

Completed

NOTICE:

Bids to be opened at 2:00 P.M.
at the office of
Office in Charge of Construction
Jacksonville, North Carolina Area
Building 1005, Marine Corps Base
Camp Lejeune, North Carolina 28542

26 MAY 1983

CONTRACT N62470-83-B-5814

NAVFAC SPECIFICATION
NO. 05-83-5814

REPLACE WATER LINE, ONSLOW BEACH

at the

MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA

DESIGN BY:

Public Works Division
Marine Corps Base, Camp Lejeune, North Carolina

SPECIFICATION PREPARED BY:

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APPROVED BY:

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for Commander, Naval Facilities Engineering Command

05-83-5814

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SECTION 00101
BIDDING INFORMATION

1. CONTENTS: This Invitation for Bids, IFB NO.N62470-83-B-5814, consists of the following documents:

- (a) Bid Instruction Documents
 - (i) Invitation for Bids (Standard Form 20, January 1961 Ed.)
 - (ii) Bidding Information
 - (iii) Instructions to Bidders, dated March 1979
- (b) Bid Submittal Documents
 - (i) Bid Form (Standard Form 21, December 1965 Ed.)
 - (ii) Representations and Certifications, Standard Form 19-B, June 1976 Ed. (REV 1980 AUG), including Appendix "A", dated August 1980
 - (iii) Bid Guaranty (Standard Form 24, June 1964 Ed.)
(See Instructions to Bidders)
- (c) Contract Documents
 - (i) Construction Contract (Standard Form 23, Jan 1961 Ed.)
 - (ii) Performance Bond (Standard Form 25, June 1967 Ed.)
 - (iii) Payment Bond (Standard Form 25A, June 1964 Ed.)
 - (iv) Labor Standards Provisions, dated November 1979
 - (v) General Provisions dated March 1981 (Rev 12/81)
 - a. Clause 43. ACCIDENT PREVENTION (1977 Jun): Change the date of the Corps of Engineers Manual, EM 385-1-1, from "1 June 1977" to "1 April 1981"
 - b. Clause 97, AFFIRMATIVE ACTION COMPLIANCE REQUIREMENTS FOR CONSTRUCTION (1978 SEP): Change the date of this clause to "(1982 FEB)". The remainder of the clause is correct as printed. Only the date is changed.
 - (vi) NAVFAC Specification No. 05-83-5814
 - (vii) Drawings identified in Section 01011 of the specification
 - (viii) Wage Determination Decision No. NC81-1148 for Water and Sewer Construction

2. BIDS:

2.1 Instructions to Bidders: Instructions to Bidders and Invitation for Bids, Standard Form 20, January 1961 edition, shall be observed in the preparation of bids. Bidders shall affix their names and return addresses in the upper left corner of bid envelope. Envelopes containing bids must be sealed.

2.2 Bid Guaranty: A bid guaranty will be required as stipulated in the Instructions to Bidders.

2.3 Items of Bids: Bids shall be submitted in duplicate on Standard Form 21, Bid Form, and shall be accompanied by Standard Form 19B, Representations and Certifications, with Appendix "A" and by Bid Guaranty, all in accordance with the Bid Instruction Documents listed in paragraph 1(a) hereinbefore upon the following item:

BASE BID: Price for the entire work, complete in accordance with the drawings and specifications.

2.4 TELEGRAPHIC MODIFICATIONS OF BIDS in accordance with the instructions to bidders may be made. Two signed copies of the telegram in a sealed envelope marked "Copies of telegraphic modification of bid for REPLACE WATERLINE, ONSLOW BEACH, Specification No. 05-83-5814" should be forwarded immediately to the office to which written bids were submitted.

2.5 TELEGRAPHIC MODIFICATIONS OR WITHDRAWAL OF BIDS will be considered as specified herein. TELEPHONIC RECEIPT OF TELEGRAPHIC MODIFICATIONS OR WITHDRAWAL OF BIDS WILL NOT QUALIFY THE TELEGRAM AS TIMELY. The telegram must be received at the place specified for receipt of bids prior to the exact time set for receipt of bids.

2.6 HAND DELIVERED BIDS: All hand delivered bids must be deposited with personnel in the Contract Branch, Room No. 26, Building 1005, Marine Corps Base, Camp Lejeune, North Carolina 28542, prior to the time and date set for bid opening. Any bids submitted by hand after the time set for receipt will not be accepted.

3. PRE-BID SITE VISITATION: To inspect the site of the work prior to bid opening, prior appointment must be made with the Officer in Charge of Construction, Jacksonville, North Carolina Area, telephone 919-451-2581. Bidders are urged and expected to inspect the site where the services are to be performed and to satisfy themselves as to all general and local conditions that may affect the cost of performance of the contract to the extent such information is reasonably obtainable. In no event will a failure to inspect the site constitute grounds for withdrawal of a bid after opening or for a claim after award of the contract.

4. CONTROLLED MATERIALS DATA: The Contracting Officer will issue a D0-C2 priority rating for procurement of critical materials. See General Provision entitled "PRIORITIES, ALLOCATIONS AND ALLOTMENTS".

5. INQUIRIES:

5.1 Plans and Specifications: Questions regarding the plans and specifications occurring prior to bid opening shall be presented to the Public Works Design Division, Building 1005, Marine Corps Base, Camp Lejeune, North Carolina 28542, telephone 919-451-5507. Questions requiring interpretation of drawings and specifications must be submitted at least ten days before bid opening. Interpretations or modifications to specifications made as a result of questions will be made by amendment only, and unless so done, all bidders should base their bids on the plans and specifications as issued.

5.2 Bidding Procedures: All questions concerning the bidding procedures shall be presented to OICC-ROICC Contract Branch, Room 26, Building 1005, Marine Corps Base, Camp Lejeune, North Carolina, telephone 919-451-2581.

6. AVAILABILITY OF SPECIFICATIONS, STANDARDS AND DESCRIPTIONS (1977 JUN): Specifications, standards and descriptions cited in this solicitation are available as indicated below:

a. Unclassified Federal, Military and Other Specifications and Standards (Excluding Commercial), and Data Item Descriptions: Submit request on DD Form 1425 (Specifications and Standards Requisition) to:

Commanding Officer
U. S. Naval Publications and Forms Center
5801 Tabor Avenue, Philadelphia, Pennsylvania 19120

The Acquisition Management Systems and Data Requirements Control List: DOD Directive 5000.19L, Volume II, may be ordered on the DD Form 1425. The Department of Defense Index of Specifications and Standards (DODISS) may be purchased from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402. When requesting a specification or standard, the request shall indicate the title, number, date and any applicable amendment thereto by number and date. When requesting a data item description, the request shall cite the solicitation. When DD Form 1425 is not available, the request may be submitted in letter form, giving the same information as listed above, and the solicitation or contract number involved. Such request may also be made to the activity by TELEX No. 834295, Western Union No. 710-670-1685, or telephone 215-697-3321 in case of urgency.

b. Commercial Specifications, Standards and Descriptions: These specifications, standards and descriptions are not available from Government sources. They may be obtained from the publishers.

c. Availability for Examination of Specifications, Standards, Plans, Drawings, and other Pertinent Documents: The specifications, standards, plans, drawings, and other pertinent documents cited in this solicitation may be examined at the following location:

Public Works Division
Specifications and Estimates Section
Building 1005, Marine Corps Base
Camp Lejeune, North Carolina

7. RECOVERED MATERIAL: The Contractor certifies by signing this bid/proposal/quotation that recovered materials as defined in DAR 1-2500.4 will be used as required by the applicable publications.

8. REFERENCE TO AMENDMENTS: Each bidder shall refer in his bid to all amendments to this specification; failure to do so may constitute an informality in the bid.

9. CERTIFICATE OF CURRENT COST OR PRICING DATA: (This paragraph applies to negotiated contracts of \$100,000 or more, except where the price is based on adequate competition, and to change orders of \$100,000 or more, to any contract.) The Contractor shall submit to the Contracting Officer a certificate in the form set forth below as soon as practicable after agreement is reached on the contract price:

This is to certify that, to the best of my knowledge and belief, cost or pricing data defined in DAR 3-807.1(a)(1) submitted, either actually or by specific identification in writing (see DAR 3-807.3(a)) to the Contracting Officer or his representative in support of _____*
are accurate, complete, and current as of _____**
day month year

This certification includes the cost or pricing data supporting any advance agreement(s) and forward pricing rate agreements between the offeror and the Government which are part of the proposal.

Firm _____
Name _____
Title _____

*Describe the proposal, quotation, request for price adjustment or other submission involved, giving appropriate identifying number (e.g. RFP No. _____).

**The effective date shall be the date when price negotiations were concluded and the contract price was agreed to. The responsibility of the Contractor is not limited by the personal knowledge of the Contractor's negotiator if the Contractor had information reasonably available at the time of agreement, showing that the negotiated price is not based on accurate, complete and current data.

***This date should be as close as practicable to the date when the price negotiations were concluded and the contract price was agreed to.

END OF SECTION

SECTION 01011
GENERAL PARAGRAPHS

1. GENERAL INTENTION: It is the declared and acknowledged intention and meaning to provide and secure the replacement of a ten-inch underground waterline, complete and ready for use. This is a fixed-price contract awarded on a lump sum basis.

