFFIXING BY THE CONTRACTOR.

SECTION 01561

ENVIRONMENTAL PROTECTION

PART 1 GENERAL

The work covered by this section consists of furnishing all labor, materials and equipment and performing all work required for the prevention of environmental pollution during, and as the result of, construction operations under this contract except for those measures set forth in the Technical Provisions of these specifications. For the purpose of this specification, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life or affect other species of importance to man. The control of environmental pollution requires consideration of air, water, and land.

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Facility Plan; G AR.

Location of storage and service facilities.

Temporary Plan; G AR.

Temporary excavation and embankments.

1.2 APPLICABLE REGULATIONS

The Contractor and his subcontractors in the performance of this contract, shall comply with all applicable Federal, State, and local laws and regulations concerning environmental pollution control and abatement in effect on the date of this solicitation, as well as the specific requirements stated elsewhere in the contract specifications.

1.3 NOTIFICATION

The Contracting Officer will notify the Contractor of any non-compliance with the foregoing provisions and the action to be taken. The Contractor shall, after receipt of such notice, immediately take corrective action. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of time lost due to any such stop order shall be made the subject of a claim for extension of time or for excess costs or damages by the Contractor unless it is later determined that the Contractor was in compliance.

1.4 SUBCONTRACTORS

Compliance with the provisions of this section by subcontractors will be the responsibility of the Contractor.

1.5 PROTECTION OF WATER RESOURCES

The Contractor shall not pollute streams, lakes or reservoirs with fuels, oils, bitumens, calcium chloride, acid construction wastes or other harmful materials. All work under this contract shall be performed in such a manner that objectionable conditions will not be created in streams through or adjacent to the project areas.

1.5.1 Turbidity Curtain

A turbidity curtain shall be maintained around the jetty as it is constructed. It must be weighted at the bottom to insure that it sits on the river bottom and the top must float. It must be of sufficient height to provide complete coverage at high tide. The turbidity curtain should be maintained approximately 25 feet from the toe of the structure and be advanced as necessary during construction. The fabric should be strong enough to remain standing with currents and tides. It should be installed in accordance with the manufacturer's specifications. If any section fails, it should be immediately repaired or replaced. At the conclusion of construction, all fabric and supporting structures shall be removed.

1.6 EROSION AND SEDIMENTATION CONTROL

The Contractor shall accomplish the erosion and sedimentation control in accordance with the contract drawings.

1.7 BURNING

Burning will not be allowed.

1.8 DUST CONTROL

The Contractor shall maintain all work area free from dust which would contribute to air pollution. Approved temporary methods of stabilization consisting of sprinkling, chemical treatment, light bituminous treatment or similar methods will be permitted to control dust. Sprinkling, where used, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs.

1.9 PROTECTION OF LAND RESOURCES

1.9.1 General

It is intended that the land resources within the project boundaries and outside the limits of permanent work performed under this contract be preserved in their present condition or be restored to a condition after completion of construction that will appear to be natural and not detract from the appearance of the project. Insofar as possible, the Contractor

shall confine his construction activities to areas defined by the plans and specifications or to be cleared for other operations. The following additional requirements are intended to supplement and clarify the requirements of the CONTRACT CLAUSES:

1.9.2 Protection of trees retained

1.9.2.1 Contractors Responsibility

The Contractor shall be responsible for the protection of the tops, trunks and roots of all existing trees that are to be retained on the site. Protection shall be maintained until all work in the vicinity has been completed and shall not be removed without the consent of the Contracting Officer. If the Contracting Officer finds that the protective devices are insufficient, additional protection devices shall be installed.

1.9.2.2 Stockpiling

Heavy equipment, vehicular traffic, or stockpiling of any materials shall not be permitted within the drip line of trees to be retained.

1.9.2.3 Storage

No toxic materials shall be stored within 100 feet (30.5 m) from the drip line of trees to be retained.

1.9.2.4 Confined Area

Except for areas shown on the plans to be cleared, the Contractor shall not deface, injure, or destroy trees or shrubs, nor remove or cut them without special authority. Existing near by trees shall not be used for anchorage unless specifically authorized by the Contracting Officer. Where such special emergency use is permitted, the Contractor shall first adequately protect the trunk with a sufficient thickness of burlap over which softwood cleats shall be tied.

1.9.2.5 Tree Defacing

No protective devices, signs, utility boxes or other objects shall be nailed to trees to be retained on the site.

1.9.3 Restoration of landscape damage

Any trees or other landscape feature scarred or damaged by the Contractor's operations shall be restored as nearly as possible to its original condition at the Contractor's expense. The Contracting Officer will decide what method of restoration shall be used, and whether damaged trees shall be treated and healed or removed and disposed of. All scars made on trees, designated on the plans to remain, and all cuts for the removal of limbs larger than 1-inch in diameter shall be coated as soon as possible with an approved tree wound dressing. All trimming or pruning shall be performed in an approved manner by experienced workmen with saws or pruning shears. Tree trimming with axes will not be permitted. Where tree climbing is necessary, the use of climbing spurs will not be permitted. Trees that are to remain, either within or outside established clearing limits, that are subsequently damaged by the Contractor and are beyond saving in the opinion of the Contracting Officer, shall be immediately removed and replaced with a nursery-grown tree of the same species. Replacement trees shall measure no less than 2 inches in

diameter at 6 inches above the ground level.

1.9.4 Location of Storage and Services Facilities

The location of the Contractor's storage and service facilities, required temporarily in the performance of the work, shall be upon cleared portions of the job site or areas to be cleared. The preservation of the landscape shall be an imperative consideration in the selection of all sites and in the construction of buildings. A facility plan showing storage and service facilities shall be submitted for approval to the Contracting Officer. Where buildings or platforms are constructed on slopes, the Contracting Officer may require cribbing to be used to obtain level foundations. Benching or leveling of earth may not be allowed, depending on the location of the proposed facility.

1.9.5 Temporary Excavation and Embankment

If the Contractor proposes to construct temporary roads, embankments or excavations for plant and/or work areas, he shall submit a temporary plan for approval prior to scheduled start of such temporary work.

PART 2 PRODUCT
NOT APPLICABLE

PART 3 EXECUTION
NOT APPLICABLE

-- End of Section --

SECTION 01720

AS-BUILT DRAWINGS - CADD

PART 1 GENERAL

1.1 Preparation

This section covers the preparation of as-built drawings complete, as a requirement of this contract. The terms "drawings," "contract drawings," "drawing files," and "final as-built drawings" refer to a set of computer-aided design and drafting (CADD) contract drawings in electronic file format which are to be used for as-built drawings.

1.2 PROGRESS MARKED UP AS-BUILT PRINTS

The Contractor shall revise one set of paper prints to show the as-built conditions during the prosecution of the project. These as-built marked prints shall be kept current and available on the jobsite at all times. All changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes. The as-built marked prints will be jointly reviewed for accuracy and completeness by the Contracting Officer and a responsible representative of the construction Contractor prior to submission of each monthly pay estimate. If the Contractor fails to maintain the as-built drawings as specified herein, the Contracting Officer will deduct from the monthly progress payment an amount representing the estimated cost of maintaining the as-built drawings and will continue the monthly deduction of the 10% retainage even after 50% completion of the contract. This monthly deduction will continue until an agreement can be reached between the Contracting Officer and a representative of the Contractor regarding the accuracy and completeness of updated drawings. The prints shall show the following information, but not be limited thereto:

1.2.1 Location and Description

The location and description of any utility lines or other installations of any kind or description known to exist within the construction area. The location includes dimensions to permanent features.

1.2.2 Location and Dimensions

The location and dimensions of any changes within the building or structure.

1.2.2.1 Final Jetty and Breakwater Grades

The Contractor shall provide survey data to show final jetty and breakwater grades, such as points at every 50 feet along the structures at edge of crest, toe of slope, edge of toe stone, etc., to a tolerance of 0.1 ft.

1.2.3 Corrections

Correct grade, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

Correct elevations if changes were made in site grading.

1.2.4 Changes

Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor; including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

The topography, invert elevations and grades of all drainage installed or affected as a part of the project construction.

All changes or modifications which result from the final inspection.

1.2.5 Options

Where contract drawings or specifications present options, only the option selected for construction shall be shown on the as-built prints.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-11 Closeout Submittals

Progress Prints; G AR.

Preparation of two copies of as-builts from the Contractor to the Contracting Officer for review and approval.

Final Requirements; G AR.

CADD Files.

Shall consist of two sets of completed as-built contract drawings on separate media consisting of both CADD files (compatible with the Using Agency/Sponsor's system on electronic storage media identical to that supplied by the Government) and a CALS Type 1, Group 4, Raster Image File of each contract drawing.

Receipt by the Contractor of the approved marked as-built prints.

1.4 PRELIMINARY SUBMITTAL Progress Prints

At the time of final inspection, the Contractor shall prepare two copies of the progress as-built prints and these shall be delivered to the Contracting Officer for review and approval. These as-built marked prints shall be neat, legible and accurate. The review by Government personnel will be expedited to the maximum extent possible. Upon approval, one copy of the as-built marked prints will be returned to the Contractor for use in preparation of final as-built drawings. If upon review, the as-built marked prints are found to contain errors and/or omissions, they shall be

returned to the Contractor for corrections. The Contractor shall complete the corrections and return the as-built marked prints to the Contracting Officer within ten (10) calendar days.

1.5 DRAWING PREPARATION

1.5.1 As-Built Drawings Approval

Upon approval of the as-built prints submitted, the Contractor will be furnished by the Government one set of contract drawings, with all amendments incorporated, to be used for as-built drawings. These contract drawings will be furnished on CD-ROM. These drawings shall be modified as may be necessary to correctly show all the features of the project as it has been constructed by bringing the contract set into agreement with the approved as-built prints, adding such additional drawings as may be necessary. These drawings are part of the permanent records of this project and the Contractor shall be responsible for the protection and safety thereof until returned to the Contracting Officer. Any drawings damaged or lost by the Contractor shall be satisfactorily replaced by the Contractor at no expense to the Government.

1.5.2 Proficient Personnel

Only personnel proficient in the preparation of engineering CADD drawings to standards satisfactory and acceptable to the Government shall be employed to modify the contract drawings or prepare additional new drawings. All additions and corrections to the contract drawings shall be equal in quality to that of the originals. Line work, line weights, lettering, layering conventions, and symbols shall be the same as the original line work, line weights, lettering, layering conventions, and symbols. If additional drawings are required, they shall be prepared using the specified electronic file format applying the same guidance specified for original drawings. The title block and drawing border to be used for any new as-built drawings shall be identical to that used on the contract drawings. All additions and corrections to the contract drawings shall be accomplished using CADD media files supplied by the Government. These contract drawings will already be compatible with the Using Agency/Sponsor's system when received by the Contractor. The Using Agency/Sponsor uses AutoCAD Release 2000 CADD software system. The media files will be supplied on ISO 9660 Format CD-ROM. The Contractor is responsible for providing all program files and hardware necessary to prepare as-built drawings. The Contracting Officer will review all as-built drawings for accuracy and the Contractor shall make all required corrections, changes, additions, and deletions.

1.5.3 Final Revisions

When final revisions have been completed, the cover sheet drawing shall show the wording "RECORD DRAWING AS-BUILT" followed by the name of the General Contractor in letters at least 3/16 inch high. All other contract drawings shall be marked either "As-Built" drawing denoting no revisions on the sheet or "Revised As-Built" denoting one or more revisions. All original contract drawings shall be dated in the revision block (see ATTACHMENT 1 located at the end of this section).

1.6 FINAL REQUIREMENTS

After receipt by the Contractor of the approved marked as-built prints and

the original contract drawing files the Contractor will, within 30 days for contracts less than \$5 million or 60 days for contracts \$5 million and above, make the final as-built submittal. The submittal shall consist of the following:

a) Two sets of the as-built contract drawings on separate CD's (ISO 9660 Format CD-ROM) consisting of the updated CADD files and a CALS Type 1 Group 4 Raster Image File of each contract drawing plate. The CALS files shall be exact duplicates of the full sized plots of the completed as-built contract drawings at a resolution of 400 dpi and may be either plotted to CALS files directly from the CADD files, or scanned to file from the prints.

b) Two sets of full size paper prints (plots) of the completed as-built contract drawings.

c) The return of the approved marked as-built prints.

They shall be complete in all details and identical in form and function to the contract drawing files supplied by the Government. Any translations or adjustments necessary to accomplish this is the responsibility of the Contractor. The Government reserves the right to reject any drawing files it deems incompatible with its CADD system. All paper prints, drawing files and storage media submitted will become the property of the Government upon final approval. Failure to submit as-built drawing files and marked prints as required herein shall be cause for withholding any payment due the Contractor under this contract. Approval and acceptance of final as-built drawings shall be accomplished before final payment is made to the Contractor.

1.7 PAYMENT

No separate payment will be made for the as-built drawings required under this contract, and all costs in connection therewith shall be considered a subsidiary obligation of the Contractor.

PART 2 PRODUCT
NOT APPLICABLE

PART 3 EXECUTION
NOT APPLICABLE

-- End of Section --

**RECORD DRAWING AS-BUILT
XYZ CONTRACTOR**

Plate: 1

Sheet Number: T-1

FT. INDIANTOWN GAP PENNSYLVANIA

EQUIPMENT CONCENTRATION SITE

COVER SHEET

U.S. ARMY ENGINEER DISTRICT, BALTIMORE CORPS OF ENGINEERS BALTIMORE, MARYLAND	Designed by:		Date: JAN 2001	Rev.
	Dwn by:	Ckd by:	Design file no.	
A/E FIRM/CONTRACTOR 3 LINES PROVIDED OR LOGO	Reviewed by:		Drawing Number: F-XXX-XX-XX	
	Submitted by: Chief, Branch		File name: FILENAME Plot date: 12/25/00 Plot scale: 1=1	

Mark	Description	Date	Appr.	Mark	Description	Date	Appr.
	AS-BUILT	10 SEP 02					
3	REVISED SECTION A-A AND C-C	5 JAN 01	A.E. D.P.				
2	REVISED PER AMENDMENT NO. 2	30 DEC 00	A.E. D.P.				
1	REVISED PER AMENDMENT NO. 1	25 DEC 00	A.E. D.P.				

SECTION 02373

GEOTEXTILE FOR STONWORK

1. SCOPE

The Contractor shall provide all labor, materials, tools, equipment, and incidentals necessary to perform all work required to install geotextile material on the foundation for the jetty, complete as specified herein and shown on the Contract Drawings. This includes maintaining the geotextile until placement of the overlying stone material is completed and accepted.

2. REFERENCES

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

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3786	(1987) Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics - Diaphragm Bursting Strength Tester Method
ASTM D 4354	(1996) Sampling of Geosynthetics for Testing
ASTM D 4355	(1992) Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus)
ASTM D 4491	(1999) Water Permeability of Geotextiles by Permittivity
ASTM D 4533	(1991;R1996) Trapezoid Tearing Strength of Geotextiles
ASTM D 4595	(1986) Tensile Properties of Geotextiles by the Wide-Width Strip Method
ASTM D 4632	(1991;R1996) Grab Breaking Load and Elongation of Geotextiles
ASTM D 4751	(1999) Determining the Apparent Opening Size of a Geotextile
ASTM D 4759	(1988; R 1996) Determining the Specification Performance of Geosynthetics
ASTM D 4833	(1988;R1996) Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
ASTM D 4873	(1997) Identification, Storage, and Handling of Geotextiles

ASTM D 4884 (1996) Seam Strength of Sewn Geotextiles

3. SUBMITTALS

Submittals required for this section of the specifications are shown on the submittal registers presented in Section 01330, SUBMITTAL PROCEDURES. Government approval is required for submittals with a "G" designation. Submittals having an "FIO" designation are for information only.

4. DELIVERY, STORAGE, AND HANDLING

4.1 General

Geotextile shall be delivered only after the required submittals have been received and approved by the Contracting Officer. Geotextiles shall be labeled, shipped, stored, and handled in accordance with ASTM D 4873 and as specified herein. Each roll shall be wrapped in an opaque and waterproof layer of plastic during shipment and storage. The plastic wrapping shall be placed around the geotextile roll in the manufacturing facility and shall not be removed until deployment. Each roll shall be labeled with the manufacturers name, geotextile type, lot number, roll number, and roll dimensions (length, width, gross weight). Appropriate handling equipment and techniques, as recommended by the manufacturer and approved by the Contracting Officer, shall be used. Geotextile or plastic wrapping damaged as a result of delivery, storage, or handling shall be repaired or replaced, as directed, at no additional cost.

4.2 Handling

No hooks, tongs or other sharp instruments shall be used for handling geotextile. Geotextile shall not be dragged along the ground.

4.3 Storage

Geotextile shall be stored in areas where water cannot accumulate, elevated off the ground, and protected from conditions that will affect the properties or performance of the geotextile. Geotextile shall not be exposed to temperatures in excess of 140 degrees F or less if recommended by the manufacturer. Outdoor storage shall not be for periods which exceed the manufacturers recommendations, or for two months, whichever is less.

5. MATERIALS

5.1 General Requirements

The geotextile shall be a woven pervious sheet of polymeric yarn. Fibers used in the manufacture of the geotextile shall consist of long-chain synthetic polymers composed of at least 85% by weight polyolefins, polyesters, or polyamides. Stabilizers and/or inhibitors shall be added to the base polymer if necessary to make the filaments resistant to deterioration by ultra-violet light and heat exposure. Reclaimed or recycled fibers or polymer shall not be added to the formulation. Geotextile shall be formed into a

network such that the filaments or yarns retain dimensional stability relative to each other, including the edges. The geotextile physical properties shall equal or exceed the minimum average roll values listed in Table 1. Acceptance of geotextile shall be in accordance with ASTM D 4759. Strength values shown are for the weaker principle direction. The Contractor shall submit a minimum 12 inch by 12 inch sample of the geotextile to the Contracting Officer. A written certificate of compliance or affidavit signed by the legally authorized official from the geotextile manufacturer, certifying that the material meets the specified properties, shall be submitted at least 14 days before delivery of the geotextile to the site.

TABLE 1. GEOTEXTILE PHYSICAL PROPERTIES

<u>PROPERTY</u>	<u>TEST METHOD</u>	<u>TEST VALUE</u>
Apparent Opening	ASTM D 4751	No finer than the (U.S. Sieve) No. 100 and no coarser than the No.40.
Permittivity, sec ⁻¹	ASTM D 4491	0.1
Puncture, lbs.	ASTM D 4833	110
Grab Tensile, lbs.	ASTM D 4632	315
Burst Strength, psi	ASTM D 3786	300
Trapezoidal Tear, lbs.	ASTM D 4533	110
Ultraviolet Degradation (percent strength retained at 500 hours)	ASTM D 4355	70%
Factory Seam Strength, (seam efficiency in percent of fabric strength as determined by ASTM D 4595)	ASTM D 4884	90%
Field Seam Strength, (percent of grab tensile strength of the geotextile)	ASTM D 4632	85%

5.2 Manufacturing, Sampling, and Testing

Geotextiles and factory seams shall meet the requirements specified in Table 1. Conformance testing shall be performed on random samples in accordance with the manufacturers approved quality control manual.

6. INSTALLATION

Within 10 days after notice to proceed, the Contractor shall submit his Plan of Installation for the geotextile to the Contracting Officer for approval. The plan should incorporate the requirements of these specifications with respect to materials, deployment, anchoring, and placement procedures. Alternate fabrication details or installation techniques may be submitted for consideration by the Contracting Officer. However, rejection of alternate methods suggested by the Contractor shall not constitute a basis for claim against the Government.

6.1 Surface Preparation

The underlying surface shall be smooth and free of protrusions which could damage the geotextile.

6.2 Placement

The Contracting Officer shall visually inspect geotextile rolls, prior to installation, for damage and imperfections. Defective rolls shall be marked and repaired. The geotextile shall be laid smooth so as to minimize tension, stress, folds, wrinkles, or creases. Trimming shall be performed using only an upward cutting hook blade. Uplifted geotextile shall be approved prior to reuse.

6.3 Protection

The geotextile shall be protected during installation from binding, clogging, penetrations, tears, or other damage. Damaged geotextile shall be repaired or replaced. Adequate ballast (e.g. sand bags) shall be used to prevent uplift by wind, wave action, or water currents. The geotextile shall not be exposed to sunlight for more than 5 days during installation. Overlying materials shall be deployed such that the geotextile is not shifted, damaged, or placed in tension. During placement, the height of drop of stone shall be no greater than 12 inches above the water surface or 36 inches below the water surface. In no case shall any type of equipment be allowed on the geotextile until at least 1 foot of cover has been placed on the geotextile.

6.4 Overlap Seams

Geotextile panels shall be continuously overlapped a minimum of 36 inches. The Contractor has the option of field sewing instead of overlapping.

6.5 Sewn Seams

If the Contractor elects to utilize sewn seams instead of overlapping the fabric as specified above, the thread for the sewn seams shall meet the chemical compatibility and ultraviolet light stability requirements for the geotextile and the color shall contrast with the geotextile. Seams shall be continuously sewn using a flat seam with a two-thread chain stitch unless otherwise recommended by the manufacturer. The minimum distance from the geotextile edge to the stitch line nearest to that edge shall be 3-inches unless otherwise recommended by the manufacturer. Seams shall be continuously

sewn and tested at a minimum frequency as specified in ASTM D 4884. Seam strength shall meet the minimum requirements specified in Table 1.

6.6 Repairs

Damaged or defective geotextile shall be repaired by placing a patch of the same type of geotextile which extends a minimum of 24 inches beyond the edge of the damage or defect. Patches shall be adequately anchored using sandbags or other approved methods recommended by the manufacturer and approved by the Contracting Officer. Geotextile which cannot be repaired shall be replaced at no additional cost.

7. MEASUREMENT AND PAYMENT

No separate measurement will be made for geotextile. All payment will be included under the lump sum payment for this contract.

8. QUALITY CONTROL

The Contractor shall establish and maintain quality control as required in Section: CONTRACTOR QUALITY CONTROL (CQC) in the SPECIAL CLAUSES.

END OF SECTION

SECTION 02486

STONEMWORK

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

The work covered by this section includes the furnishing of all transportation, labor, equipment, materials and incidentals necessary to complete the construction of stonework for the jetty and breakwater as shown on the contract drawings or specified herein.

1.2 NOT USED

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. Any reference to publications listed below connotes inference to the latest or most currently released testing standard unless otherwise specified. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D-75	Standard Practice for Sampling Aggregates
ASTM C-97	Absorption and Bulk Specific Gravity of Dimension Stone
ASTM C-127	Specific Gravity and Absorption of Coarse Aggregate
ASTM C-136	Method for Sieve Analysis of Fine and Coarse Aggregate
ASTM C-295	Petrographic Examination of Aggregates for Concrete
ASTM C-535	Resistance to Degradation of Large Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM D-3665	Standard Practice for Random Sampling of Construction Materials
ASTM D-4992	Evaluation of Rock to be Used for Erosion Control
ASTM D-5312	Evaluation of Durability of Rock for Erosion Control Under Freezing and Thawing Conditions
ASTM D-5519	Particle Size Analysis of Natural and Man-Made Riprap Materials

MARYLAND STATE HIGHWAY ADMINISTRATION

MSHA Department of Transportation Standard Specifications
For Construction And Materials

1.4 DEFINITIONS

Stone: Reference to stone herein includes all sizes and gradations specified herein unless otherwise stated.

Armor Stone: Reference to armor stone herein includes Jetty Head, and Jetty Trunk size gradations unless otherwise stated.

1.5 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330: SUBMITTAL PROCEDURES:

SD-01 Data

Stone Source (GA): Within thirty (30) calendar days after Notice To Proceed (NTP) and for each individual stone source (quarry) identified as a potential stone material supplier for use on this project, the Contractor, shall submit in report format quarry information, service history of stone's use as armor stone, test results, and other ancillary data as specified in PART 2 paragraphs 2.2 "SOURCES OF STONE" and 2.3.1. "Stone Quality Control (QC) Testing". The Stone Source Submittal(s) shall be prepared, signed, and stamped by an independent state licensed Professional Geologist.

Stone Material Quality Control (SMQC) (GA): The Contractor shall submit in report format the means and methods to be used for effective individual inspection of all armor gradations and gradation testing of stone in a manner which will result in a satisfactory quality of in-place stone construction as specified in PART 2 paragraphs 2.3.2 and 2.3.3. The Stone Material Quality Control submittal shall also designate a Stone Material Quality Control Supervisor who shall be responsible for implementation of all functions of the Stone Material Quality Control program.

Stone Material Quality Control (SMQC) Supervisor (GA): The Contractor shall submit evidence that the Stone Material Quality Control (SMQC) Supervisor is a college degreed geologist with not less than two (2) years experience in assessing stone quality or is State Licensed Geologist with at least one (1) year experience in assessing stone quality. The Stone Material Quality Control Supervisor shall not have collateral project duties or responsibilities assigned by the Contractor except those specified in the Stone Material Quality Control submittal during the duration of this project. The SMQC supervisor shall be responsible for preparing a SMQC inspection schedule and for the proper execution of the SMQC plan and shall oversee the work of all SMQC inspectors as specified in paragraph 1.7 and in PART 2 paragraphs 2.3.2 and 2.3.3.

Construction Methods (GA): The Contractor shall submit his proposed method of construction, to include the sequence of stone placement, methods of placement, and equipment to be used during each construction phase, to the Contracting Officer for approval at least 30 calendar days prior to the scheduled start of work, in accordance with Part 3, "EXECUTION".

Check Surveys (GA): The Contractor shall submit surveys, both field data and plotted cross sections, for each prepared surface for stonework placement, and the final stone surface, in accordance with the requirements presented Part 3; paragraph 3.5 "Check Surveys" of the specifications.

Stone Testing (GA): Prior to Government approval of any stone source, the Contractor shall submit test results for each distinct lithology (different geological type material) proposed as a construction material produced within each selected stone source as specified in paragraph 2.3.1 "Stone Quality Control (QC) Testing". Results of these stone tests shall be submitted concurrently with the Stone Source Submittal. Testing shall be performed by an independent and Government approved laboratory. The testing procedures are specified in paragraph 2.1.7 "Source & Quality Control Evaluation Testing." A copy of each ASTM method [each publication referenced] and subsequent referenced ASTM methods for each test specified shall be attached to the Stone Testing for Stone Source testing results.

Stone Gradations (GA): Gradation test results demonstrating compliance with the requirements of paragraph 2.1.3 "Gradations" shall be submitted for review as specified in paragraph 3.4.2

SD-18 Records GA

"Stone Material Quality Control (SMQC) Records (GA): The Contractor shall establish and maintain SMQC to assure compliance with contract requirements and shall maintain records of his stone material quality control for all stone inspections, gradation tests, and construction operations required under this section. A copy of these records, as well as records of corrective action taken, shall be furnished to the Contracting Officer, as required in paragraph 2.3.2.2 "Stone Material Quality Control (SMQC) Submittal", of this section. "

SD-07 Certificates

Weigh Scale Certification (GA): For all on-site weight scales required herein and prior to the use thereof, the Contractor shall be required to submit pertinent details on the location, type, and construction of the scale, including a copy of the certification of the scale's accuracy from the local weights and measures regulation agency as specified in Section 3.4.1 "Contractor Furnished Scales".

1.6 DEMONSTRATION STOCKPILES

Prior to the Governments approval of a stone source, the Contractor shall make arrangements to provide a pre-production demonstration stockpile of the Jetty Head Armor Stone and Jetty Trunk Armor Stone and core stone gradations

specified herein produced in that stone source. The demonstration gradation stockpiles shall be approved by the Government and shall be located at the source of the stone. All armor stone stockpiles shall be placed in windrow fashion in a single layer with one (1) foot of clear space around each stone. The stone placed in the demonstration stockpile shall be representative of the overall type material produced in the source. Gradations for each class of stone required for this project are as specified in paragraph 2.1.3 "Gradations." The quantity of stone in each demonstration stockpile for each size gradation shall be as follows:

<u>Gradations</u>	<u>Demonstration Stockpile Quantity</u>
Jetty Head Armor Stone (1390 to 2320 lbs - W50 = 1850 lbs)	20 Tons
Jetty Trunk Armor Stone (975 to 1625 lbs - W50 = 1300 lbs)	20 Tons
Core Stone (3 to 8 inch)	2 Tons

The stones placed in the armor stone demonstration stockpiles shall have been pre-selected by the Contractor's SMQC Supervisor and acceptable stones shall have been noticeably marked with a durable, water proof, spray paint with a coded mark to denote acceptability for a certain size range. The weight of each armor stone unit placed in the demonstration stockpiles shall also be marked by waterproof, spray paint. Stone placed in the Core Stone demonstration stockpiles shall not be marked. The Contractor will provide the necessary equipment for weighing and measuring each armor stone unit. The Contracting Officer's Representative shall be present during all weighing activities of stone in demonstration stockpiles. If so directed by the Contracting Officer's Representative, a stockpile of representative rejected stones marked with a red X shall also be maintained at the site as examples of unacceptable materials or shapes.

1.6.1 Evaluation of Demonstration Stockpiles

The Contractor shall notify the Contracting Officer or his designated representative (COR), when stockpiles are ready for evaluation. The Contractor's approved SMQC supervisor and all SMQC inspectors shall accompany the COR during the Government's evaluation of the demonstration stockpiles. The SMQC supervisor shall mark rejected stones with a red X and such stones shall be removed to the reject stockpile maintained at the site as examples of unacceptable materials or shapes. If a demonstration stockpile is rejected, the Contractor shall revise and resubmit its SMQC submittal within seven calendar (7) days and shall create a replacement demonstration stockpile of that gradation rejected for evaluation. The replacement of demonstration stockpiles, SMQC Supervisors, SMQC Inspectors, or stone source shall be at no additional cost to the Government and with no change in the time of completion.

1.6.2 Duration of Demonstration Stockpiles

The armor stone demonstration stockpiles (Jetty Head, and Jetty Trunk) shall be split with half of each individual stockpile shipped to the project construct site as a reference for construction inspectors. Other than being shipped as the final quantities of materials to be placed in the project structure, one/half of the split demonstration stockpiles shall remain unchanged at each source area until all other material of that size gradation represented by the stockpile has been shipped from that source. The demonstration stockpile's integrity shall be insured by surrounding the stockpile by yellow caution tape secured on wooden or metal posts or by other similar method approved by the Contracting Officer. The duration of Core Stone demonstration stockpiles is as determined by the Contractor and may be used as the first shipment of stone to the project site.

1.7 STONE MATERIAL QUALITY CONTROL STAFFING

The SMQC Supervisor shall be responsible for quality of all stone construction materials at the stone source and at the Rhodes Point project construction site. A SMQC Supervisor or SMQC Inspector shall be present at all times that stone production or stone handling are taking place at the stone source or project construction site. The SMQC Supervisor shall train the SMQC Inspectors in the proper performance of their duties, offer advice and assistance to the inspectors, and may, if necessary, perform duties also applicable to SMQC Inspectors. The SMQC Supervisor shall provide a telephone number where the SMQC Supervisor or a SMQC Inspector on duty can be reached during working hours. The SMQC supervisor shall maintain a qualified and adequate inspection staff and shall replace any persons not performing satisfactorily.

1.7.1 Qualification and Duties of SMQC Inspectors

The SMQC Inspector(s) at a minimum shall be persons with sufficient training and experience to competently and independently perform the tasks itemized below while under the general supervision of the SMQC Supervisor. Duties of SMQC Inspectors will be at both the stone source and Rhodes Point construction site. All SMQC Inspectors shall complete the following tasks:

- I) Individual Armor Stone Inspection (Jetty Head, & Jetty Trunk):
 - a. Verify curing periods of armor stone.
 - b. Complete and submit daily inspection reports to the COR within first day of next weekly cycle.
 - c. Insure all armor stone has been cleaned of dirt and dust allowing the stone material to be visually inspected.
 - d. Perform visual inspection of all armor stones. The examination shall focus on all hairline width fractures, all cracks, defective stone geology and other indicators that may cause the stone to deteriorate into smaller pieces after it is in place in the project structure. Inspection duties also include identifying and marking pieces that do not meet the criteria for acceptability, including size and shape.

Rejected armor stone shall be marked with a highly visible spray painted red X.

e. Wet armor stone areas containing cracks aiding in determination of crack length.

f. Place an identifying paint spray mark or marks on each acceptable individually picked stone.

g. Assure that the Contractor places the accepted pieces of armor stone into the appropriate stockpiles and placement location in accordance with the respective gradation ranges.

h. Assure that all rejected stone materials are either placed in a "reject" stockpile, are sent directly to a crusher, are re-designated to another stone size classification (if appropriate), or are removed from the site immediately after they are so marked. Rejected stones shall not be mixed with accepted stones at any time.

i. Record all inspection activities on the daily inspection reports including, but not limited to, number of armor stone individual inspected and associated number rejected.

j. Conduct armor stone gradation testing recording all results.

II) All other stone products (Core Stone)

a. All other stone shall be visually examined in volume for defects.

b. Conduct Core Stone gradation testing recording all results.

PART 2 PRODUCTS

2.1 STONE

2.1.1 General

The stone materials to be furnished shall meet all requirements specified herein. Stone shall consist of fresh, sound, hard, dense, durable rock, which shall be separated from bedrock by quarrying. Required inspection of each armor stone by the Contractor's SMQC Supervisor or SMQC Inspectors shall be as stated in this section. All stone shall also meet all testing criteria specified in this section. Testing criteria is outlined in paragraph 2.1.7 herein. The COR may, at any time during the contract, reject any individual armor stone not meeting specification requirements at the source, transfer point(s), or job site. Any stone which has been delivered to the project site and is rejected, whether in stockpile or in place in the structure, shall be removed, weighed, and replaced at the Contractor's expense. The Contractor shall maintain records accumulating total weight of rejected stone. Rejected stone shall be segregated from acceptable stone and removed in a timely manner from the project construction site. All rejected stone shall be disposed in a manner acceptable to the Contracting Officer.

2.1.2 Stone Material Quality

All stone utilized (Jetty Head, & Jetty Trunk Armor, and Core Stone) shall be free of continuous cracks and fractures and shall not contain deleterious features such as splits, spalls, delaminations, disaggregations, dissolvment, shale parting, or any combination of such features. Stone not meeting these criteria shall be rejected by the COR, SMQC Supervisor, or SMQC Inspectors. Additionally, any armor stone with features such as stylolites, seams, joints, lenses, and bands of similar or different lithologic material which tend to form planes of weakness along which the stone material breaks or separates shall be rejected. Armor stone (Jetty Head, & Jetty Trunk) shall be individually inspected by SMQC personnel for material quality. Criteria used by the Contracting Officer for a "fractured" or "cracked" stone is: "Any stone which contains one visible and continuous crack or fracture exposed on two or more faces of the stone; or any stone which contains two or more visible cracks or fractures extending the length of the face exposed on one or more faces of the stone." A continuous crack or fracture is defined as "an exposed unbroken and uninterrupted visible crack or fracture with a length equal to or greater than one-half of the dimension of the face on which it is exposed." Evaluation of a crack or fracture along a stone face shall only be based upon length, not width. The stone shall also be free of any detrimental geologic features such as, but not limited, to: clay or shale seams, argillaceous material, stylolites, schistose seams, zones of high foliation, chert, and/or other adverse diagenetic features. Stone shall not contain interconnected vugs or vugs concentrated along joints, bedding planes, or foliation planes. Inclusion of objectionable quantities of dirt, sand, clay, chert, and rock fines or other deleterious materials shall not be permitted. The SMQC Supervisor or SMQC Inspector(s) shall insure that all dirt and/or dust is cleaned off of each armor stone allowing for visual inspection. The core stone gradation for this project shall be visibly inspected in stockpile volume.

2.1.3 Gradations

Stone shall conform to the following gradations:

Jetty Head Armor Stone shall consist of select quarry stone ranging between 1390 and 2320 pounds. In addition, at least 50% of the individual stones shall weigh at least 1850 pounds or greater.

Jetty Trunk Armor Stone shall consist of select quarry stone ranging between 975 and 1625 pounds. In addition, at least 50% of the individual stones shall weigh at least 1300 pounds or greater.

Core Stone shall consist of graded stone ranging in size from 3-inches to 8-inches."

2.1.4 Size and Shape of Stone

Armor stone shall be furnished in blocky and angular shapes, with its greatest dimension not greater than three times its least dimension. The maximum

dimension of a stone shall be defined as the maximum distance that can be obtained between two parallel planes by placing and rotating, in all directions, the stone between the planes while having the stone "touch" both planes. The minimum dimension of a stone shall be defined as the minimum distance that can be obtained by the procedures specified above. All flat stones, slabs, boulders and parts of boulders will be rejected. A boulder is here defined as "any rounded stone material not having sharp edges."

2.1.5 Petrography

Armor stone shall be subjected to petrographic analysis in accordance with and ASTM D-4992: paragraph 10, "Petrographic Examination"; and ASTM C-295: paragraph 11, "Procedure for Examination of Ledge Rock". Three large pieces of stone shall be collected to represent each lithology of each stone source for each petrography analysis. The size of the selected stone shall be similar to the nominal size of the stone gradation evaluated. Rock (stone) shall be fresh (no signs of weathering), with interlocking crystalline structure, and free of objectionable material such as expansive clays. Crystalline structure refers to igneous, metamorphic, or sedimentary rock texture consisting of interlocking, crystalline grains. Matrices of any rock consisting of argillite, sericite, smectite, talc, chloritic, soft material, or highly weathered material shall be identified and noted. The petrographic examination shall be conducted by a college degreed Geologist specializing in the field of Petrography. Photographs of stone material examined shall accompany the petrography testing results.