2. GENERAL DESCRIPTION: The work includes clearing of right-of-way, excavation, providing a ten-inch underground waterline for potable water and connections to existing lines, and incidental related work.

3. LOCATION: The work shall be located at the Marine Corps Base, Camp Lejeune, approximately as shown. The exact location will be indicated by the Contracting Officer. "Contracting Officer" and "Officer in Charge of Construction (OICC)" are used interchangeably in this specification and have the same meaning.

4. COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK: The Contractor will be required to commence work under the contract 15 calendar days after the date of receipt of Notice of Award, to prosecute said work diligently, and to complete the entire work ready for use within 150 calendar days. The time stated for completion shall include final cleanup of the premises. The contract completion date will be computed starting 15 calendar days after the date of Notice of Award. This 15-day period is to allow for mailing of the notice of Award and the Contractor's submission of required bonds.

5. LIQUIDATED DAMAGES: In case of failure on the part of the Contractor to complete the work within the time fixed in the contract or any extensions thereof, the Contractor shall pay to the Government as liquidated damages pursuant to General Provisions clauses entitled "Termination for Default - Damages for Delay - Time Extensions", and "Damages for Delay - Defense Materials System and Priorities" the sum of \$25 for each day of delay.

6. DRAWING ACCOMPANYING SPECIFICATIONS: The following drawing accompanies this specification and is a part thereof. The drawing is the property of the Government and shall not be used for any purpose other than that contemplated by the specification.

<u>NAVFAC</u> <u>DWG. NO.</u>	<u>TITLE</u>
4088868	Site Plan and Vicinity Map

7. NORTH CAROLINA SALES AND USE TAX IS REQUIRED. (See section entitled "Additional General Paragraphs").

8. SCHEDULING THE WORK:

8.1 General Scheduling Requirements: Notwithstanding the requirements of clause entitled "Progress Charts and Requirements for Overtime Work" of the General Provisions, immediately after award the Contractor shall meet with the Contracting Officer and present a schedule of work, prepared in accordance with said clause, for review by the Contracting Officer. The schedule will be reviewed at this meeting and will be retained by the Contracting Officer for final review and approval.

8.2 Work Outside Regular Hours: If the Contractor desires to carry on work outside regular hours or on Saturdays, Sundays, or holidays, he shall submit application to the Contracting Officer, but shall allow ample time to enable the Government to make satisfactory arrangements for inspecting the work in progress. At night he shall light the different parts of the work in an approved manner. All utility cutovers shall be made after normal working hours or on weekends. Anticipated costs shall be included in the bid. Regular working hours are 7:45 A.M. to 4:15 P.M., Monday through Friday, excluding holidays.

8.3 The Government will provide all environmental work permits. There is a parallel water supply line and therefore all connections to existing lines may be considered as dry connections.

9. SAFETY PROGRAM: The Contractor shall implement a safety program conforming to the requirements of Federal, State and local laws, rules and regulations. The program shall include, but is not limited to, the following:

a. "Occupational Safety and Health Standards" which can be examined at the office of the Contracting Officer or be ordered from the Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402.

b. Department of the Army, Corps of Engineers "General Safety Requirements" which may be examined at the office where bids are being received or may be purchased from the Superintendent of Documents, U. S. Government Printing Office.

c. General Provisions clause entitled "Accident Prevention".

d. NFPA 241-1975, Safeguarding Building Construction and Demolition Operations, which may be examined in the Design Division, Public Works Department, Building 1005, Marine Corps Base, Camp Lejeune, or may be purchased from the National Fire Protection Association, 470 Atlantic Avenue, Boston, MA 02210

10. FACTORY INSPECTION of material and equipment for which tests at the place of manufacture are required in referenced publications will be waived if notarized copies of factory reports are furnished that show compliance with the specification requirements. Factory inspection will be required only where specified herein or in the technical sections of this specification. The Government reserves the right to charge to the Contractor any additional cost of Government inspection and tests when materials and equipment are not ready at the time inspection and tests are required by the Contractor.

11. TRAILER OR STORAGE BUILDINGS will be permitted on the job site, where space is available, subject to the approval of the Contracting Officer. The trailers or buildings shall be suitably painted and kept in a good state of repair. Failure of the Contractor to maintain his trailers or storage buildings in good condition will be considered sufficient reason to require their removal from the job site.

12. MATERIALS AND EQUIPMENT TO BE SALVAGED: General Provisions clause entitled "Salvage Materials and Equipment" is hereby deleted. Except where specifically specified otherwise herein, all existing materials and equipment which are required to be removed or disconnected to perform the work, but are not indicated or specified for use in the new work, shall become the property of the Contractor and shall be removed from Government property.

END OF SECTION

SECTION 01012. ADDITIONAL GENERAL PARAGRAPHS

1. UTILITIES:

1.1 Government-Furnished Utilities: The Government will furnish water and electricity from the nearest available outlet free of charge for pursuance of work under this contract. If the nearest available outlet cannot be utilized by the Contractor because of improper voltage, insufficient current, improper pressure, incompatible connectors, etc., it shall be the responsibility of the Contractor to provide temporary utilities as required.

1.2 Energy and Utilities Conservation: The Contractor shall carefully conserve utilities furnished without charge. The Contractor, at his own expense and in a manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines and remove the same prior to final acceptance of the construction. (DAR 7-603.30)

1.3 Operation of Station Utilities: The Contractor shall not operate nor disturb the setting of any control devices in the Base utilities system, including water, sewer, electrical and steam services. The Government will operate the control devices as required for normal conduct of the work. The Contractor shall notify the Contracting Officer, giving reasonable advance notice, when such operation is required.

1.4 Location of Underground Utilities: Where existing piping, utilities, and underground obstructions of any type are indicated in locations to be traversed by new piping, ducts, and other work provided hereunder, and are not indicated or specified to be removed, the elevations of the existing utilities and obstructions shall be determined before the new work is laid closer than the nearest manhole or other structure at which an adjustment in grade could be made. For any additional work required by reason of conflict between the new and existing work, an adjustment in contract price will be made in accordance with General Provisions clause entitled "Differing Site Conditions (1968 FEB)." The Base Telephone Officer, telephone 451-2531, will show the Contractor approximate locations of all buried telephone and fire alarm cables after receiving 10 days notice. The locations of underground utilities shown is only approximate and the information is incomplete.

2. CHANGED CONDITIONS: Wherever changed conditions as defined in General Provisions clause entitled "Differing Site Conditions (1968 FEB)" are encountered, and wherever conditions exposed during the course of the work necessitate a change from quantities indicated or specified as either estimated quantities or as a basis for bids, whether or not provisions for a change in price for such variation is specified, the Contracting Officer must be notified in writing and written directions to do so must be obtained before quantities stated in the contract documents are exceeded.

3. SUBCONTRACTORS AND PERSONNEL: Promptly after the award of the contract, the Contractor shall submit to the Contracting Officer, in triplicate, a list of his subcontractors and the work each is to perform. On this form shall appear the names of the key personnel of the Contractor and subcontractors, together with their home addresses and telephone numbers, for use in event of emergency. From time to time as changes occur and additional information becomes available, the Contractor shall amplify, correct, and change the information contained in previous lists.

4. PRINTS FURNISHED TO CONTRACTOR: Six copies of the project specifications, and six sets of the drawings accompanying the specifications, will be furnished the Contractor. Additional sets of the specifications and drawings can be obtained, if required, by application to the Contracting Officer, provided that the need therefor is justified to the satisfaction of the Contracting Officer.

5. SCHEDULE OF PRICES: The original and seven copies of the Schedule of Prices shall be submitted to the Contracting Officer for approval. Payments will not be made until the Schedule of Prices has been submitted and approved.

6. CONTRACTOR'S INVOICE AND CONTRACT PERFORMANCE STATEMENT: Requests for payment in accordance with the terms of the contract shall consist of:

a. Contractor's Invoice on Form NAVFAC 10-7300/30(4/68), which shall show, in summary form, the basis for arriving at the amount of the invoice

b. Contractor's Monthly Estimate for Voucher (5ND GEN 5265/1)

c. Affidavit to Accompany Invoice (5ND LANTDIV 4-4235/4)(Rev 1/68)

Forms will be furnished by the Contracting Officer. Monthly invoices and supporting forms for work performed through the 15th of the month shall be submitted to the Contracting Officer by the 20th of the month in the following quantities:

a. Contractor's Invoice - Original and five copies

b. Contractor's Monthly Estimate for Voucher - Original and two copies

c. Affidavit - Original

7. OPTIONAL REQUIREMENTS: Where a choice of materials or methods is permitted herein, the Contractor will be given the right to exercise the option unless stated specifically otherwise.

8. QUARANTINE FOR IMPORTED FIRE ANT (CLNC 2/82): All of Onslow, Jones and Carteret Counties and portions of Duplin and Craven Counties have been declared a generally infested area by the United States Department of Agriculture for the imported fire ant. Compliance with the quarantine regulations established by this authority as set forth in USDA Quarantine No. 81 dated 9 October 1970, and USDA Publication 301.81-2A of 23 July 1976, is required for operations hereunder

8.1 The quarantine applies to materials originating from Camp Lejeune and the Marine Corps Air Station (Helicopter), New River, which are to be transported outside the Onslow County or adjacent suppression areas.

8.2 Certification is required for the following articles, and they shall not be moved from the reservation to any point outside the Onslow County and adjacent designated areas unless accompanied by a valid inspection certificate issued by an officer of the Plant Protection and Quarantine Program, USDA:

(1) Bulk soil

(2) Used mechanized soil-moving equipment

(3) Any other products, articles, or means of conveyance if it is determined by an inspector that they present a hazard of spread of the imported fire ant and the person in possession thereof has been so notified.

8.3 Authorization for movement of equipment outside the imported fire ant regulated area shall be obtained from USDA, APHIS, PPQ, Rural Route 6, Box 53, Wilmington, NC 28504; telephone (919) 343-4667. Requests for inspection shall be made at least two days in advance of the date of movement to permit arrangements for the services of authorized inspectors. The equipment shall be prepared and assembled so that it may be readily inspected. All soil on or attached to equipment, supplies and materials shall be removed by washing with water and/or such other means as necessary to accomplish complete removal. Resulting spoil shall be wasted as directed.

9. EMERGENCY MEDICAL CARE: Only emergency medical care is available at Camp Lejeune Government facilities for Contractor employees who suffer on-the-job injury or disease. Emergency care will be rendered at the prevailing rates established in BUMEDINST 6320.4 series. Reimbursement shall be made by the Contractor to the Naval Regional Medical Center Collection Agent upon receipt of a monthly statement.

10. PROPRIETARY NAMES: Names indicated for colors, textures and patterns of materials are for the purpose of color, texture and pattern selection only. Other manufacturer's materials are acceptable provided they closely approximate colors, textures and patterns indicated and provided they conform to all other requirements.

11. NORTH CAROLINA STATE AND LOCAL SALES AND USE TAX (1977 JAN):

(a) As used throughout this clause, the term "materials" means building materials, supplies, fixtures and equipment which become a part of or are annexed to any building or structure erected, altered, or repaired under this contract.

(b) If this is a fixed-price contract as defined in the Defense Acquisition Regulation, the contract price includes the North Carolina state and local sales and use taxes to be paid with respect to materials, notwithstanding any other provision of this contract. If this is a cost-reimbursement type contract as defined in such regulation, any North Carolina state and local sales and use taxes paid by the Contractor with respect to materials shall constitute an allowable cost under this contract.

(c) At the time specified in paragraph (d) below:

(i) The Contractor shall furnish the Contracting Officer certified statements setting forth the cost of the materials purchased from each vendor and the amount of North Carolina state and local sales and use taxes paid thereon. In the event the Contractor makes several purchases from the same vendor, such certified statement shall indicate the invoice numbers, the

inclusive dates of the invoices, the total amount of the invoices and the North Carolina state and local sales and use taxes paid thereon by the Contractor. Any local sales or use taxes included in the Contractor's statements must be shown separately from the state sales or use tax. The Contractor shall furnish such additional information as the Commissioner of Revenue of the State of North Carolina may require to substantiate a refund claim for sales or use taxes.

(ii) The Contractor shall obtain and furnish to the Contracting Officer similar certified statements by its subcontractors.

(d) If this contract is completed before the next October 1, the certified statements to be furnished pursuant to paragraph (c) above shall be submitted within 60 days after completion. If this contract is not completed before the next October 1, such certified statements shall be submitted on or before the 30th day of November of each year and shall cover taxes paid during the twelve-month period which ended the preceding September 30.

(e) The certified statements to be furnished pursuant to paragraph (c) above shall be in the following form:

I hereby certify that during the period _____ to _____, (name of Contractor or subcontractor) paid North Carolina state and local sales and use taxes aggregating \$ _____ (state) and \$ _____ (local) with respect to building materials, supplies, fixtures and equipment which have become a part of or annexed to a building or structure erected, altered or repaired by (name of Contractor) for the United States of America, and that the vendors from whom the property was purchased, the dates and numbers of the invoices covering the purchases, the total amount of the invoices of each vendor, the North Carolina state and local sales and use taxes paid thereon, shown separately, and the cost of property withdrawn from warehouse stock and North Carolina state and local sales or use taxes paid thereon are as set forth in the attachments hereto.

12. AS-BUILT DRAWINGS: During the progress of the work, one full-size print of each of the drawings accompanying this specification shall be neatly and clearly marked in red to show all variations between the construction actually provided and that indicated or specified in the contract documents. The as-built drawings shall be kept up-to-date at the work site at all times during the contract, and shall be available for inspection by the Contracting Officer upon request. The Contractor shall also mark the drawings to indicate the exact location of any underground utility lines discovered in the course of the work. Where a choice of materials and/or methods is permitted herein, and where variations in the scope or character of the work indicated or specified are permitted either by award on bidding items specified for that purpose or by subsequent change to the contract, the as-built drawings shall define the construction actually provided. The representation of such variations shall conform to standard drafting practice and shall include such supplementary notes, legends, and details as may be necessary for legibility and clear portrayal of the as-built construction; the marked prints shall be subject to approval of the Contracting Officer before acceptance. Upon completion of the work, the completed as-built drawings shall be presented to the Contracting Officer.

*** END OF SECTION ***

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SECTION 01401. QUALITY CONTROL

1. APPLICABLE PUBLICATION: The following publication of the issue listed below, but referred to thereafter by basic designation only, forms a part of this specification to the extent indicated by the references thereto:

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM):

ASTM E329-77 Standard Recommended Practices for Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.

2. QUALITY CONTROL of this contract will be administered under the General Provisions Clause entitled "Contractor Inspection System".

3. DEFINITIONS:

3.1 Factory Tests: Tests made on various products and component parts prior to shipment to the job site, including but not limited to such items as transformers, boilers, air conditioning equipment, electrical equipment, and precast concrete.

3.2 Field Tests: Tests or analyses made at, or in the vicinity of, the job site in connection with the actual construction.

3.3 Product: The term "product" includes the plural thereof and means a type or a category of manufactured goods, construction, installations and natural and processed materials or those associated services whose characterization, classification or functional performance determination is specified by standards.

3.4 Person: The term "person" means associations, companies, corporations, educational institutions, firms, government agencies at the Federal, State and Local level, partnerships, and societies, as well as divisions thereof, and individuals.

3.5 Testing Laboratory: The term "testing laboratory" means any "person", as defined above, whose functions include testing, analyzing, or inspecting "products", as defined above, and/or evaluating the designs or specifications of such "products" according to the requirements of applicable standards.

3.6 Certified Test Reports: Reports of tests signed by a qualified professional attesting that the test results reported are accurate and that items tested either meet or fail to meet the stated minimum requirements. These test reports include those performed by Factory Mutual, Underwriters' Laboratories, Inc., and others.

3.7 Certified Inspection Reports: Reports signed by approved inspectors attesting that the items inspected meet the specification requirements other than any exceptions included in the report.

3.8 Manufacturer's Certificate of Conformance or Compliance: A certificate signed by an authorized manufacturer's official attesting that the material or equipment delivered meets the specification requirements.

4. SUBMITTALS shall be prepared in accordance with this specification and the General Provisions and submitted to the Contracting Officer for approval. Each submittal shall be accompanied with a cover letter signed by the Contractor. Each item proposed to be incorporated into the contract shall be clearly marked and identified in the submittals, and shall be cross-referenced to the contract drawings and specifications so as to identify clearly the use for which it is intended. Each sheet of submittal shall be stamped with the Contractor's certification stamp. Data submitted in a bound volume or on one sheet printed on two sides, may be stamped on the front of the first sheet only. The Contractor's certification stamp shall be worded as follows:

"It is hereby certified that the (equipment)(materials) shown and marked in this submittal is that proposed to be incorporated into Contract Number _____, is in compliance with the contract drawings and specifications, can be installed in the allocated spaces, and is submitted for Government approval. Certified by _____
Date _____"

The person signing the certification shall be one designated in writing by the Contractor as having that authority. The signature shall be in original ink. Stamped signatures are not acceptable.

4.1 Submittal Status Logs: The Contractor shall maintain at the job site an up-to-date submittal status log showing the status of all submittals required by the contract. A sample format of an acceptable log is attached at the end of this section. While the use of this sample format is not required, any other format must contain the same information as shown on the sample.

4.2 Samples, shop drawings, manufacturer's data, certifications and data required of the Contractor: Specification MIL-D-1000 shall be used as a guide and its use is encouraged, for all drawings and data submitted by the Contractor. Conformance to the provisions of Specification MIL-D-1000 is not mandatory for maps, sketches, presentation drawings, perspectives, renderings, and all other drawings not requiring Naval Facilities Engineering Command drawing numbers. Before starting the fabrication or installation of any of this work, the Contractor shall submit to the Contracting Officer for, and receive approval of, in accordance with the General Provisions, such drawings as may be required, including all items specified in the applicable paragraphs of the technical sections of this specification. Seven copies of all submittals to be approved by the Contracting Officer shall be forwarded.