2.1.6 Freezing and Thawing Testing

Armor stone shall be subjected to freezing and thawing, in accordance with ASTM D-5312. Photographs for freezing and thawing testing shall be taken for each sample tested both before after testing. Slabs cut for freeze and thawing testing shall have surfaces that are of 228-sq. in. on at least two parallel sawed faces. Any changes observed in the testing specimen including, but not limited to, cracking, spalling, rock popping, or dissolving shall be recorded and photographed at the completion of next test cycle.

2.1.7 Source & Quality Control Evaluation Testing

Testing for the purpose of evaluating the proposed stone source(s) and additional QC testing shall be made at the Contractor's expense. Selection of testing samples shall be made under supervision of the COR and shipped to an independent geotechnical laboratory. See paragraph 2.3 "EVALUATION AND EXAMINATION OF STONE QUALITY" for requirements on frequency of evaluation testing shall satisfy the following test criteria:

PropertyTest	Method	Test Value
Petrography	ASTM D-4992 ASTM C-295	Fresh, interlocking crystalline, with few vugs [petrology], no planes of weakness, no clay minerals * and no soluble minerals

Specific Gravity	ASTM C-97	2.65 minimum
Absorption	ASTM C-127	Less than 1%
Abrasion	ASTM C-535	Less than 20% loss for 500 revolutions
Freezing and Thawing	ASTM D-5312	Less than 2% loss after 30 cycles *

*Note: indicates that photographs taken before and after testing should accompany test reports

2.2 SOURCES OF STONE

2.2.1 Sources of Stone

The Contractor may utilize one or more stone sources (quarries) during the period of this contract; however, each quarry must be identified in a Stone Source Submittal specified herein. Each Stone Source Submittal shall be prepared, signed, and stamped by an independent state licensed Professional Geologist.

2.2.1.1 Stone Source Submittal: The Stone Source Submittal shall include information on the stone source (quarry), including but not limited to, location, name of geologic formation mined, geologic structure of the local formation, structure within the quarry (rock out cropping pattern) including joint and fracturing sets, stratigraphic column and/or bench profile(s), and each lithology within that quarry proposed as stone material to be used for stone products for this project. Production information on the total quarry reserve estimates, areas of the quarry (ledges, benches, or specific strata) that will be used to produce stone for this project, quarrying procedures/practices, total daily production rates for each class of stone material produced, description of armor stone production methods including all resources and equipment used in this process, and shipping methods shall be discussed in this submittal. The submittal shall likewise include both a general and site specific map for each source. The general map will show the local region of the quarry including major access and shipping routes. The site-specific map should fully define the area of operations within the quarry including the boundaries and working benches of the quarry. The written submittal shall discuss and identify at least two separate sites where the Contracting Officer, or his designated representative, may observe that stone of the sizes required herein have performed satisfactorily in similar marine environment.

2.2.1.2 Stone Source Submittal Format: The report format of the submittal shall conform to the following outline (all subjects listed below shall be discussed):

Title Page

1. Introduction

- i) Brief history, ownership, and description of Stone Source.
- ii) Location (attach region and site specific map in Appendix 1).
- iii) Major access and shipping routes to Stone Source
- iv) Products.

2. Regional Geology

- i) Geologic history of regional area of Stone Source.
- ii) Tectonic events.
- iii) Geologic Formations in region.

3. Geology Of The Stone Source

- i) Name of the Geological Formation(s) mined.
- ii) Natural formation (rock) outcropping pattern.
- ii) Geologic structure at Stone Source including seam, strata, and bedding thicknesses
(attach stratigraphic column/unit profile in Appendix 2).
- iii) Joint and Fracture Set(s) present in quarry and their limitation on the maximum size
of armor stone produced from this source.
- iv) Lithologies present at the Stone Source and their description.
- v) Reserve estimate and data (geological or geotechnical report) that proves or shows
that this source can be used to produce all or a percentage of the stone material need
for this project.

4. Operation & Production

- i) Main stone product(s), size, and daily, monthly, & yearly volumes (weight)
produced.
- ii) Quarrying procedures/practices.
- iii) Blasting design and percent yield per shot of main blast design stone size.
- iv) Prior Stone Source internal QA/QC practices.
- v) Estimated total daily production rates (for each class of stone material required in
these specifications).
- vi) General description of armor stone and core stone production including
resources and equipment used in this production process (for each gradation of
stone material required in these specifications).
- vii) Face, benches, seams, strata, or ledges used in production of project specified

armor and core stone products (refer to site specific map in Appendix 1).

- viii) Areas with in the Stone Source where project specified stone products will be produced and/or processed.
- ix) Estimated size yield of blast design (for each class of stone material required in these specifications).
- x) Estimated and/or anticipated production rates (for each class of stone material required in these specifications).

5. Handling, Storage, & Transportation

- i) Stockpile location and integrity method during curing period.
- ii) Method of loading and shipping to the project construction site.
- iii) Method of segregation and integrity of stone products.
- iii) All transfer points (storage areas) where stone material will be loaded/unloaded.

6. Service Record

Information for each item listed below for each project where similar size stone material was produced at the Stone Source including (If a history usage of similar size stone material in a similar marine environment does not exist - then state this fact):

- i) Project name.
- ii) Project location.
- ii) Date of construction of project.
- iii) Size and/or gradation of stone material used in the project.
- iv) Construction company building project.
- v) Customer project was constructed for.

7. [Additional Information]

Appendices

2.2.2 Stone Source Approval

After Government receipt of the Stone Source Submittal but before stone placement, the quarry shall also be subsequently inspected by the Contracting Officer, or his designated representative, to verify the presence of material that meets all requirements specified herein. The acceptability and approval of each stone source shall be determined from the following: Stone Source Submittal(s), Stone Material Quality Control Submittal(s), Stone Material Quality Control Supervisor Submittal, Stone Quality Control Testing Submittal, Demonstration Stockpiles, and the Contracting Officer's visual examination of the stone products within that quarry. Prior to shipment of any stone material to the construction site, the Contractor shall have received

Government approval on all submittals from each stone source designated by the Contractor as a supplier of stone material for this project. Approval of any stone source stone shall not be construed as approval of all of the stone produced from that source.

2.3 EVALUATION AND EXAMINATION OF STONE QUALITY

2.3.1 Stone Quality Control (QC) Testing

Quality control test results shall be conducted for each stone source selected by the Contractor before source approval. The Contractor shall submit to the Contracting Officer the Stone Testing For Stone Source Submittal concurrently with the Stone Source Submittal. All testing required, for determining stone acceptability, shall be at the Contractor's expense and shall have been performed within the last four (4) years. If QC tests results have not been completed with-in the prior 4 years or are not available, the Contractor shall notify the Contracting Officer ten (10) calendar days prior to the date the Contractor intends to select Stone Source QC testing samples so that the Contracting Officer or his Representative may be present during stone sampling. The Contractor, in the consultation with the Contracting Officer or his designated representative (COR), shall select QC samples of representative stone material from each distinctive lithologic stratum, bed, or change of material type in the quarry used on this project. The Contracting Officer reserves the right to be present during QC sample testing performed by the independent laboratory. Quality control tests to which the materials will be subjected include petrographic analysis, specific gravity, abrasion, absorption, unit weight measurement, freezing and thawing, and such other tests as may be considered necessary to demonstrate to the satisfaction of the Contracting Officer that the materials are acceptable for use in the work. Testing procedures and criteria are specified in paragraph 2.1.7 "Source & Quality Control Evaluation Testing". Quality control testing samples shall not be collected from quarry aggregate but from stone material similar in size to armor stone gradations specified herein. The Contractor shall also provide to the Contracting Officer duplicate QC samples.

2.3.2 Stone Material Quality Control (SMQC) Inspection

Visual SMQC inspection will consider distinctions based on color, massiveness, structural features, and other visual characteristics such as: detrimental cracks, fractures, seams, stylolites, splits, lenses or any other geologic, lithologic, or structural defects which tend to increase deterioration from natural causes or cause breakage during handling or placing. All stone shall be subject to individual Government QA inspection during production and loading at the source, at all transfer point, and at the site of placement.

2.3.2.1 Stone Material Quality Control Functions

Daily SMQC inspection of all armor stones produced for the project structure shall be made by the SMQC inspector(s) at the quarry, and before loading, for size, gradation, elongation, cracks and fractures, deterioration, and other visible defects on the entire area of armor stone. Procedures outlined in the SMQC plan submitted by the Contractor shall be followed. The armor stone

material shall be kept clean of dirt and dust allowing SMQC inspector(s) to visual inspection of each armor stone. The daily SMQC inspections at the stone source shall also include comparing the material being produced to that which exists in the pre-production demonstration stockpile. If any significant reduction in overall stone quality, gradation mix, or required sizes is observed to be occurring, the SMQC supervisor shall initiate corrective action. All rejected stones, those not meeting the requirements of these specifications, shall be visibly marked with a reject symbol (painted red X). At the placement site random visual inspections shall be made of armor stone by an SMQC Supervisor or SMQC Inspector for size, gradation, elongation, fractures, deterioration, and other defects to assure that handling during loading, transporting, unloading, and placement has not caused damage to the materials and to assure they are placed in accordance with requirement of this Section. Weighing of stones or re-measuring them shall be performed to verify computed weight when the COR brings the size of specific stones into question or when the SMQC Inspector observes the need to do so. Except as allowed by gradation tolerance, any material broken, cracked or fractured, out of gradation or weight limitation, or improperly placed in the work shall be removed and replaced with satisfactory stones and corrective action taken at no additional cost to the Government. Rejected material shall be removed from the project site and disposed of in a manner acceptable to the Contracting Officer.

2.3.2.2 Stone Material Quality Control (SMQC) Submittal:

The Contractor shall submit in report format the means and methods to be used for effective inspection of SMQC inspection of stone materials in a manner which will result in a satisfactory quality of in-place stone construction. Written procedures shall also be included for guiding and instructing the Contractor's SMQC Supervisor and SMQC Inspectors in the techniques and criteria to be used for examining each individual armor stone unit for quality and acceptability. The SMQC inspectors should also be instructed on the techniques and criteria to use for testing for the proper production gradations. The SMQC submittal shall propose a method of maintaining stockpile integrity for each class of stone. Methods of cleaning the armor stone surface of dirt and dust for visual inspection shall also be described. This submittal shall be presented to the Contracting Officer at least thirty (30) calendar days in advance of the date stone materials are to be shipped from the stone source site. The Stone Material Control submittal shall include a blank weekly SMQC inspection schedule table template which will be the used during stone duration of material SMQC activities. The Stone Material Control submittal shall also include a blank SMQC Inspector's Daily Record template in a table format. During all SMQC activities, the Contractor shall submit daily reports of all work performed under the approved SMQC Plan. The reports shall be delivered to the Contracting Officer or his designated representative, not later than the first day of the next weekly cycle. The weekly cycle will begin each Monday and end the following Sunday during duration of project construction.

Each daily report from each inspector shall include, but not limited to, the following information:

- a. SMQC Inspector's name
- b. Identification of the stone handling equipment and name of equipment operator used to accommodate the stone inspection if it appeared that the equipment or operator was a factor in producing unacceptable stone.
- c. Date and time (military time format) of stone inspection.
- d. Weather conditions.
- e. Date stone was removed from quarry face, and date and details of blasting.
- f. Location and strata within quarry where stone production took place (horizontally and vertically - use quarry map submitted in the Stone Source Submittal).
- g. Color(s) and character(s) used by inspector for spray paint marks and the applicable code for stones that are individually picked and for any rejected stone.
- h. Breakdown of the approximate quantity, per gradation range (Jetty Head, & Jetty Trunk gradations), of accepted and rejected stone processed for the project during the day, and the disposition of the rejected stone materials.
- i. A one sentence summary of the cause or causes for most of the rejection of stone occurring during the day.

2.3.3 Stone Acceptability

Acceptability of the stone shall be based on the results of testing as specified in Section 2.1 "STONE," and visual SMQC inspection of each armor stone as specified in the above paragraphs. The minimum rock quality criteria which must be met are those specified in paragraph 2.1 and applicable subparagraphs. In addition to the minimum testing criteria, other criteria from SMQC inspections listed above as well as gradation testing will also be used to establish the acceptability of the stone. The Government may conduct QA testing on stone samples collected by the COR at any process point in stone production. The right is reserved to reject individual stone, certain localized areas, strata, or channels within the approved source when in the opinion of the Contracting Officer's Representative, the stone is disintegrated, badly weathered, contains incipient planes of weakness or hidden joints/fractures, or is otherwise unsatisfactory for use in the work as specified herein. Rejection or disapproval of any source or any material in an approved source by the Contracting Officer shall not be grounds for time extension nor for a change in the contract price. The Government also reserves the right to collect and test stone sample from any production or transport point in an approved stone source. During the contract period, both prior to and after the materials are delivered to the placement site, visual QA inspection of all stones produced for this project may be conducted by the Contracting Officer's Representative. The Government QA inspection may also

encompass inspection of CQC, SMQC, or any additional quality control records maintain by the Contractor. If the COR, during the QA inspection, finds that the stone quality, gradation, or weight of the stone being furnished are not as specified or are questionable, re-sampling and re-testing by the Contractor may be required, at no additional cost to the Government. Sampling of the delivered stone for testing and the manner in which the testing is to be performed shall be as directed by the COR. This additional sampling and testing shall be performed at the Contractor's expense.

2.4 CURING STONE

All armor stone, dimensioned to final size shall be stockpiled at the quarry at least 15 days prior to delivery to the project site to insure that unloading type fractures caused by the release of stored energy concentrations will not take place and that natural moisture has time to escape. A 90-day stockpiling for case hardening purposes shall be required if any sandstones are used. Curing requirements may be waived or reduced by the Contracting Officer if records and /or other evidence are submitted by the Contractor which conclusively supports such a change.

2.5 STONE NOT MEETING THE SPECIFICATIONS

If, during the progress of the work, it is found that the stone being furnished and/or placed by the Contractor does not fully meet all the requirements of the specifications, the Contractor shall be required to furnish other stone that meets the requirements of these specifications. Any stone rejected at the site of the work as not meeting the requirements of these specifications for quality, condition, size, gradation shall be removed from the site by and at the expense of the Contractor, and stone meeting the requirements of the specification shall be furnished and/or placed by the Contractor at no additional cost to the Government. The Contractor shall remove and dispose of all rejected stone in a manner approved by the Contracting Officer.

2.5.1 Stone Breakage

Stones which are broken during shipment to the work site or during placement shall be re-weighed and may be rejected if the new weight of the broken unit does not meet gradation requirements. Stones broken in placement shall be removed from the structure and returned to the stockpile area to accomplish re-weighing.

PART 3 EXECUTION

3.1 PLACEMENT OF STONE

3.1.1 General

The Contractor shall submit his proposed method of construction, to include the sequence of stone placement, methods of placement, and equipment to be used during each construction phase, to the Contracting Officer for approval 30 days before commencing work. The Contractor shall include in the proposed

method of construction submittal evidence that operators can demonstrate proper placement of armor stone. The stone shall be placed to form, as nearly as practicable, a cross-section of uniform height, width, and slopes as shown on the contract drawings, satisfying the tolerances presented herein. Care shall be taken to place the stone of the various classifications so that they will make a compact mass having no large voids between them. Stone extending beyond the specified placement tolerances shall be removed and replaced at a location such that the specified lines and grades will be satisfied. Approval of this submittal by the Contracting Officer will not relieve the Contractor of completing a structure constructed to the grades, tolerances, and conditions specified herein. If, in the opinion of the Contracting Officer, the Contractor is not achieving the specified requirements from his placement operations as submitted, any and all adjustments in the Contractor's operations shall be made as deemed necessary as directed by the Contracting Officer

3.1.2 Foundation Preparation

Prior to the placement of stone material or geotextile in any area of work, all debris shall be cleared from the area by the Contractor as directed by the Contracting Officer and disposed of in an approved manner.

3.1.3 Sequence of Stone Placement

Unless otherwise approved in writing by the Contracting Officer, placement of armor toe stone at any given section and at the jetty head shall be accomplished before any other specified gradation of stone is placed in that same section.

3.1.4 Jetty Core Stone

Jetty Core stone shall be placed to the lines and grades indicated on the drawings. Jetty Core stone in place shall be a reasonably well graded mass with minimum practicable void space. Placing the material by dumping or by other such methods which tend to segregate particle sizes will not be permitted. Compaction of the jetty core stone shall be accomplished by the controlled use of the hauling and spreading equipment or by other acceptable means approved by the Contracting Officer. A tolerance of plus 3-inches measured perpendicular to the exterior surface of the core stone from the lines and grades shown on the Drawings will be permitted except that the extreme of such tolerance shall not be continuous over an area greater than 100 square feet. No minus tolerance will be permitted.

3.1.5 Armor Stone (Jetty Head, and Jetty Trunk)

Armor Stone shall be placed on the existing surface or core stone in such manner as to produce a reasonably well-distributed mass of rock with the minimum practicable percentage of voids, and shall be constructed within the specified tolerance to the lines and grades shown on the Contract Drawings. The stone shall be individually placed with a rock grab, orange peel grab, grapple, crane or similar approved equipment capable of manipulating and placing individual stones. A backhoe bucket shall not be used. The stone

shall not be dropped or tipped into position, but shall be placed piece by piece into the layer and shall be interlocked or keyed in juxtaposition with adjacent armor stones by rotating or setting them for maximum contact based on their angular shape with no continuous void through two armor layers. The stone shall be placed as soon as practicable following the placement of the core stone (where applicable). The Contractor shall be responsible for loss of underlying stone and core stone due to wave, current, wind, precipitation, or other actions and shall place additional stone as required at his own expense. For each layer, a tolerance of plus 12-inches or minus 3-inches measured perpendicular to the exterior surface of the stonework from the lines and grades shown on the Drawings shall be permitted except that either extreme of such tolerance shall not be continuous over an area greater than 100 square feet. The intention is that the jetty will be built to the required elevations, slopes, grades and tolerances and that the outer surface be even and present a generally neat appearance. Placed material not meeting these limits shall be removed and replaced as directed by the Contracting Officer.

3.1.6 Excavation

Excavation of material at the jetty tie-in to land shall be accomplished in a manner acceptable to the Contracting Officer. Unless otherwise approved by the Contracting Officer, excavated material shall be placed in the updrift side of the jetty.

3.2 MAINTENANCE

Exposed core stone surfaces are vulnerable to damage until all armor stone has been placed, and stone work has been accepted. The Contractor shall be responsible for care and maintenance of work until final acceptance by the Contracting Officer. Damage to the work due to any cause prior to acceptance shall be repaired at the Contractor's expense.

3.3 NOT USED

3.4 QUALITY CONTROL

As part of its QC responsibility under Section 01451, CONTRACTOR QUALITY CONTROL (CQC)," the Contractor is responsible for establishing and maintaining quality control to assure work is performed in accordance with this Section, 02486 "STONEWORK." and all other contract requirements. The Contractor shall inspect for compliance with contract requirements and record the inspection of all stone operations, including but not limited to the following:

- a. Armor stone, core stone and scour protection stone complies with the specifications for quality and gradation.
- b. Armor stone, core stone and scour protection stone placed to the lines and grades shown on the drawings and within allowable tolerances.
- c. All stone carefully placed in a dense, compact mass.
- d. All stone segregated as to size and/or type and stockpiled properly.

- e. Rejected stone materials properly marked and disposition recorded.

3.4.1 Contractor Furnished Scales

The Contractor shall furnish at the construction site and at each quarry, an approved spring-type scale. The scales shall be officially tested and sealed by a certified sealer of weights and measures every 4 months during the construction period, without cost to the Government. A copy of the scale testing and sealing shall be furnished to the Government on the initial and each subsequent testing. The scales shall be used to verify stone weights to insure that undersized or oversized stones are not placed in the structure.

3.4.2 Gradation Testing

All project stone shall conform to gradations given in Part 2 of this Section. The Contractor shall test each gradation of armor stone (Jetty Head, & Jetty Trunk) and core stone for size compliance before placement. The Contractor shall conduct initial gradation testing, in the COR's presence, on the demonstration stockpiles of each size category of stone specified herein. After the COR's approval of demonstrative stone stockpiles. Two additional gradations testing cycles shall be conducted for each size category of stone. The second gradation testing cycle of stone shall be at mid-point of the total volume of material produced for each stone size category. The contractor shall notify the COR approximately 10 days in advance of the scheduled date that mid-point gradation testing is required. The third gradation testing cycle of armor stone and core stone size categories will be at the Contracting Officers Representative discretion. The right is reserved to require additional confirmatory gradation testing when in the opinion of the Contracting Officer, that shipments, stockpiles, or placed sections stone do not meet gradation requirements.

3.4.2.1 Gradation Test Method: Gradation testing for all stone gradations will conform to the methods prescribed in ASTM D-5519, "Test Method C". The Contractor shall test an adequate number of stone such that the addition or subtraction of the largest in the test does not alter the total weight of all stone tested by more than 3.0 percent. Particles finer than the smallest mass of importance need not be weighed individually. Any other deviation from the "Test Method C" must be approved by the COR in advance of the test. The Contractor shall report test results as specified in ASTM D-5519 and clearly stamp or mark the first page as either "Passed" or "Failed". Gradation testing for core stone shall conform to the methods prescribed in ASTM C 136.

3.4.2.2 Gradation Test Approval: If a particular gradation test is given a result of "Failed", the Contractor shall conducted an immediate next gradation test on a representative sample from the same shipment, stockpile, or placed section. If the second gradation test is given a result of "Passed" and the addition of both the first and second test data is also given a "Passed", the stone gradation tested will be deemed acceptable. If the second gradation test is given a result of "Failed", the shipment, stockpile, or section shall be resorted/regraded to the specified gradation and re-tested by the Contractor. Stone failing gradation testing and not resorted/regraded by the

Contractor shall be treated as rejected stone and subject to all requirements of 2.5 "STONE NOT MEETING THE SPECIFICATIONS". All additional confirmatory gradation testing shall be at the contractor's expense.

3.4.3 Inspection Records

A copy of the records of inspections and reports of operations as well as any corrective actions taken will be furnished with the SMQC daily reports.

3.5 Check Surveys

Surveys made by the Contractor will be required of the existing ground, on the prepared subgrade, and on each layer of material placed for determining that the materials are acceptably placed in the work. The Contractor shall make checks as the work progresses to verify lines, grades, and thickness established on completed work. If a delay in the progress of work occurs, additional surveys may be required at the end of the last placement area prior to re-starting placement operations. At least one (1) check survey, as specified below, shall be made by the Contractor for each 50 foot section immediately before and immediately after placement of the first layer of stone material, and as soon as practicable after completion of placement of each type of material. A copy of the record of the check survey shall be provided the Contracting Officer no later than the next work day following the survey. Following placement of each type of material, the cross section of the finished work shall be approved by the Contracting Officer or his authorized representative prior to placement of subsequent layers. Approval of cross sections shall not constitute final acceptance. Cross sections shall be taken by the Contractor on lines a maximum of fifty (50) feet apart. Cross section readings shall be made and recorded at five (5) foot intervals and at breaks along the lines. Other cross section spacings and reading intervals may be used, however, if approved by the Contracting Officer. Additional elevations shall also be taken as the Contracting Officer may deem necessary or advisable. The surveys shall be conducted in the presence of the Contracting Officer's authorized representative unless otherwise waived. Elevations above the water surface shall be determined by the use of a leveling instrument and rod having a base of twelve (12) inches in diameter. Other means, if approved by the Contracting Officer, may also be used. Below the water line, a lead line method may be used. If this method is used, each survey will consist of soundings taken either by means of a sounding pole or a sounding basket weighing 8.5 pounds, each of which has a base measuring twelve (12) inches in diameter.

4. MEASUREMENT AND PAYMENT.

4.1 General

No separate measurement and payment will be made for any work included in this section. All payment will be included under the lump sum payment for this contract.

-- End of Section --

SECTION 1 - SPECIAL CLAUSES

1. COMMENCEMENT, PROSECUTION AND COMPLETION OF THE DREDGING WORK: The Contractor will be required to commence work under this contract within 10 calendar days after the date of receipt by him/her of Notice to Proceed, to prosecute said work diligently and to complete the entire work, ready for use not later than 360 calendar days after the date of receipt by him of notice to proceed. Acceptance of all dredging will occur upon completion of all contract work, except for the planting activities. Should the total quantity of material to be paid for and actually removed under the contract exceed the limit established in the Special Contract Requirement VARIATIONS IN ESTIMATED QUANTITY, additional time will be allowed at the rate of one calendar day for each 2,000 cubic yards in excess of the established limit. The time stated for completion shall include final clean-up of the premises.

2. ESTIMATED QUANTITIES: The total estimated quantities of material necessary to be removed from within the specified limits, as shown on the contract drawings exclusive of allowable overdepth, to complete the work is 18,550 cubic yards place measurement. The maximum amount of allowable overdepth dredging is estimated to be 8,900 cubic yards place measurement.

3. PHYSICAL DATA: Information and data furnished or referred to below are furnished for information only and it is expressly understood that the Government will not be responsible for any interpretation or conclusion drawn therefore by the Contractor.

(a) The indications of physical conditions indicated on the contract drawings and in the specifications are the result of site investigations by surveys and probing. Records of previous dredging of the existing Federal channel indicate that the material to be removed by new work dredging consists principally of sand, shell, clay, silt, mud, gravel, debris, trash and combinations thereof. The maintenance dredging portion of this project has previously been dredged at a required depth of 6 feet plus 1 foot of overdepth.

(b) Weather Conditions: Complete weather records and reports may be obtained from the U.S. Weather Bureau. The Contractor shall satisfy himself as to the hazards likely to arise from weather conditions during the dredging period. The site of work is exposed, and suspension of work may at times be necessary during extreme storm periods. Tidal currents have an adverse effect on dredging operations. The mean range tide is 1.7 feet, with greater fluctuations occurring during high winds and storm periods.

(c) Transportation Facilities: The Contractor shall make his own investigation of transportation facilities in the vicinity of the work.

(d) Conditions of Channel: The best information available as to the present conditions of the Federal channel in Rhodes Point to Tylerton is shown on the contract drawings. The Federal channel was last dredged in 1988. The contractor shall coordinate with the local utility companies for locations of under water utility cables which will obstruct dredging operation. The contractor shall report any possible obstructions to the Contracting Officer for instruction prior to starting work.

(e) Channel Traffic: Channel traffic consists of commercial vessels, commercial seafood boats, recreational craft, etc. and cause delays to the dredging operations.

(f) Obstruction of Channel: The Government will not undertake to keep the channel free from vessels or other obstructions, except to the extent of such regulations, if any, as may be prescribed by the Secretary of the Army, in accordance with the provisions of Section 7 of the River and Harbor Act approved 8 August 1917. The Contractor will be required to conduct the work in such manner as to obstruct navigation as little as possible, and in case the Contractor's plant so obstructs the channel as to make difficult or endanger the passage of vessels, said plant shall be promptly moved on the approach of any vessels to such an extent as may be necessary to afford a practicable passage. Upon completion of the work the Contractor shall promptly remove his plant, including ranges, buoys, piles, and other marks placed by him under the contract in navigable waters or on shore.

(g) Navigation Aids: The Contractor shall not relocate or move any aids to navigation that have been established by the U.S. Coast Guard. If it becomes necessary to have any aid to navigation moved by the contractor in order to complete dredging operations under this contract, the Contractor shall notify the Commander AON, Fifth U.S. Coast Guard District, Office of Aids to Navigation, Portsmouth, Virginia 23705, ATTN: Mr. John Walters (757) 398-6360, in writing with a copy to the Contracting Officer or his authorized representative not less than 30 days prior to such need for movement. The Contractor shall notify the U.S. Coast Guard of the approximate time the navigation aid may be relocated to its original position.

(h) Laying of Submerged Pipe Lines and Obstruction of Channel: Should it become necessary in the performance of this contract to use a submerged pipeline across a navigable channel the Contractor shall notify the Contracting Officer in writing to be received in the District Office at least 15 working days prior to the desired closure date. This notification shall furnish the following:

(1) Location (Channel Centerline Stationing) and depth (over the top of the pipeline) at which the submerged line will be placed.

(2) The desired length of time the channel is to be closed.

(3) The date and hour placement or removal will commence.

(4) The date and hour of anticipated completion.

(i) Notice To Mariners: Should the Contractor, during dredging operations, encounter any objects on the channel bottom which could be a hazard to navigation, he shall immediately notify the Contracting Officer or his authorized representative as to the location of said object and any other pertinent information necessary for the Contracting Officer or his authorized representative to put out a Notice to Mariners.

(j) Bridge-to-Bridge Radio Communication:

The Contractor is required to monitor both channels 13 and 16.

Channel 13: The master, operator, or designated pilot of the vessel must maintain a listening watch on the designated bridge-to-bridge frequency while underway on the navigable waters of the United States. The designated frequency is VHF-FM Channel 13. The person maintaining the watch also must be able to communicate in English.

Channel 16: In addition to the Channel 13 watch, vessels must keep a

continuous watch on VHF-FM Channel 16 (International Distress and Calling Channel) while underway, except when transmitting or receiving traffic on other VHF-FM channels (e.g., vessels may switch to other channels to pass traffic, listen to weather reports, etc.) or when participating in and monitoring a VTS channel. While not required to have a VHF-FM radio onboard (Voluntary Ship Stations), vessels not subject to the bridge-to-bridge regulations must maintain a watch on Channel 16 whenever the radio, if onboard, is operating (i.e., energized) and is not being used to communicate on other channels.

(k) Notification of the Coast Guard: Prior to commencement of work on this contract, the Contractor will be required to notify the Commander, Fifth U.S. Coast Guard District of his intended operations to dredge and request that it be published in the Local Notice to Mariners. This notification must be given in sufficient time so that it appears in the Notice to Mariners at least one week prior to the commencement of this dredging operation.

4. LAYOUT OF WORK: CENABEN 1984 APR

4.1 The Contractor shall be responsible for the layout of his work. The Government will furnish the channel centerline coordinates and bearings at the beginning point, at each point where the channel changes direction, and at the ending point; and the channel toe coordinates and bearings of both sides of the channel at the beginning point, at each point where the channel changes direction, and at the ending point. The Government will furnish the coordinates and the monument descriptions of the existing horizontal and vertical control within the project area. The Contractor shall be responsible, by utilizing this data, to dredge within the dredging prisms that are shown on the contract drawings. The Contractor shall maintain, preserve, repair or replace, at his own expense, any gages or location markers that are lost, damaged or destroyed for any reason subsequent to their initial establishment by the Contracting Officer until authorized to remove them. The Contractor may, at his option, establish offset stakes, back-up stakes, and gages to be utilized in re-establishing any baseline, ranges and gages that are lost, damaged or destroyed. The contract completion time will not be increased due to work delays that result from the failure of the Contractor to maintain, repair or replace the Government established baselines, ranges and gages.

4.2 The Contractor shall give the Contracting Officer or his authorized representative adequate advance notice of the commencement of work in order to assure the timely completion of the before dredging survey and the establishment of necessary dredging layouts. The notice shall be furnished at least 15 days prior to mobilization of the dredge plant to the work site. It is understood that the survey made in response to this notice will constitute the before dredging survey and any subsequent surveys occasioned through Contractor delays may be charged against the Contractor at a rate of \$ 1,200.00 per day. If the Contractor fails to provide adequate advance notice, the Contracting Officer will not be responsible for any delays in the commencement of work caused by incomplete dredging layouts.

4.3 Datum and Bench Marks: The plane of reference MLLW (NOS), mean lower low water as established by National Ocean Survey, will be used in these specifications for dredging operations.

4.4 Horizontal Control: Horizontal control data will be provided to the Contractor on request. This request should be made to the Hydrographic Survey Section, Navigation Branch, telephone number (410) 962-6063.

5. SIGNAL LIGHTS:

5.1 The Contractor shall display lights and conduct his operations in accordance with the General Regulations of the Department of the Army and of the Coast Guard governing lights and day signals to be displayed by towing vessels with tows on which no signals can be displayed, vessels working on wrecks, dredges, and vessels engaged in laying cables or pipe or in submarine or bank protection operations, lights to be displayed on dredge pipe lines, and day signals to be displayed by vessels of more than 65-feet in length moored or anchored in a fairway or channel, and the passing by other vessels of floating plant working in navigable channels, as set forth in Commandant U.S. Coast Guard Instruction M16672.2, Navigation Rules: International-Inland (Comdtinst M16672.2), or 33 CFR 81 Appendix A (International) and 33 CFR 84 through 33 CFR 89 (Inland) as applicable. (DAEN-PRP-1984 JUL)

5.2 Marking of Floating Dredge Pipeline: The Contractor will be required to mark and maintain the floating dredge pipeline in accordance with U.S. Coast Guard navigation rules, inland - NX5-88.15. As a minimum the Contractor will mark the pipeline with amber lights visible on all points of the horizon for 2 miles on a clear night. The lights shall flash at 50-70 times per minute and be placed between 1 and 3.5 meters above the water. Spacing shall be sufficient to clearly show the pipeline length and course. Where the pipeline crosses a navigable channel spacing shall be every 10 meters. Two red lights, visible on all points of the horizon, shall be displayed at each end of the floating pipeline. They shall be arranged vertically 1 meter apart with the lower light at the same elevation as the amber lights.

6. ACCOMMODATIONS AND MEALS FOR INSPECTORS: (1965 APR OCE)

6.1 Omit

6.2 If the Contractor maintains on this work establishment for the subsistence of his own employees, he shall, when required, furnish to inspectors employed on the work and to all Government agents who may visit the work on official business, meals of a quality satisfactory to the Contracting Officer. The meals furnished will be paid for by the Government at a rate of \$3.50 per person for each meal.

7. CONTRACTOR QUALITY CONTROL: Contractor Quality Control is the means by which the Contractor verifies that his construction/dredging complies with the requirements of the contract specifications. Contractor Quality Control shall be adequate to cover all construction/dredging operations including both onsite and offsite fabrication and will be keyed to the proposed construction/dredging sequence.

7.1 General: The Contractor shall provide and maintain an effective quality control program that complies with the Special Contract Requirement INSPECTION OF CONSTRUCTION. The Contractor's Quality Control Program through inspection, testing, equipment/system operation, and reporting shall demonstrate and document the extent of compliance of all work with the standards and quality established by the contract documents. Inspection and test reports shall make reference to specific drawing and/or specification requirements and shall state inspection/test procedures with both expected and actual results.

The burden-of-proof of contract compliance is placed on the Contractor and not assumed by the Government. The Contractor's Quality Control will not be accepted without question.

7.2 Quality Control Plan: Within 7 calendar days after receipt of Notice to Proceed the Contractor shall furnish his Quality Control Plan and three copies thereof to the Contracting Officer or his authorized representative for review and approval. The plan shall cover in detail each feature of the project including dredging and disposal operations. Copies of the Quality Control Plan shall be made available on the dredge and at the disposal area. The Quality Control Plan the Contractor proposes to implement shall identify the personnel, procedures, instructions, records, and forms, and as a minimum, shall include:

(a) A description of the quality management organization.

(b) The number, classifications, qualifications, duties, responsibilities and authorities of personnel. A copy of the letter signed by an authorized official of the firm, which describes the responsibilities and delegates the authorities of the system manager, shall be furnished.

(c) Procedures for processing reports, samples and other submittals.

(d) Quality control activities to be performed, including those of subcontractors.

(e) Compliance inspections recorded on the Daily Quality Control Report and the Dredging Report, a sample of which is shown at the end of these specifications.

Construction or dredging will be permitted to begin only after approval of the Quality Control Plan, or approval of that portion of the plan applicable to the particular feature of work to be started.

As an additional measure to the implementation of the Quality Control Plan, the Contractor shall meet with representatives of the Contracting Officer as soon as practicable after receipt of Notice to Proceed and before start of construction or dredging to discuss the Contractor's quality control system. The meeting shall develop a mutual understanding relative to details of his Quality Control Program including the forms for recording the quality control operations; control activities, testing, administration of the system for both onsite and offsite, and the interrelationship of Contractor and Government control and surveillance. Minutes of the meeting shall be prepared, signed by both the Contractor and the Contracting Officer or his authorized representative and shall become a part of the contract file. There may also be occasions when subsequent conferences will be called to reconfirm understandings.

7.2.1 Notification of Changes: After approval of the Quality Control Plan, the Contractor shall notify the Contracting Officer or his authorized representative in writing of any proposed change.

7.2.2 Work Deficiencies: The Contractor shall not build upon or conceal any work containing uncorrected defects. If deficiencies indicate that the Contractor's quality control system is not adequate or does not produce the desired results, corrective actions in both the quality control system and the work shall be taken by the Contractor. If the Contractor does not promptly make the necessary corrections, the Contracting Officer may issue an order stopping all or any part of the work until satisfactory corrective action has been taken. Payment for deficient work will be withheld until work as been satisfactorily corrected or other action is taken pursuant to the Special Contract Requirement INSPECTION OF CONSTRUCTION.