4.3 Identification: All catalog cuts, shop drawings, samples and other data submitted for approval shall specifically identify the specification paragraph or contract drawing by number where each item submitted is required to be provided. All submittals shall be clearly marked in

ink to indicate the specific item(s) submitted for approval. Samples shall be clearly labeled with strong tags, firmly affixed, or indelible markings to identify the contract number, contractor, manufacturer, and item name.

4.4 Certified Test Reports: Before delivery of materials and equipment, four certified copies of the reports of all tests listed in the technical sections and referenced publications shall be submitted and approved. The testing shall have been performed in a laboratory meeting the requirements specified herein. The tests shall have been performed within three years of submittal of the reports for approval. Test reports shall be accompanied by certificates from the manufacturer certifying that the material and equipment proposed to be supplied is of the same type, quality, manufacture, and make as that tested.

4.5 Manufacturer's Certificates of Conformance or Compliance: Manufacturer's certification furnished by the Contractor on items of materials and equipment incorporated into the work will be accepted only when this method will assure full compliance with the provisions of the contract, as determined by the Contracting Officer. Preprinted certifications will not be acceptable. All certifications shall be in the original. The original of all manufacturer's certifications shall name the appropriate item of equipment or material, specification, standard, or other document specified as controlling the quality of that item and shall have attached thereto certified copies of test reports upon which the certifications are based. All certificates shall be signed by the manufacturer's official authorized to sign certificates of conformance or compliance.

4.6 Laboratory Reports shall cite the contract requirements, the test or analysis procedures used, the actual test results, and include a statement that the item tested or analyzed conforms or fails to conform to the specification requirements. Each report shall be conspicuously stamped on the cover sheet in large red letters "CONFORMS" or "DOES NOT CONFORM" to the specification requirements as the case may be. All test reports shall be signed by the representative of the testing laboratory authorized to sign certified test reports. The Contractor shall arrange for immediate and direct delivery of the signed original of all reports, certifications, and other documentation to the Contracting Officer.

4.7 Tabulation of Tests: In addition to the General Provisions requirements for CQC test reports, prior to final payment the Contractor shall obtain from each laboratory a tabulation of all tests it has performed in connection with the construction contract, including conforming or nonconforming, and repeated test results. The tabulation(s) shall be certified as complete, and signed by the authorized representative of the laboratory, and shall be delivered to the Contracting Officer.

5. QUALITY CONTROL REQUIREMENTS: In accordance with the General Provisions Clause entitled "Contractor Inspection System", the Contractor shall inspect and test all work under the contract and maintain records of the inspections and tests. Approvals, except those required for field

installations, field applications, and field tests, shall be obtained before delivery of materials and equipment to the project site. Surveillance of the inspection system will be performed by the Contracting Officer.

5.1 Factory Tests: Unless otherwise specified, the Contractor will arrange for factory tests when they are required under the contract.

5.2 Factory Inspection: Unless otherwise specified, the Contractor will arrange for factory inspection when required under the contract.

5.3 Field Inspections and Tests by the Contractor: The Contractor shall furnish all equipment, instruments, qualified personnel, and facilities necessary to inspect all work and perform all tests required by the contract. All inspections and tests performed and test results received each day shall be included in the Daily Report to Inspector.

5.5 Approval of Testing Laboratories: All laboratory work under this contract shall be performed by a laboratory approved by the Government, whether the laboratory is employed by the Contractor, or is owned and operated by the Contractor. The basis of approval includes the following:

a. Testing laboratories performing work in connection with concrete, steel, and bituminous materials shall comply with ASTM E329, except that the Contracting Officer will perform the function of paragraphs 3.4 and 3.5 therein in the absence of other Government approval.

b. Testing laboratories performing work not in connection with concrete, steel, or bituminous materials shall comply with sections 3 and 4 of ASTM E329, except that the Contracting Officer will perform the functions of paragraphs 3.4 and 3.5 therein in the absence of other Government approval.

5.6 Repeated Tests and Inspections: The Contractor shall repeat tests and inspections after each correction made to nonconforming materials and workmanship until tests and inspections indicate the materials, equipment, and workmanship conform to the contract requirements. The retesting and reinspections shall be performed at no additional cost to the Government.

5.7 Daily Report to Inspector: The Daily Report to the Inspector Form NAVFAC 4330/34 shall be submitted to the Contracting Officer by 10:00 A.M. on the working day following the day the work was performed.

INSTRUCTIONS

1. This form may be used by the Contractor for listing all material submittals that require action by either the Contractor or the Government.
2. Columns (a) through (e) should be completed by the Contractor and must include all submissions that are required by the specifications.
3. As submittals are received and processed, the remaining columns are to be completed by the Contractor.
4. In those instances where the Contractor has approved the submittal under his contract responsibility, there may be a dual Action Code under column (f); e.g., "A/E", indicating approved as submitted and forwarded to the OICC for record purposes.
5. In column (f) for those items requiring OICC action (Action Code "D"), the reason for forwarding to the OICC should be entered in the column (1), the Remarks column; e.g., gov't approval required; waiver requested because of variance, substitution, etc.
6. Where no Government action is required, (for Contractor review/approval items), there need be no entry in columns (h) and (i).
7. Column (j) is completed when material or equipment is delivered to the project. Column (k) is completed only after verification that the delivered item is that represented by the approved submittal.

ACTION CODE: To be used when completing columns (f) and (h)

- A - Approved as submitted
- B - Approved as noted
- C - Disapproved
- D - Forwarded to OICC for action
- E - Forwarded to OICC for record purposes

END OF SECTION

SECTION 01560
ENVIRONMENTAL PROTECTION

PART 1 - GENERAL

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

ENVIRONMENTAL PROTECTION AGENCY (EPA):

40 CFR 61(Subpart B) National Emission Standards for Asbestos (1979)
40 CFR 761 Polychlorinated Biphenyls (1979)

U. S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA):
29 CFR 1910.1001 General Industry Safety and Health Standards (1979)

FEDERAL REGULATION (FR):

Executive Order 11988 Flood Plain Management (42 FR 28951)

NAVAL ENVIRONMENTAL PROTECTION SUPPORT SERVICE (NEPSS):

PS-015 Disposal of Lead-Acid Battery Electrolyte
April 18, 1980

1.2 DEFINITIONS OF CONTAMINANTS:

1.2.1 Sediment: Soil and other debris that has been eroded and transported by runoff water.

1.2.2 Solid Waste: Rubbish, debris, garbage, and other discarded solid materials resulting from industrial, commercial, and agricultural operations, and from community activities.

1.2.2.1 Rubbish: A variety of combustible and noncombustible wastes such as paper, boxes, glass, crockery, metal, lumber, cans, and bone.

1.2.2.2 Debris: Includes combustible and noncombustible wastes, such as ashes, waste materials that result from construction or maintenance and repair work, leaves, and tree trimmings.

1.2.3 Chemical Wastes: Includes salts, acids, alkalies, herbicides, pesticides, and organic chemicals.

1.2.4 Sanitary Wastes:

1.2.4.1 Sewage: Wastes characterized as domestic sanitary sewage.

1.2.4.2 Garbage: Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

1.2.5 Asbestos and Asbestos Materials: Asbestos means actinolite, amosite, anthophyllite, chrysotile, crocidolite, and tremolite. Asbestos material means asbestos or any material containing asbestos such as asbestos waste, scrap, debris bags, containers, equipment, and asbestos-contaminated clothing consigned for disposal. Friable asbestos material means any material that contains more than one percent asbestos by weight and that can be crumbled, pulverized, or reduced to powder, when dry, by hand pressure.

1.2.6 Oily Waste: Includes petroleum products and bituminous materials.

1.3 SUBMITTALS:

1.3.1 Environmental Protection Plan: Submit four copies of the proposed Environmental Protection Plan not later than 14 days after the meeting with the Contracting Officer to discuss the development of an Environmental Protection Plan.

1.4 ENVIRONMENTAL PROTECTION REQUIREMENTS: Provide and maintain during the life of the contract, environmental protection as defined herein. Provide environmental protective measures as required to control pollution that develops during normal construction practice. Provide also environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project. Comply with all federal, state, and local regulations pertaining to water, air, and noise pollution. Develop proposals for an environmental protection plan for the project and, prior to the commencement of the work, meet with the Contracting Officer and discuss the proposed environmental protection plan. The meeting shall develop mutual understanding relative to details of environmental protection, including measures for protecting natural resources, required reports, and measures to be taken should the Contractor fail to provide adequate protection in an adequate and timely manner. Perform a preconstruction survey of the project site and take photographs as necessary to enhance the survey.

PART 2 - EXECUTION

2.1 PROTECTION OF NATURAL RESOURCES: The natural resources within the project boundaries and outside the limits of permanent work performed under this contract shall be preserved in their existing condition or restored to an equivalent or improved condition upon completion of the work. Confine construction activities to areas defined by the work schedule, drawings, and specification.

2.1.1 Land Resources: Except in areas indicated to be cleared, do not remove, cut, deface, injure, or destroy trees or shrubs without special permission from the Contracting Officer. Do not fasten or attach ropes, cables, or guys to any existing nearby trees for anchorages unless specifically authorized. Where such special emergency use is authorized, the Contractor shall be responsible for any resultant damage.

2.1.1.1 Protection: Protect existing trees which are to remain and which may be injured, bruised, defaced, or otherwise damaged by construction operations. Remove displaced rocks from uncleared areas. Protect monuments, markers, and works of art.

2.1.1.2 Repair or Restoration: Repair or restore to their original condition all trees or other landscape features scarred or damaged by the equipment or operations. Obtain approval of the repair or restoration from the Contracting Officer prior to its initiation. Include topsoil or nutriment during the seeding operation as necessary to provide a suitable stand of grass.

2.1.2 Water Resources: Perform all work in such a manner that any adverse environmental impact on water resources is reduced to a level acceptable to the Contracting Officer.

2.1.2.1 Stream Crossings: Limit equipment fording across stream to control turbidity.

2.1.2.2 Oily Substances: Take special measures to prevent oily or other hazardous substances from entering the ground, drainage areas, or local bodies of water. Surround all temporary fuel oil, petroleum, or liquid chemical storage tanks with a temporary earth berm of sufficient size and strength to contain the contents of the tanks in the event of content leakage or spillage.

2.1.3 Fish and Wildlife Resources: During the performance of the work, take such steps as required to prevent interference or disturbance to fish and wildlife. Do not alter water flows or otherwise significantly disturb native habitat adjacent to the project area which are critical to fish and wildlife except as may be indicated or specified.

2.1.4 Historical and Archeological Resources: Carefully preserve and report immediately to the Contracting Officer all items having any apparent historical or archeological interest which are discovered in the course of any construction activities.

2.2 EROSION AND SEDIMENT CONTROL MEASURES:

2.2.1 Burn-Off: Burn-off of ground cover is not permitted.

2.2.2 Borrow Pit Areas: Manage and control borrow pit areas to prevent sediment from entering nearby streams or lakes. Restore areas, including those outside borrow pit, disturbed by borrow and haul operations. Restoration includes grading, replacement of topsoil, and establishment of permanent vegetative cover. Uniformly grade side slopes of borrow pit to a slope of 30 degrees or less with the horizontal. Uniformly grade bottom of borrow pits to provide a flat bottom and drain by outfall ditches or other suitable means. Borrow locations will be as directed by the Contracting Officer.

2.2.3 Protection of Erodible Soils: All earthwork brought to final grade shall be immediately finished as indicated or specified. Protect immediately side slopes and back slopes upon completion of rough grading. Plan and conduct all earthwork in such a manner as to minimize the duration of exposure of unprotected soils.

2.2.4 Temporary Protection of Erodible Soils: Utilize the following methods to prevent erosion and control sedimentation.

2.2.4.1 Mechanical Retardation and Control of Runoff: Mechanically retard and control the rate of runoff from the construction site. This includes construction of diversion ditches, benches, and berms, to retard and divert runoff to protected drainage courses.

2.2.4.2 Sediment Basins: Trap sediment in temporary or permanent sediment basins. Select basin size to accommodate the runoff of a local 50 year storm. Pump dry and remove accumulated sediment after each storm. Use a paved weir or vertical overflow pipe for overflow. Remove collected sediment from the site. Institute effluent quality monitoring programs as required by state and local environmental agencies.

2.2.4.3 Vegetation and Mulch: Provide temporary protection on all side and back slopes as soon as rough grading is completed or sufficient soil is exposed to require protection to prevent erosion. Such protection shall be accelerated growth of permanent vegetation, temporary vegetation, mulching, or netting. Stabilize slopes by hydroseeding, anchoring mulch in place, covering with anchored netting, sodding, or such combination of these and other methods necessary for effective erosion control.

2.3 CONTROL AND DISPOSAL OF SOLID, CHEMICAL, AND SANITARY WASTES: Pick up solid wastes and place in containers which are emptied on a regular schedule. The preparation, cooking, and disposing of food are strictly prohibited on the project site. Conduct handling and disposal of wastes to prevent contamination of the site and other areas. On completion, leave areas clean and natural looking. Obliterate signs of temporary construction and activities incidental to construction of the permanent work in place. The Base Sanitary Landfill will not accept liquid wastes or empty drums. If transporting any material off Government property, the Contractor shall provide the Contracting Officer a copy of state and/or local permit which reflects the responsible agency's approval of the disposal area and proposed waste disposal methods.

2.3.1 Disposal of Garbage, Rubbish and Debris: Remove garbage, rubbish and debris from Government property and dispose of it in compliance with federal, state and local requirements.

2.3.2 Sewage, Odor, and Pest Control: Dispose of sewage through connection to station sanitary sewage system. Where such systems are not available, use chemical toilets or comparably effective units and periodically empty wastes into municipal or station sanitary sewage system. Include provisions for pest control and elimination of odors.

2.3.3 Chemical Waste: Store chemical waste in corrosion resistant containers labeled to identify type of waste and date filled. Remove containers from the project site, and dispose of chemical waste in accordance with federal, state, and local regulations. For oil and hazardous material spills which may be large enough to violate federal, state, and local regulations, notify the Contracting Officer immediately. The Base Sanitary Landfill will not accept chemical wastes nor empty drums.

2.3.3.1 Petroleum Products: Conduct fueling and lubricating of equipment and motor vehicles in a manner that affords the maximum protection against spills and evaporation. Dispose of lubricants to be discarded and excess oil in accordance with approved procedures meeting federal, state and local regulations.

2.3.3.2 Polychlorinated Biphenyls (PCB) Control: Comply with 40 CFR 761 for removal and disposal of PCB containing articles.

2.3.3.3 Lead-Acid Battery Electrolyte: Electrolyte solution from lead-acid batteries shall be disposed of in such a manner as to ensure compliance with applicable federal, state, and local regulations. The electrolyte shall not be dumped onto the ground, into storm drains or into the sanitary sewer without neutralization. One of the following alternatives shall be used for disposal of waste electrolytes.

a. An industrial waste treatment plant, if available and approved for neutralizing and disposing of battery-acid electrolyte.

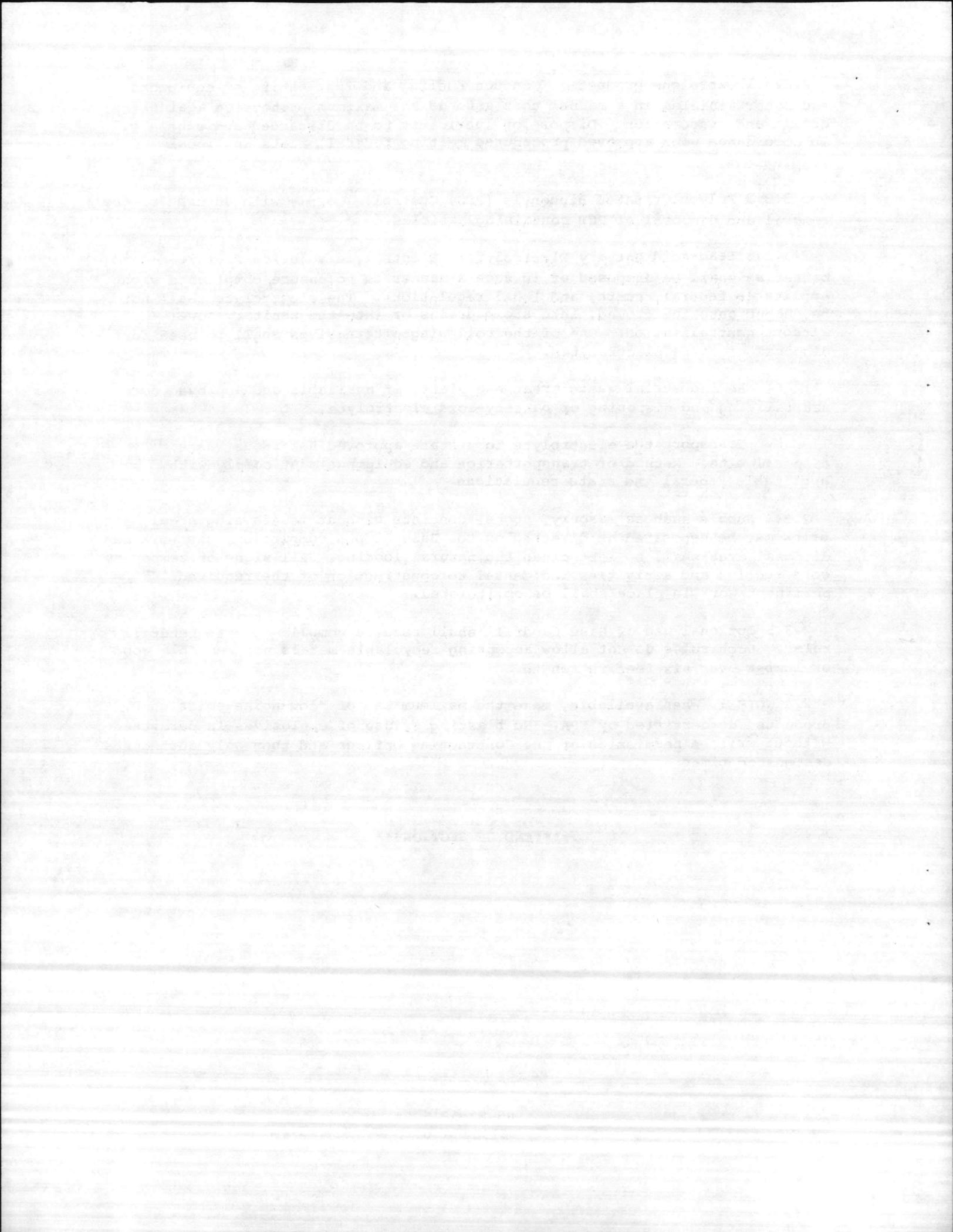
b. Transport the electrolyte to a state-approved hazardous waste disposal site. Method of transportation and equipment must comply with applicable federal and state regulations.