If the above does not obtain effective improvement in the Contractor's quality control system, the Contracting Officer or his authorized representative may direct changes be made in the quality control system and/or organization, including but not limited to the removal and replacement of unsatisfactory quality control representatives at any level or the addition of quality control personnel or services. Any additional cost to the Government for providing quality control services that are not satisfactorily performed by the Contractor, will be deducted from payment due the Contractor.

If recurring deficiencies in an item or items indicate that the quality control system is not adequate, such corrective actions shall be taken as directed by the Contracting Officer or his authorized representative.

7.3 Quality Control Organization:

7.3.1 System Manager: The Contractor shall identify an individual within his organization at the site of the work, who shall be responsible for overall management and have the authority to act in all Contractor quality control matters for the Contractor.

7.3.2 Personnel: A staff shall be maintained under the direction of the system manager to perform all quality control activities. The actual strength of the staff during any specific work period may vary to cover work phase needs, shifts, and rates of dredging. At least one full-time Contractor quality control person fully alert and awake shall be present on the disposal area at all times pumping operations are in progress. The personnel of this staff shall be fully qualified by experience and technically trained to perform their assigned responsibilities.

7.4 Control: The Contractor's quality control system shall include at least the following three phases of control and management for definable features of work:

(a) Preparatory: Twenty-four hours in advance of beginning any definable features of work, the Contractor's quality control manager shall review with the Government inspector(s) the applicable provisions of the specifications and Quality Control Plan and confirm the methods to assure compliance.

(b) Initial: This phase of control must be accomplished at the time of arrival of disposal area and dredging personnel on site to accomplish a definable feature of work and at any time new workmen or crews arrive for assignment to the work. The Contractor's control system must permit the transfer of information on quality requirements specified in this contract to each workman before he starts, demonstration from each workman that he can provide the specified quality of work, and motivate him to continue. It is also during this phase that control testing to prove the adequacy of the Contractor's control procedures shall be initiated and verified. The Contracting Officer or his authorized representative shall be notified at least 24 hours in advance of each initial activity.

(c) Follow-up: The follow-up phase shall be performed continuously to verify that control procedures are providing an end product which complied with contract requirements. Adjustments to control procedures may be required based upon the results of this phase and compliance inspections.

7.5 Completion: At the completion of the work, the Contractor's quality control representative shall conduct a joint completion review with the

Government inspector(s). During this review the work shall be examined, quality control shall be reviewed, and a list shall be developed of work not properly completed or not conforming to plans and specifications. This list shall be included in the quality control documentation with an estimated date for correction of each deficiency. The Contractor shall make sure that deficiencies have been corrected prior to the specified completion date. Payment will be withheld for defective or deficient features until they are satisfactorily corrected except as otherwise provided in the Special Contract Requirement INSPECTION OF CONSTRUCTION.

7.6 Quality Control Records:

7.6.1 The Contractor shall maintain current records, on an appropriate approved form, of quality control operations, activities, and tests performed including the work of suppliers and subcontractors. These records shall include factual evidence that the required activities or tests have been performed, including but not limited to the following:

- (a) Type and number of control activities and compliance inspections.
- (b) Results of control activities or inspections.
- (c) Nature of defects, causes for rejection, etc.
- (d) Proposed remedial action.
- (e) Corrective actions taken.

7.6.2 These records shall cover both conforming and defective or deficient features and shall include a statement that supplies and materials incorporated in the work comply with the contract. The Contractor shall submit legible, daily quality control reports to the Government inspector on the day following the report period. The records shall cover development of the disposal area(s), related piping, and dredging performed during the time period for which the records are furnished. These records shall be verified by person so designated by the Contractor. Failure to follow these procedures will be considered a breach of the Quality Control Program and portions of the progress payment may be withheld until it is demonstrated by the Contractor that the construction activities covered by the delinquent reports meet the requirements of the plans and specifications.

7.7 Measurement and Payment: No separate measurement and payment will be made for the work performed in Contractor Quality Control, specified herein, and all costs in connection therewith shall be considered a subsidiary obligation of the Contractor, and shall be included in the overall cost of the work.

8. EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE:(1985 JUN HQ USACE)

(a) Allowable cost for construction and marine plant and equipment in sound workable condition owned or controlled and furnished by a Contractor or subcontractor at any tier shall be based on actual cost data when the Government can determine both ownership and operating costs for each piece of equipment or equipment groups of similar serial and series from the Contractor's accounting records. When both ownership and operating costs can not be determined from the Contractor's accounting records, equipment costs shall be based upon the applicable provisions of EP 1110-1-8, "Construction Equipment Ownership and Operating Expense Schedule," Region II. Working

conditions shall be considered to be average for determining equipment rates using the schedule unless specified otherwise by the Contracting Officer. For equipment not included in the schedule, rates for comparable pieces of equipment may be used or a rate may be developed using the formula provided in the schedule. For forward pricing, the Schedule in effect at the time of negotiations shall apply. For retrospective pricing, the Schedule in effect as to the time work was performed shall apply.

(b) Equipment rental costs are allowable, subject to the provisions of FAR 31.105 (d)(ii) and FAR 31.205-36 substantiated by certified copies of paid invoices. Rates for equipment rented from an organization under common control, lease-purchase or sale lease-back arrangements will be determined using the schedule except that rental costs leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated leases are allowable. Costs for major repairs and overhaul are unallowable.

(c) When actual equipment costs are proposed and the total amount of the pricing action is over \$25,000, cost or pricing data shall be submitted on Standard Form 1411, "Contract Pricing Proposal Cover Sheet." By submitting cost or pricing data, the Contractor grants to the Contracting Officer or an authorized representative the right to examine those books, records, documents and other supporting data that will permit evaluation of the proposed equipment costs. After price agreement the Contractor shall certify that the equipment cost or pricing data are accurate, complete and current.

9. SAFETY:

9.1 General: The Contractor shall comply with the Contract Clause ACCIDENT PREVENTION. EM 385-1-1, September 1996, subject: Safety and Health Requirements Manual, is a part of these specifications.

9.1.1: The Contractor shall comply with the provisions of EM 385-1-1. If the Contractor is a currently accepted participant in the Dredging Contractors of America (DCA)/United States Army Corps of Engineers (USACE) Dredging Safety Management Program (DSMP), as determined by the DCA/USACE Joint Committee, and holds a current valid Certificate of Compliance for both the Contractor Program and the Dredge(s) to be used to perform the work required under this contract, the Contractor may, in lieu of the submission of an Accident Prevention Plan (APP),

(1) make available for review, upon request, the Contractor's current Safety Management System (SMS) documentation,

(2) submit to the Contracting Officer the current valid Company Certificate of Compliance for its SMS,

(3) submit the current dredge(s) Certificate of Compliance based on third party audit, and

(4) submit for review and acceptance, site-specific addenda to the SMS as specified in the solicitation.

9.2 Accident Prevention Program: Within 7 calendar days after receipt of Notice to Proceed the Contractor shall furnish his Accident Prevention Program and three copies thereof to the Contracting Officer or his authorized representative for review and approval. The program shall be prepared in the following format:

(a) Administrative Plan

(b) Job Hazard Analysis

(c) A copy of company policy statement of accident prevention and any other guidance statements normally provided new employees.

(d) When marine plant and equipment are in use the Contractor shall assure that oil transfer operations to or from his plant comply with all Federal, State, county, and Municipal laws, codes and regulations. Particular attention is invited to 33 CFR Subchapter 0, POLLUTION. The Contractor shall incorporate in his accident prevention program, submitted in compliance with Contract Clause ACCIDENT PREVENTION, sufficient information to demonstrate that all fuel transfers will be made in accordance with 33 CFR 156 and any other applicable laws, codes and regulations. (CENABEN 1984 APR)

(e) The Contractor shall not commence physical work at the project site until the program has been approved by the Contracting Officer or his authorized representative. As an additional measure to implementation of the Accident Prevention Program, the Contractor shall meet with representatives of the Contracting Officer as soon as practicable after receipt of Notice to Proceed and before start of work to discuss and develop a mutual understanding relative to administration of the overall safety program. Minutes of the meeting shall be prepared, signed by the Contractor and the Contracting Officer or his authorized representative. At the Contracting Officer's discretion, the Contractor may submit his Job Hazard Analysis only for the phases of construction. All remaining phases shall be submitted and accepted prior to the beginning of work in each phase. EM 385-1-1, Section 1.

9.3 Accident Investigation and Reporting: Accidents shall be investigated by immediate supervisor of the employee(s) involved and reported to the Contracting Officer or the Government inspector within one working day after the accident. Paragraph 01.D, EM 385-1-1.

(a) The Contractor shall insure that all accidents which involve loss of life, occupational disease of the employee, injury incapacitating any person for normal work beyond the day of injury, or damage to property, materials, supplies, or equipment, of \$700.00 or more, and which relate to the dredge, any attendant plant, the dredge working area, or the disposal area, shall be recorded, investigated, and reported to the Contracting Officer or his authorized representative.

(b) Each accident shall be verbally reported to the Government inspector at the earliest practicable time. Each accident involving loss of life or traumatic injury to any person shall be reported to the Government inspector verbally, telephonically, or by radio as soon as possible.

(c) The Contractor shall promptly investigate each accident and submit a written, signed report on ENG Form 3394 to the Government inspector within 48 hours.

(d) A factual record of each accident shall be entered in the Contractor's official daily log book.

9.4 Daily Inspections: The Contractor shall institute a daily inspection program to assure all safety requirements are being fulfilled. Reports of daily inspections shall be maintained in the Contractor's official daily log book. The reports shall be records of the daily inspections and resulting actions. Each report will include, as a minimum, the following:

(a) Phase(s) of construction underway during the inspection.

(b) Locations of areas inspections were made.

(c) Results of inspection, including nature of deficiencies observed and corrective actions taken, or to be taken, date, and signature of the person responsible for its contents.

9.5 Means of Escape for Personnel Quartered or Working on Floating Plant: Two means of escape shall be provided for assembly, sleeping, and messing areas on floating plants. For areas involving 10 or more persons, both means of egress shall be through standard size doors opening to different exit routes. Where 9 or fewer persons are involved, one of the means of escape may be a window (minimum dimensions 24-inch by 36-inch) which leads to a different exit route. EM 385-1-1, Section 19.

9.6 Emergency Alarms and Signals:

9.6.1 Alarms. Emergency alarms shall be installed and maintained on all floating plant requiring a crew where it is possible for either a passenger or crewman to be out of sight or hearing from any other person. The alarm system shall be operated from the primary electrical system with standby batteries on trickle charge that will automatically furnish the required energy during an electrical-system failure.

9.6.2 Signals:

(a) Fire Alarm Signals: The general fire alarm signal shall be in accordance with paragraph 97.13-15b of the Coast Guard Rules and Regulations for Cargo and Miscellaneous Vessels, Subchapter I, 1 Sep 77 (CG 257)

(b) Abandon Ship Signals: The signal for abandon ship shall be in accordance with paragraph 97.13-15c of referenced cited in (a) above.

(c) Man-Overboard Signal: Hail and pass the word to the bridge. All personnel and vessels capable of rendering assistance shall respond.

9.7 Mooring Lines: Eye loops on mooring lines shall be equipped with brackets or handling ropes to protect the hands of deckhands.

10. FUEL USAGE: The Contractor shall furnish the Contracting Officer a report, to be received on or before the last day of the calendar month, listing the totals of fuels consumed by the dredging plant and supporting vessels. The report shall list the quantities of different fuels separately. The report shall cover the period from the 25th of the preceding month to the 25th of the current month. This information may be included in the Contractor's Daily Report of Operations.

11. ENVIRONMENTAL LITIGATION: (1974 NOV OCE)

(a) If the performance of all or any part of the work is suspended, delayed, or interrupted due to an order of a court of competent jurisdiction as a result of environmental litigation, as defined below, the Contracting Officer, at the request of the Contractor, shall determine whether the order is due in any part to the acts or omissions of the Contractor or a Subcontractor at any tier not required by the terms of this contract. If it is determined that the order is not due in any part to acts or omissions of the Contractor or a Subcontractor at any tier other than as required by the

terms of this contract, such suspension, delay, or interruption shall be considered as if ordered by the Contracting Officer in the administration of this contract under the terms of the Contract Clause SUSPENSION OF WORK. The period of such suspension, delay or interruption shall be considered unreasonable, and an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) as provided in that clause, subject to all the provisions thereof.

(b) The term "environmental litigation", as used herein, means a lawsuit alleging that the work will have an adverse effect on the environment or that the Government has not duly considered, either substantively or procedurally, the effect of the work on the environment.

12. WORK AT NIGHT: For night operations the Contractor shall provide and maintain, at his expense, two light towers equipped with a 3 KW generator (minimum). Each light tower will have metal halide bulbs (1000 watt) or equivalent, capable of giving off a minimum of 200,000 lumens. No work will be permitted after dusk without the aid of both light towers.

13. RADIO COMMUNICATIONS: At all times pumping operations are in progress, the Contractor is responsible and required to provide any and all equipment necessary to maintain 24-hour oral communication between the dredge operator, Quality Control System Manager, and the Corps of Engineers' inspector on site. For this purpose, the Contractor shall provide and maintain at his expense a marine band walkie-talkie radio for use by the Government inspector(s). The Contractor is responsible for any and all circumstances not conforming to the plans and specifications resulting from the inadequate operation of the equipment.

14. PROGRESS SCHEDULING AND REPORTING: (JUN 1975) In accordance with the Contract Clauses, the Contractor, shall within 5 days or as otherwise determined by the Contracting Officer, after date of commencement of work, submit for approval a practicable progress schedule showing the manner in which he intends to prosecute the work. ENG Form 2454 ("Construction Progress Chart") will be furnished upon request for use in preparing this schedule. If a Contractor form is used, the same information as shown in the ENG Form 2454 shall be provided. Preparation and updating of the schedule shall be as follows:

14.1 Preparation: The progress schedule shall be prepared in the form of time-scaled summary network diagram graphically indicating the sequence proposed to accomplish each work activity or operation, and appropriate interdependencies between the various activities. The chart shall show the starting and completion dates of all activities on a linear horizontal time scale beginning with the dates of Notice to Proceed and indicating calendar days to completion. Each activity in the construction shall be represented by an arrow and shall have a beginning and ending node (event). The entire project shall have only one beginning node and one ending node. The arrangement of arrows shall be such that they flow from the left to right. Each arrow representing an activity shall be annotated to show the activity description, duration and cost. The Contractor shall indicate on the chart the important work activities that are critical to the timely overall completion of the project. Key dates for important features or portions of work features are milestone dates and shall be so indicated on the chart. Based on this chart, the Contractor shall prepare an earnings-time curve (S Curve) showing the rate of progress in terms of money and percent completion. Schedule progress may not include the value of materials or equipment delivered to the job site but not yet incorporated into the work. This schedule shall be the medium through which the timeliness of the Contractor's

construction effort is appraised.

14.2 Updating: The Contractor shall update the schedule by entering actual progress thereon at monthly intervals. The status of activities completed or partially completed as of the end of each period shall be shown, as well as the percentage of work completed. In computing actual progress, the value of material and equipment on site but not incorporated into the work may not be considered. When changes are authorized that result in contract time extensions, the Contractor shall submit a modified chart for approval by the Contracting Officer. The Contract Clause SCHEDULES FOR CONSTRUCTION CONTRACTS with reference to overtime, extra shifts, etc., may be invoked when the Contractor fails to start or complete work activities or portions of same by the date indicated on the approved progress chart, or when it is apparent to the Contracting Officer from the Contractor's actual progress that these dates will not be met. (CENABCO-E)

15. CONTINUITY OF WORK: No payment will be made for work done in any area designated by the Contracting Officer until the full depth required under the contract is secured in the whole of such area, unless prevented by ledge rock, nor will payment be made for excavation in any area not adjacent to and in prolongation of areas where full depth has been secured except by decision of the contracting officer. Should any such nonadjacent area be excavated to full depth during the operations carried on under the contract, payment for all work therein may be deferred until the required depth has been made in the area intervening. The Contractor may be required to suspend dredging at any time when for any reason the gages or ranges cannot be seen or properly followed.

16. MISPLACED MATERIAL: Should the Contractor during the progress of the work, lose, dump, throw overboard, sink, or misplace any material, plant machinery, or appliance, which in the opinion of the Contracting Officer may be dangerous to or obstruct navigation, the Contractor shall recover and remove the same with the utmost dispatch. The Contractor shall give immediate notice, with description and location of such obstructions, to the Contracting Officer or inspector, and when required shall mark or buoy such obstructions until the same are removed. Should he refuse, neglect, or delay compliance with the above requirements, such obstructions may be removed by the Contracting Officer, and the cost of such removal may be deducted from any money due or to become due to the Contractor, or may be recovered under his bond. The liability of the Contractor of the removal of a vessel wrecked or sunk without fault or negligence shall be limited to that provided in Section 15, 19, and 20 of the River and Harbor Act of March 3, 1899 (33 U.S.C. 410 et seq.).

17. INSPECTION: The Government inspector(s) will direct the maintenance of the gauges, ranges, location marks and limit marks in proper order and position; but the presence of the Government inspector(s) shall not relieve the Contractor of responsibility for the proper execution of the work in accordance with the specifications. The Contractor will be required:

(a) To furnish, on the request of the Contracting Officer, any Government inspector, or authorized representative, the use of such boats, boatmen, laborers, and material forming a part of the ordinary and usual equipment and crew of the dredging plant as may be reasonably necessary in inspecting and supervising the work. However, the Contractor will not be required to furnish such facilities for the surveys prescribed in the Special Clause FINAL EXAMINATION AND ACCEPTANCE.

(b) To furnish, on the request of the Contracting Officer, any

Government inspector, or authorized representative, suitable transportation from all points on shore designated by the Contracting Officer to and from the various pieces of plant, and to and from the disposal site.

(c) Should the Contractor refuse, neglect, or delay compliance with these requirements, the specific facilities may be furnished and maintained by the Contracting Officer, and the cost thereof will be deducted from any amounts due or to become due the Contractor.

18. FINAL EXAMINATION AND ACCEPTANCE:

(a) As soon as practicable after the completion of the entire work or any section thereof (if the work is divided into sections) as in the opinion of the Contracting Officer or his authorized representative will not be subject to damage by further operations under the contract, such work will be thoroughly examined at the cost and expense of the Government by sounding or by sweeping, or both, as determined by the Contracting Officer or his authorized representative. Should any shoals, lumps, or other lack of contract depth be disclosed by this examination the Contractor will be required to remove same by dragging the bottom or by dredging at the contract rate for dredging, but if the bottom is soft and the shoal areas are small and form no material obstruction to navigation, the removal of such shoal may be waived by the discretion of the Contracting Officer or his authorized representative. The Contractor or his authorized representative will be notified when soundings and/or sweepings are to be made, and will be permitted to accompany the survey party. When the area is found to be in a satisfactory condition, it will be accepted finally. Should more than two sounding or sweeping operations by the Government over an area be necessary by reason of work for the removal of shoals disclosed at a prior sounding or sweeping, the cost of such third and any subsequent sounding or sweeping operations will be charged against the contractor at the rate of \$1,200.00 per day for each day in which the Government plant is engaged in sounding or sweeping and/ or is enroute to or from the site or held at or near the said site for such operations.

(b) Final acceptance of the whole or a part of the work and the deductions or corrections of deductions made thereon will not be reopened after having once been made, except on evidence of collusion, fraud, or obvious error, and the acceptance of a completed section shall not change the time of payment of the retained percentages of the whole or any part of the work.

19. SHOALING:

19.1 If, before the contract is completed, shoaling occurs in any section previously accepted, including shoaling in the finished channel, because of the natural lowering of the side slopes, redredging at contract price, within the limit of available funds, may be done if agreeable to both the contractor and the contracting officer.

19.2 If before dredging survey indicates shoaling in the channel immediately adjacent to the channel to be dredged, the Contractor will be required to dredge the additional shoaling at the contract unit price if directed by the Contracting Officer.

20. ENVIRONMENTAL PROTECTION:

20.1 General: The Contractor shall furnish all labor, materials and equipment, to perform all work required for the prevention of environmental

pollution during, and as the result of, construction/dredging operations under this contract except for those measures set forth in the technical Provisions of these specifications. For the purpose of this specification, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; or affect other species of importance to man. The control of environmental pollution requires consideration of air, water, and land.

20.2 Applicable Regulations: The Contractor and his subcontractors in the performance of this contract, shall comply with all applicable Federal, State, and local laws and regulations concerning environmental pollution control and abatement in effect on the date of this solicitation, as well as the specific requirements stated elsewhere in the contract specifications.

20.3 Notification: The Contracting Officer or his authorized representative will notify the Contractor of any noncompliance with the foregoing provisions and the action to be taken. The Contractor shall, after receipt of such notice, immediately take corrective action. If the Contractor fails or refuses to comply promptly, the Contracting Officer or his authorized representative may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of time lost due to any such stop order shall be made subject of a claim for extension of time or for excess costs or damages by the Contractor unless it is later determined that the Contractor was in compliance.

20.4 Subcontractors: Compliance with the provisions for environmental protection by subcontractors shall be the responsibility of the Contractor.

20.5 Protection of Water Resources: The Contractor shall not pollute streams, lakes or reservoirs with fuels, oils, bitumens, calcium chloride, acid construction wastes, or other harmful materials. All work under this contract shall be performed in such a manner that objectionable conditions will not be created in streams through or adjacent to the project area. The Contractor shall take special positive protective measures to prevent spillage of potential pollutant materials such as fuel, emulsion materials, chemicals etc., from storage containers or equipment into public waters. Such positive protective measures may include, but not limited to the following:

- (a) A berm enclosure of sufficient capacity to contain such materials.
- (b) Security measures to prevent acts of vandalism which could result in spillage of such materials (fences, guards, etc.).
- (c) Storage of such materials in an area where the terrain would preclude leakage into public waters.
- (d) Utilization of secure Government storage areas if the Contracting Officer indicates such space is available. No storage past immediate needs (2 days) without the consent of the Contracting Officer or his authorized representative.

20.6 Burning: Burning shall be in compliance with Federal, State, and local laws. The Contractor shall be responsible for obtaining all required burning permit approvals.

20.7 Dust Control: The Contractor shall maintain all work areas free from dust which would contribute to air pollution. Approved temporary methods of stabilization consisting of sprinkling, chemical treatment, light

bituminous treatment or similar methods will be permitted to control dust. Sprinkling, where used, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs.

20.8 Protection of Land Resources:

20.8.1 General: It is intended that land resources within the project boundaries and outside the limits of the permanent work performed under this contract be preserved in their present condition or be restored to a condition after completion of construction that will appear to be natural and not detract from the appearance of the project. Insofar as possible, the Contractor shall confine his construction activities to areas defined by the plans and specifications or to be cleared for other operations. The following additional requirements are intended to supplement and clarify the requirements of the CONTRACT CLAUSES.

20.8.2 Protection of Trees Retained:

(a) The Contractor shall be responsible for the protection of the tops, trunks, and roots of all existing trees that are to be retained on the site. Protection shall be maintained until all work in the vicinity has been completed and shall not be removed without the consent of the Contracting Officer or the authorized representative of the contracting officer. If the Contracting Officer or his authorized representative finds that the protective devices are insufficient, additional protection devices shall be installed.

(b) Heavy equipment, vehicular traffic, or stockpiling of any materials shall not be permitted within the drip line of trees to be retained.

(c) No toxic materials shall be stored within 100 feet from the drip line of trees to be retained.

(d) Except for areas shown on the contract drawings to be cleared, the Contractor shall not deface, injure, or destroy trees or shrubs, nor remove or cut them without special authority. Existing nearby trees shall not be used for anchorage unless specifically authorized by the Contracting Officer or his authorized representative. Where such special emergency use is permitted, the Contractor or his authorized representative shall first adequately protect the trunk with a sufficient thickness of burlap over which softwood cleats shall be tied.

(e) No protective devices, signs, utility boxes or other objects shall be nailed to trees to be retained on the site.

20.9 Restoration of Landscape Damage: Any tree or other landscape feature scarred or damaged by the Contractor's operations shall be restored as nearly as possible to its original condition at the Contractor's expense. The Contracting Officer or his authorized representative will decide what method of restoration shall be used and whether damaged trees shall be treated and healed or removed and disposed of. All scars made on trees, designated on the plans to remain, and all cuts for the removal of limbs larger than 1 inch in diameter shall be coated as soon as possible with an approved tree-wound dressing. All trimmings or pruning shall be performed in an approved manner by experienced workmen with saws or pruning shears. Tree trimming with axes will not be permitted. Where tree climbing is necessary, the use of climbing spurs will not be permitted. Trees that are to remain, either within or outside established clearing limits, that are subsequently damaged by the Contractor and are beyond saving in the opinion of the Contracting Officer or

his authorized representative, shall be immediately removed and replaced with a nursery-grown tree of the same species. Replacement trees shall measure no less than 2 inches in diameter at 6 inches above the ground level.

20.10 Location of Storage and Service Facilities: The location on Government property of the Contractor's storage and service facilities, required temporarily in the performance of the work, shall be upon cleared portions of the jobsite or areas to be cleared. The preservation of the landscape shall be an imperative consideration in the selection of all sites.

20.11 Temporary Excavation and Embankments: If the Contractor proposes to construct temporary roads, embankments, or excavations for plant and/or work areas, he shall submit a plan for approval prior to scheduled start of such temporary work.

20.12 Waste Disposal: Disposal of any materials, wastes, effluents, trash, garbage, oil, grease, chemicals, etc., in areas adjacent to the work site shall not be permitted. If waste material is dumped in unauthorized areas, the Contractor shall remove the material and restore the area to the condition of the adjacent undisturbed area. If necessary, contaminated ground shall be excavated, disposed of as directed by the Contracting Officer, replaced with suitable fill material, compacted and planted as required to reestablish vegetation.

20.13 Toilet Facilities: The Contractor shall provide on-shore toilet facilities, in accordance with paragraph 02.B, EM 385-1-1, at the dredged material disposal site. Dredge plant toilet facilities may not be substituted for on-shore facility requirements.

20.14 Corrective Action: The Contractor shall, upon receipt of a notice in writing of any noncompliance with the foregoing provisions, take immediate corrective action. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs of damages by the Contractor unless it was later determined that the Contractor was in compliance.

20.15 Measurement and Payment: No separate measurement and payment will be made for the work performed in Environmental Protection, specified herein, and all costs in connection therewith shall be considered a subsidiary obligation of the Contractor and shall be included in the overall cost of the work.

21. SUBCONTRACTS: In accordance with Section 00100, Instructions, Conditions, and Notices to Bidders, NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY, the Contractor shall, within 10 working days following award of any construction subcontract by the Contractor or a Subcontractor, deliver to the Contracting Officer or his authorized representative a completed DD form 1565.

22. CONTRACTOR'S RESPONSIBILITY: (ECI, APP.A) The Contractor shall be responsible that his employees strictly comply with all Federal, State, and municipal laws that may apply to operations under the contract; and it is understood and agreed that the Contractor assumes full responsibility for the safety of his employees, plant, and materials, and for any damage or injury done by or to them from any source or cause, except damage caused to the plant or equipment by acts of the Government, its officers, agents or employees, in which event such damages will be the responsibility of the Government in

accordance with applicable Federal laws. For the purpose of this clause, the terms "officers, agents or employees" of the Government shall not include persons who are employed by the Contractor and whose services have been furnished to the Government pursuant to this or any other contract. (See also FAR 52.236-7 and FAR 52.236-13)

22.1 Responsibility For Contractor Plant and Government Property: The Government will not be responsible for the dredge and attendant plant, any Government property aboard the dredge and attendant plant, or any accidental damage thereto during the period of the contract. The Contractor shall release the Government and its officers and agents from all responsibility for damages to dock facilities, submerged and aerial crossings, bridges, moored vessels, or other damages ordinarily covered by fire and marine insurance. (See also FAR 52.236-9)

22.2 Warranty: The Contractor warrants to the Government the quiet and peaceable use of the aforesaid property, and in case of any disturbance, by suit or otherwise, will defend the same free of charge to the Government in or before the proper State or United States courts.

22.3 Delays: If the Contractor refuses or fails to make delivery of the property within the time specified or any extension thereof, as provided in specifications, or to maintain the property in serviceable condition and diligently and competently to conduct the specified operations, the Government may, by written notice terminate the right of the Contractor to proceed with delivery or with further performance under the contract or such parts or parts thereof affected by the contract or otherwise and the Contractor shall be liable to the Government for any excess cost occasioned thereby.

22.4 Disclaimer: The Contractor shall hold and save harmless the United states, its officers and employees, from all claims that may arise resulting from the Contractor's negligence in connection with the work to be performed under the contract, or from noncompliance by the Contractor with the provisions of the contract, contract drawings, and specifications and/or the instructions of the Contracting Officer or his authorized representative. (See also FAR 52.236-10)

End of Section

SECTION 2 - TECHNICAL PROVISIONS

1. WORK COVERED BY CONTRACT PRICE:

1.1 Payment Item No. 0001: All costs connected with the mobilization and demobilization of the Contractor's dredging plant and equipment furnished for Rhodes Point to Tylerton, Somerset County, Maryland as defined below shall be included in the contract lump-sum price for Item No. 0001 as listed in the Unit Price Schedule.

1.1.1 Mobilization shall include all costs for operations accomplished prior to commencement of actual dredging operations, i.e. transfer of dredge, attendant plant, and equipment to site; initial installation of pipe, and disposal area preparation required; and any other work that is necessary in advance of the actual dredging operations.

1.1.2 Demobilization shall include general preparation for transfer of plant to its home base, removal of pipelines, disposal area cleanup, and transfer of plant to its home base.

1.2 Payment Item No. 0003: The contract price per cubic yard for new work dredging shall include the costs of removal, and disposal of all material as specified herein or as indicated on the contract drawings exclusive of mobilization and demobilization costs as defined in paragraphs 1.1, 1.1.1, and 1.1.2. Payment shall be made in accordance with Item No. 0003, "Maintenance & New Work Dredging - Rhodes Point to Tylerton" of the Unit Price Schedule which shall be full compensation for the work performed.

1.4 Payment Item No. 0004: The contract price for planting Spartina alterniflora shall include all costs associated with the equipment, labor, and other associated costs for obtaining, transporting, handling and planting the Spartina alterniflora as specified herein or as indicated on the contract drawings. Costs should include any grading that needs to be performed to obtain the proper configuration and slope as indicated on the contract drawings. Payment shall be made in accordance with Item No. 0004, "Wetland Planting" of the Unit Price Schedule which shall be full compensation for the work performed.

2. ORDER OF WORK: The Contractor shall complete the construction of the jetties and the breakwaters prior to any dredging activities. The Contractor must comply with the following::

(a) The dredging consists of furnishing, delivering, and operating one cutterhead, hydraulic, pipeline dredge with attendant plant capable of performing new work dredging in Rhodes Point to Tylerton, Somerset County, Maryland. Dredged material shall be placed in the designated placement site.

(b) The Contractor shall deliver the dredge and attendant plant ready for operation at the project site within 10 calendar days prior to the initiation of dredging. Upon arrival of the dredge and all attendant plant at the project site in Rhodes Point to Tylerton, Somerset County, Maryland, the Contracting Officer's appointed inspector(s) will inspect the plant to determine whether any deficiencies have occurred subsequent to the time the plant was brought into compliance pursuant to the preaward inspection. The contractor will be notified of acceptance or rejection of the plant within 24 hours after delivery.

(c) Upon Contractor notification and at least 24 hours prior to the commencement of dredging operations the Contractor and Government inspector(s) shall conduct a joint inspection of the completed disposal area operations. No dredging will be permitted to begin until all deficiencies identified by the Government inspector(s) have been satisfactorily corrected by the Contractor.

(d) No dredging shall be permitted unless the Contractor appointed quality control person is present at the disposal area while pumping operations are in progress.

(e) The dredged material shall be deposited in the disposal area designated on the contract drawings.

3. PLANT: Plant and equipment employed on the work shall be in satisfactory operating condition and capable of safely and efficiently performing the work under exposed environmental conditions and as set forth in the specification and shall be subject to inspection by the Contracting Officer at all times. Pipeline for hydraulic machines shall be kept in good conditions at all times, any leaks or breaks along their length shall be promptly and properly repaired. No reduction in the capacity of the plant employed on the work shall be made except by written permission of the Contracting Officer. The measure of the "Capacity of Plant" shall be its actual performance on the work to which these specifications apply. All floating pipelines used as accessways shall be equipped with walkways and guardrail conforming to paragraph 19.B.05 of Corps of Engineers Manual EM 385-1-1.

4. CHARACTER OF MATERIALS: It is believed that the new work dredged material to be removed will consist principally of sand, shell, clay, silt, mud, gravel, debris, trash and combinations thereof. Sediment testing has been done in the vicinity of the new work dredging. The locations of the drill holes are shown on the contract plans. The boring logs and sieve analysis results are located at the end of section 01050 of the specifications. Minor variations in the subsurface materials are to be expected and, if encountered, will not be considered as being materially different within the purview of the Contract Clause DIFFERING SITE CONDITIONS. Bidders are expected to examine the site of the work, and decide for themselves the character of the materials.

5. DISPOSAL OF EXCAVATED MATERIAL:

5.1 The Contractor will use the designated Government-furnished beach site disposal area. Within 7 days after receipt of Notice to Proceed, the Contractor shall furnish his plan for the dredging and disposal operations to the Contracting Officer for review and approval. This plan shall include a description of all proposed dredging, transporting, and rehandling equipment to be utilized in performance of the contract work, and shall also include disposal area layout plans indicating the locations of the dredged material discharge pipeline and the type and locations of the lights to be utilized for night operations. Dredging will not be permitted to commence until this plan is approved by the Contracting Officer or his authorized representative.

5.2 Misplaced Excavated Material: Any material that is deposited elsewhere than in places designated or approved by the Contracting Officer or his authorized representative will not be paid for and the Contractor may be required to remove such misplaced material and deposit it where directed at his expense. Misplaced excavated material may constitute a violation of applicable Federal, State, and Local statutes and the Contractor shall be

liable for any civil and/or criminal penalties imposed by these statutes. A copy of the State of Maryland, Water Quality Certification is included as part of these specifications.

6.0 GOVERNMENT FURNISHED DISPOSAL AREA:

6.1 The material excavated from the channel shall be transported hydraulically by pipeline and deposited in the three areas designated as "Dredged Material Placement Sites" on the contract drawings. The areas are numbered 1, 2 and 3, and shall have material placement in them in that order.

6.2 In the event any leaks occur in the dredge pipeline line, the Contractor will be required to immediately discontinue dredging operations until such leaks in the line, or breaks are remedied at the Contractor's expense. The Contractor will also be required, at its expense, to recover and remove any material misplaced by such leaks, or breaks.

6.3 Restoration of Landscape Damage. Any tree, grassed area or other landscape scarred or damaged by the Contractor's equipment shall be restored as nearly as possible to its original condition at the Contractor's expense. The Contracting Officer shall determine the methods of restoration to be used.

6.4 The dredged material disposal areas shall be plainly marked by the Contractor with conspicuous stakes that mark the elevations for placement of the material. The material must be placed within the designated areas. At Site 1, the Contractor shall install a line of strawbales, two strawbales high, along the waterward limits, as shown on the contract drawings. The strawbales must be staked using 2" x 2" wooden stakes, so that they stay in place.

6.5 Within the dredged material placement sites the Contractor shall place the dredged material from elevation + 1.8 MLLW at the existing shoreline and slope the material to elevation + 1.5 MLLW along the baseline, as shown on the contract drawings. The material will then be allowed to slope naturally from the baseline toward the segmented breakwaters to blend with the existing elevations. If the elevation exceeds +1.8 MLLW after placement, the area may have to be graded to achieve the desired elevation. Once the correct elevation is obtained in an area within the site, the pipeline will be moved in a southern direction and the placement process repeated until all material is dredged. Stakes should be placed along the existing shoreline and the baseline, indicating the location and elevation that material can be placed. This will allow the inspector to judge the height of placement. If placement of dredged material exceeds the limits of the dredged material site 3, placement will continue in a southerly direction, along the shore.

7. WETLAND CREATION: The contractor will provide all the plants and the fertilizer to plant four (4) acres of wetlands with Saltmarsh Cordgrass (Spartina alterniflora). The S. alterniflora will be planted intertidally which should be between +1.5 MLLW and +1.8 MLLW. All plant material shall conform to the current issue of the American Standard for Nursery Stock published by the American Association of Nurserymen.

7.1 The plants will be fertilized with a slow-release all purpose fertilizer. Planting will occur between the dates of 15 April and 1 September. The S. alterniflora plant will be 1 ½ to 2 inch well rooted plugs with a minimum height of 6 inches, to be planted 18 inches on center. Planting will occur after dredging unless it is too late in the season. If this occurs the planting will occur after 15 April of the following year.