2.3.4 Rubble such as masonry, stone, concrete without reinforcing steel, and brick may be deposited as directed on the Base. Upon completion, the work and disposal area shall be left clean and natural looking. All signs of temporary construction and activities incidental to construction of the required permanent work in place shall be obliterated.

2.3.5 Optional use of Base Landfill shall require compliance with Landfill rules. Such rules do not allow accepting recyclable metals nor reusable wood or lumber over six feet in length.

2.4 NOISE: When available, make the maximum use of "low-noise-emission products" as certified by EPA. No blasting or use of explosives is permitted without written permission of the Contracting Officer and then only during the designated times.

END OF SECTION



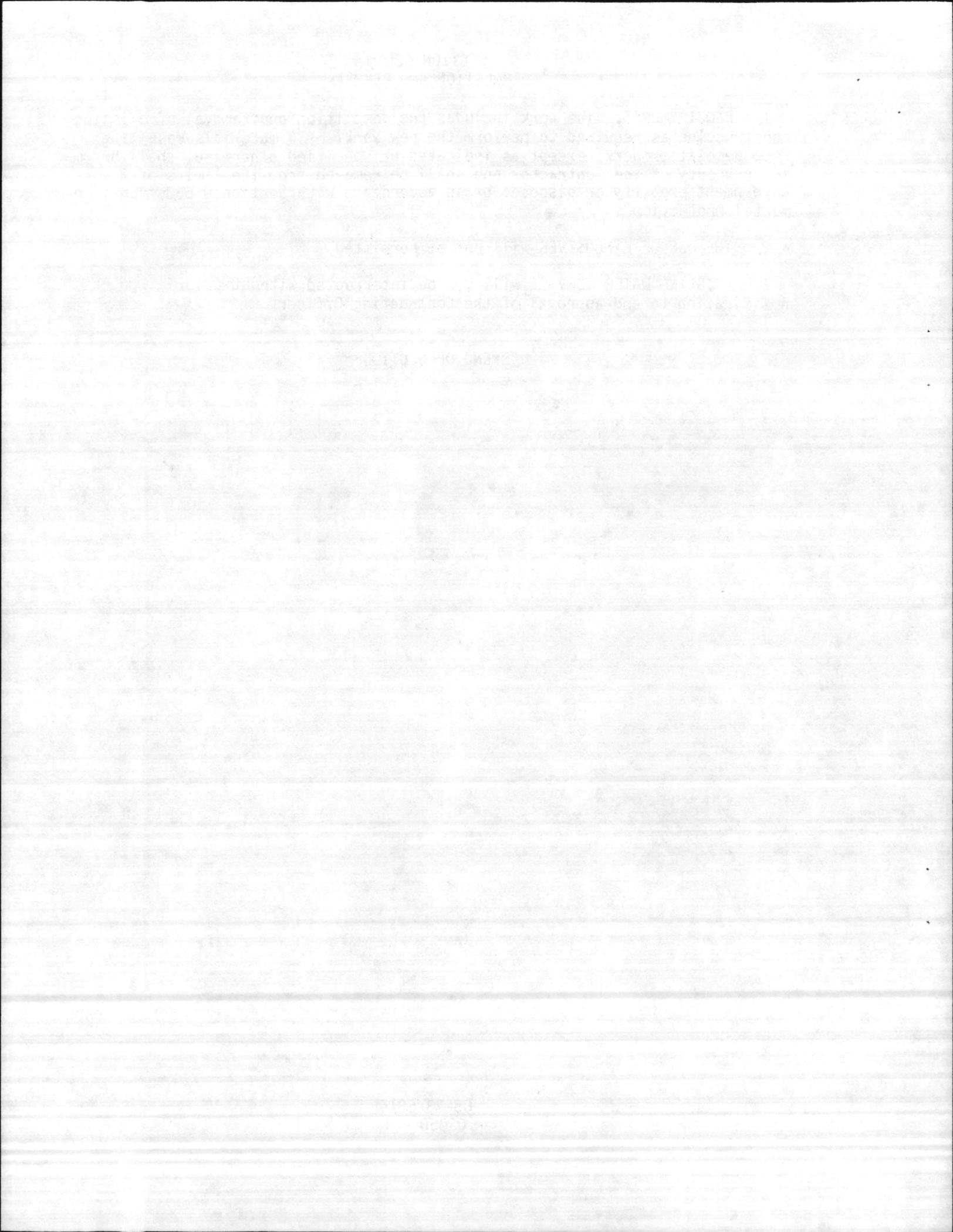
SECTION 02050
DEMOLITION AND REMOVAL

1. REQUIREMENTS: The work includes the demolition and removal of existing construction as required to perform the new work. All materials resulting from demolition work, except as indicated or specified otherwise, shall become the property of the Contractor and shall be removed from the limits of Government property or disposed of in accordance with Section 01560, "Environmental Protection".

2. THE USE OF EXPLOSIVES will not be permitted.

3. EXISTING WATER SERVICE will not be interrupted without prior notification to and approval of the Contracting Officer.

END OF SECTION



SECTION 02202
EARTHWORK FOR UTILITIES

PART 1 - GENERAL

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

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM):

C33-79	Concrete Aggregates
C136-76	Sieve or Screen Analysis of Fine and Coarse Aggregates
D698-78	Moisture Density Relations of Soils and Soils-Aggregate Mixtures Using 5.5-lb. (2.49 KG) Rammer and 12-in. (305 mm) Drop
D2487-69 (R 1975)	Classification of Soils for Engineering Purposes
D2774-72 (R 1978)	Underground Installation of Thermoplastic Pressure Piping

1.2 DESCRIPTION: This section covers all earthwork requirements for buried piping systems specified in Section 15272.

1.3 SUBMITTALS: Submit certified test reports for:

- a. Sand tested in accordance with ASTM C136 and ASTM D2487
- b. Crushed stone tested in accordance with ASTM C136 and ASTM C33

1.4 DELIVERY AND STORAGE: Deliver and store materials in a manner to prevent contamination or segregation.

1.5 CRITERIA FOR BIDDING: Base bids on the criteria listed below. Hard material is defined as solid rock, firmly cemented unstratified masses, or conglomerate deposits possessing the characteristics of solid rock which can not ordinarily be removed without systematic drilling and blasting, and any boulder, masonry, or concrete except pavement, exceeding 1/2-cubic yard in volume.

- a. That the surface elevations are as indicated
- b. That no pipes or other artificial obstructions, except those indicated, will be encountered.
- c. That hard materials will not be encountered
- d. That ground water elevations indicated are those existing at the time sub-surface investigations were made and do not necessarily represent ground water elevation at the time of construction.
- e. That eight inches of shellrock pipe bedding will be provided in all marsh areas and in other areas of unstable soil bearing not to exceed 100 linear feet of non-marsh areas.

1.6 PROTECTION:

1.6.1 Shoring and Sheeting: Provide shoring, bracing, and sheeting where required for the protection of personnel and the proper installation of pipe.

1.6.1.1 In addition to Section XXIII A and B of the Army Corps of Engineers Manual EM-385-1-1, meet the following requirements:

- a. Prevent undermining of pavements and slabs
- b. Banks may be sloped where space permits and as directed
- c. Where shoring and sheeting materials must be left in place in the completed work to prevent settlements or damage to adjacent structures or as directed, backfill the excavation to 12 inches below the finished grade and remove the remaining exposed portion of the shoring before completing the backfill

PART 2 - PRODUCTS

2.1 SOIL MATERIALS: In general, shall be free of debris, roots, wood, scrap material, vegetable matter, refuse, soft unsound particles, frozen, deleterious, or objectionable materials.

2.1.1 Backfill: Shall conform to the general requirements for soil materials above and shall be material excavated on the site of this project. This material is unclassified and no testing will be required before use as backfill.

2.2 BEDDING MATERIAL: Provide pipe bedding using the following optional materials:

2.2.1 Gravel: Shall conform to the general requirements for soil materials above and shall be clean, coarse grained material classified as GW, GP by ASTM D2487 of which no more than 10 percent by weight shall be finer than the No. 200 sieve.

2.2.2 Crushed Stone: Shall conform to the general requirements for gravel above and a minimum of 10 percent of the particles shall have at least one fractured face and the maximum particle size shall be 1/2-inch.

2.3 MATERIALS FOR USE IN PIPE INSTALLATIONS: Bedding and backfill materials shall conform to requirements specified herein, except as modified herein by the respective specifications and requirements listed below:

PIPE MATERIALS

MATERIALS REFERENCE

Polyethylene (PE) pressure Pipe	ASTM D2774, except bedding shall be GW, GP, and all materials surrounding the pipe shall have maximum particle size of 1/2-inch
---------------------------------	---

2.4 TOPSOIL: Shall be material free of subsoil, stumps, rocks larger than one inch diameter, brush, weeds, toxic substances, and other material or substance detrimental to plant growth. Topsoil shall be a natural, friable soil representative of productive soils in the vicinity.

PART 3 - EXECUTION

3.1 GENERAL: The work includes removal of trees, stumps, and vegetation as required for excavation for piping. Trees, stumps, and related materials removed in clearing operations shall be piled on the site at locations approved by the Contracting Officer.

3.2 GENERAL EXCAVATION: Shall be to the elevations and dimensions indicated or otherwise specified. Notify the Contracting Officer immediately in writing if it becomes necessary to remove hard, weak, or wet material to a depth greater than indicated. Excavate hard material to an overdepth at least four inches below the bottom of the pipe unless otherwise indicated or specified. Blasting will not be permitted. Use bedding material to refill overdepths to the proper grade and place in six-inch maximum layers. At the option of the Contractor, the excavations may be cut to an overdepth of not less than four inches and refilled to required grade as specified. Grade bottom of trenches accurately to provide uniform bearing and support for each section of pipe on undisturbed soil, or bedding material as indicated or specified at every point along its entire length except for portions where it is necessary to excavate for bell holes and for making proper joints.

3.3 GENERAL BACKFILLING: Surround pipes with backfill as indicated. Ensure that backfill is placed completely under pipe haunches. Place in 6-inch maximum loose lifts to one foot above pipe unless otherwise specified. Bring up evenly on each side, and for the full length, of the structure. Ensure that no damage is done to structures or protective coatings thereon. Place the remainder of the backfill in 12-inch maximum loose lifts unless otherwise specified. Compact each loose lift as specified in paragraph "General Compaction" before placing the next lift. Do not backfill in freezing weather, where the material in the trench is already frozen or is muddy, except as authorized. Where unacceptable settlements occur in trenches and pits due to improper compaction, excavate to the depth necessary to rectify the problem, then backfill and compact the excavation as specified herein and restore the surface to the required elevation. Coordinate backfilling with testing of utilities. Testing for the following shall be complete before final backfilling: water distribution.

3.4 GENERAL COMPACTION: Use hand-operated plate type vibratory or other suitable hand tampers in areas not accessible to larger rollers or compactors. Be careful to avoid damaging pipes and protective pipe coatings. Compaction shall be in accordance with the following unless otherwise specified.

3.4.1 Compaction of Refill: In rock compact to 95 percent of ASTM D698 maximum density. In soft, weak, or wet soils tamp refill to consolidate and densify the material. In stable soils compact to 90 percent ASTM D698 maximum density.

3.4.2 Compaction of Bedding: In rock compact to 95 percent and in soil compact to 90 percent of ASTM D698 maximum density.

3.4.3 Compaction of Backfill: Surrounding pipes, cable, conduits, or ducts shall be to 90 percent of ASTM D698 maximum density except where bedding and backfill are the same material, compact to the specified density of the bedding.

3.5 SPECIAL INSTALLATION REQUIREMENTS: All polyethylene pipe shall be installed in conformance with ASTM D2774.

3.6 FINISH OPERATIONS:

3.6.1 Grading: Shall be to finished grades as existed prior to any construction. Provide sod or topsoil in areas to be seeded as indicated. Grade areas to drain water away from structures and to provide suitable surfaces for mowing machines. Existing grades which are to remain but are disturbed by the Contractor's operations shall be graded as directed.

3.6.2 Disposition of Surplus Material: Surplus or other soil material not required or suitable for filling, backfilling or grading shall be wasted by disposition within 1,000 feet of the site of the work. Comply with the requirements of Section 01560, "Environmental Protection."

3.6.3 Protection of Surfaces: Protect newly graded areas from traffic, erosion, and settlements that may occur and as required in Section 01560, "Environmental Protection." Repair or re-establish damaged grades, elevations, or slopes.

3.6.4 Pavement Repair: Repair any pavement damaged during construction. Do not repair pavement until trench or pit has been backfilled and compacted as herein specified. Provide a temporary road surface of crushed stone over the backfilled portion until permanent pavement is repaired. Remove and dispose of temporary road surface material when permanent pavement is placed. As a minimum one way traffic shall be maintained at all times on roads and streets crossed by trenches; roads and streets shall be fully opened to traffic as quickly as possible.

SECTION 02822
ESTABLISHING VEGETATION

1. APPLICABLE PUBLICATIONS: The following publications of the issues listed below, but referred to elsewhere by basic designation only, form a part of this specification to the extent indicated by the references thereto (where a number is suffixed to the specification number, it denotes the effective amendment to the specification):

North Carolina Seed Improvement Association.

Requirements for certification.

2. GENERAL: The work includes seedbed preparation, liming, fertilizing and sprigging of a minimum of a 500 foot by 3 foot rectangle on the surface above the new pipe on the east side of the intercoastal waterway.

3. MATERIALS:

(a) Lime shall be ground dolomitic agricultural limestone containing 10 percent Magnesium Oxide.

(b) Fertilizer shall be standard commercial product in pelleted or granular material.

(c) Plants shall be American Beachgrass.

Planting stock shall have been produced in a nursery. Dead material and old underground stems shall be removed from the plants and only young, vigorous material used. Most of the top growth on the plant shall be left as the stiff stems and leaves of the planted material, standing above the sand surface, will help still the blowing sand until it is reinforced by new growth. After digging, plants shall be held in a cool place and care exercised to avoid drying of roots prior to planting.

4. SEEDBED PREPARATION: The areas to be vegetated shall not be prepared in any way.

5. FERTILIZING: Fertilizer shall be uniformly broadcast at the following rates per 1,000 square feet.

<u>TYPE FERTILIZER</u>	<u>TIME OF APPLICATION</u>		
	<u>MARCH</u>	<u>JUNE</u>	<u>SEPTEMBER</u>
30-10-0 or	4 lbs.	3 lbs.	3 lbs.
16-8-8 or	6 lbs.	6 lbs.	6 lbs.
10-10-10 or	10 lbs.	10 lbs.	10 lbs.
8-8-8	12 lbs.	12 lbs.	12 lbs.

6. PLANTING should be done in cool weather, at a time when the sand is moist but not in danger of freezing between October 15 and April 15 if possible. Plant holes shall be spaced 12 inches on centers in all four directions. Sand shall be firmed around the roots by foot pressure applied next to the plant. The lower roots of the planting stock shall be placed at least 8 inches deep in order to locate them in a moist zone and to anchor the plant against wind.

END OF SECTION

SECTION 07150
PARGING

PART 1 - GENERAL

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

AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM):

C 91-78	Masonry Cement
C 144-76	Aggregate For Masonry Mortar
C 150-80	Portland Cement
C 206-79	Finishing Hydrated Lime

1.2 DELIVERY AND STORAGE: Deliver manufactured materials in the manufacturer's original unbroken packages or containers which are labeled plainly with the manufacturer's names and brands. Keep cementitious materials dry and stored off the ground, under cover, and away from sweating walls and other damp surfaces until ready to be used.

1.3 ENVIRONMENTAL CONDITIONS: Maintain an ambient temperature of not less than 40 degrees F continuously where parging will be done. Maintain this temperature for not less than 48 hours prior to the parging being done and during the curing operation.

PART 2 - PRODUCTS

2.1 MATERIALS: Provide materials conforming to the respective specifications and the requirements specified herein.

2.1.1 Portland Cement: ASTM C 150, gray Portland cement Type II.

2.1.2 Masonry Cement: ASTM C 91 natural in color.

2.1.3 Hydrated Lime: ASTM C 206, Type S

2.1.4 Sand for Portland Cement Lime Parging: ASTM C 144, except gradation of sand shall conform to the following requirements:

Percentage retained by weight (plus or minus 2 percent) on each sieve.

Sieve Size	Min.	Max.
No. 4		0
No. 8	0	10
No. 16	10	40
No. 30	30	65
No. 50	70	90
No. 100	95	100

2.2 PROPORTIONING AND MIXING: Except where specified otherwise, materials are specified on a volume basis and shall be measured in approved containers, which will insure that the specified proportions will be controlled and accurately maintained during the progress of the work. Measuring materials with shovels "shovel count" will not be permitted. Ready-mix stucco shall be prepared for use by the addition of water only.

2.2.1 Mix parging material in the proportion of one part by volume of Portland cement to not more than 3/4 part by volume of hydrated lime and not less than 2-1/2 nor more than 4 parts by volume of damp loose sand.

2.3 MIXING: Mix materials in approved mechanical mixers of the type in which the quantity of water can be controlled accurately and uniformly, except that finish coats containing lime may be hand mixed. While the mixer is in continuous operation, add approximately 90 percent of the estimated quantity of water, half of the sand, all of the cementitious materials, and the other one-half of the sand shall be introduced into the mixer in that sequence and mix thoroughly with the remainder of the water until the mixture is uniform in color and consistency. Avoid excessive mixing or agitation. Discard mix which has begun to set before it is used; retempering will not be permitted. Do not use frozen, caked, or lumped materials. Empty mixers and mixing boxes completely after each batch is mixed, and keep free of old plaster. Mix ready-mixed plaster and stucco in accordance with the manufacturer's printed instructions.