7.2 Potential local nurseries which may supply the plant material and do the plantings are:

Dr. Ed Garbish
Environmental Concerns
P.O. Box P
St. Michaels, Maryland 21663
(410) 745-9620

Mr. Griff Evans
ER&M
303 Alleghaney Ave.
Towson, Maryland 21204
(410) 337- 4899

Dr. Stan Kolar
Kolar Environmental Services
5200 West Heaps Rd.
Pylesville, Maryland 21132
(410) 836-0500

Mr. Don Knezick
Pinelands Nursery
323 Island Rd
Columbus, New Jersey 08022
(609) 291-9486

The Contractor is not obligated to use any of these nurseries and can use any qualified nursery of their own choosing.

8. Pipeline Right of Ways: The Government furnished pipeline right-of-way is the area within the limits of works, shown on the contract drawings. However, the Contractor is not restricted to the Government furnished right-of-way. In those cases where the Contractor routes a pipeline outside of the Government furnished right-of-way or disposal area property, he shall obtain all easements, permits, and right-of-ways at his own expense.

8.1 Prevention of Landscape Defacement within Government Furnished Pipeline Right-of-Ways. Unless otherwise noted on the contract drawing(s), the Contractor shall not deface, injure, or destroy trees or shrubs, nor remove or cut them without the authority of the Contracting Officer or his authorized representative. Monuments and markers shall be protected before construction operations commence and until contract completion.

8.2 Restoration of Landscape Damage within Government Furnished Pipeline Rights-of-Ways. Any tree, grassed area or other landscape scarred or damaged by the Contractor's equipment shall be restored as nearly as possible to its original condition at the Contractor's expense. The Contracting Officer shall determine the methods of restoration to be used.

9. NONCOMPLIANCE: The Contracting Officer or his authorized representative will notify the Contractor in writing of any noncompliance with the foregoing provisions. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. Within 24 hours after the receipt of such notice, the Contractor shall mail, or personally deliver to the Contracting Officer or his authorized representative, a complete proposal of the prompt correction of the noncompliance. The Contracting Officer or his authorized representative will review the proposal and return it to the Contractor approved, subject to such changes or conditions as he finds necessary to assure correction of noncompliance. Immediately upon receipt of such approval, the Contractor shall begin the corrective work and shall carry it to completion. If the Contractor fails or refuses to submit his proposal or to proceed with the corrective work, the Contracting Officer or his authorized representative may suspend all or any part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such suspension shall be made the subject of a claim for extension of time nor for excess costs or damages by the Contractor. If he so elects, the Contracting Officer or his authorized representative may cause the corrective work to be accomplished by others, in which event the cost thereof shall be chargeable against any monies otherwise due the Contractor from the Government.

10. INSPECTION:

10.1 The work will be conducted under the general direction of the District Engineer and will be subject to inspection by his appointed inspector(s) to insure strict compliance with the specifications. The Government inspector(s) will direct the maintenance of the gages, ranges, location marks, and limit marks in proper order. Portable lighting shall be provided upon request of the Government inspector(s) for more detailed inspection of potential trouble areas.

10.2 The Government inspector(s) will direct suspension of operations at any unit of work where the Contractor upon request does not correct a safety hazard which is so grave as to endanger life, limb, or property or cause serious damage to the work. This includes but is not limited to a failure on the part of the Contractor (1) to have a full-time quality control person present and fully alert and awake on the disposal area at all times pumping operations are in progress or (2) provide and maintain the required marine band radio for use by Government inspector(s) at all times while pumping operations are in progress and/or (3) provide and maintain the approved lighting on the disposal area for safe night operations are all basis for Government inspector direct suspension of work.

11. OVERDEPTH AND SIDE SLOPES:

11.1 Overdepth: To cover inaccuracies of the dredging process, material actually removed from within the specific areas to be dredged to a depth of not more than 2-feet below the required depth will be estimated and paid for at the contract price.

11.2 Side slopes: Material actually removed, within limits approved by the Contracting Officer, to provide for final side slopes not flatter than 1 vertical on 3 horizontal, but not in excess of the amount originally lying above this limiting side slope will be estimated and paid for, whether dredged in original position or by dredging space below the pay slope plane at the bottom of the slope for upslope material capable of falling into the cut. In computing the limiting amount of sideslope dredging, an over-depth of 2-feet measured vertically will be used.

11.3 Excessive dredging: Material taken from beyond the limits as extended in the provisions of paragraphs 11.1 and 11.2 above will be deducted from the total amount dredged as excessive overdepth dredging, or excessive sideslope dredging for which payment will not be made. Nothing herein shall be construed to prevent payment for the removal of shoals performed in accordance with the applicable provisions of the Special Clauses FINAL EXAMINATION AND ACCEPTANCE or SHOALING.

12. MEASUREMENT AND PAYMENT:

12.1 Mobilization and Demobilization: Mobilization and demobilization shall include all costs in connection with the development and maintenance of the disposal area including but not limited to: obtaining the necessary permits and approvals for the work specified in accordance with the Contract Clause PERMITS AND RESPONSIBILITIES; full reimbursement for the premiums actually paid for performance and payment bonds, moving the Contractor's dredging plant and equipment to the site; initial laying of pipelines; maintenance of the disposal areas, and the removal of all dredging plant, equipment, fencing and pipelines from the site upon completion of the work. Payment shall be made in accordance with Item No. 0001, "Mobilization and

Demobilization" of the Unit Price Schedule which shall be full compensation for the work performed.

12.2 Dredging: The total amount of material removed and to be paid for under the contract, will be measured by the cubic yard in place by computing the volume between the bottom surface shown by soundings of the last survey made before dredging and the bottom surface shown by the soundings of a survey made as soon as practicable after the entire work specified has been completed and included within the limits of the overdepth and side slopes described in the Technical Provision paragraph OVERDEPTH AND SIDE SLOPES less any deductions that may be required for misplaced material described in the Technical Provision paragraph MISPLACED MATERIAL. Payment shall be made in accordance with Item No. 0003, "Maintenance & New Work Dredging - Rhodes Point to Tylerton" of the Unit Price Schedule which will be full compensation for the work performed.

12.3 Wetland Planting: Payment shall include all costs associated with obtaining the necessary plant material, equipment, and services needed to establish the 4 acres of saltmarsh on dredged material at the dredged material placement sites. Payment shall be made in accordance with Item No. 0004, "Wetland Planting" of the Unit Price Schedule, which shall be full compensation for the work performed.

12.4 The maps and/or drawings already prepared are believed to represent accurately conditions existing on the date shown on the contract drawing(s). Determination of quantities removed and the deductions made therefrom to determine quantities by place measurement to be paid in the area specified, after having once been made, will not be reopened except on evidence of collusion, fraud, or obvious error.

12.5 Monthly partial payments will be based on approximate quantities determined by soundings or sweepings taken behind the dredge and/or approximate quantities reported in the Daily Reports of Operations.

12.6 Should the Contractor in conjunction with work under this contract perform dredging for third parties adjacent to the specified area to be dredged, payment will be made by the Government only for material removed from the contract area within a vertical plane at the contract unit lines at the location work is performed for such third parties.

13. WORK IN THE VICINITY OF STRUCTURES AND UTILITY CROSSINGS:

13.1 The Contractor shall exercise caution when working in the vicinity of structures and utility crossings or adjacent to the channel or disposal areas. Repair of any damage resulting from excessive or improper excavation in the bottom or side slopes of the channel will be the responsibility of the Contractor. Where dredging to the required elevation might endanger any structure, the Contracting Officer or his authorized representative may reduce the required excavation in the vicinity of such structure.

13.2 The Contractor shall provide at least project channel dimensions over all utility crossings. The Contractor shall submit for approval by the Contracting Officer or his authorized representative a detailed plan of operation at each pipeline or utility crossing where construction surveys indicated project channel does not exist. The plan shall contain emergency measures to be taken in the event of an accident. The Contractor shall notify the owners of pipelines or utilities at least three calendar days prior to operating within 150 feet of a pipeline or utility. The Government will not be responsible for any damage to structure or utilities due to the

Contractor's deviation from the approved plan.

13.3 Any unidentified pipelines or structures which may be found within the limits of work shall not be disturbed nor shall dredging or the disposal of dredge material be performed at these locations unless, and until, approved by the Contracting Officer.

14. QUALITY CONTROL: The Contractor shall establish a Quality Control system to assure compliance with contract requirements and shall maintain records of his quality control for all construction and dredging operations as required in the QUALITY CONTROL paragraphs in the Special Clauses.

DAILY REPORT OF OPERATIONS				CONTRACT NO.		DATE		RCS ENKW-37 (Feeder)	
DREDGE				CONTRACTOR					
LOCATION OF WORK (Range, Stationing, Longitudinal position)						CHARACTER OF WORK () Maintenance () New			
DISPOSAL AREA OR REHANDLING BASIN				LENGTH OF DISCHARGE PIPELINE: Total Length Ft.		Pontoon Ft.		Shore Ft. Submerged Ft.	
CHARACTER OF MATERIAL AND PERCENTAGE OF EACH Gravel Sand Clay Mud Silt Hardpan Stone Others									
AVERAGE DEPTH (Feet and Tenths) Before Dredging After Dredging Payment Depth						WEATHER			
VELOCITY OF DISCHARGE Feet Per Second		AVERAGE VACUUM Inches		AVERAGE DISCHARGE PRESSURE Lbs.		IN PLACE DENSITY G/L			
DENSITY OF RIVER WATER		DENSITY OF WATER DISCHARGING OVER SLUICE WEIR				HEIGHT OF DISCHARGE OVER SLUICE WEIR			
NUMBER OF MEN		MAN HOURS				MAN HOURS TO DATE			
WORK PERFORMED					DISTRIBUTION OF TIME				
ITEM	UNIT	AMOUNT		EFFECTIVE WORKING TIME		HOURS	MINUTES		
		GROSS	NET	Dredging				Percentage of total time	
Av. width of cut	Feet			NON-EFFECTIVE TIME					
Area dredged	Sq. Ft.			Handling pipe lines					
Distance advanced this period	Feet			Handling swinging lines					
Distance advanced previously	Feet			Clearing pump and pipe line					
Distance advanced to date	Feet			Clearing cutter or suction head					
Scows loaded	Number			Taking fuel and supplies					
Av. load per scow	Cu. Yds.			Changing location of plant on job					
Amt. dredged pumping hr.	Cu. Yds.			Loss due to opposing natural elements					
Amt. dredged this period	Cu. Yds.			Loss due to passing vessels					
Amt. dredged previously	Cu. Yds.			Minor operating repairs					
Total amt. dredged to date	Cu. Yds.			Waiting for attendant plant					
Av. pump speed	R.P.M.			Preparations					
Av. discharge lift	Feet			Transferring plant between works					
ATTENDANT PLANT				Lay time off shift					
ITEM	NAME		HOURS	Sundays and Holidays					
Tugboat				Waiting for scows					
Tugboat				Fire and boat drills					
Launch				Miscellaneous (Explain in remarks)					
Barges				Total Non-effective Time					
Barges				Percentage of Total Time					
Scows				LOST TIME (Not chargeable to cost of work)					
Derrick				Repair time (8 consecutive hours or more)					
				Collisions					
COMMODITIES CONSUMED				Out of commission					
ITEM	UNIT	QUANTITY		Miscellaneous (Explain in remarks)					
Fuel oil	Gals.			Total Lost Time					
Lubricants	Gals.			Percentage of total time					
Lubricants	Pounds			TOTAL TIME IN PERIOD					
Water	Gals.								
No. of Supervisory Inspections: By field personnel					By office personnel				
REMARKS (Attach additional sheet, if necessary)									

DAILY QUALITY CONTROL REPORT

Contract No.: _____ Date: _____ Rpt. No.: _____

Project Title & Location:

Weather: Clear P. Cloudy Cloudy Rainfall in (% of workday)

Temperature during workday: High degrees F. Low degrees F.

1. WORK PERFORMED BY CONTRACTORS/SUBCONTRACTOR(S)

	No. of Workers	Crafts	Hrs	Description of Work

2. OPERATING EQUIPMENT DATA (Not hand tools)

Equipment	Date of arrival/ departure	Owned or Rented	Hours Used	Hours Idle	Hours of Rep./Main

3. WORK PERFORMED TODAY: (Indicate location and description of work performed by prime and/or subcontractors).

4. QUALITY CONTROL INSPECTIONS & RESULTS (Includes a description of preparatory, initial, and/or follow-up inspections or meetings; check of subcontractors work and materials delivered to site compared to submittals and/or specifications; comments on proper storage of materials; included comments on corrective actions to be taken):

5. QUALITY CONTROL TESTING AND RESULTS (Comment on tests and attach test reports):

6. DAILY SAFETY INSPECTIONS (Include comments on new hazards to be added to Hazard Analysis and corrective action of any safety issues):

7. REMARKS (Include conversations with or instructions from the Government representatives; delays of any kind that are impacting the job; conflicts in the contract documents; comments on change orders; environmental considerations; etc.):

8. CONTRACTOR'S VERIFICATION: I certify that to the best of my knowledge the above report is complete and correct. All material, equipment used, and work performed during this reporting period is in compliance with the contract plans and specifications except as noted above.

Contractor Quality Control Officer

RHODES POINT JETTY
SMITH ISLAND
SOMERSET COUNTY, MD.

SUBSURFACE EXPLORATION NOTES

1. EXPLORATION WAS PERFORMED DURING OCTOBER 2001.
2. DRILL HOLES WERE ACCOMPLISHED BY STANDARD PENETRATION TEST PROCEDURE (SPT, ASTM - 1586) USING A 1-3/8"ID SPLIT SPOON SAMPLER. SAMPLE SPOONS WERE ADVANCED BY A 140# HAMMER FALLING 30". THESE HOLES WERE ADVANCED BETWEEN SAMPLES BY FLUSHING WITH HIGH PRESSURE WATER (WATER JETTING) UNLESS OTHERWISE INDICATED. BLOW COUNTS SHOWN ARE FOR 0.5' OF DRIVE, UNLESS OTHERWISE INDICATED.

ALL BORINGS WERE DRILLED BY CME 45 DRILL RIG MOUNTED ON A BARGE IN THE BAY. 0.0' REPRESENTS THE BOTTOM OF THE BAY.

P - INDICATED LOCATION OF PRESSED SHELBY TUBE SAMPLE

WH - DENOTES WEIGHT OF HAMMER

WR - DENOTES WEIGHT OF ROD
3. BLOW COUNTS REQUIRED TO ADVANCE SAMPLE SPOON ARE SHOWN IN COLUMN (a).
4. COLUMN (b) SHOWS THE NATURAL WATER CONTENTS IN PERCENT OF DRY WEIGHT OF THOSE SAMPLES TESTED.
5. SOIL DESCRIPTIONS ARE SHOWN IN COLUMN (c). ALSO SHOWN IN THIS COLUMN ARE UNCONFINED COMPRESSION STRENGTH (tsf) READINGS FROM POCKET PENETROMETER (PPR). DASHES ARE SHOWN WHEN PART OF A SAMPLE DRIVE IS NOT SUITABLE FOR POCKET PENETROMETER READINGS. NOTHING IS SHOWN IF ENTIRE SAMPLE IS NOT SUITABLE FOR PPR READINGS.
6. SOIL DESCRIPTIONS ARE LABORATORY CLASSIFICATIONS BASED ON THE UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487/2488), EXCEPT THOSE INDICATED THUS (**), WHICH ARE FIELD INSPECTOR'S CLASSIFICATIONS.
7. DEPTH OF BAY WATER SHOWN ON EACH BORING LOG WAS DETERMINED BY SOUNDING BAY WITH A WEIGHTED TAPE PRIOR TO START OF SAMPLING.
8. GROUNDWATER DATA WAS NOT OBTAINED BECAUSE EXPLORATION WAS LOCATED IN THE BAY.
9. FOR LOCATIONS OF SUBSURFACE EXPLORATIONS, SEE BORING LOCATION PLAN.

STA.
 OFFSET:
 TOP ELEV:

ENVIRONMENTAL RESTORATION
 SMITH ISLAND, MD.

N
 E
 COMPLETED: October 7, 1998

DH-2
 1 of 1

DEPTH(ft)	(c)	(d)	(a)	(b)
2.00	Very moist, lt. olive brown, silty fine SAND w/ tr. mica (SM) w/ tr. organics		WR-2-5	
4.50	Very moist, reddish brown, silty fine SAND w/ tr. mica (SM)		3-2-3	
9.50	Wet, lt. reddish brown, silty fine SAND w/ tr. mica (SM)		5 3-2-3	
10.80	Moist, gray, poorly graded medium-fine SAND (SP)		10 2-5-5	
12.00	Very moist, dk. gray, silty fine SAND w/ tr. mica (SM)		5-4-2	
14.50	Moist, gray, silty medium-fine SAND w/ tr. mica (SM)		4-2-4	
15.65	Wet, gray, lean CLAY w/ fine sand (CL)		15 5-5-5	
17.00	Moist, gray, poorly graded fine SAND w/ silt (SP-SM)		WR/.75'-1/.75'	
19.50	Wet, gray & olive gray, clayey medium-fine SAND (SC)		1-1-1	
22.00	Wet, gray & olive gray, clayey medium-fine SAND w/ tr. shell fragments (SC)		1-1-2	
26.50	Moist, greenish gray, fat CLAY w/ sand (CH)		5-6-9	
BOTTOM OF HOLE				
Depth of bay water 4.75' @ start of boring - 1124 Hrs.				

GEO-2 SMID2.GPJ 9/9/04 07:04

DH-2
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

- | | | | |
|-----------|------------|-----------|------|
| Fill | Auger | SPT | RB |
| Cored | 300 lb | Tubex | Hand |
| Fish Tail | Vibra Core | Water Jet | Odex |

STA.
 OFFSET:
 TOP ELEV.:

ENVIRONMENTAL RESTORATION
 SMITH ISLAND, MD.

N
 E
 COMPLETED: October 7, 1998

DH-3
 1 of 1

DEPTH(ft)	(c)	(d)	(a)	(b)
0.95	Wet, dk. grayish brown sandy {fine} lean CLAY (CL)		WR/1.0'-1	
2.00	Moist, grayish brown, sandy {fine} lean CLAY (CL) w/ organics			
	Very moist, gray, sandy {fine} lean CLAY (CL)		2-2-4	
4.50				
5.60	Moist, lt. olive gray, sandy {fine} lean CLAY (CL)	5		
7.00	Wet, lt. gray to yellowish brown, silty medium-fine SAND (SM)		3-6-7	
	Wet, gray, poorly graded medium-fine SAND w/ silt & tr. mica (SP-SM)		5-6-7	
12.00		10	4-9-9	
	Wet, dk. gray, poorly graded medium-fine SAND w/ silt & tr. mica (SP-SM)		3-5-3	
14.50				
15.87	Wet, dk. grayish brown, poorly graded fine SAND w/ silt & tr. mica (SP-SM)	15	3-2-1	
17.00	Very moist, olive gray, lean CLAY w/ sand (CL)			
	Wet, gray, clayey medium-fine SAND w/ tr. shell fragments (SC)		1/75'-1/75'	
19.50		20		
	Wet, olive gray, sandy {medium-fine} fat CLAY w/ tr. shell fragments (CH)		3-1-1	
22.00				
	Moist, gray, sandy fat CLAY (CH)		3-2-2	
24.50		25		
	Wet, dk. grayish brown, clayey medium-fine SAND (SC)		2-3-3	
26.50				
BOTTOM OF HOLE				
Depth of bay water 4.75 @ start of boring - 1403 Hrs.				

GEO-2 SMI02 GP.J 9/9/04 07:04

DH-3
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

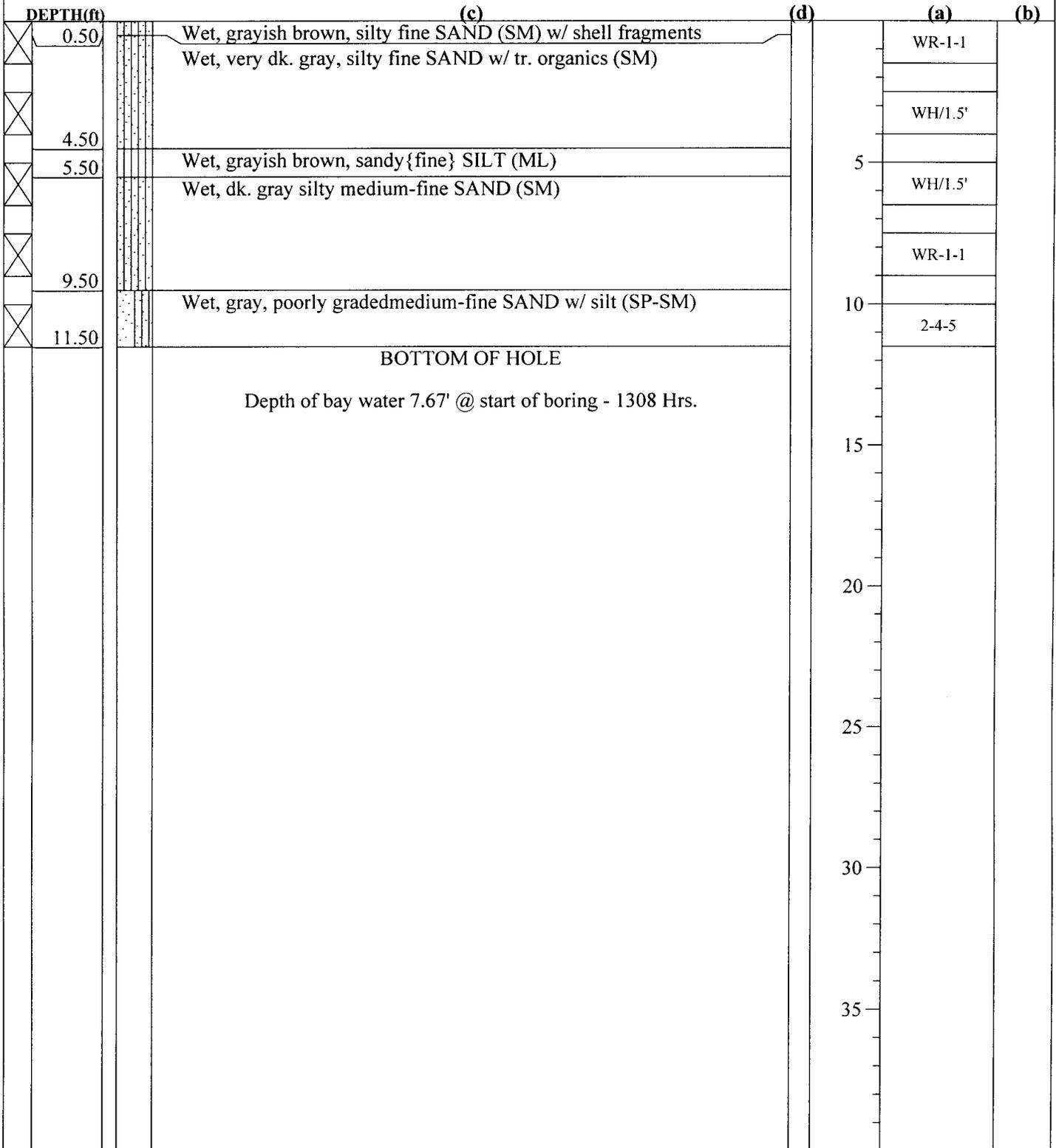
- | | | | |
|-----------|------------|-----------|------|
| Fill | Auger | SPT | RB |
| Cored | 300 lb | Tubex | Hand |
| Fish Tail | Vibra Core | Water Jet | Odex |

STA.
 OFFSET:
 TOP ELEV:

ENVIRONMENTAL RESTORATION
 SMITH ISLAND, MD.

N
 E
 COMPLETED: September 24, 1998

DH-4
 1 of 1



GEO-2 SMI02.GPJ 9/9/04 07:04

DH-4
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

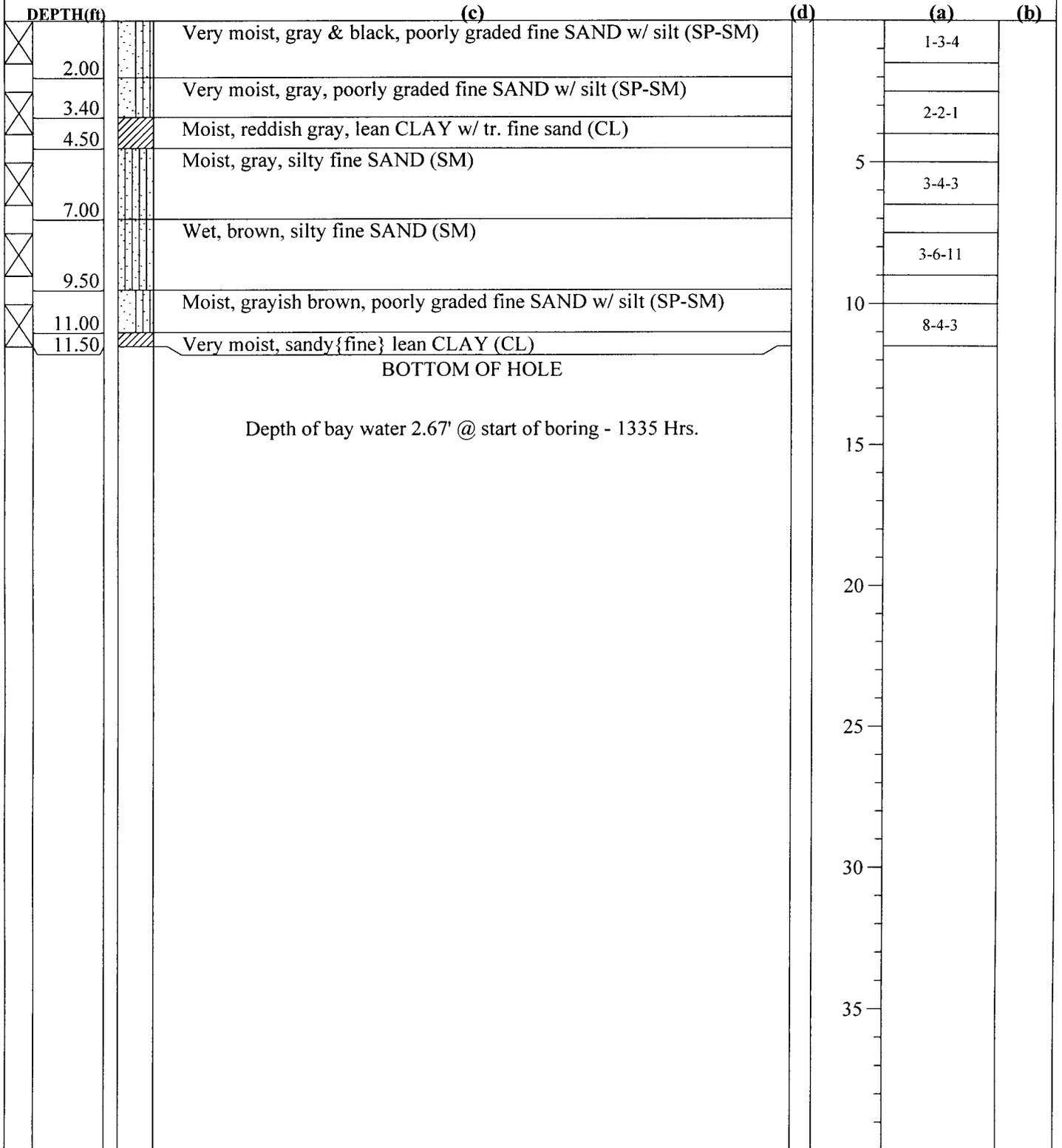
-  Fill
-  Auger
-  SPT
-  RB
-  Cored
-  300 lb
-  Tubex
-  Hand
-  Fish Tail
-  Vibra Core
-  Water Jet
-  Odex

STA.
 OFFSET:
 TOP ELEV:

ENVIRONMENTAL RESTORATION
 SMITH ISLAND, MD.

N
 E
 COMPLETED: September 30, 1998

DH-5
 1 of 1



GEO-2 SMI02.GPJ 9/9/04 07:04

DH-5
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

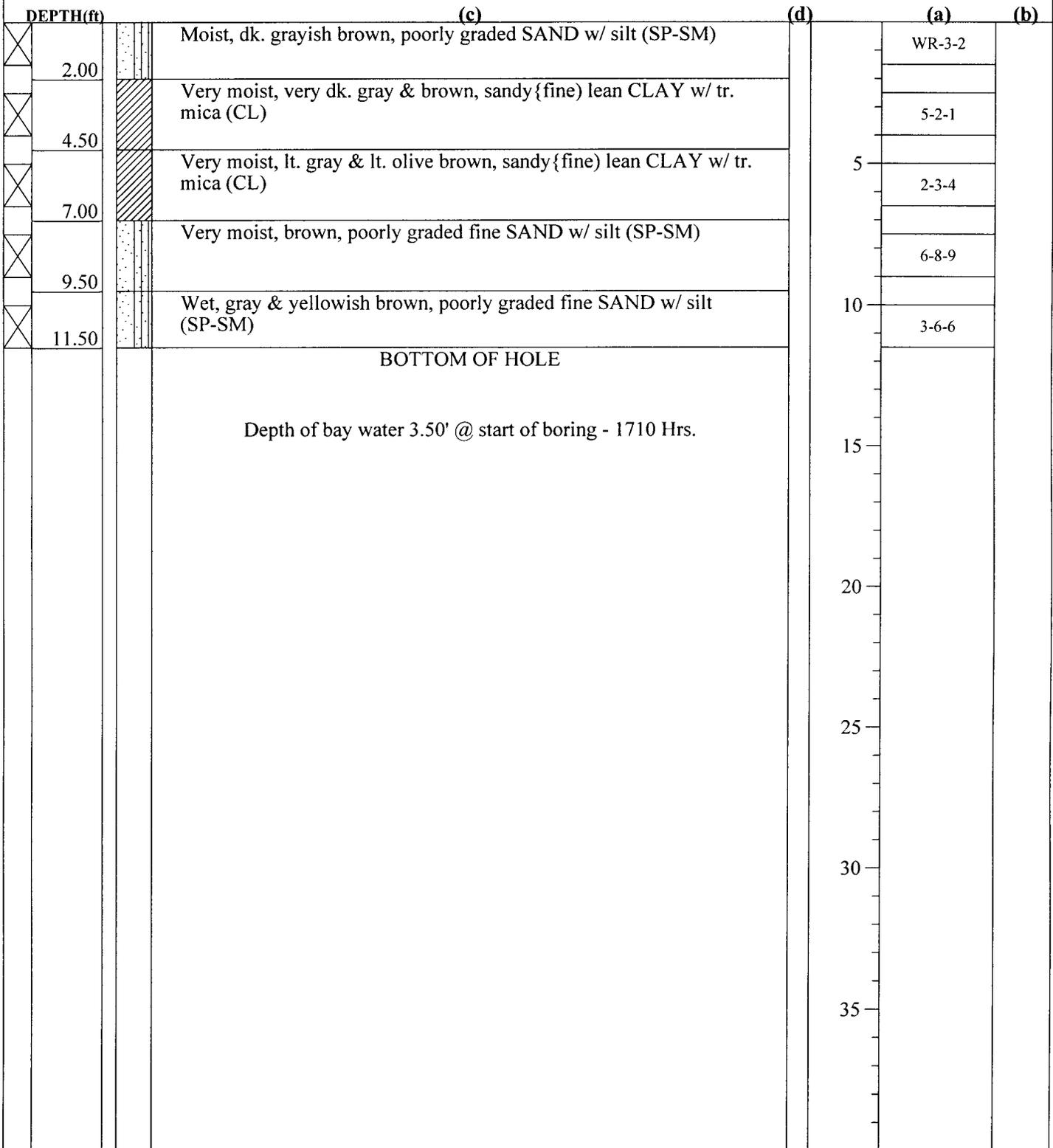
-  Fill
-  Auger
-  SPT
-  RB
-  Cored
-  300 lb
-  Tubex
-  Hand
-  Fish Tail
-  Vibra Core
-  Water Jet
-  Odex

STA.
 OFFSET:
 TOP ELEV:

ENVIRONMENTAL RESTORATION
 SMITH ISLAND, MD.

N
 E
 COMPLETED: October 7, 1998

DH-6
 1 of 1



GEO-2 SMI02.GPJ 9/9/04 07:04

DH-6
 GROUNDWATER DATA

WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

- | | | | |
|-----------|------------|-----------|------|
| Fill | Auger | SPT | RB |
| Cored | 300 lb | Tubex | Hand |
| Fish Tail | Vibra Core | Water Jet | Odex |

STA.
 OFFSET:
 TOP ELEV:

ENVIRONMENTAL RESTORATION
 SMITH ISLAND, MD.

N
 E
 COMPLETED: October 7, 1998

DH-7
 1 of 1

DEPTH(ft)	(c)	(d)	(a)	(b)
2.00	Moist, dk. gray, poorly graded fine SAND w/ silt (SP-SM)		WR-2-3	
4.50	Very moist, gray & lt. yellowish brown, silty fine SAND (SM)		3-2-1	
7.00	Wet, brown, silty fine SAND (SM)		5 1-5-6	
9.50	Moist, yellowish brown, poorly graded fine SAND w/ silt (SP-SM)		6-4-7	
11.50	Moist, gray, poorly graded fine SAND w/ silt (SP-SM)		10 5-3-3	
BOTTOM OF HOLE				
Depth of bay water 4.08' @ start of boring -1618 Hrs.				
			15	
			20	
			25	
			30	
			35	

GEO-2 SMI02.GPJ 9/9/04 07:04

DH-7
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

-  Fill
-  Auger
-  SPT
-  RB
-  Cored
-  300 lb
-  Tubex
-  Hand
-  Fish Tail
-  Vibra Core
-  Water Jet
-  Odex

STA.
 OFFSET:
 TOP ELEV:

ENVIRONMENTAL RESTORATION
 SMITH ISLAND, MD.

N
 E
 COMPLETED: October 6, 1998

DH-8
 1 of 1

DEPTH(ft)	(c)	(d)	(a)	(b)
2.00	Wet, dk. gray, silty fine SAND (SM)		WR-2-2	
4.50	Wet, brown yellow to gray, silty fine SAND (SM)		4-3-3	
7.00	Wet, lt. yellowish brown, silty fine SAND (SM)		5-2-4	
9.50	Wet, lt. brownish gray, silty medium-fine SAND (SM)		4-3-2	
11.50	Wet, gray, poorly graded medium-fine SAND w/ silt (SP-SM)		2-3-5	
BOTTOM OF HOLE				
Depth of bay water 4.75' @ start of boring - 1701 Hrs.				

GEO-2_SMI02.GPJ_9/9/04 07:04

DH-8
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

-  Fill
-  Auger
-  SPT
-  RB
-  Cored
-  300 lb
-  Tubex
-  Hand
-  Fish Tail
-  Vibra Core
-  Water Jet
-  Odex

STA.
 OFFSET:
 TOP ELEV:

ENVIRONMENTAL RESTORATION
 SMITH ISLAND, MD.

N
 E
 COMPLETED: October 6, 1998

DH-9
 1 of 1

DEPTH(ft)	(c)	(d)	(a)	(b)
2.00	Wet, dk. gray, silty fine SAND (SM)		2-2-4	
4.50	Wet, lt. brown gray, silty fine SAND (SM)		3-3-4	
7.00	Wet, lt. yellowish brown, silty fine SAND (SM)		4-6-9	
9.50	Wet, lt. gray, poorly graded medium-fine SAND w/ silt (SP-SM)		3-4-5	
11.50	Very moist, grayish brown sandy fine SILT (ML)		2-1-2	
BOTTOM OF HOLE				
Depth of bay water 5.00' @ start of boring - 1613 Hrs.				

GEO-2 SMIDZ.GPJ 9/9/04 07:04

DH-9
 GROUNDWATER DATA

WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

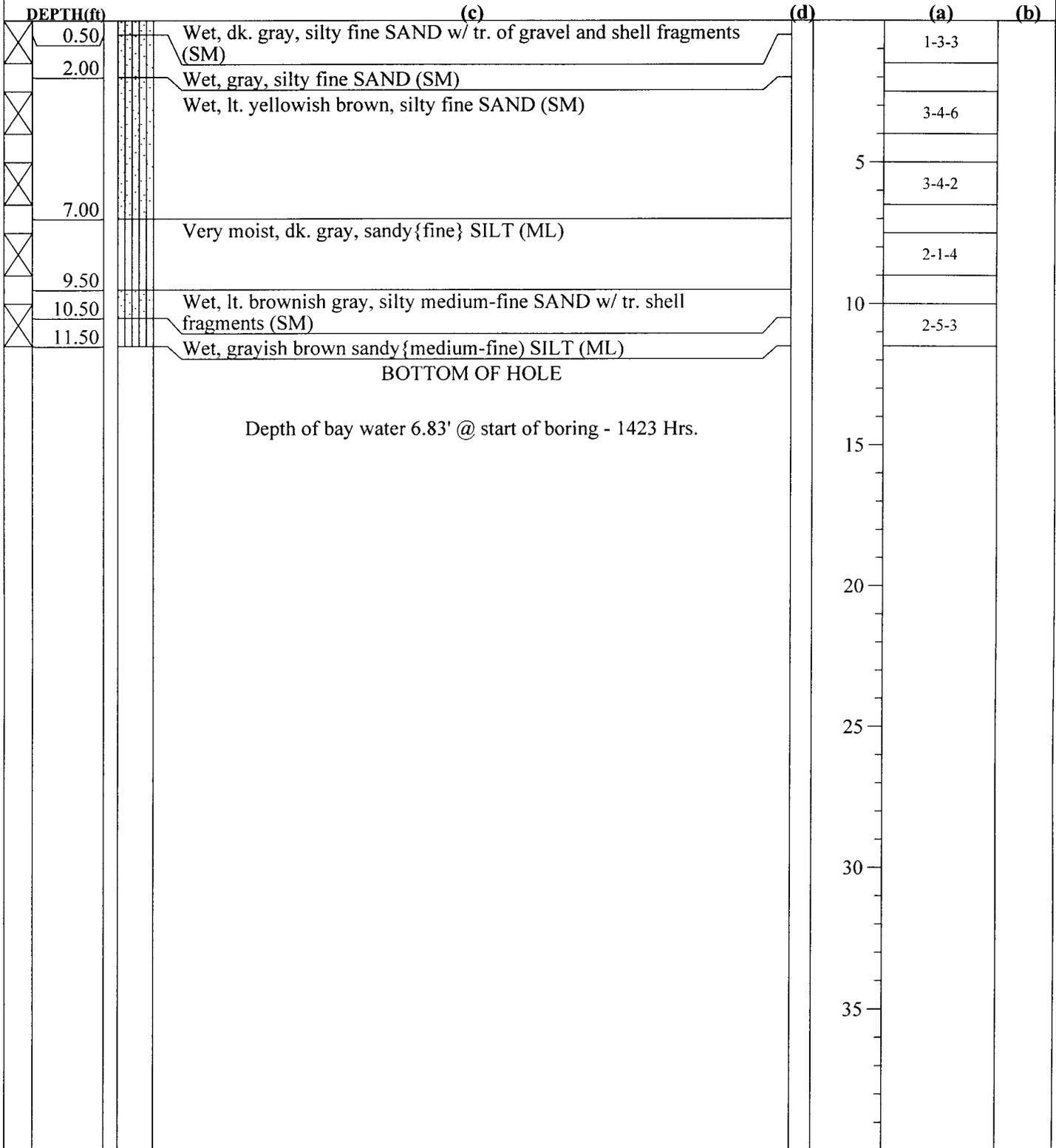
- | | | | |
|-----------|------------|-----------|------|
| Fill | Auger | SPT | RB |
| Cored | 300 lb | Tubex | Hand |
| Fish Tail | Vibra Core | Water Jet | Odex |

STA.
 OFFSET:
 TOP ELEV.:

ENVIRONMENTAL RESTORATION
 SMITH ISLAND, MD.

N
 E
 COMPLETED: September 24, 1998

DH-10
 1 of 1



GEO-2 SMI02.GPJ 9/9/04 07:04

DH-10
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

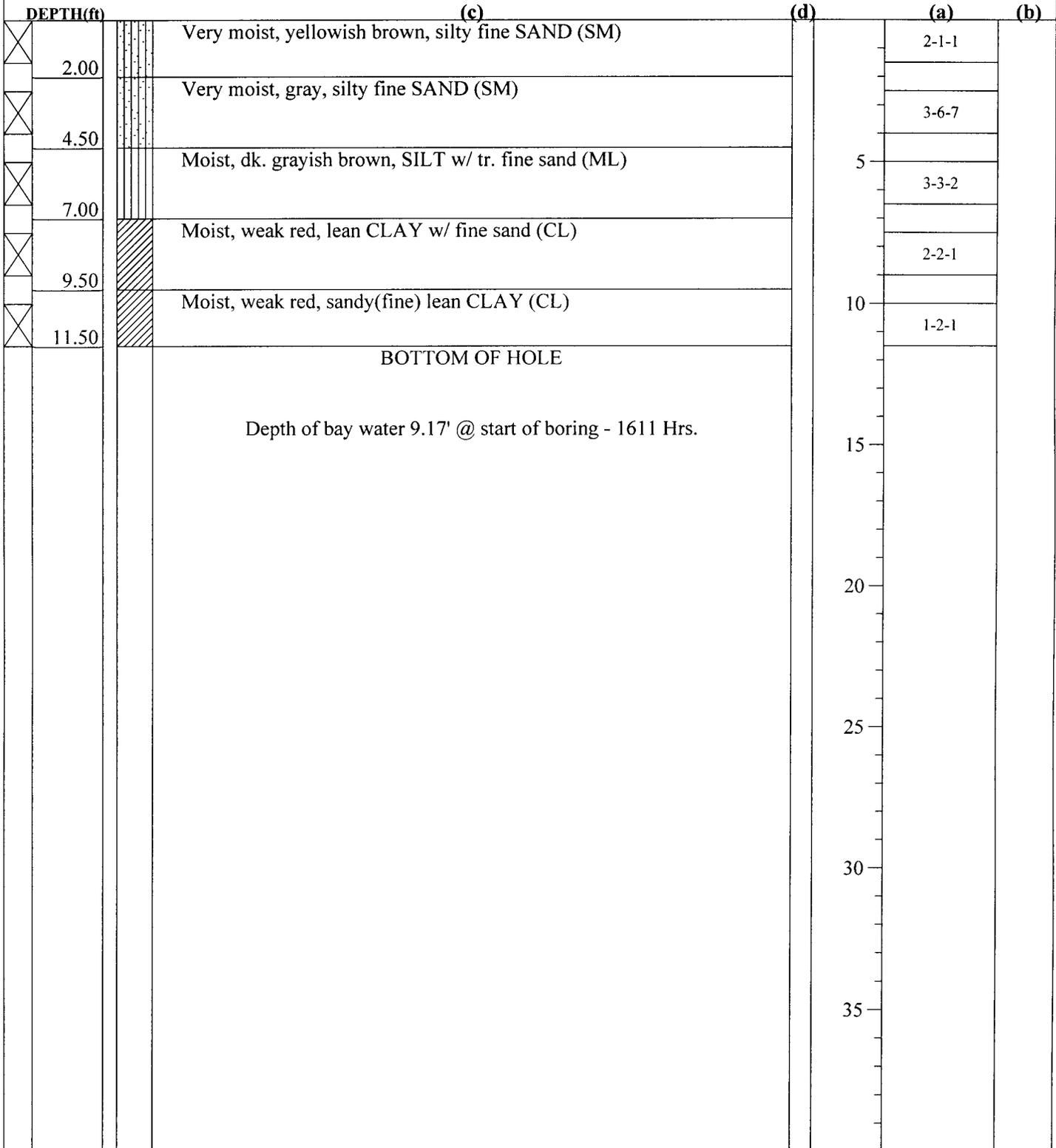
- Fill
- Auger
- SPT
- RB
- Cored
- 300 lb
- Tubex
- Hand
- Fish Tail
- Vibra Core
- Water Jet
- Odex

STA.
 OFFSET:
 TOP ELEV:

ENVIRONMENTAL RESTORATION
 SMITH ISLAND, MD.

N
 E
 COMPLETED: September 29, 1998

DH-11
 1 of 1



GEO-2_SMI02.GPJ_99/04 07.04

DH-11
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

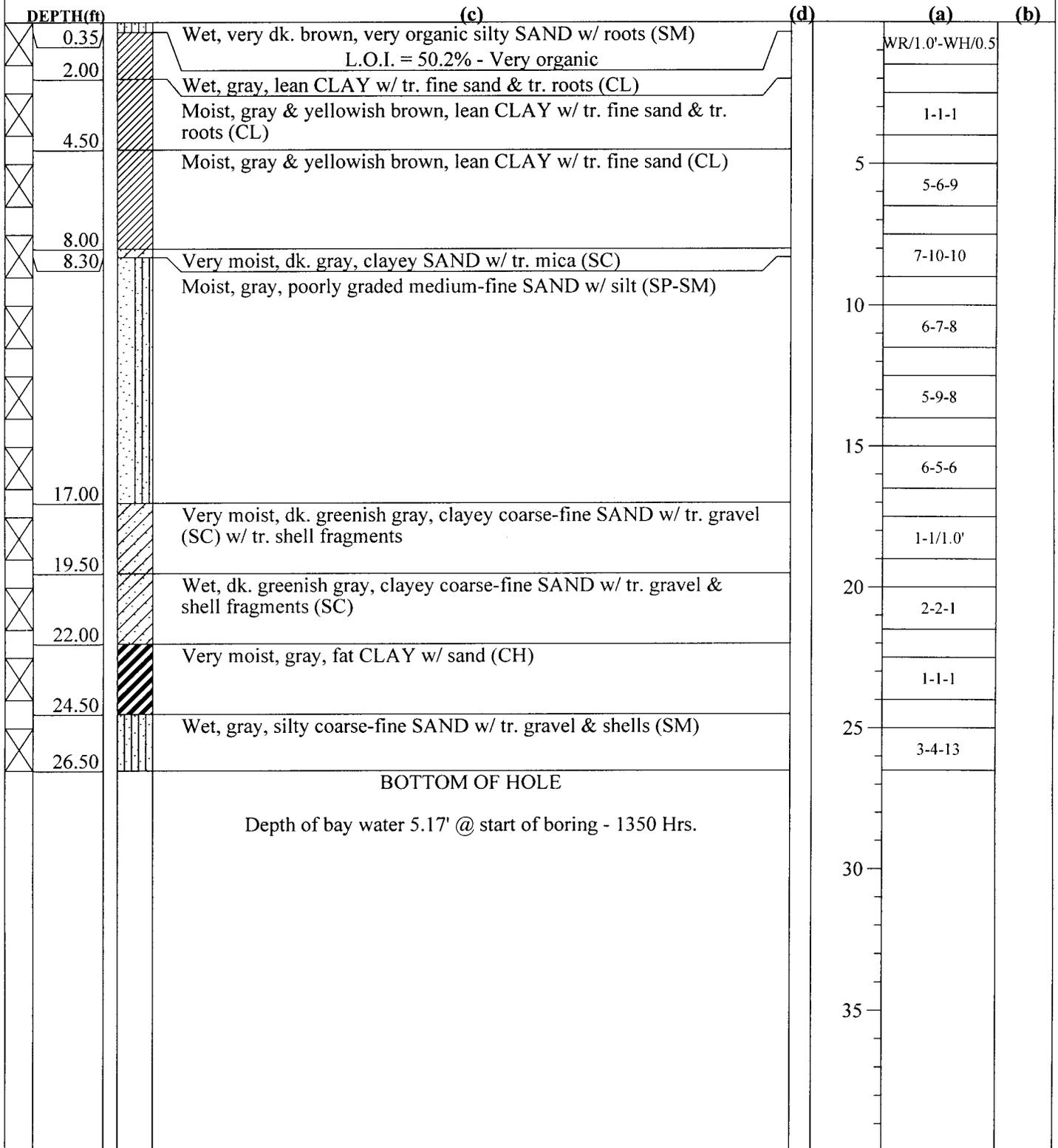
- | | | | |
|-----------|------------|-----------|------|
| Fill | Auger | SPT | RB |
| Cored | 300 lb | Tubex | Hand |
| Fish Tail | Vibra Core | Water Jet | Odex |

STA.
 OFFSET:
 TOP ELEV.:

ENVIRONMENTAL RESTORATION
 SMITH ISLAND, MD.

N
 E
 COMPLETED: October 6, 1998

DH-14
 1 of 1



GEO-2 SMI02 GPJ 9/9/04 07:04

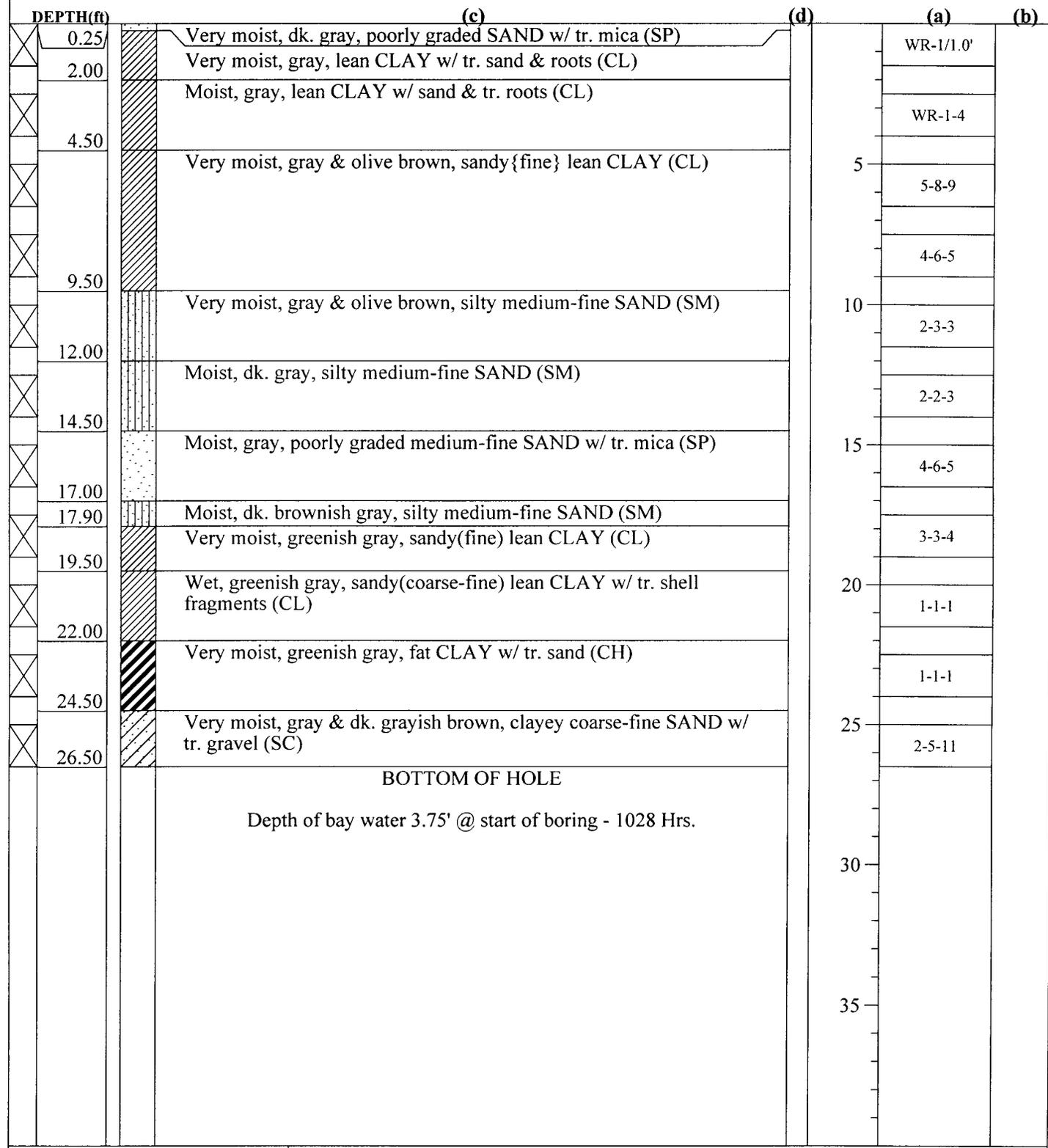
DH-14
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

- Fill
- Auger
- SPT
- RB
- Cored
- 300 lb
- Tubex
- Hand
- Fish Tail
- Vibra Core
- Water Jet
- Odex

STA.
 OFFSET:
 TOP ELEV:

ENVIRONMENTAL RESTORATION
 SMITH ISLAND, MD.

N
 E
 COMPLETED: October 6, 1998
DH-15
 1 of 1



GEO-2_SMI02.GPJ 9/9/04 07:04

DH-15
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

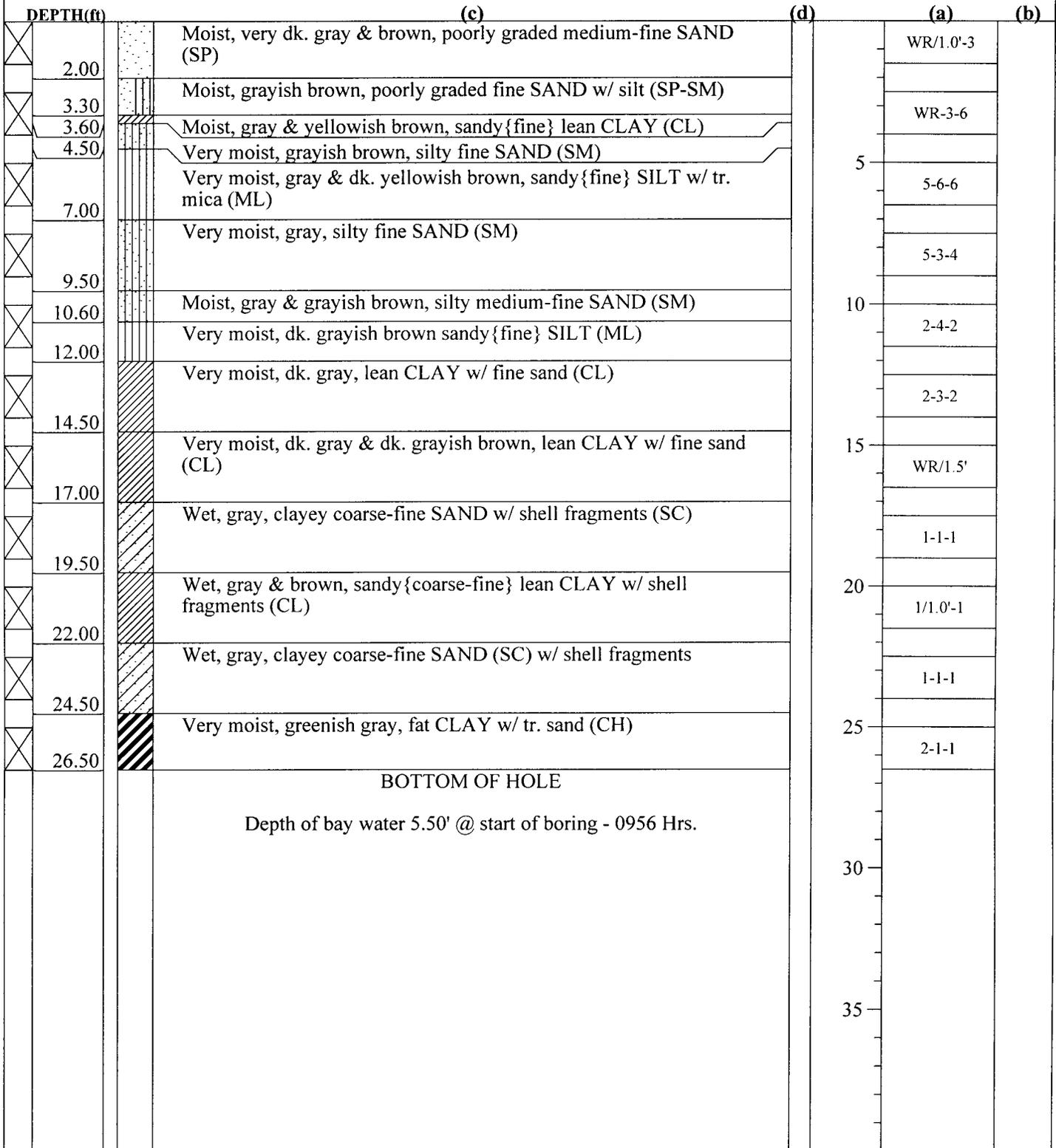
- Fill
- Auger
- SPT
- RB
- Cored
- 300 lb
- Tubex
- Hand
- Fish Tail
- Vibra Core
- Water Jet
- Odex

STA.
 OFFSET:
 TOP ELEV:

ENVIRONMENTAL RESTORATION
 SMITH ISLAND, MD.

N
 E
 COMPLETED: September 30, 1998

DH-17
 1 of 1



GEO-2 SMI02.GPJ 9/9/04 07:04

DH-17
GROUNDWATER DATA

WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

- | | | | |
|-----------|------------|-----------|------|
| Fill | Auger | SPT | RB |
| Cored | 300 lb | Tubex | Hand |
| Fish Tail | Vibra Core | Water Jet | Odex |

STA.
 OFFSET:
 TOP ELEV.:

ENVIRONMENTAL RESTORATION
 SMITH ISLAND, MD.

N
 E
 COMPLETED: September 25, 1998

DH-18
 1 of 1

DEPTH(ft)	(c)	(d)	(a)	(b)
2.00	Wet, dk. gray, poorly graded fine SAND w/ silt, tr. gravel, mica & shell fragments (SP-SM)		2-1-1	
3.20	Moist, lt. gray, sandy{fine} SILT w/ tr. mica (ML)			
4.50	Wet, lt. gray, silty fine SAND w/ tr. mica (SM)		1-5-3	
7.00	Wet, gray, silty fine SAND w/ tr. mica (SM)		5	
9.50	Wet, gray, poorly graded fine SAND w/ silt & tr. mica (SP-SM)		4-4-5	
12.00	Very moist, gray, sandy{fine} SILT (ML)		2-3-4	
14.50	Very moist, gray, lean CLAY w/ fine sand (CL)		10	
19.50	Wet, greenish gray, clayey SAND w/ shell fragments & tr. gravel (SC)		5-3-4	
24.50	Wet, greenish gray, silty SAND w/ shell fragments & tr. gravel (SM)		3-2-2	
26.50	Very moist, dk. gray, fat CLAY w/ fine sand (CH)		15	
			WR-1-1	
			1-1-1	
			1-1-1	
			1-4-2	
			25	
			3-10-9	
	BOTTOM OF HOLE			
	Depth of bay water 5.00' @ start of boring - 0906 Hrs.			
			30	
			35	

GEO-2 SMI02.GPJ 9/9/04 07:04

DH-18
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

-  Fill
-  Auger
-  SPT
-  RB
-  Cored
-  300 lb
-  Tubex
-  Hand
-  Fish Tail
-  Vibra Core
-  Water Jet
-  Odex

STA.
 OFFSET:
 TOP ELEV:

ENVIRONMENTAL RESTORATION
 SMITH ISLAND, MD.

N
 E
 COMPLETED: September 29, 1998

DH-19
 1 of 1

DEPTH(ft)	(c)	(d)	(a)	(b)
2.00	Wet, olive, sandy {fine} SILT (ML)		1-1-3	
3.40	Very moist, gray, sandy {fine} SILT (ML)			
4.50	Wet, lt. brownish gray, poorly graded fine SAND w/ silt (SP-SM)		1-6-7	
	Wet, gray, poorly graded fine SAND w/ silt (SP-SM)	5	2-2-4	
8.10				
9.50	Very moist, gray, SILT w/ fine sand (ML)		1-1-2	
	Very moist, dk. gray, fat CLAY w/ sand (CH)	10	WR-1-1	
12.00	Wet, greenish gray, silty SAND w/ shell fragments (SM)			
14.50	Wet, lt. gray, silty SAND w/ shell fragments (SM)	15	1-1-1	
17.00	Wet, gray, silty SAND w/ shell fragments (SM)			
19.50	Wet, gray, silty SAND w/ shell fragments (SM)		2-2-2	
21.10	Wet, gray, poorly graded SAND w/ silt & shell fragments (SP-SM)	20		
22.00	Very moist, gray, sandy fat CLAY w/ tr. gravel & shell fragments (CH)		1-2-1	
22.90	Wet, gray, poorly graded SAND w/ shell fragments (SP)			
24.50	Wet, dk. gray brown, silty medium-fine SAND w/ shell fragments & tr. gravel (SM)	25	3-6-10	
25.70	Wet, gray, poorly graded medium-fine SAND w/ shell fragments (SP) w/ tr. fine gravel			
26.50	Wet, grayish brown, poorly graded medium-fine SAND w/ tr. gravel & mica (SP)		5-10-15	
BOTTOM OF HOLE				
Depth of bay water 6.50' @ start of boring - 1300 Hrs.				

GEO-2 SMI02.GPJ 9/9/04 07:04

DH-19
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

- Fill
- Auger
- SPT
- RB
- Cored
- 300 lb
- Tubex
- Hand
- Fish Tail
- Vibra Core
- Water Jet
- Odex

STA.
 OFFSET:
 TOP ELEV:

ENVIRONMENTAL RESTORATION
 SMITH ISLAND, MD.

N
 E
 COMPLETED: September 29, 1998

DH-20
 1 of 1

DEPTH(ft)	(c)	(d)	(a)	(b)
2.00	Very moist, dk. grayish brown, silty fine SAND (SM)		WR-1-3	
4.50	Very moist, yellowish brown, silty medium-fine SAND (SM)		4-4-5	
7.00	Moist, gray & brown, silty medium-fine SAND (SM)		5	
9.50	Moist, gray, micaceous SILT w/ tr. fine sand (ML)		3-5-6	
12.00	Moist, dk. gray, lean CLAY w/ fine sand (CL)		2-2-3	
14.50	Moist, dk. gray, lean CLAY w/ fine sand & tr. shell fragments (CL)		10	
17.00	Wet, dk. gray & dk. grayish brown, sandy {coarse-fine} lean CLAY w/ shell fragments (CL)		1-1-1	
22.00	Wet, gray, silty coarse-fine SAND w/ shell fragments & tr. gravel (SM)		WR/1.5'	
24.50	Very moist, sandy fat CLAY (CH)		15	
26.50	Moist, brown, poorly graded SAND w/ silt & tr. shell fragments (SP-SM) w/ tr. fine gravel		1-2-1	
	BOTTOM OF HOLE		WR-WH-1	
	Depth of bay water 6.92' @ start of boring - 0900 Hrs.		20	
			1-2-1	
			1-1-2	
			25	
			17-20-21	
			30	
			35	

GEO-2 SMI02.GPJ 9/9/04 07:04

DH-20
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

-  Fill
-  Auger
-  SPT
-  RB
-  Cored
-  300 lb
-  Tubex
-  Hand
-  Fish Tail
-  Vibra Core
-  Water Jet
-  Odex

STA.
 OFFSET:
 TOP ELEV:

ENVIRONMENTAL RESTORATION
 SMITH ISLAND, MD.

N
 E
 COMPLETED: September 24, 1998

DH-21
 1 of 1

DEPTH(ft)	(c)	(d)	(a)	(b)
2.00	Moist, brown, silty fine SAND (SM)		3-3-5	
4.50	Wet, brown, sandy {fine} SILT w/ tr. mica (ML)		2-3-1	
7.00	Very moist, gray, silty fine SAND (SM)		5	
9.50	Moist, gray, sandy {fine} SILT (ML)		3-4-4	
12.00	Very moist, dk. gray, sandy {fine} lean CLAY (CL)		2-4-4	
14.50	Very moist, dk. gray & dk. grayish brown, sandy {fine} lean CLAY w/ shell fragments (CL)		10	1-1-1
17.00	Wet, gray & dk. grayish brown, clayey SAND w/ shell fragments & tr. gravel (SC)		WR-1-1	
19.50	Wet, brown, well graded SAND w/ silt (SW-SM) w/ shell fragments		WR-1-1	
20.30	Wet, dk. gray, clayey coarse-fine SAND w/ tr. shell fragments (SC)		2-2-1	
22.00	Wet, gray & dk. grayish brown, sandy {coarse-fine} fat CLAY w/ tr. shell fragments (CH)		2-1-1	
24.50	Very moist brown, poorly graded SAND w/ tr. shell fragments (SP)		3-17-32	
25.40	Very moist, very dk. grayish brown, clayey SAND (SC-H)		25	
26.50	Very moist, poorly graded coarse-fine SAND w/ tr. shell fragments (SP)		4-3-7	
BOTTOM OF HOLE Depth of bay water 8.67' @ start of boring - 0930 Hrs.				

GEO-2 SMI02.GPJ 99/04 07.04

DH-21
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

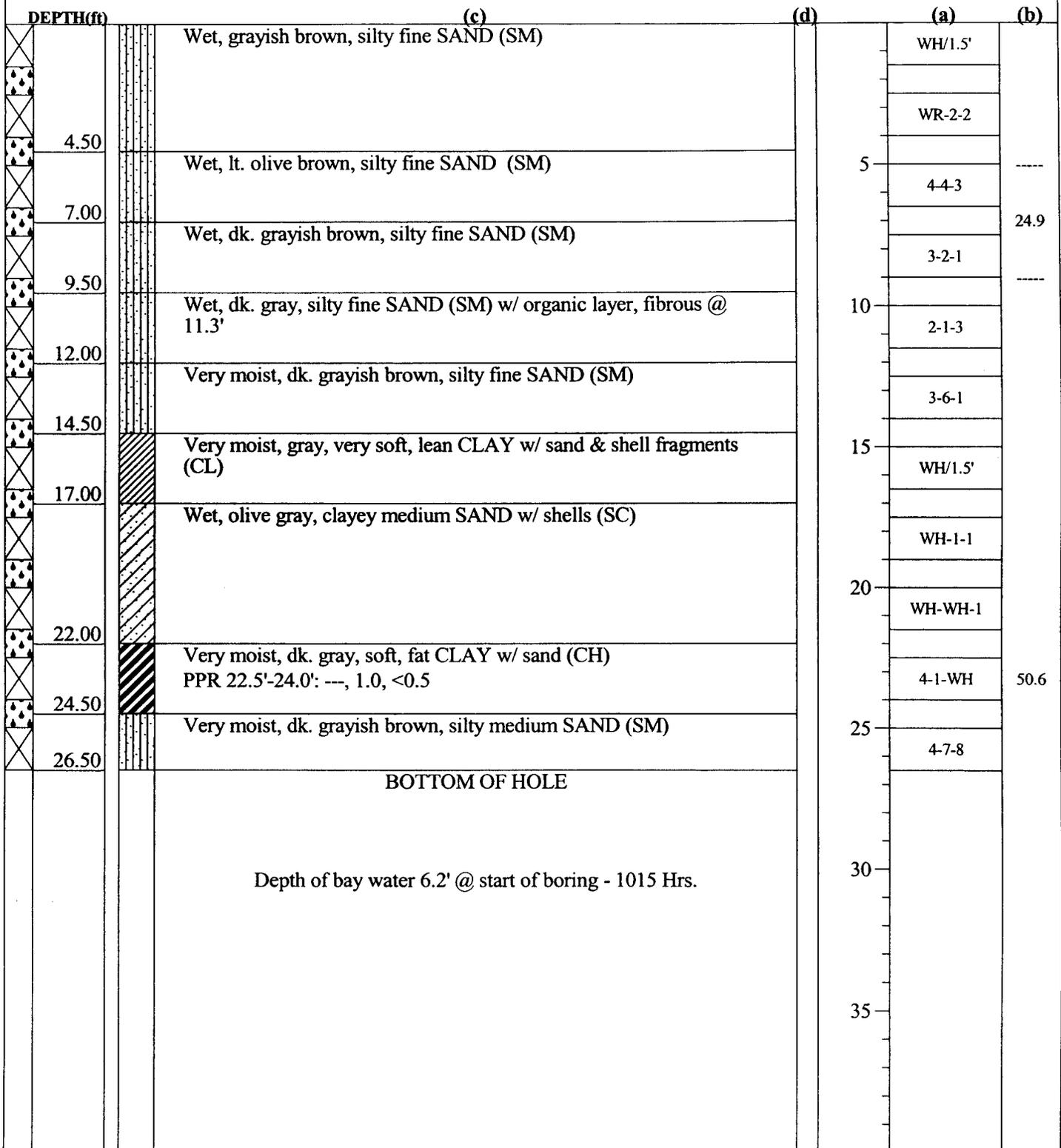
- | | | | |
|-----------|------------|-----------|------|
| Fill | Auger | SPT | RB |
| Cored | 300 lb | Tubex | Hand |
| Fish Tail | Vibra Core | Water Jet | Odex |

STA.
 OFFSET:
 TOP ELEV.:

RHODES POINT JETTY
 SMITH ISLAND
 SOMERSET COUNTY, MD.

N 114185.80
 E 1586640.62
 COMPLETED: October 3, 2001

DH-101
 1 of 1



GEO-2 SM103.GPJ 12/19/02 08:47

**DH-101
 GROUNDWATER DATA**

WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

- | | | | |
|-----------|------------|-----------|------|
| Fill | Auger | SPT | RB |
| Cored | 300 lb | Tubex | Hand |
| Fish Tail | Vibra Core | Water Jet | _ |

STA.
 OFFSET:
 TOP ELEV.:

RHODES POINT JETTY
 SMITH ISLAND
 SOMERSET COUNTY, MD.

N 114842.32
 E 1586842.27
 COMPLETED: October 4, 2001

DH-102
 1 of 1

DEPTH(ft)	(c)	(d)	(a)	(b)
2.00	Moist, pale olive, soft, lean CLAY w/ sand (CL) PPR 0.0'-1.5': <0.5, <0.5, ---		WH/1.5'	
4.50	Very moist, pale olive, clayey fine SAND (SC)		3-3-4	
9.50	Wet, grayish brown, silty fine SAND (SM) PPR 10.0'-11.5': 0.8, 0.8, <0.5,		3-2-2	---
12.00	Wet, lt. olive brown, silty fine SAND (SM)		3-3-3	23.7
14.50	Wet, gray, SILT w/ sand (ML) PPR 12.5'-14.0': 0.8, 0.8, 0.8		4-4-5	---
17.00	Wet, lt. olive brown, poorly graded fine SAND w/ silt (SP-SM) PPR 15.0'-16.5': <0.5, <0.5, <0.5		1-1-3	
19.50	Wet, lt. olive brown, poorly graded medium SAND w/ silt (SP-SM)		2-6-5	
22.00	Wet, dk. greenish gray, clayey medium SAND (SC) PPR 20.0'-21.5': <0.5, <0.5, 0.8		5-5-4	
24.50	Wet, dk. gray, soft, sandy fat CLAY (CH) PPR 22.5'-24.0': <0.5, ---, ---		1-WH-1	---
26.50	Wet, dk. gray, firm, sandy fat CLAY (CH) PPR 25.0'-26.5': <0.5, ---, ---		WH-4-5	40.3
	BOTTOM OF HOLE		2-1-WH	---
	Depth of bay water 3.9' @ start of boring - 1130 Hrs.			

GEO-2 SMI03.GPJ 12/19/02 08:47

DH-102
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

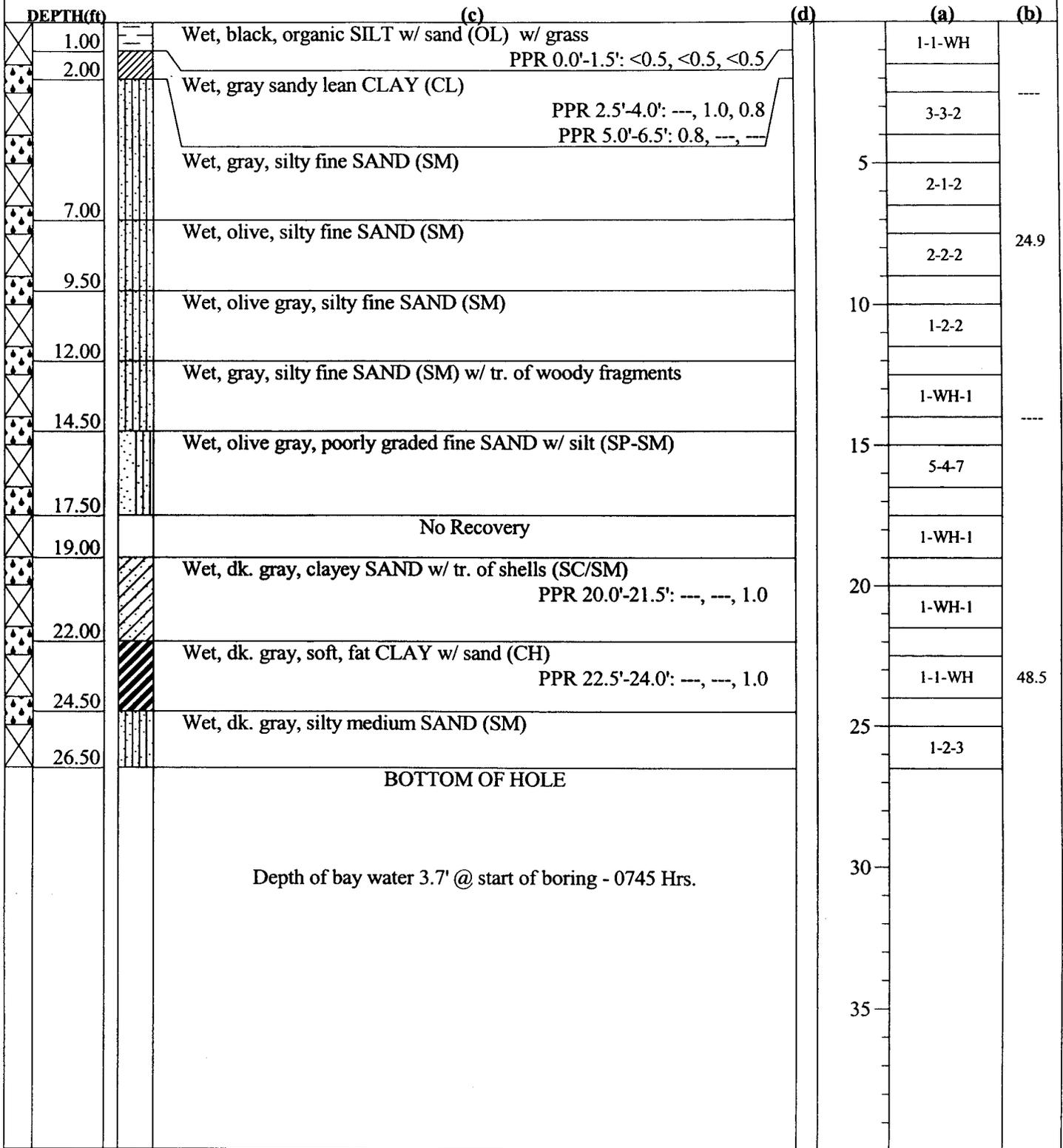
- ☐ Fill
- ⚙ Auger
- ⊗ SPT
- ▨ RB
- ▢ Cored
- ⊠ 300 lb
- ⌞ Tubex
- ⊞ Hand
- ⚓ Fish Tail
- ⊞ Vibra Core
- ⊞ Water Jet
- ☐ _

STA.
 OFFSET:
 TOP ELEV:

RHODES POINT JETTY
 SMITH ISLAND
 SOMERSET COUNTY, MD.

N 115128.30
 E 1586822.75
 COMPLETED: October 5, 2001

DH-103
 1 of 1



GEO-2 SM103.GPJ 12/19/02 08:47

DH-103
GROUNDWATER DATA

WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

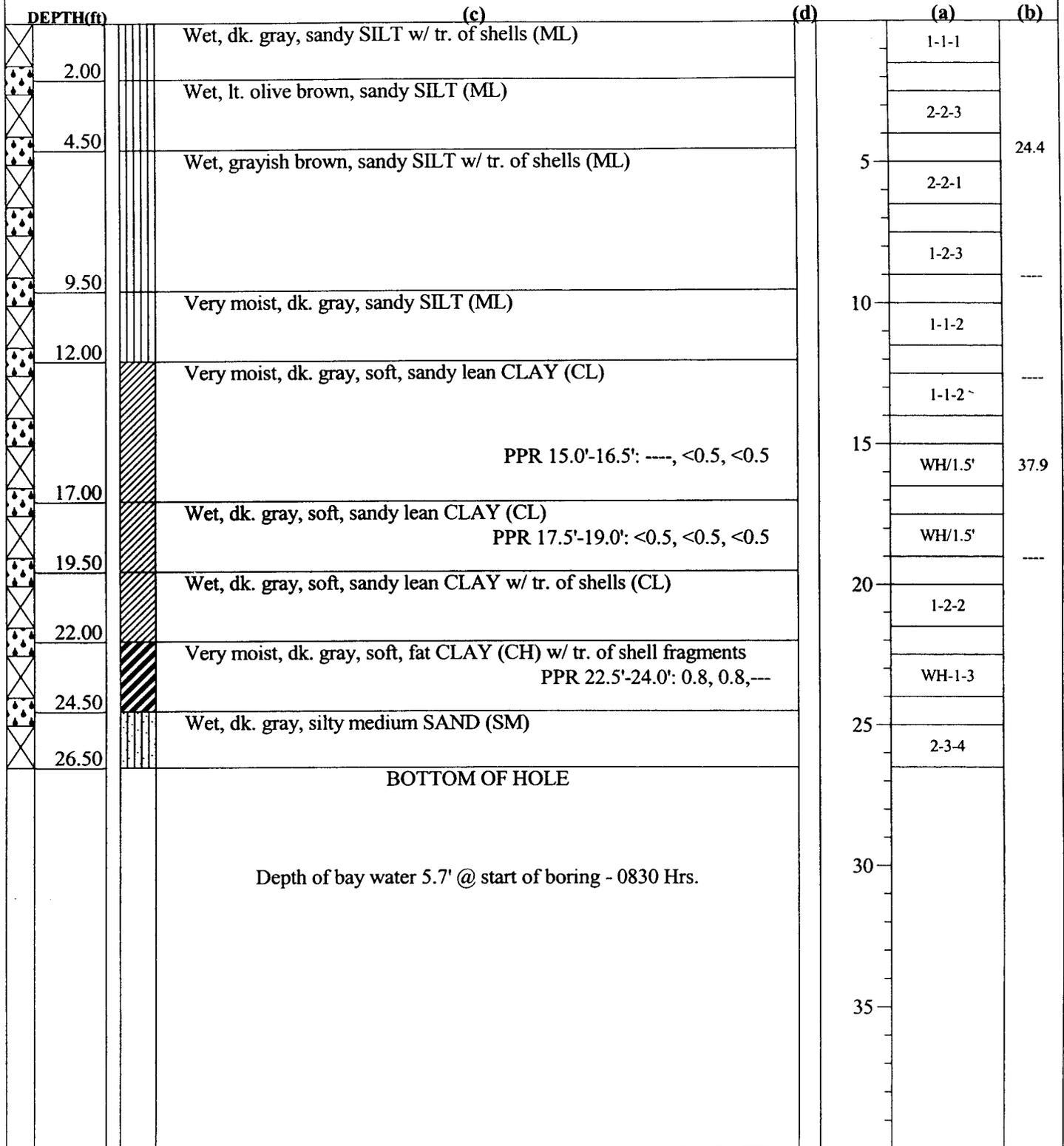
- | | | | |
|-----------|------------|-----------|------|
| Fill | Auger | SPT | RB |
| Cored | 300 lb | Tubex | Hand |
| Fish Tail | Vibra Core | Water Jet | _ |

STA.
 OFFSET:
 TOP ELEV.:

RHODES POINT JETTY
 SMITH ISLAND
 SOMERSET COUNTY, MD.

N 115427.29
 E 1585862.23
 COMPLETED: October 9, 2001

DH-105
 1 of 1



GEO-2 SM103.GPJ 12/19/02 08:47

DH-105
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

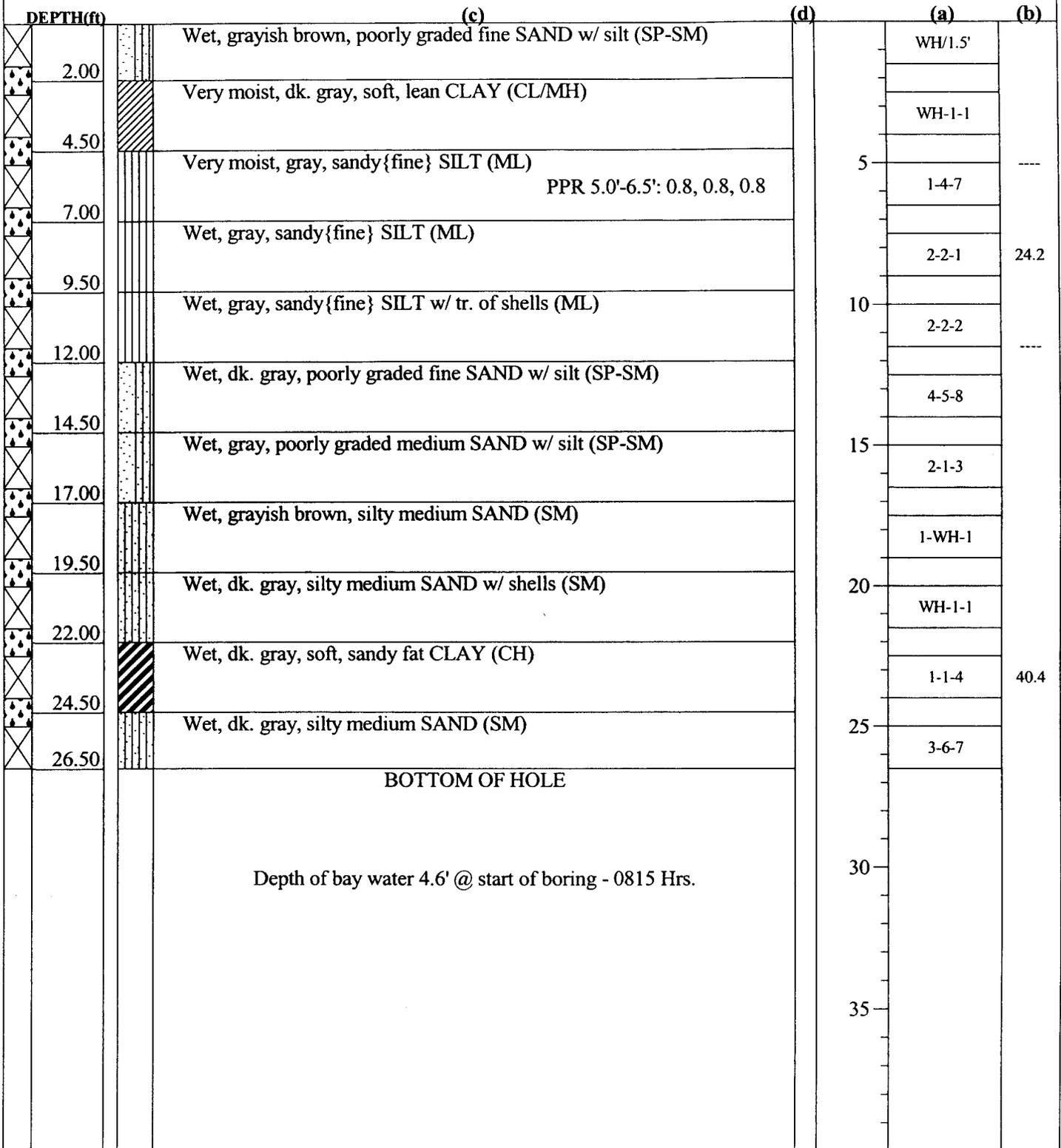
- | | | | |
|-----------|------------|-----------|------|
| Fill | Auger | SPT | RB |
| Cored | 300 lb | Tubex | Hand |
| Fish Tail | Vibra Core | Water Jet | _ |

STA.
 OFFSET:
 TOP ELEV.:

RHODES POINT JETTY
 SMITH ISLAND
 SOMERSET COUNTY, MD.

N 115423.29
 E 1586887.80
 COMPLETED: October 8, 2001

DH-106
 1 of 1



GEO-2 SM103.GPJ 12/19/02 08:47

DH-106
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

-  Fill
-  Auger
-  SPT
-  RB
-  Cored
-  300 lb
-  Tubex
-  Hand
-  Fish Tail
-  Vibra Core
-  Water Jet
-  -

STA.
 OFFSET:
 TOP ELEV.:

RHODES POINT JETTY
 SMITH ISLAND
 SOMERSET COUNTY, MD.

N 115772.12
 E 1585826.64
 COMPLETED: October 9, 2001

DH-107
 1 of 1

DEPTH(ft)	(c)	(d)	(a)	(b)
2.00	Wet, lt. olive brown, silty SAND w/ tr. of gravel (SM) w/ tr. grass		WH-2-2	
4.50	Wet, lt. olive brown, silty fine SAND w/ tr. of gravel (SM) w/ tr. of shell fragments		2-2-3	
9.50	Wet, grayish brown, silty fine SAND w/ tr. of gravel (SM)		2-1-1	23.9
12.00	Wet, dk. gray, SILT w/ sand & tr. of shells (ML)		3-2-3	
13.00	Very moist, dk. gray, soft, sandy lean CLAY (CL)		1-1-1	
15.00	Moist, dk. gray, lean CLAY w/ sand (CL) PPR 12.0'-14.0': <0.5, <0.5, <0.5		WH/1.5'	43.7
19.50	Very moist, dk. gray, soft, sandy lean CLAY (CL) PPR 15.0'-16.5': <0.5, <0.5, <0.5 PPR 17.5'-19.0': <0.5, <0.5, <0.5		WH/1.5'	38.0
22.00	Wet, dk. gray, CLAY w/ medium sand & shells (SC) PPR 20.0'-21.5': ---, ---, <0.5		2-1-WH	
24.50	Very moist, dk. gray, soft, fat CLAY (CH) PPR 22.5'-24.0': <0.5, <0.5, <0.5		WH-WH-1	
26.50	Wet, dk. gray, poorly graded medium SAND w/ silt (SP-SM)		4-8-10	
BOTTOM OF HOLE				
DH-107 Depth of bay water 4.6' @ start of boring - 1045 Hrs. DH-107A Depth of bay water 5.8' @ start of boring - 1355 Hrs.				

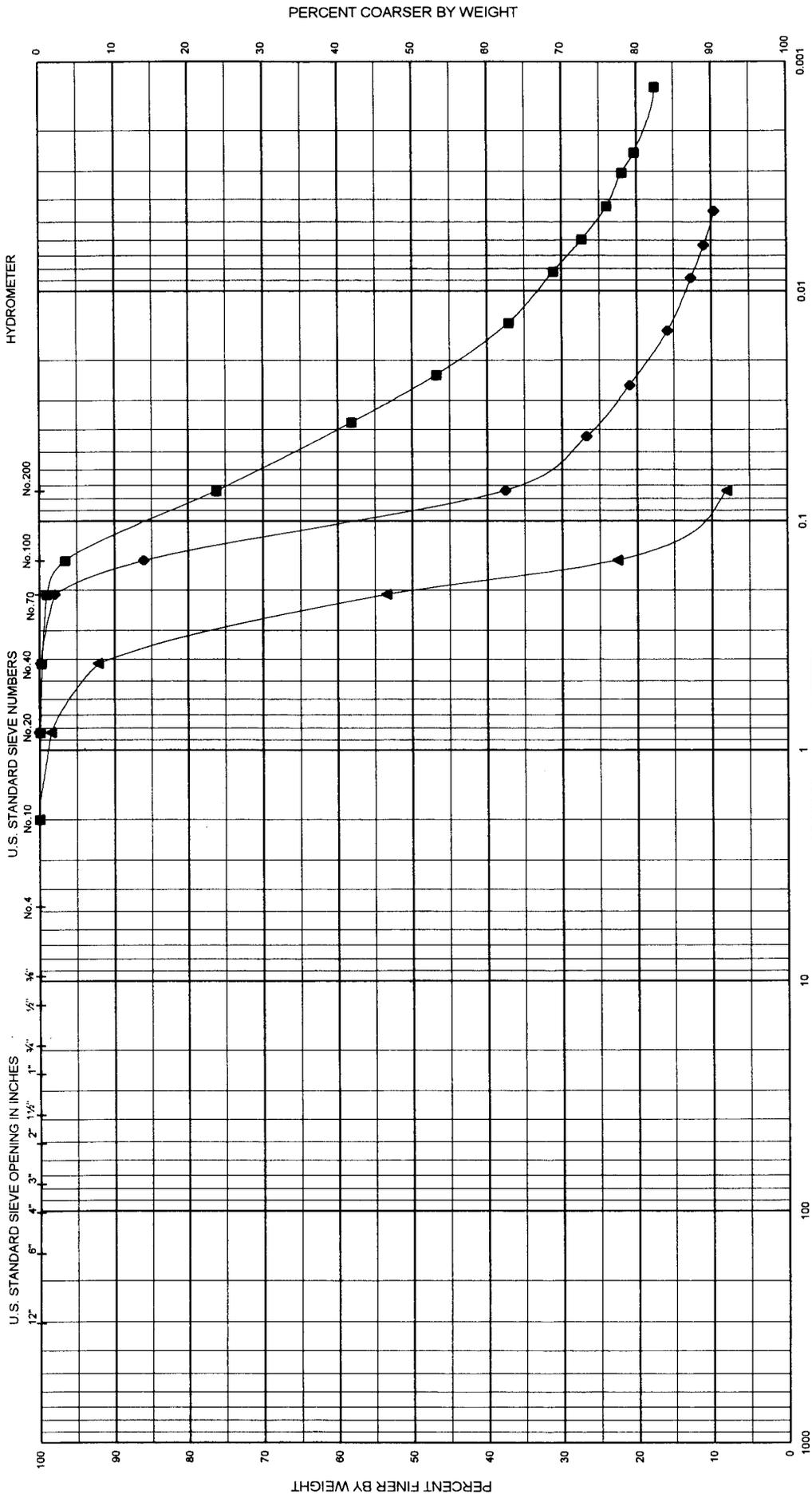
GEO-2 SMI03.GPJ 12/19/02 08:47

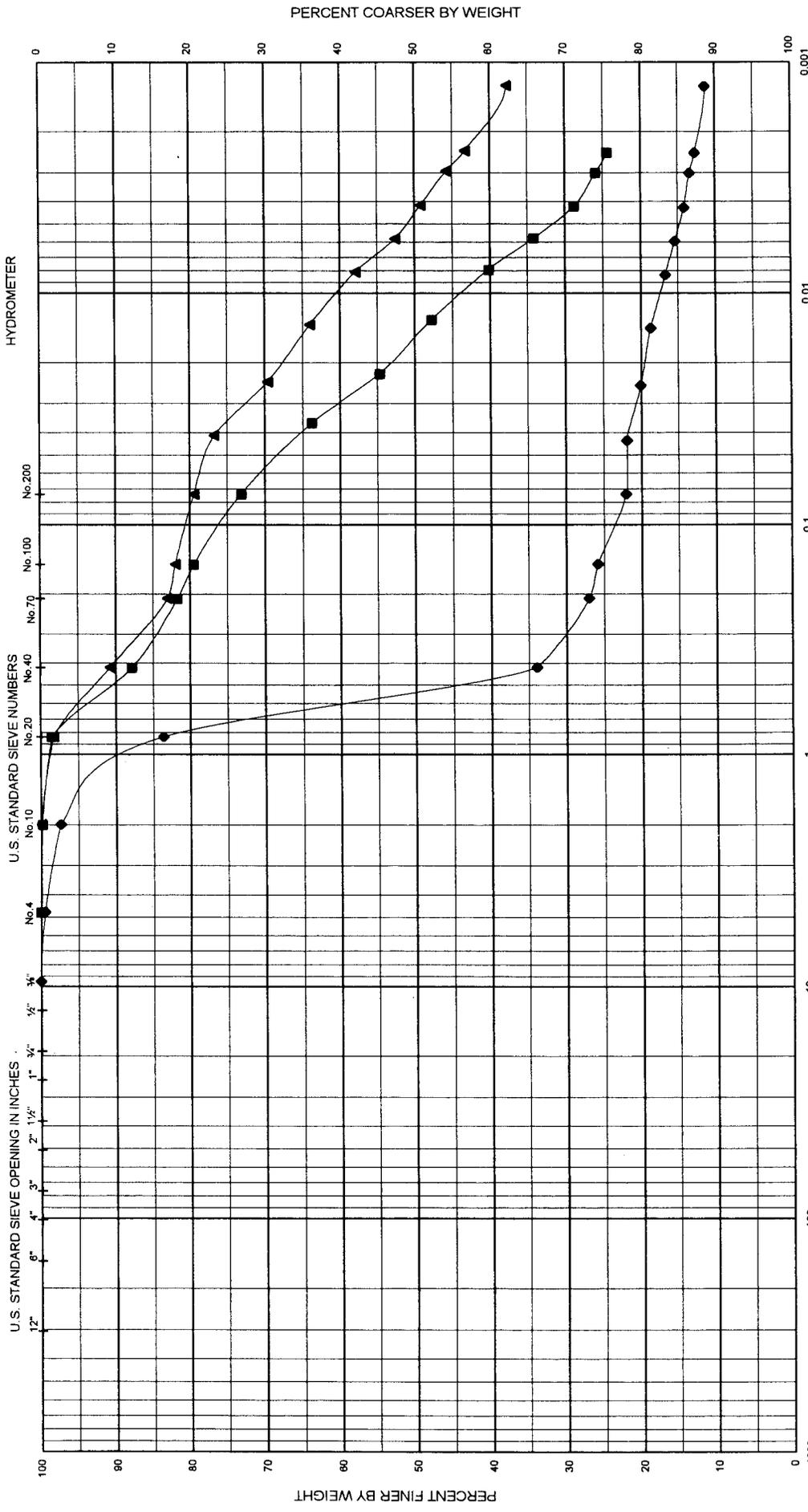
DH-107
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

DH-107A (8 NOV 01)
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

P - indicates pressed Shelby tube sample obtained from an additional boring.

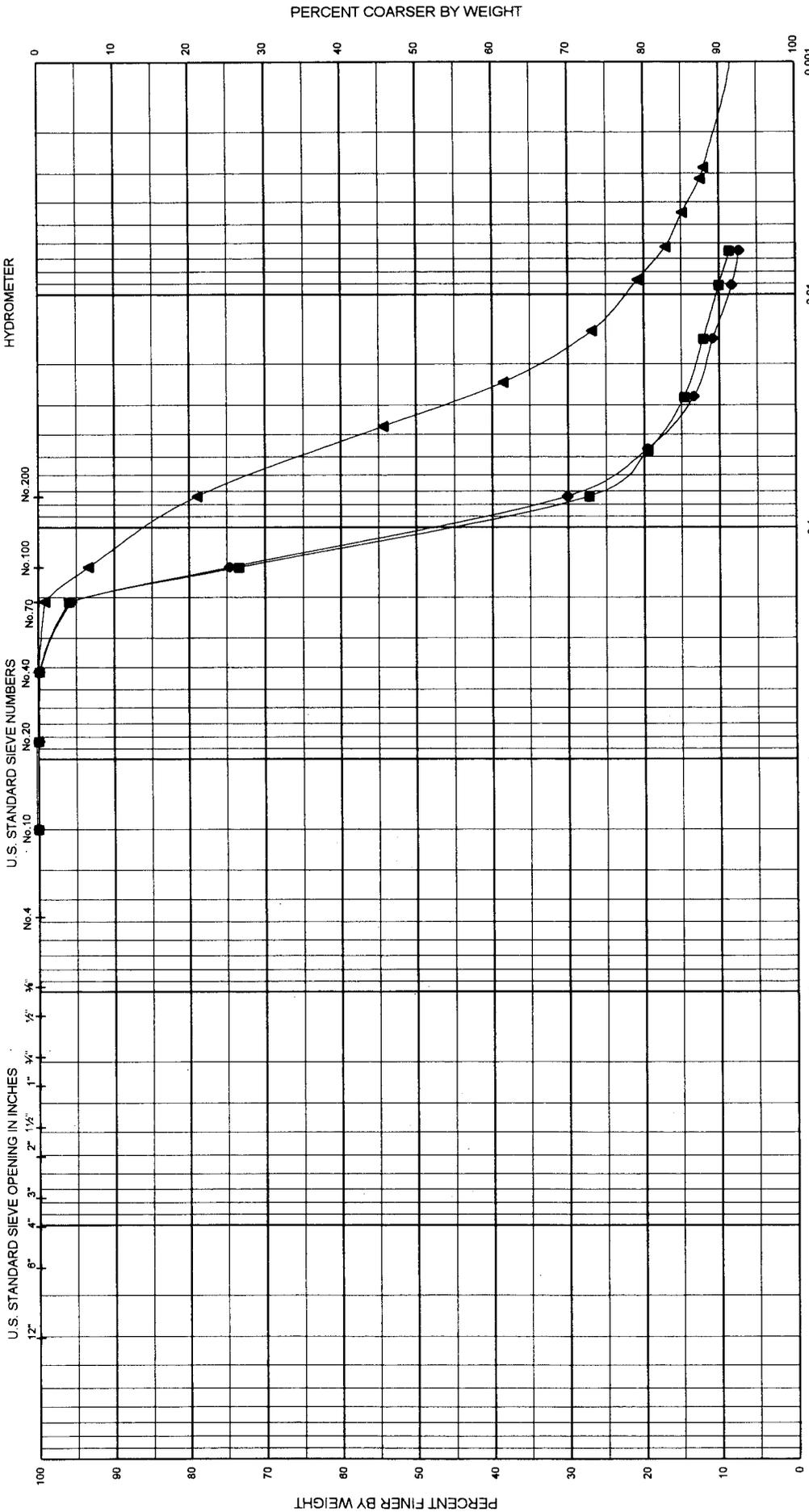
Fill	Auger	SPT	RB
Cored	300 lb	Tubex	Hand
Fish Tail	Vibra Core	Water Jet	





Legend	Sample No.	Depth (ft)	Classification	SAND			FINE			PI
				Nat w%	LL	PL	LL	PL	PI	
■	Jar-10,11	16.3-18.4	Lean clay with sand (tr. mica) β_{c-1-1} (CL)	—	47	21	—	—	26	
◆	Jar-13	20.0-21.5	Clayey sand (tr. mica) $\beta_{c-1-2-1}$ (SC)	—	—	—	—	—	—	
▲	Jar-15	25.0-26.5	Fat clay with sand $\beta_{c-1-3-2}$ (CH)	—	78	23	—	—	55	
GRADATION CURVES										

PROJECT: Smith Island Environmental Restoration
 Sheep Pen Gut
 Somerset County, MD
AREA: DH-1 Sht. 2 of 2
DATE: Jan 1999



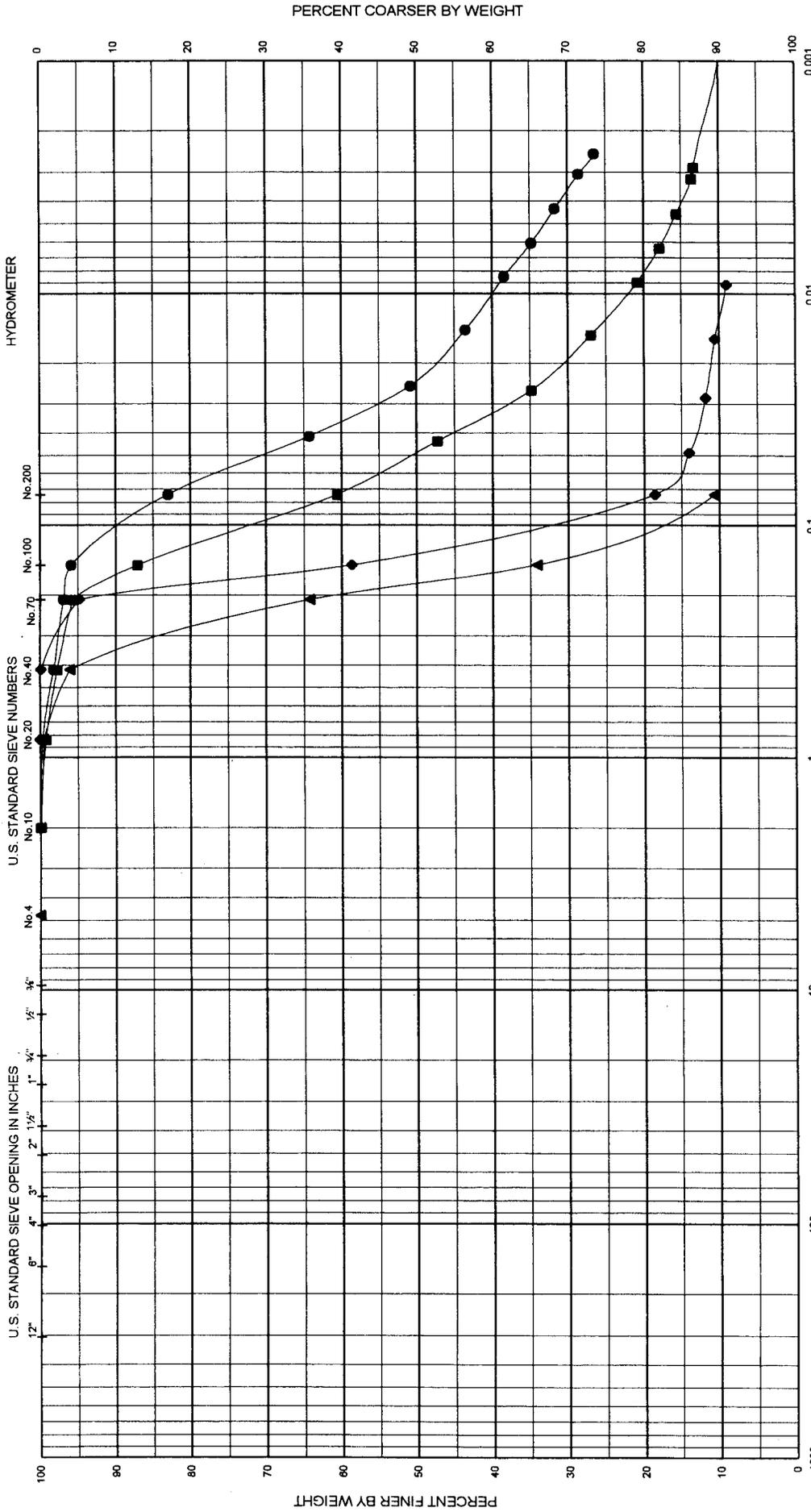
Legend	Sample No.	Depth (ft)	Classification	Nat w%	LL	PL	PI
■	Jar-1-4	0.0-9.0	Silty sand (tr. mica) $GC - 2.5 - 3 - 2 - 3 - 3 - 2 - 3 - 2 - 5 - 5$ (SM)	_____	_____	_____	_____
◆	Jar-6,7	10.8-14.0	Silty sand (tr. mica) $GC - 2 - 4 - 2 - 4$ (SM)	_____	_____	_____	_____
▲	Jar-8	15.0-15.7	Lean clay with sand $GC - 5$ (CL)	_____	_____	_____	_____
GRADATION CURVES							
ENG FORM 2087							

PROJECT: Smith Island Environmental Restoration
 Sheep Pen Gut
 Somerset County, MD

AREA: DH-2 Sht. 1 of 2

Boring No.: _____

DATE: Jan 1999



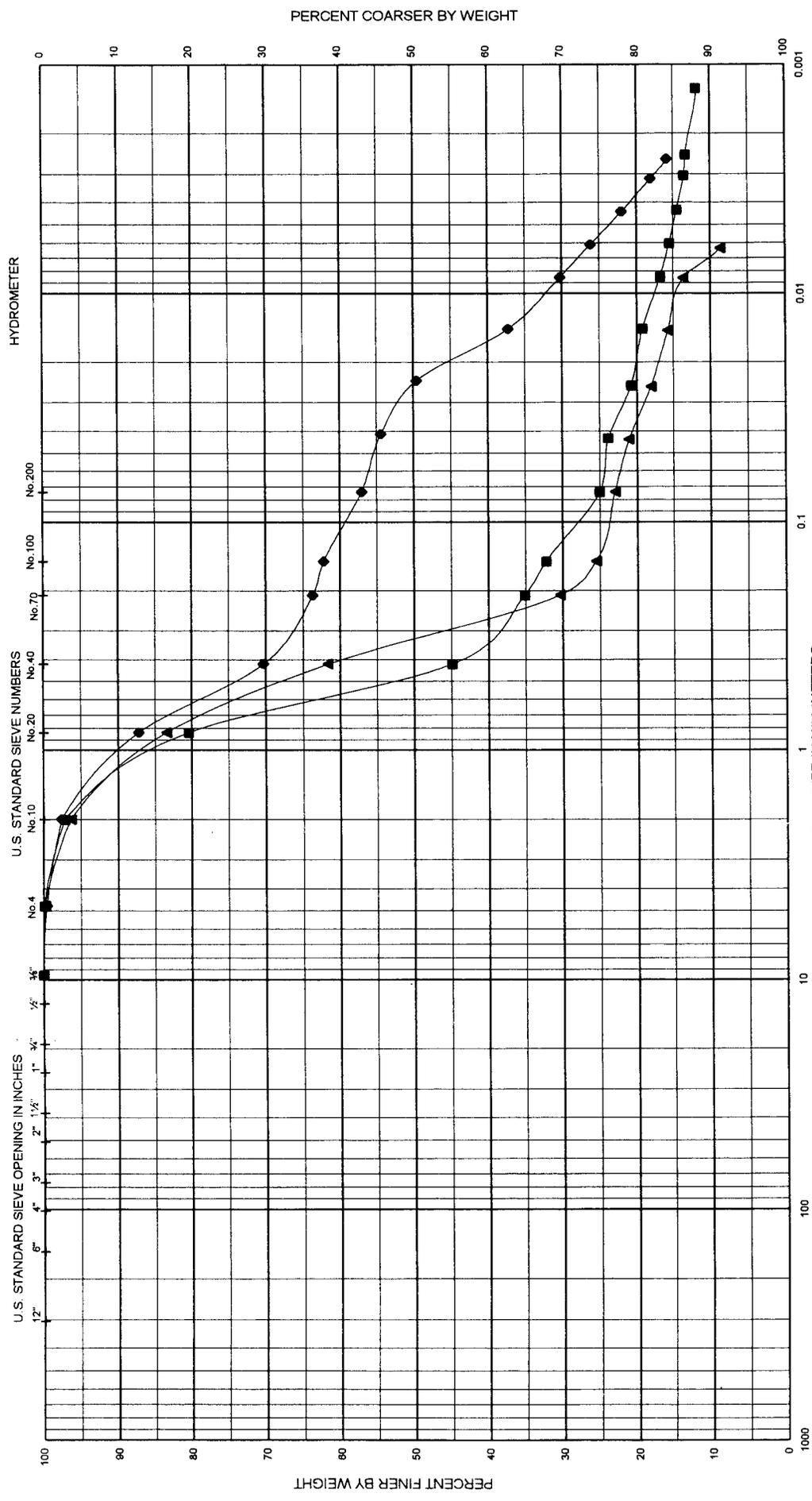
Legend	Sample No.	Depth (ft)	Classification	SAND			SILT or CLAY		
				Nat w%	LL	PL	PI	PL	PI
■	Jar-1-4	0.0-5.6	Sandy lean clay $\beta_{L-1-2-2-4-3}$ (CL)	—	27	18	9		
◆	Jar-5	5.6-6.5	Silty sand β_{C-6-7} (SM)	—	—	—	—		
▲	Jar-6-9	7.5-15.9	Poorly graded sand with silt (tr. mica) (SP-SM)	—	—	—	—		
●	Jar-10	15.9-16.5	Lean clay with sand β_{C-1} (CL)	—	43	20	23		

PROJECT: Smith Island Environmental Restoration
 Sheep Pen Gut
AREA: Somerset County, MD
Boring No.: DH-3 Sht. 1 of 2
DATE: Jan 1999

GRADATION CURVES

ENG FORM 2087

BC- 5-6-7-4-9-9-3-5-3-3-2

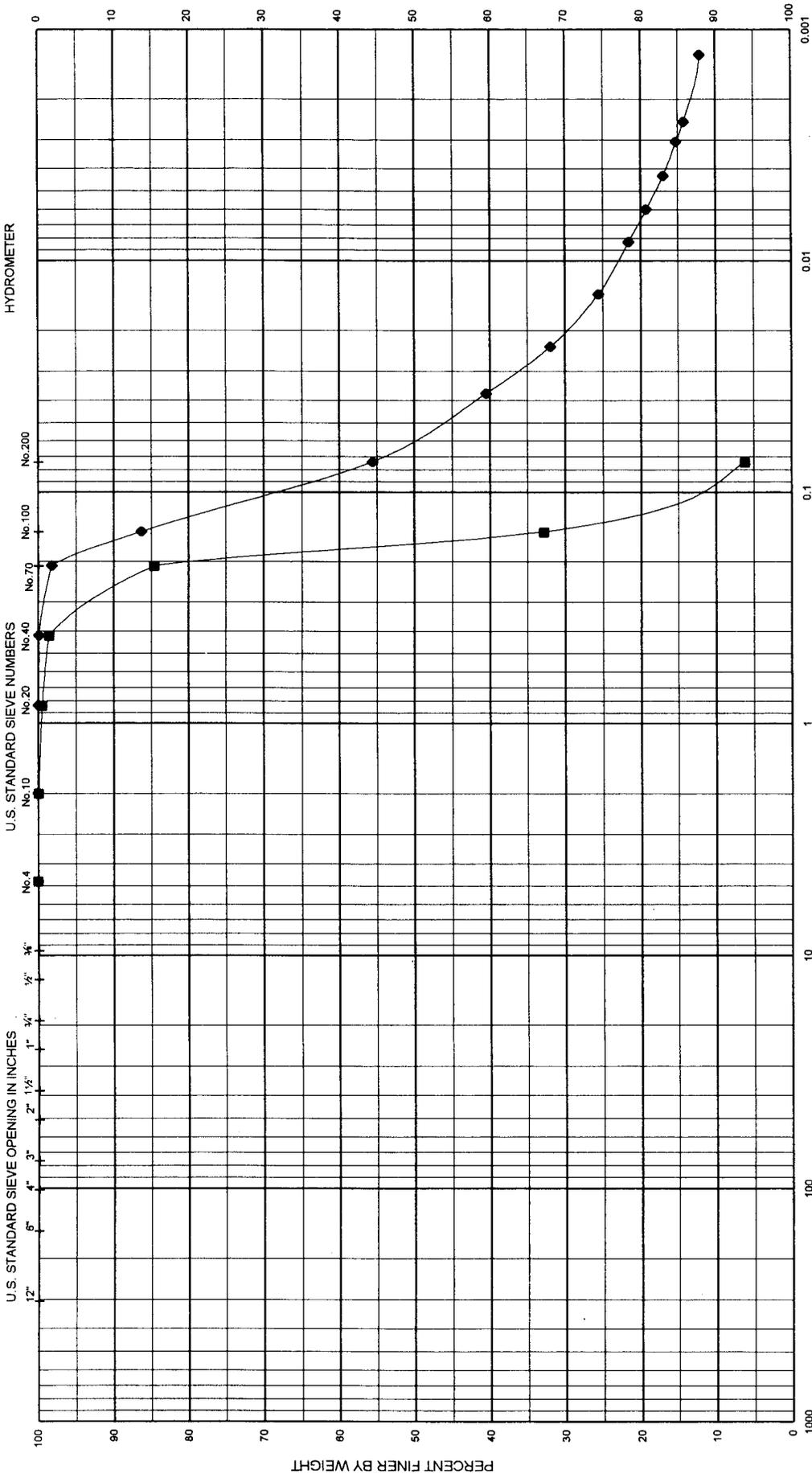


Legend	Sample No.	Depth (ft)	Classification	SAND				SILT or CLAY	
				Nat w%	LL	PL	PI		
—■—	Jar-11	17.5-19.0	Clayey sand $SC - 1/75' - 1/75'$	—	—	—	—	—	—
—◆—	Jar-12,13	20.0-24.0	Sandy fat clay $CL - 3-1-1-3-2-2$	—	71	22	49	—	—
—▲—	Jar-14	25.0-26.5	Clayey sand $CL - 2-3-3$	—	—	—	—	—	—

PROJECT:	Smith Island Environmental Restoration
AREA:	Sheep Pen Gut
Boring No.:	Somerset County, MD DH-3 Sht. 2 of 2
DATE:	Jan 1999

ENG FORM 2087		GRADATION CURVES	
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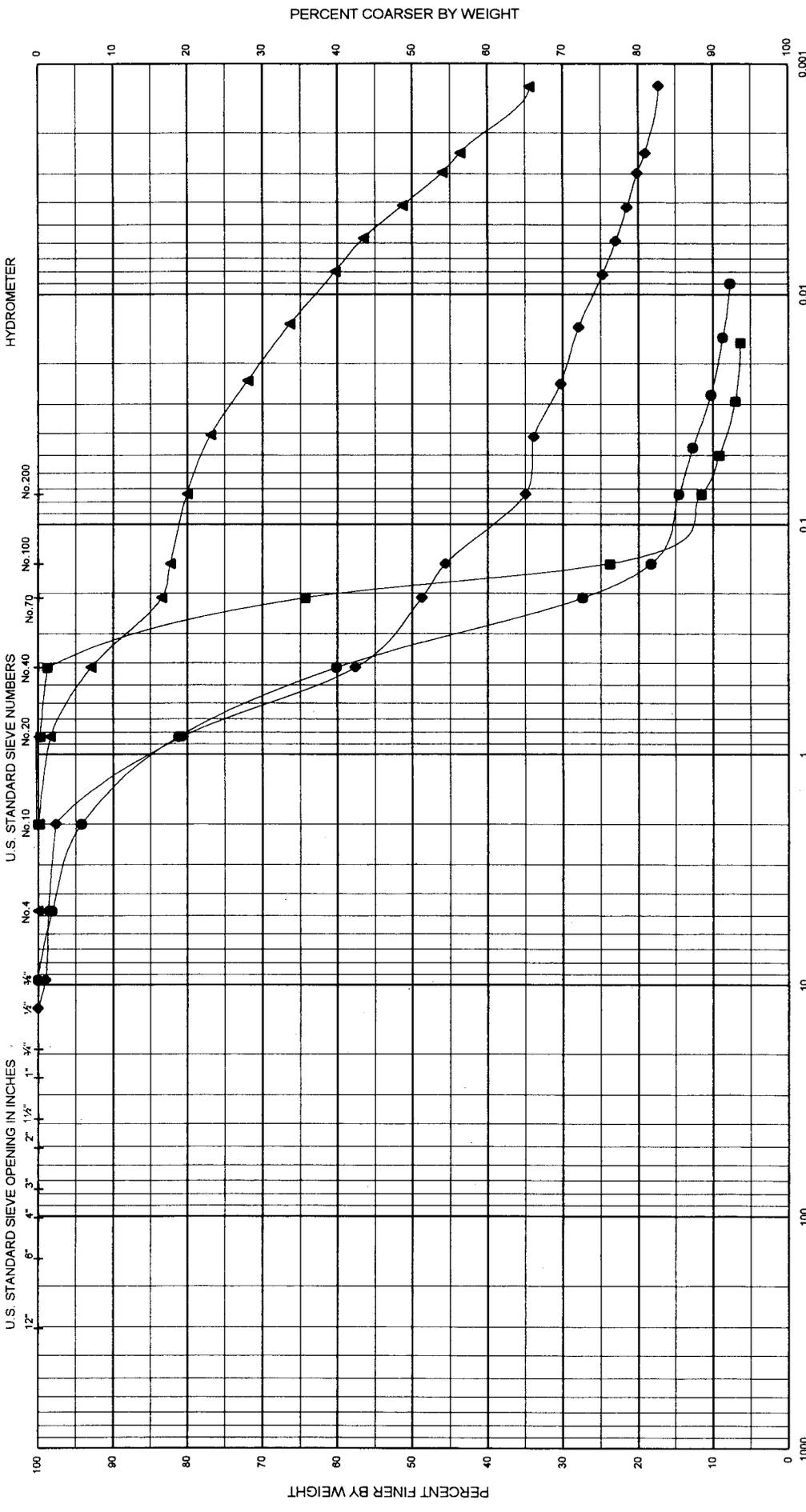
PERCENT COARSER BY WEIGHT



BOULDERS COBBLES GRAVEL FINE SAND MEDIUM SAND FINE SILT or CLAY

Legend	Sample No.	Depth (ft)	Classification	Nat w%	LL	PL	PI
—■—	Jar-1	0.0-1.5	Poorly graded sand with silt (SP-SM)	—	—	—	—
—◆—	Jar-2,3	2.5-6.5	Sandy lean clay (tr. mica) (CL)	—	—	—	—

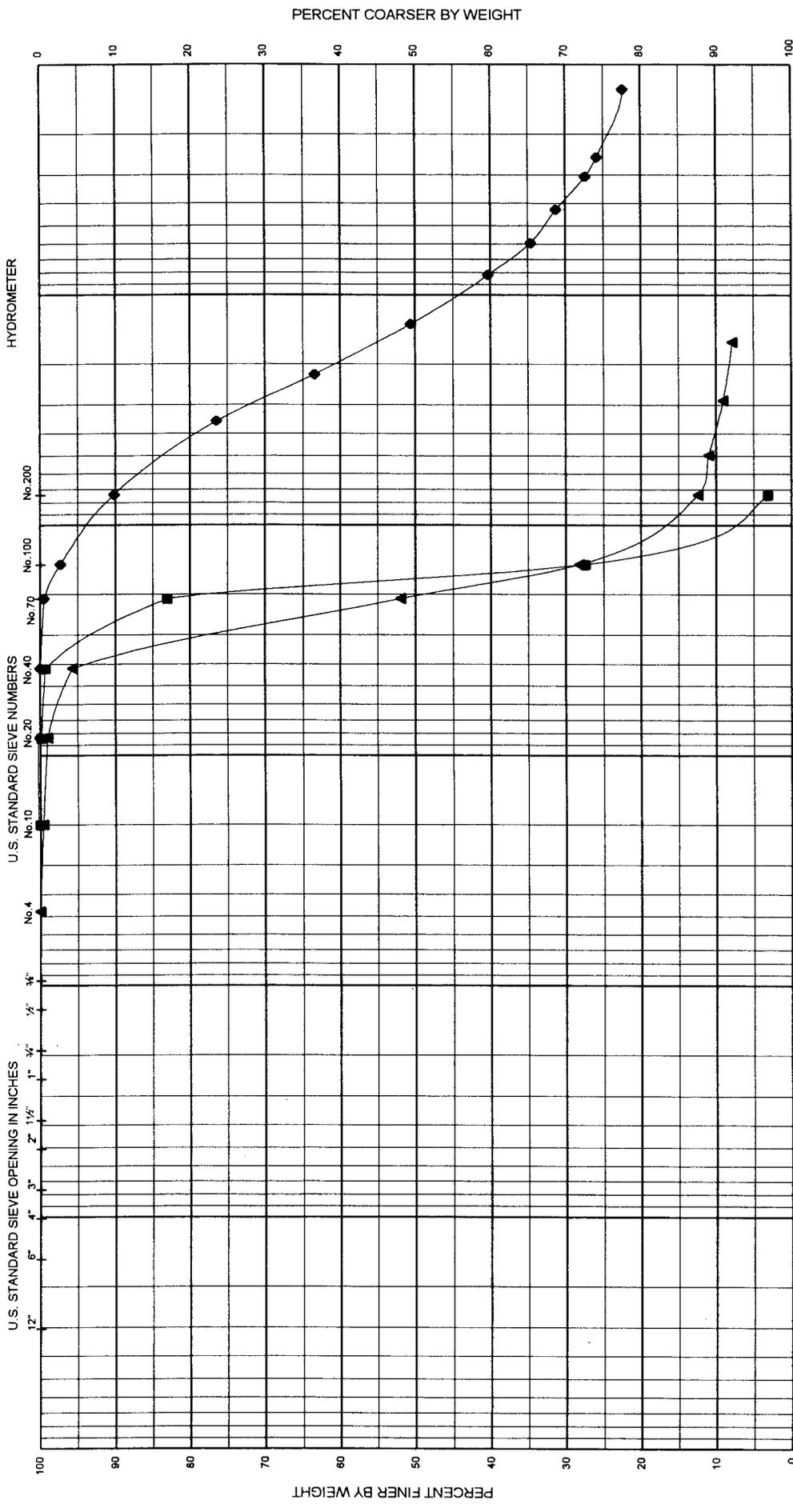
PROJECT: Smith Island Environmental Restoration
 Sheep Pen Gut
 AREA: Somerset County, MD
 Boring No.: DH-6
 DATE: Jan 1999



Legend	Sample No.	Depth (ft)	Classification				SAND				FINE		SILT or CLAY	
			COARSE	GRAVEL	COARSE	FINE	Nat w%	LL	PL	PI	COARSE	FINE	COARSE	FINE
□	Jar-7-10	8.3-16.5	Poorly graded sand with silt	BC-10-6-7-8-5-8-8	(SP-SM)	6-5-6								
◆	Jar-11,12	17.5-21.5	Clayey sand (tr. gravel)	BC-1-1-1-1-1-1	(SC)									
▲	Jar-13	22.5-24.0	Fat clay with sand	BC-1-1-1	(CH)									
●	Jar-14	25.0-26.5	Silty sand (tr. gravel)	BC-3-4-13	(SM)									

PROJECT: Smith Island Environmental Restoration
 Sheep Pen Gut
 AREA: Somerset County, MD
 Boring No.: DH-14 Sht. 2 of 2
 DATE: Jan 1999

GRADATION CURVES



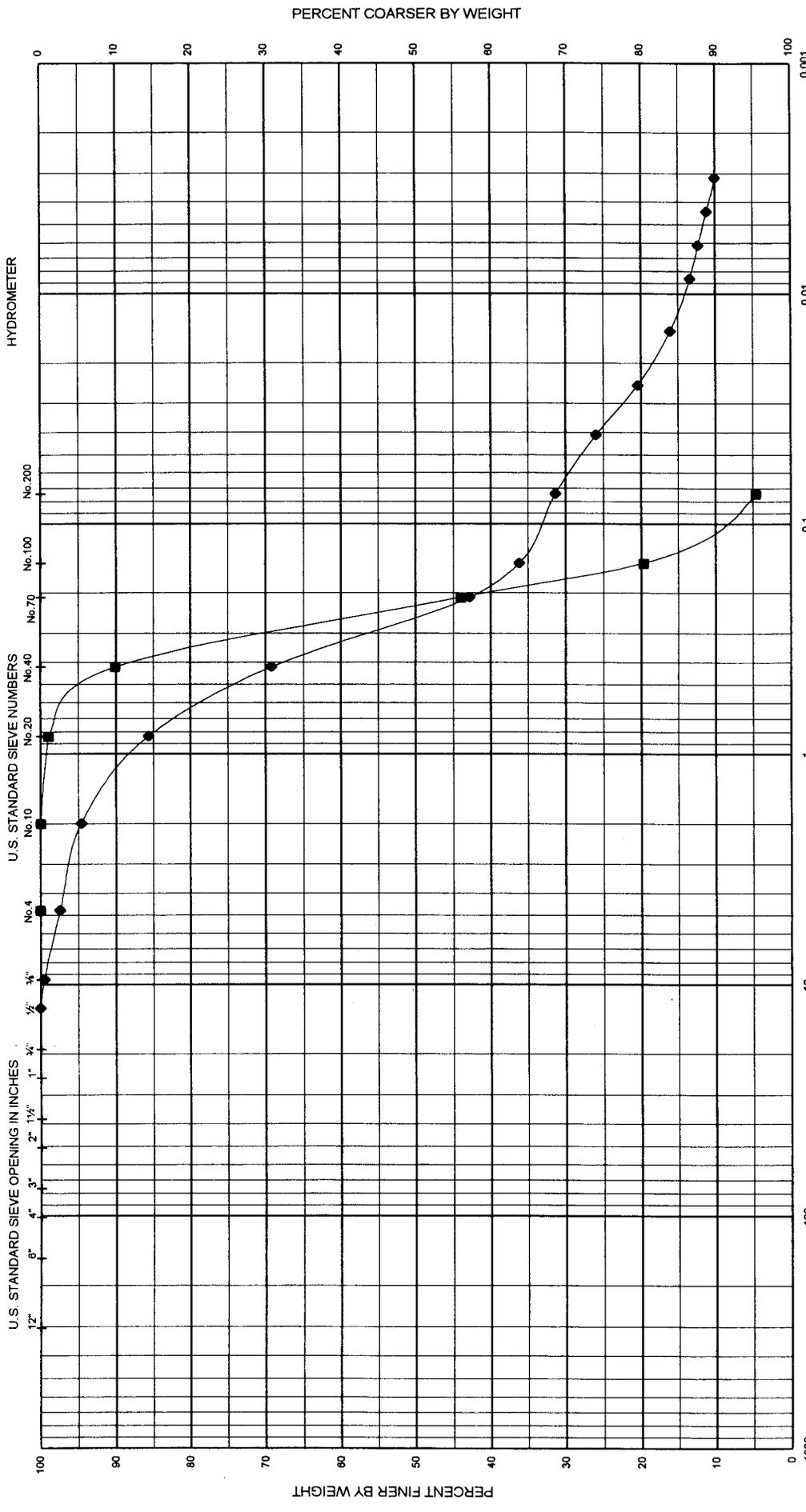
Legend	Sample No.	Depth (ft)	Classification	Nat w%	LL	PL	PI
—■—	Jar-1	0.0-0.3	Poorly graded sand (tr. mica) B_{C-woR} (SP)	—	—	—	—
—◆—	Jar-2,3	0.3-4.0	Lean clay (tr. sand) $B_{C-1-woR-1-4}$ (CL)	33	18	15	15
—▲—	Jar-6,7	10.0-13.4	Silty sand $B_{C-2-3-3-2-2}$ (SM)	—	—	—	—

PROJECT: Smith Island Environmental Restoration
AREA: Sheep Pen Gut
Boring No.: Somerset County, MD
 DH-15 Sht. 1 of 2

DATE: Jan 1999

ENG FORM 2087

GRADATION CURVES



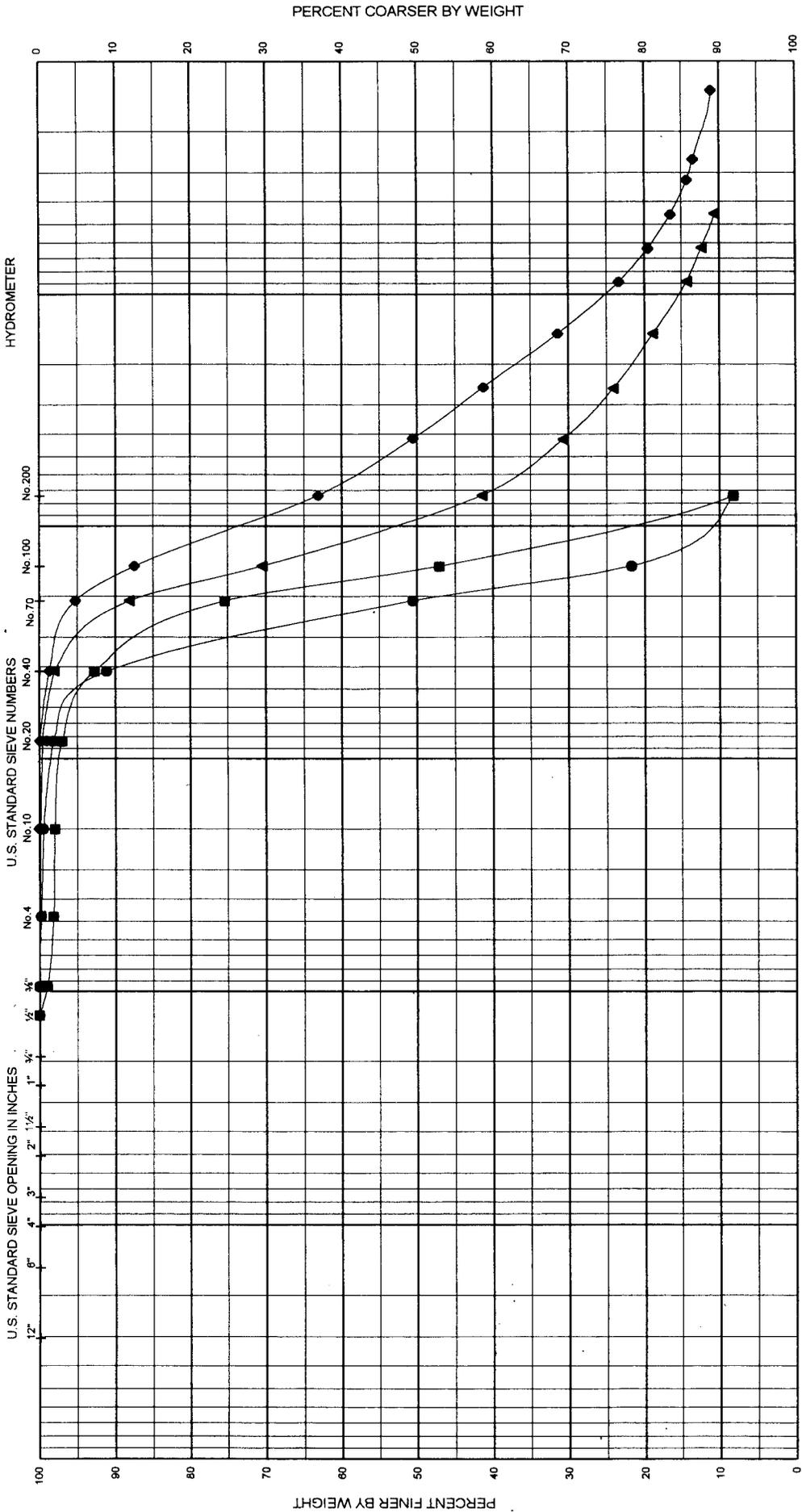
Legend	Sample No.	Depth (ft)	Classification	Nat w%	LL	PL	PI
—■—	Jan-9	15.0-16.5	Poorly graded sand (tr. mica) $\rho c-4-6-5$ (SP)	—	—	—	—
—◆—	Jan-14	25.0-26.5	Clayey sand (tr. gravel) $\rho c-2-5-11$ (SC)	—	—	—	—

PROJECT: Smith Island Environmental Restoration
 Sheep Pen Gut

AREA: Somerset County, MD

Boring No.: DH-15 Sht. 2 of 2

DATE: Jan 1999



Legend	Sample No.	Depth (ft)	Classification	SAND			PI
				Nat w%	LL	PL	
■	Jar-1	0.0-1.5	Poorly graded sand with silt (tr. gravel & mica) (SP-SM)	—	—	—	—
◆	Jar-2	2.5-3.2	Sandy silt (tr. mica) BC-1 (ML)	20	17	3	3
▲	Jar-3,4	3.2-6.5	Silty sand (tr. mica) GC-5-3-4-4-5 (SM)	—	—	—	—
●	Jar-5	7.5-9.0	Poorly graded sand with silt (tr. mica) GC-2-3-4(SP-SM)	—	—	—	—

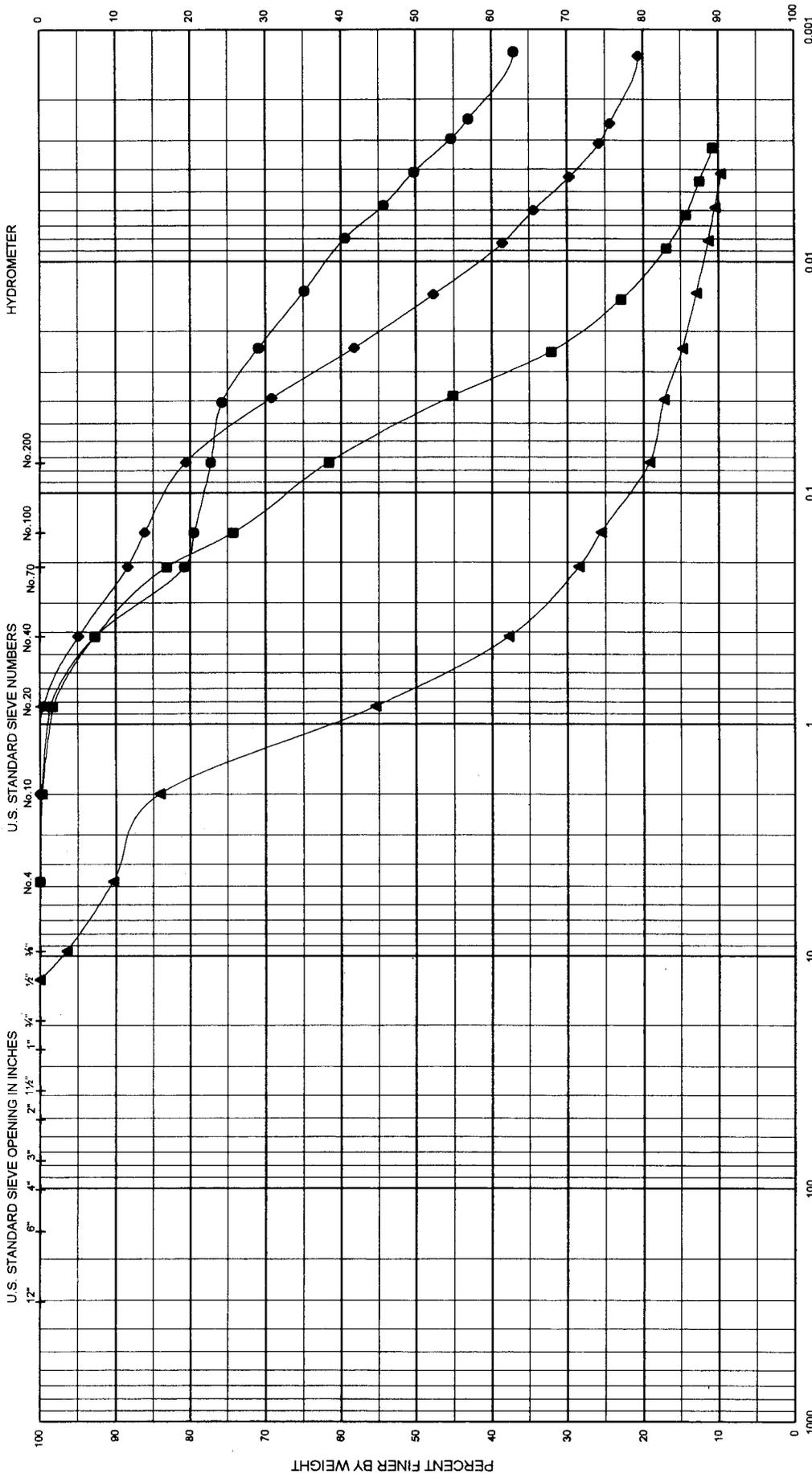
BOULDERS	COBBLES	COARSE	FINE	GRAVEL	COARSE	MEDIUM	FINE	SAND	COARSE	MEDIUM	FINE	SILT or CLAY
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PROJECT:	Smith Island Environmental Restoration
AREA:	Sheep Pen Gut
Boring No.:	Somerset County, MD DH-18 Sht. 1 of 2
DATE:	Jan 1999

ENG FORM 2087

→ BC-2-1-1

PERCENT COARSER BY WEIGHT

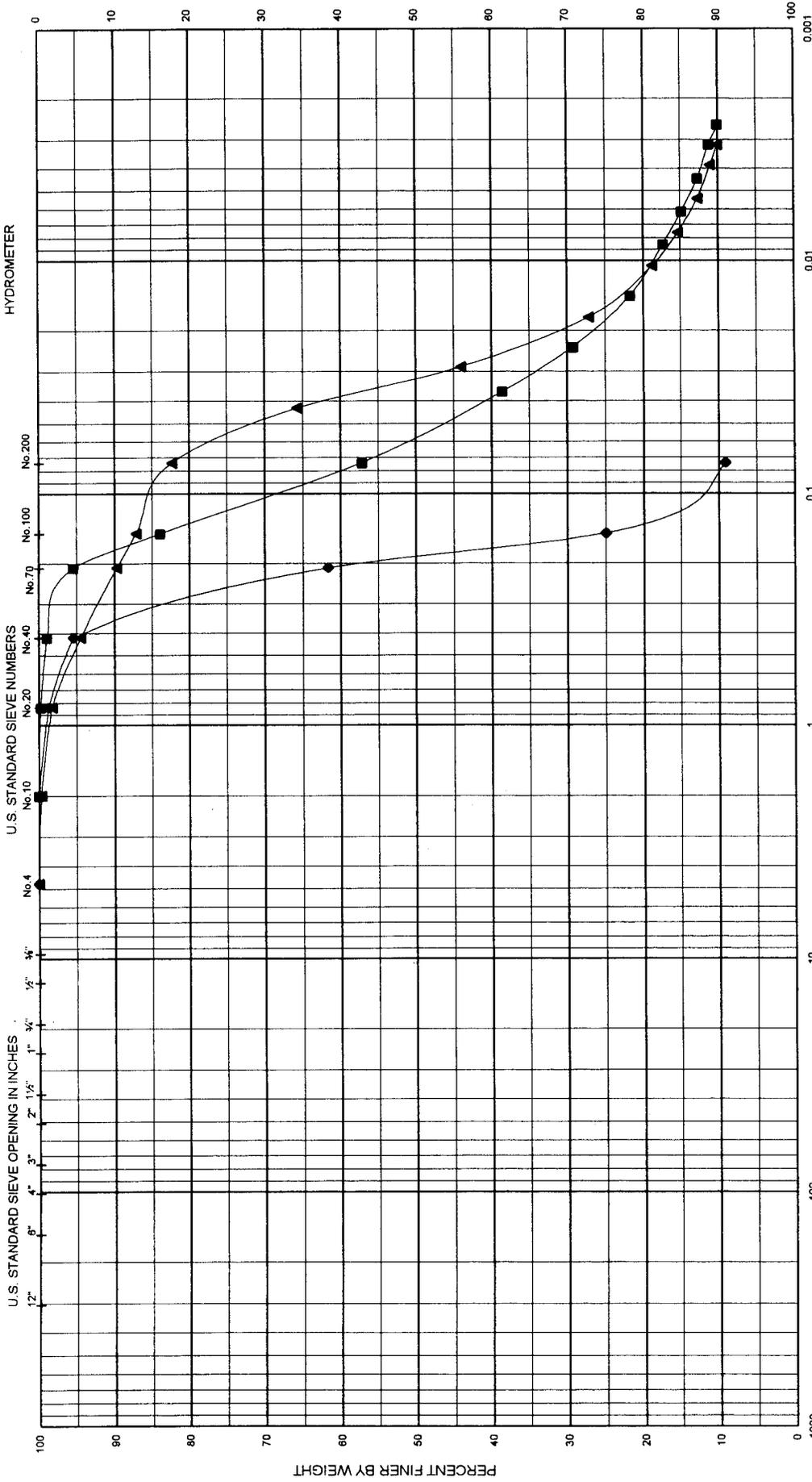


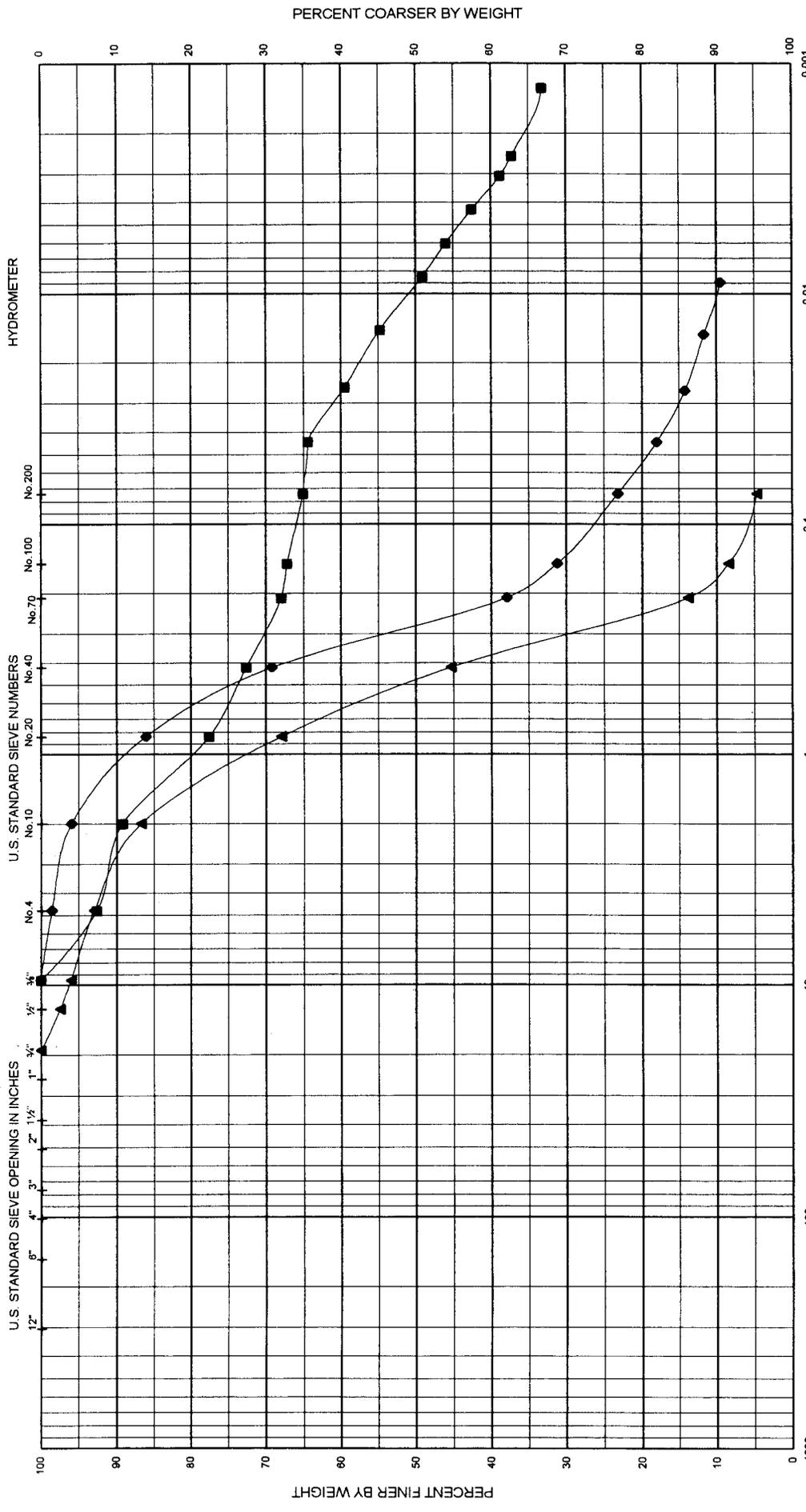
Legend	Sample No.	Depth (ft)	Classification	SAND				PI
				Nat w%	LL	PL	PI	
■	Jar-6	10.0-11.5	Sandy silt $\beta C-5-3-4$ (ML)	—	—	—	—	
◆	Jar-7	12.5-14.0	Lean clay with sand $\beta C-3-2-Z$ (CL)	—	33	20	13	
▲	Jar-10,11	20.0-24.0	Silty sand (tr. gravel) $\beta C-1-1-1-4-Z$ (SM)	—	—	—	—	
●	Jar-12	25.0-26.5	Fat clay with sand $\beta C-3-10-9$ (CH)	—	72	21	51	

BOULDERS COBBLES GRAVEL FINE COARSE MEDIUM FINE SAND SILT or CLAY

PROJECT: Smith Island Environmental Restoration
 Sheep Pen Gut
 AREA: Somerset County, MD
 Boring No.: DH-18 Sht. 2 of 2
 DATE: Jan 1999

PERCENT COARSER BY WEIGHT





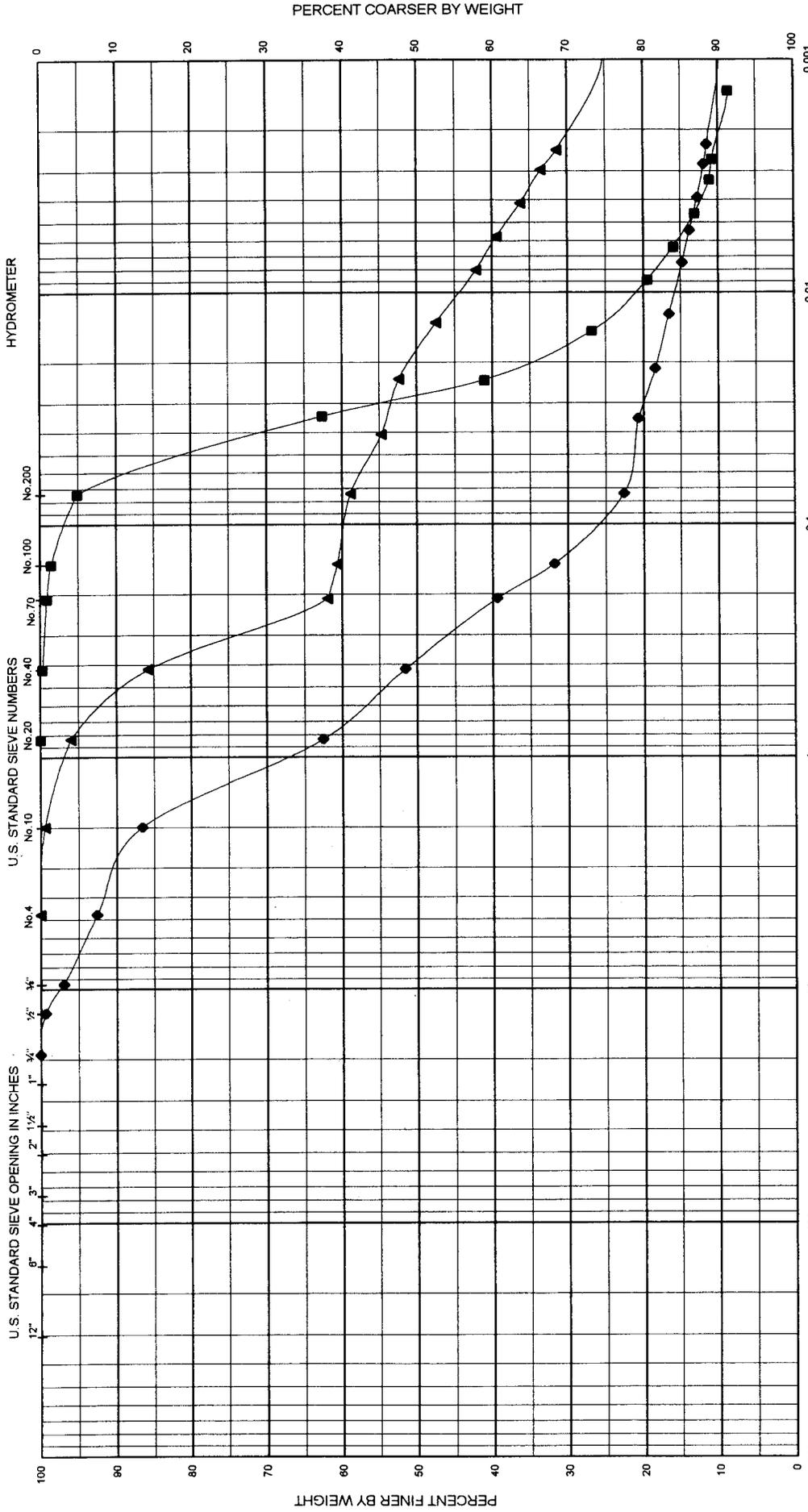
Legend	Sample No.	Depth (ft)	Classification	Nat w%	LL	PL	PI
■	Jan-12	21.1-21.5	Sandy fat clay (tr. gravel) β_{CL-1} (CH)	—	79	24	55
◆	Jan-14	22.9-24.0	Silty sand (tr. gravel) $\beta_{CL-6-10}$ (SM)	—	—	—	—
▲	Jan-15, 16	25.0-26.5	Poortly graded sand (tr. gravel & mica) $\beta_{CL-5-10-15}$ (SP)	—	—	—	—

PROJECT: Smith Island Environmental Restoration
 Sheep Pen Gut

AREA: Somerset County, MD

Boring No.: DH-19 Sht. 2 of 2

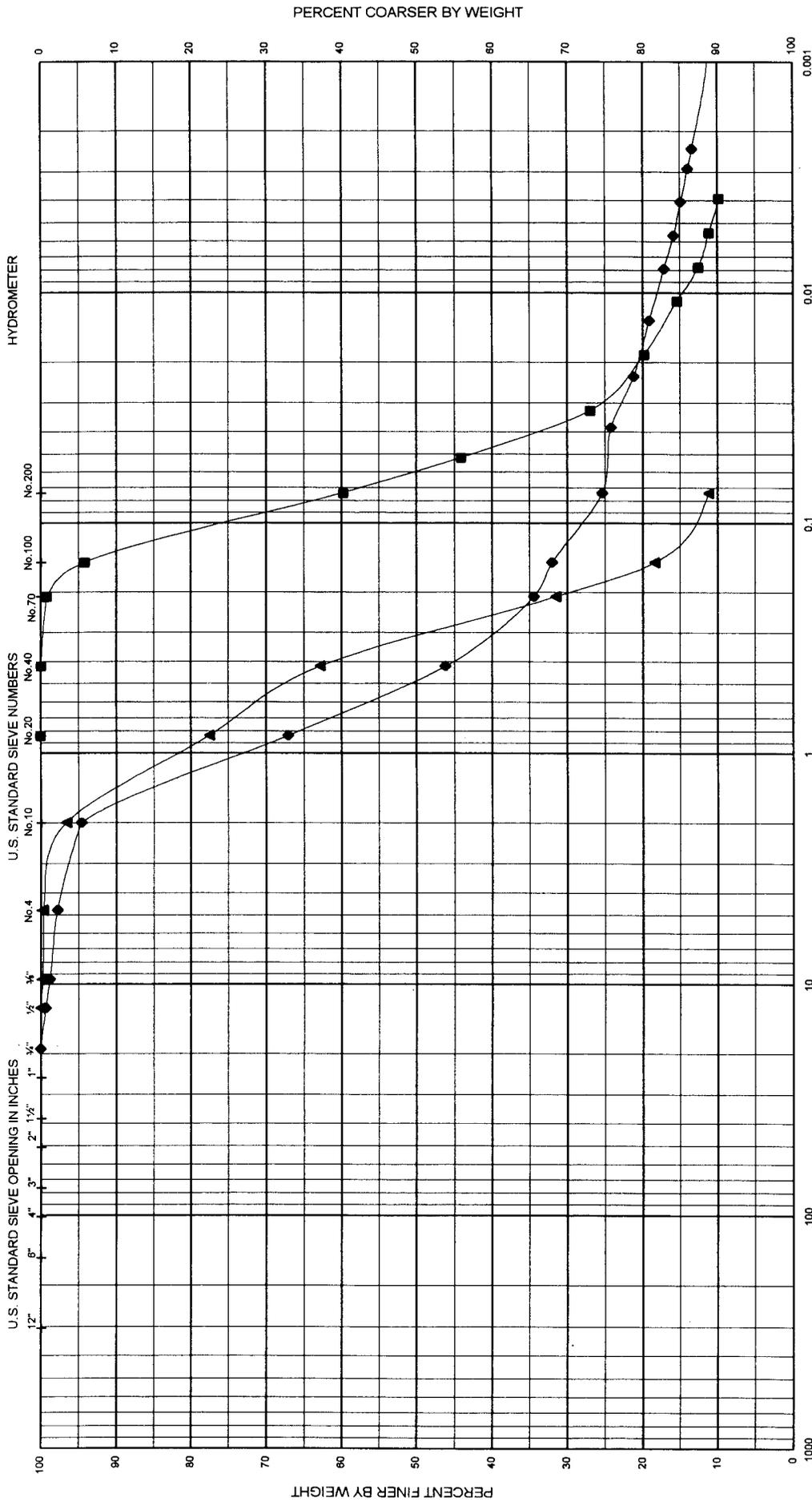
DATE: Jan 1999



Legend	Sample No.	Depth (ft)	Classification			SAND			FINE			PI
			Micaceous silt (tr. sand)	Silty sand (tr. gravel)	Sandy fat clay	Nat w%	LL	PL	PL	PI		
■	Jar-4	7.5-9.0	Micaceous silt (tr. sand)	βC-2-2-3	(ML)	---	---	---	---	---	---	---
◆	Jar-8.9	17.5-21.5	Silty sand (tr. gravel)	βC-not-wgh-1-2-1	(SM)	---	---	---	---	---	---	---
▲	Jar-10	22.5-24.0	Sandy fat clay	βC-1-1-2	(CH)	---	55	17	---	---	38	---

PROJECT: Smith Island Environmental Restoration
 Sheep Pen Gut
 Somerset County, MD
AREA: Somerset County, MD
Boring No.: DH-20
DATE: Jan 1999

GRADATION CURVES



Legend	Sample No.	Depth (ft)	Classification				SAND			FINE			PI
			COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE	LL	PL	PI		
■	Jar-2	2.5-4.0	Sandy silt (tr. mica)	(ML)	—	—	—	—	—	—	—	—	—
◆	Jar-7	15.0-16.5	Clayey sand (tr. gravel)	(SC)	—	—	—	43	19	24	—	—	—
▲	Jar-8	17.5-19.0	Well-graded sand with silt	(SW-SM)	—	—	—	—	—	—	—	—	—

BOULDERS _____ **COBBLES** _____ **GRAVEL** _____ **COARSE** _____ **FINE** _____ **SAND** _____ **SILT or CLAY** _____

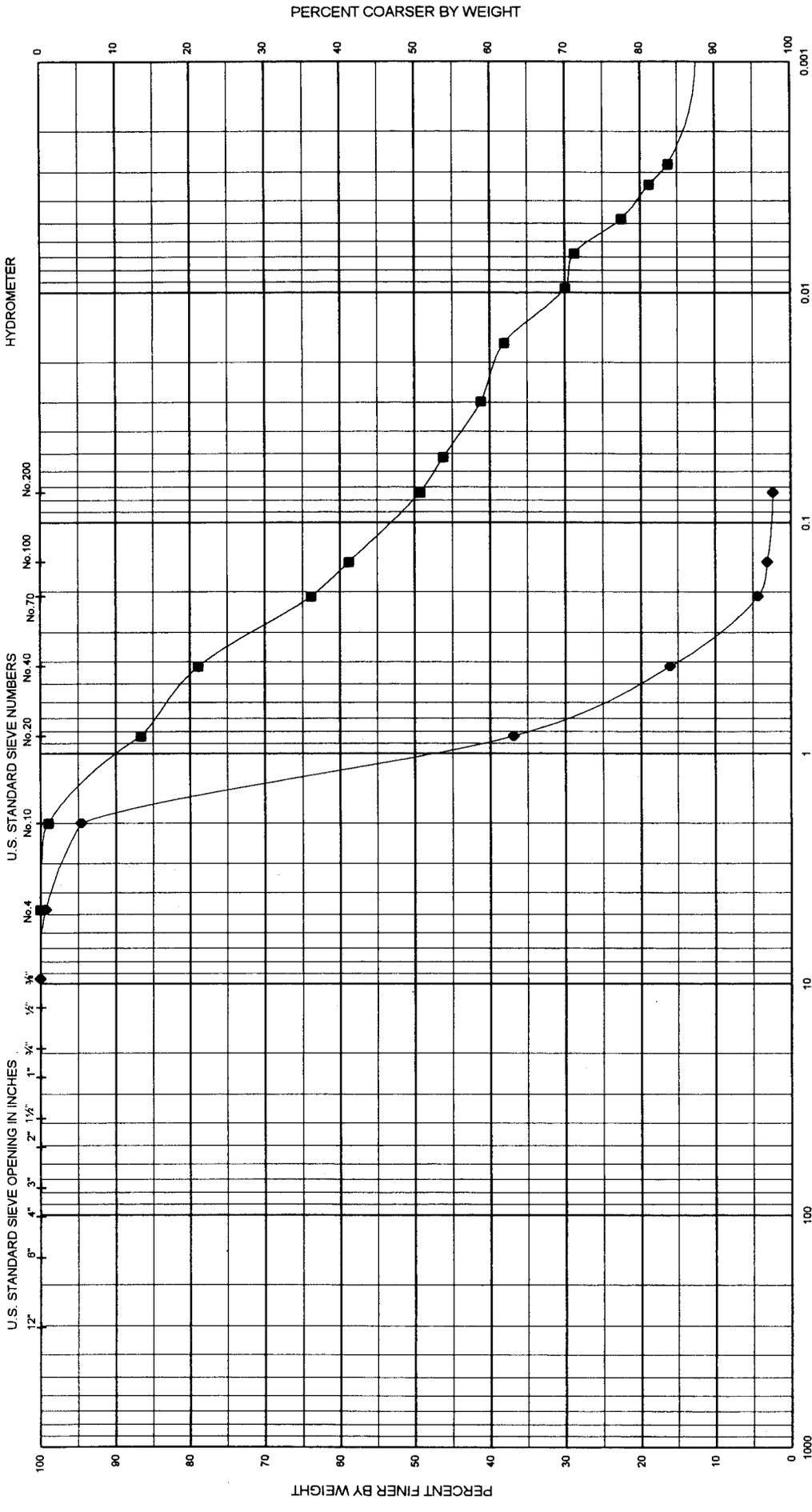
PROJECT: Smith Island Environmental Restoration

AREA: Sheep Pen Gut

Boring No.: Somerset County, MD

DATE: DH-21 Sht. 1 of 2

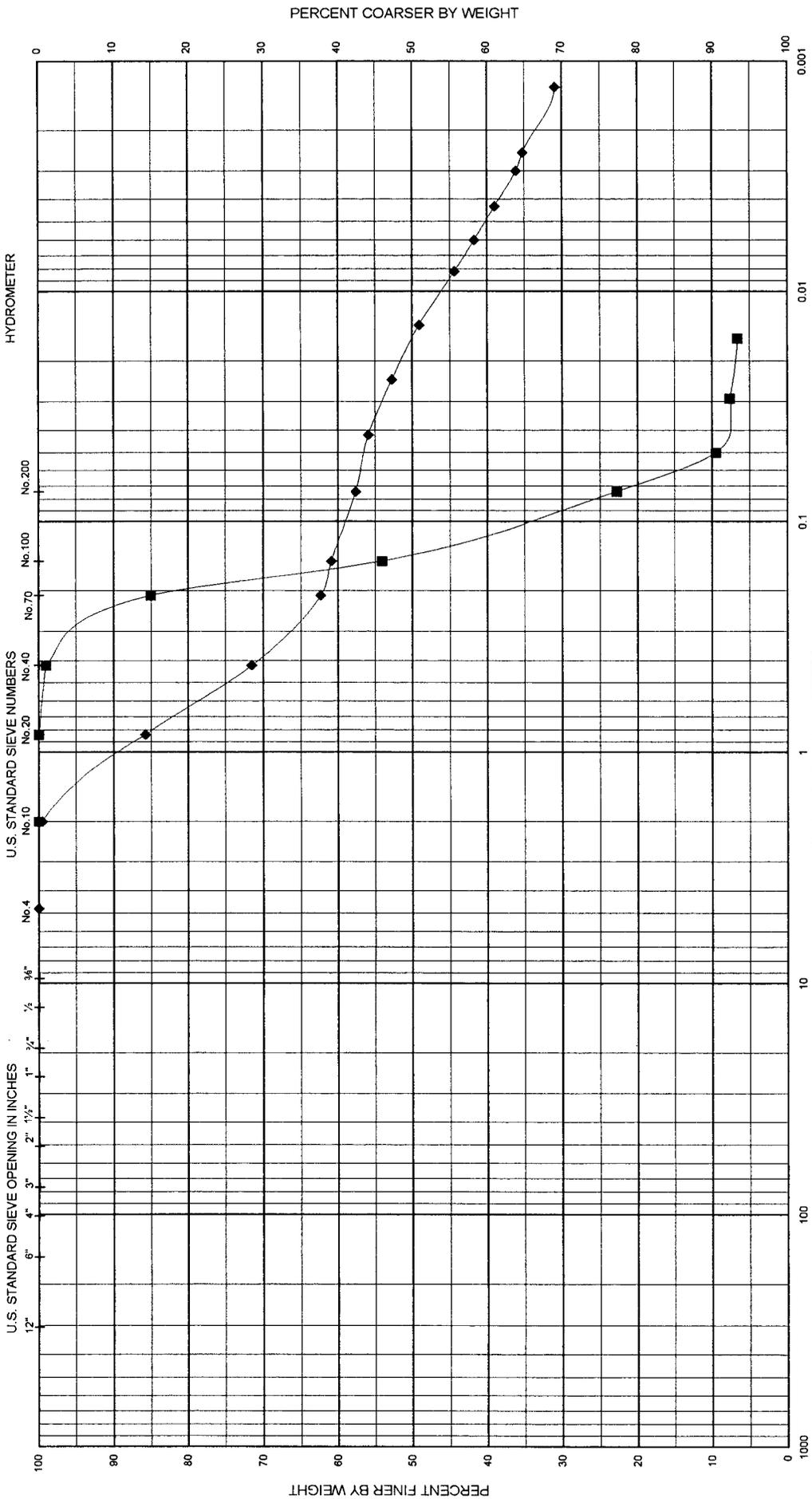
DATE: Jan 1999

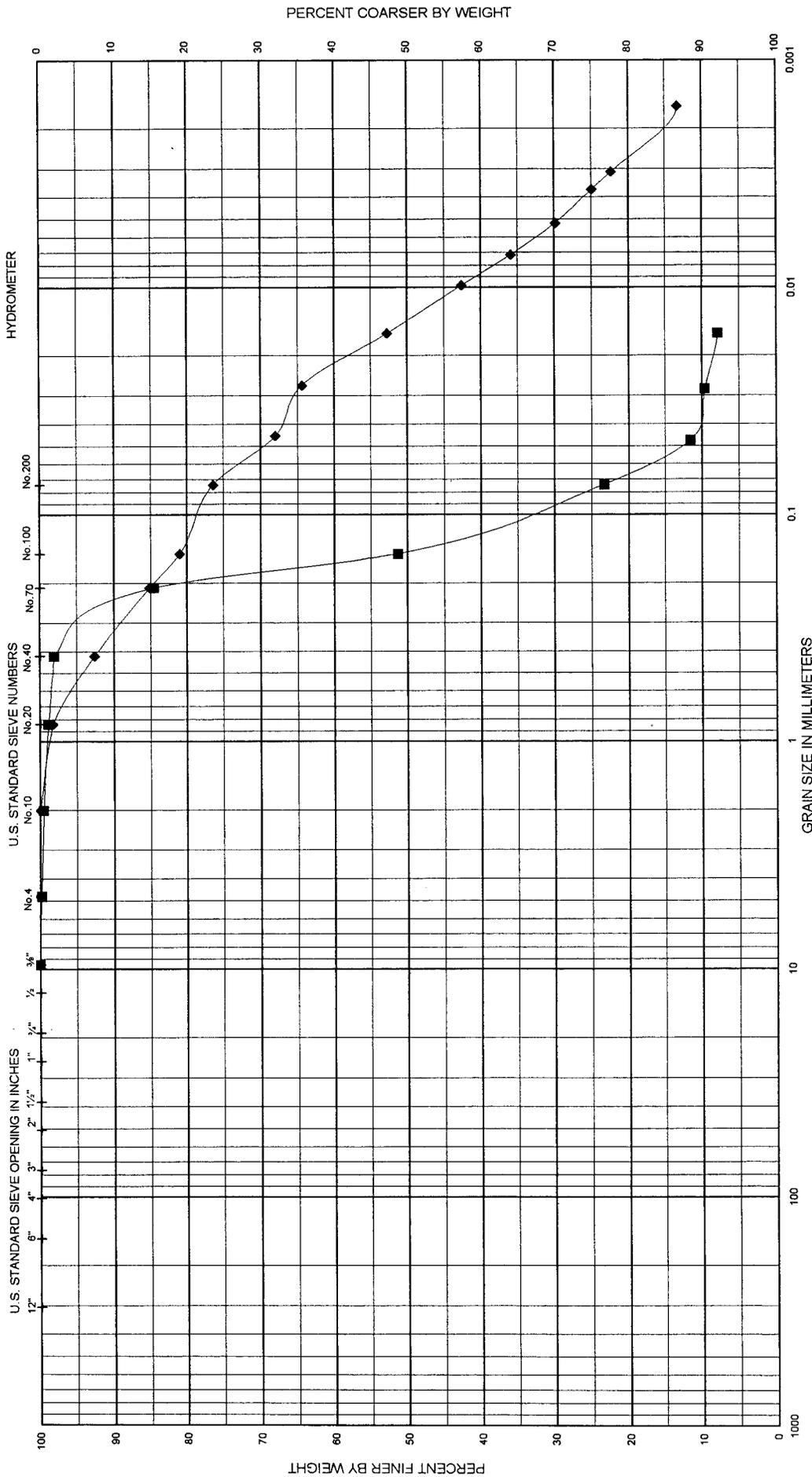


Legend	Sample No.	Depth (ft)	Classification				PI
			Nat w%	LL	PL	PI	
—■—	Jan-12	25.0-25.4	Clayey sand (SC-H)	55	18	37	
—◆—	Jan-13	25.4-26.5	Poorly graded sand (SP)	—	—	—	

BOULDERS	COBBLES	GRAVEL	SAND	SILT or CLAY
COARSE	COARSE	FINE	MEDIUM	FINE

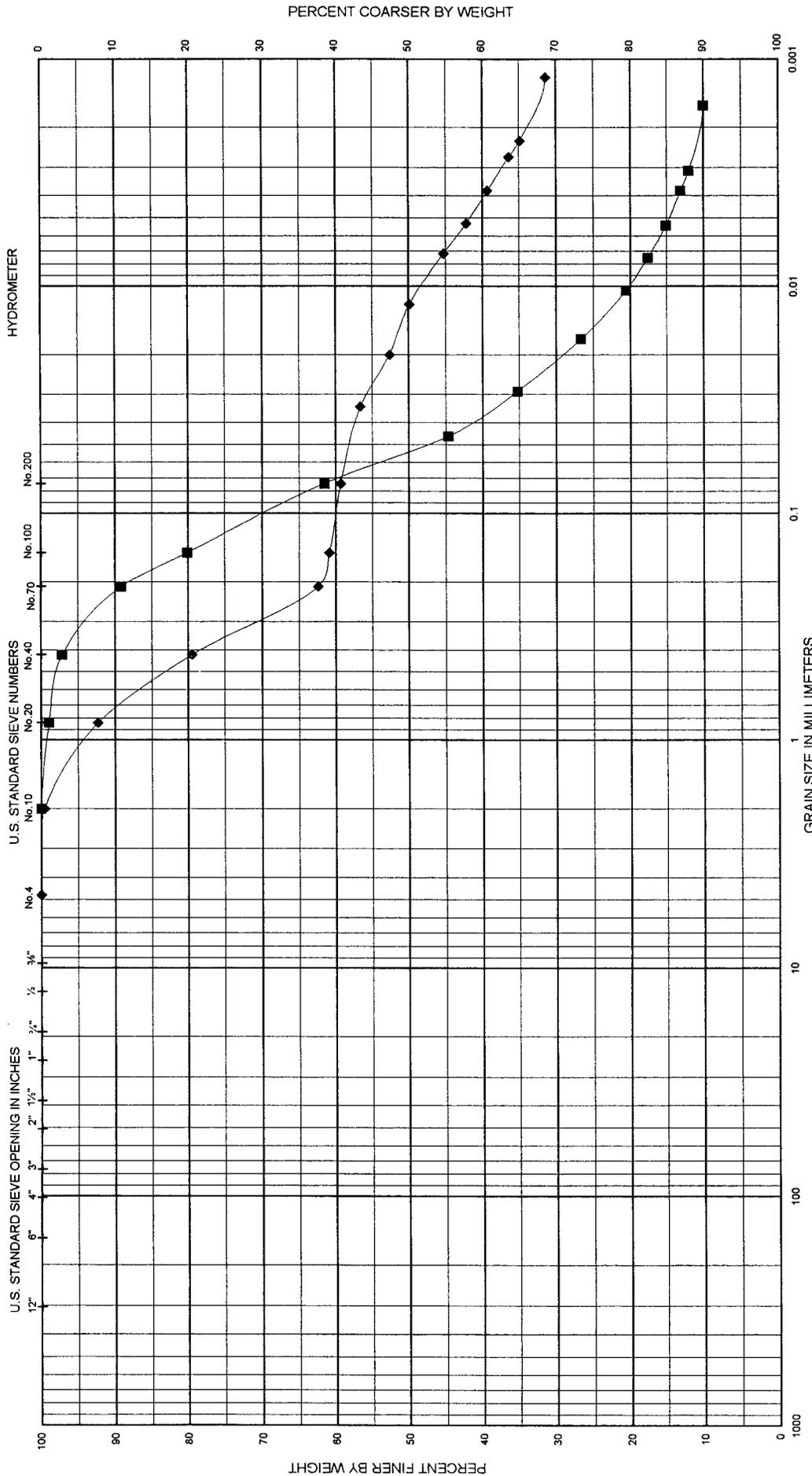
PROJECT:	Smith Island Environmental Restoration
AREA:	Sheep Pen Gut
Boring No.:	Somerset County, MD
	DH-21 Sht. 2 of 2
DATE:	Jan 1999





BOULDERS		COBBLES		GRAVEL		SAND			FINE			SILT or CLAY		
Sample No.	Depth (ft)	USCS Classification (ASTM D2487)												
Jar-1-6	0.0-14.0	Silty sand (SM)												
Jar-7-8	15.0-19.0	Lean clay with sand (CL)												
		Nat w%	LL	PL	PI									
		24.7	43	21	22									
		34.4												

PROJECT: Smith Island
 Rhodes Point Jetty
 Somerset County, MD
AREA: Somers County, MD
Boring No.: DH-104
DATE: Feb 2002



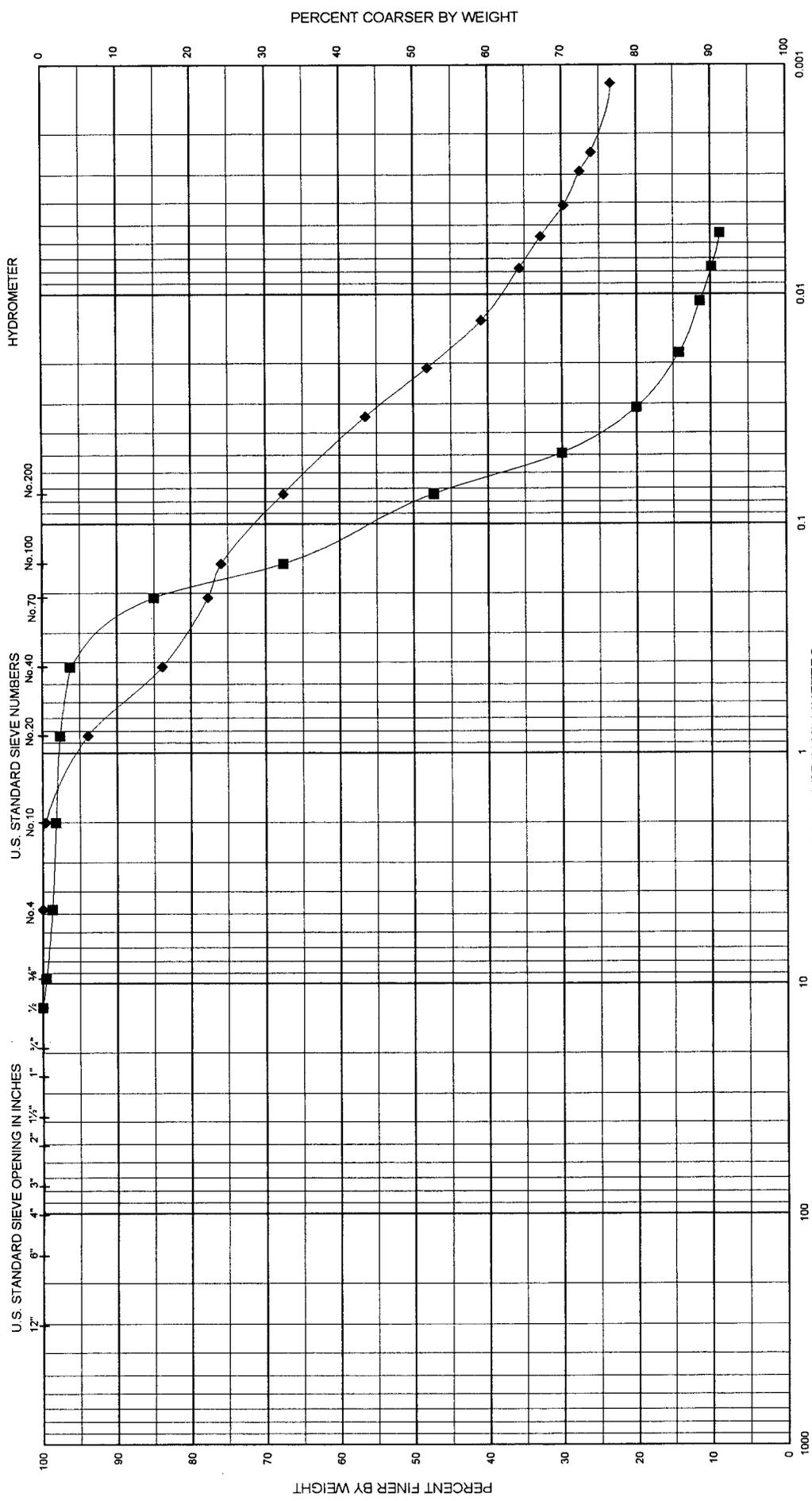
Legend	Sample No.	Depth (ft)	USCS Classification (ASTM D2487)		SAND			SILT or CLAY		
			COARSE	FINE	COARSE	MEDIUM	FINE	LL	PL	PI
—■—	Jar-3-5	5.0-11.5	Sandy silt	(ML)	24.2	—	—	—	—	—
—◆—	Jar-10	22.5-24.0	Sandy fat clay	(CH)	40.4	62	21	41	—	—

PROJECT: Smith Island
Rhodes Point Jetty
Somerset County, MD

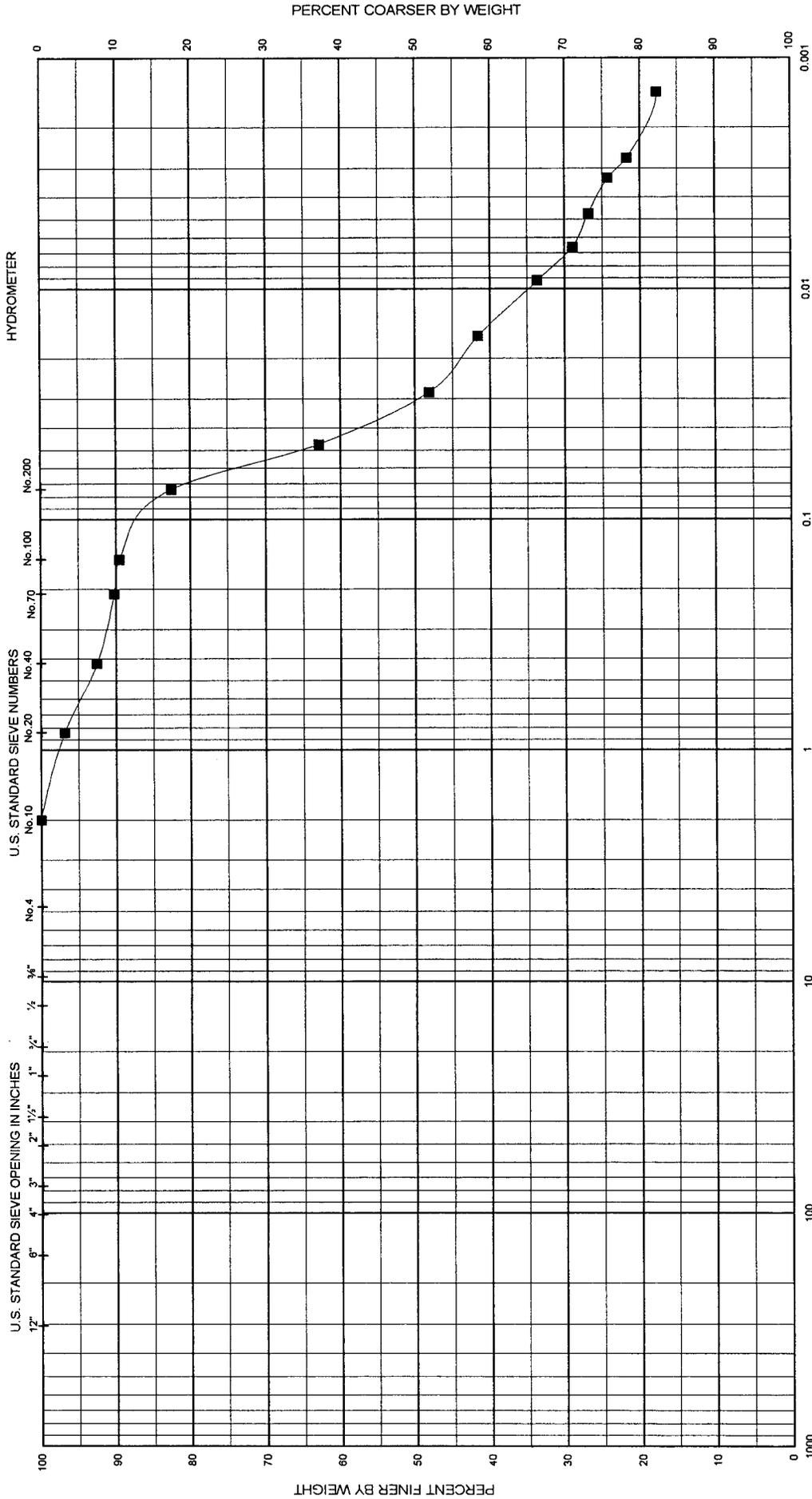
AREA: Boring No.: DH-106

DATE: Feb 2002

ENG FORM 2087 (Sieve Analysis: ASTM D422) **GRADATION CURVES**



Legend	Sample No.	Depth (ft)	USCS Classification (ASTM D2487)		Nat w%	LL	PL	PI
—■—	Jar-1-4	0.0-9.0	Silty sand (tr. gravel)	(SM)	23.9	44	20	24
—◆—	Jar-6-8	12.5-19.0	Sandy lean clay	(CL)	38.0	44	20	24
ENG FORM 2087								
GRADATION CURVES								
(Sieve Analysis: ASTM D422)								
PROJECT: Smith Island Rhodes Point Jetty Somerset County, MD			DATE: Feb 2002					
AREA:			Boring No.: DH-107					





MARYLAND DEPARTMENT OF THE ENVIRONMENT

1800 Washington Boulevard • Baltimore MD 21230

410-537-3000 • 1-800-633-6101

Robert L. Ehrlich, Jr.
Governor

Lynn Y. Buhl
Acting Secretary

Michael S. Steele
Lt. Governor

WATER QUALITY CERTIFICATION

Kendl P. Philbrick
Deputy Secretary

NABOP Notice of Availability

CERTIFICATION 03-WQ-003

PUBLIC NOTICE DATE May 13, 2002

TO: Planning Division
Baltimore District, Corps of Engineers
P.O. Box 1715
Baltimore, MD 21203-1715

RE: Realignment of the federal navigation channel and construction of a twin jetty system to provide protection from shoaling at Rhodes Point, Smith Island. North and south jetties will be 1,300 feet and 1,500 feet long, respectively. Dredged material will be placed behind 1,500 feet of offshore breakwaters and planted with marsh vegetation.

This water quality certification is issued under authority of Section 401 of the Federal Water Pollution Control Act and its Amendments and the Environment Article, Sections 9-313 - 9-323, inclusive, Annotated Code of Maryland. A copy of this required certification has been sent to the Corps of Engineers. This certification does not relieve the applicant of responsibility for obtaining any other approvals, licenses or permits in accordance with federal, State, or local requirements and does not authorize commencement of the proposed project. The Maryland Department of the Environment has determined from a review of the plans that the construction of this facility and its subsequent operation as noted herein will not violate Maryland's water quality standards, provided that the following conditions are satisfied.

The applicant shall comply with the conditions marked (X) below:

- (X) (1) The proposed project shall be constructed in a manner which will not violate Maryland's Water Quality Standards as set forth in COMAR 26.08.02. The applicant is to notify this department ten (10) days prior to commencing work. Verbal notification is to be followed by written notice within ten (10) days.
- (X) (2) The proposed project shall be constructed in accordance with the plan and its revisions as approved by the:
- (a) Corps of Engineers
 - (b) Water Management Administration
- (X) (3) All fill and construction materials not used in the project shall be removed and disposed of in a manner which will prevent their entry into waters of this State.

"Together We Can Clean Up"

Page Two Water Quality Certification

(X) (4) The applicant shall notify this Department upon transferring this ownership or responsibility for compliance with these conditions to another person. The new owner/operator shall request transfer of this water quality certification to his/her name.

(X) (5) The certification holder shall allow the Maryland Department of the Environment or its representative to inspect the project area at reasonable times and to inspect records regarding this project.

() (6) Construction of any bulkhead shall be completed prior to filling behind the bulkhead. The bulkhead shall be constructed in such a manner so as to prevent the loss of fill material to waters of this State. Only clean fill, which is free of organic, metallic, toxic or deleterious materials shall be used.

() (7) The disturbance of the bottom of the water and sediment transport into the adjacent State waters shall be minimized. The applicant shall obtain and certify compliance with a grading and sediment control plan which has been approved by the:

- () (a) _____ Soil Conservation District or**
- () (b) Erosion and Control Representative, Division of Environmental Services, Bureau of Highways, Department of Public Works of the City of Baltimore or**
- () (c) The Department of the Environment, Water Management Administration or**
- () (d) Montgomery County Department of Environmental Protection.**

The approved plan shall be available at the project site during all phases of construction.

() (8) The spoil disposal area(s), including dikes where applicable, shall be constructed to limit the suspended solids content in the discharge to the waters of this State to four hundred (400) parts per million or less.

() (9) _____ shall be done only in the period _____.

() (10) Stormwater runoff from impervious surfaces shall be controlled to prevent the washing of debris into the waterway. The natural vegetation shall be maintained and restored when disturbed or eroded. Stormwater drainage facilities shall be designed, implemented, operated and maintained in accordance with the requirements of the applicable approving authority.

() (11) _____ shall provide to the Water Management Administration a stormwater management plan including cross-sections which incorporates effective pollutant removal strategies in uplands to treat a minimum of the first one-half inch of runoff from impervious surfaces prior to release of stormwater into State waters or wetlands. There shall be no discharge of untreated stormwater to State waters or wetlands. The plan shall be provided by _____ and shall be implemented by _____.

() (12) _____ shall provide to the Water Management Administration a mitigation plan for the construction of - _____ acre(s) of _____ wetland for review and approval by _____. The plan shall be implemented by _____.

- The plan shall show:**
- the source of hydrology for the constructed wetland**
 - the source and amount of soil to be used in constructing the wetland**
 - the species, size and density of vegetation to be planted in the constructed wetland and a planting schedule.**
 - a monitoring/maintenance plan.**

Page Three Water Quality Certification

() (13) _____ shall monitor the mitigation site for a period of five years and shall determine whether the wetland construction has been successful. A successful mitigation project shall result in: _____ plants/acre and 85% survivability of plants in forested and scrub/shrub wetlands and plants covering 85% of the area for emergent wetlands. If these standards are not met,

_____ shall determine the reason(s) for failure, the problem(s) shall be corrected, and the area(s) shall be replanted and monitored.

() (14) The mitigation site shall be constructed in accordance with the plan, dated _____.

() (15) _____ shall provide a _____ plan for review and approval by _____. This plan shall be implemented by _____.

() (16) At least one culvert in every stream crossing shall be depressed at least one foot below existing stream bottom under the low flow condition. A low flow channel shall be provided through any riprap structures. The culvert shall be constructed and any riprap placed so as not to obstruct the movement of aquatic species.

() (17) Stormwater discharges from ponds, stormwater management outfalls, and stormwater facilities shall have a velocity no greater than four feet per second for the two year storm in order to prevent erosion in the receiving waterway or wetland.

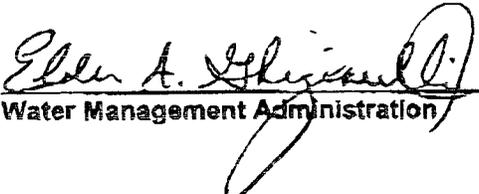
() (18) Future stormwater discharges to certified pond(s) are prohibited unless the first one half inch of stormwater runoff from impervious surfaces is managed in uplands for effective pollutant removal.

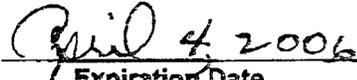
() (19) Authorized stormwater detention ponds shall have a maximum detention time of _____ hours.

() (20) _____ shall restore and revegetate all temporarily disturbed waters and wetlands to original contours upon completion of construction.

Failure to comply with these conditions shall constitute reason for suspension or revocation of the Water Quality Certification and legal proceedings may be instituted against the applicant in accordance with the Annotated Code of Maryland. In granting this certification, the Department reserves the right to inspect the operations and records regarding this project at anytime.

CERTIFICATION APPROVED


Water Management Administration


Expiration Date