PART 3 - EXECUTION

3.1 PREPARATION OF SURFACES: Clean Surfaces of all projections, dust, loose particles, grease, bond breakers, and other foreign matter. Do not apply parging directly to (1) surfaces of masonry or concrete that have been coated with bituminous compound or other waterproofing agents, or (2) to surfaces that have been painted or previously plastered. Before work is started, wet masonry surfaces thoroughly with a fine fog spray of clean water to produce a uniformly moist condition. Do not apply parging to surfaces containing frost.

3.2 APPLICATION:

3.2.1 General: Parging shall be applied by hand.

3.2.2 Parging shall be applied with sufficient pressure and material shall be sufficiently plastic to provide a good bond to bases. Special care shall be taken to prevent sagging and consequent dropping of applications. There shall be no visible junction marks in finish coat where one day's work adjoins another.

3.3 PORTLAND CEMENT-LIME PARGING: Apply base coats with sufficient pressure to provide good bond on masonry or concrete bases.

END OF SECTION

SECTION 15011
MECHANICAL GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 APPLICATION: This section applies to Section 15272, "EXTERIOR WATER DISTRIBUTION SYSTEM", only.

1.2 SUBMITTALS: Submit manufacturers' data and certificates for equipment, materials and finish, and pertinent details for each system where specified in each individual section, and have them approved before procurement, fabrication, or delivery of the items to the job site. Partial submittals will not be acceptable and will be returned without review. Submittals shall include the manufacturer's name, trade name, catalog model or number, nameplate data, size, layout dimensions, capacity, project specification and paragraph reference, applicable Federal, Military, industry, and technical society publication references, and other information necessary to establish contract compliance of each item the Contractor proposes to furnish.

1.2.1 Manufacturer's Data: Submittals for each manufactured item shall be manufacturer's descriptive literature of cataloged products, equipment drawings, diagrams, performance and characteristic curves, and catalog cuts.

1.2.2 Standards Compliance: When materials or equipment must conform to the standards of organizations such as the American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), National Electrical Manufacturers Association (NEMA), and Underwriters' Laboratories (UL), proof of such conformance shall be submitted to the Contracting Officer for approval. If an organization uses a label or listing to indicate compliance with a particular standard, the label or listing will be acceptable evidence, unless otherwise specified in the individual sections. In lieu of the label or listing, the Contractor shall submit a certificate from an independent testing organization, which is competent to perform acceptable test and is approved by the Contracting Officer. The certificate shall state that the item has been tested in accordance with the specified organization's test methods and that the item conforms to the specified organization's standard. For materials and equipment whose compliance with organizational standards or specifications is not regulated by an organization using its own listing or label as proof of compliance, a certificate of compliance from the manufacturer shall be submitted for approval. The certificate shall identify the manufacturer, the product, and the referenced standard and shall simply state that the manufacturer certifies that the product conforms to all requirements of the project specification and of the referenced standards listed.

1.2.3 Certified Test Reports: Before delivery of materials and equipment, certified copies of all test reports specified in the individual sections shall be submitted for approval.

1.2.4 Certificates of Conformance or Compliance: Submit certification from the manufacturer attesting that materials and equipment to be furnished for this project comply with the requirements of this specification and of the reference publications. Pre-printed certifications will not be acceptable; certifications shall be in the original. The certification shall not contain statements that could be interpreted to imply that the product does not meet all requirements specified, such as "as good as"; "achieve the same end use and results as materials formulated in accordance with the referenced publications"; "equal or exceed the service and performance of the specified material". The certification shall simply state that the product conforms to the requirements specified.

1.3 DELIVERY AND STORAGE: Equipment and materials shall be carefully handled, properly stored, and adequately protected to prevent damage before and during installation, in accordance with the manufacturer's recommendations and as approved by the Contracting Officer. Damaged or defective items, in the opinion of the Contracting Officer, shall be replaced.

1.4 CATALOGED PRODUCTS: Materials and equipment shall be cataloged products of manufacturers regularly engaged in production of such materials or equipment and shall be manufacturer's latest design that complies with the specification requirements. Materials and equipment shall duplicate items that have been in satisfactory commercial or industrial use at least two years prior to bid opening. Where two or more items of the same class of equipment are required, these items shall be products of a single manufacturer; however, the component parts of the items need not be the products of the same manufacturer. Each item of equipment shall have the manufacturer's name, address, model number, and serial number on the nameplate securely affixed in a conspicuous place; the nameplate of the distributing agent will not be acceptable.

1.5 MANUFACTURER'S RECOMMENDATIONS: Where installation procedures or any part thereof are required to be in accordance with the recommendations of the manufacturer of the material being installed, printed copies of these recommendations shall be furnished to the Contracting Officer prior to installation. Installation of the item will not be allowed to proceed until the recommendations are received. Failure to furnish these recommendations can be cause for rejection of the material.

END OF SECTION

SECTION 15272
EXTERIOR WATER DISTRIBUTION SYSTEM

PART 1 - GENERAL

1.1 APPLICABLE PUBLICATIONS: 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 NATIONAL STANDARDS INSTITUTE (ANSI):

B16.1-1975 Cast iron Pipe Flanges and Flanged Fittings

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM):

D1248-1978 Polyethylene Plastics Molding and Extrusion Materials

AMERICAN WATER WORKS ASSOCIATION (AWWA):

C601-1968 Disinfecting Water Mains

1.2 GENERAL REQUIREMENTS: Section 15011, "MECHANICAL GENERAL REQUIREMENTS" also applies to this section except as specified otherwise.

1.2.1 Water Distribution Mains (indicated as 10-inch lines): Provide water distribution mains of plastic water main pipe.

1.2.2 Submittals:

1.2.2.1 Layout Drawings: Submit drawings for layout of piping system. Indicate locations of all fittings, valves, hydrants, corporation stops, and other accessories on layout drawings. Do not have pipe, fittings, and accessories delivered to the site until layout drawings have been approved.

1.2.2.2 Manufacturer's Data: Submit manufacturer's standard drawings or catalog cuts of the following items, except where both are specified:

- a. Pipe and Fittings
- b. Joints and Couplings, including gaskets for joints

1.2.2.3 Standards Compliance: Submit manufacturer's certificates of conformance or compliance for each of the following materials which are specified to conform to publications referenced under paragraph "Materials" in this section:

- a. Pipe and Fittings, including shop-applied linings and coatings
- b. Pipe Joint Materials

All tests required by the applicable referenced publication shall have been performed, whether specified in that publication to be mandatory or otherwise. For tests which are not specified in the referenced publication to be performed at definite intervals during manufacture, the tests shall have been performed within three years of the date of submittal of certificates on the same type, class, grade, and size of materials as is being provided for the project.

1.2.3 Delivery, Storage and Handling of Materials:

1.2.3.1 Delivery and Storage: Inspect materials delivered to site for damage. Unload and store with minimum handling. Store materials on site in enclosures or under protective covering. Store plastic piping and rubber gaskets under cover out of direct sunlight. Do not store materials directly on the ground. Keep inside of pipes and fittings free of dirt and debris.

1.2.3.2 Handling: Handle pipe, fittings, and other accessories in such manner as to ensure delivery to the trench in sound undamaged condition. Take special care to avoid injury to coatings and lining on pipe and fittings; make satisfactory repairs if coatings or linings are damaged. Carry pipe to the trench; do not drag it. Do not leave rubber gaskets and plastic piping that are not be installed immediately out in the sunlight, but store under cover out of direct sunlight.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS FOR WATER DISTRIBUTION MAINS:

2.1.1 High Density Polyethylene (PE) Plastic Pipe and Associated Fittings shall be made of polyethylene resins classified in ASTM D1248 as Type III, Category 5, Grade P34. The pipe shall have the following characteristics:

a. Pipe made from these resins must have a long term hydrostatic stress rating of 630 psi or more.

b. The polyethylene resin shall contain antioxidants and be stabilized with carbon black against ultra-violet degradation to provide protection during processing and subsequent weather exposure.

c. All pipe shall be made from virgin material. No reworked compounds will be accepted.

d. Pipe shall be homogenous throughout, and be free of visible cracks, holes, foreign materials, blisters, or other deleterious faults.

e. Fittings for the polyethylene pipe line shall be molded or fabricated from the same material as specified hereinbefore.

2.1.2 The high density polyethylene pipe and fittings shall have the SDR values as indicated on drawings.

2.1.3 Each length of pipe shall be marked, at no more than ten-foot intervals with the following information:

- a. Nominal pipe size
- b. Type plastic material - PE3406 (Plastic Pipe Institute Designation)
- c. Pipe pressure or SDR rating
- d. Manufacturer's name, trademark and code

2.1.4 Pipe Joinings:

a. Pipe shall be joined by leakproof, thermal, butt fusion joints. All fusion must be done by personnel trained by the pipe supplier using tools approved by the pipe supplier.

b. All run-of-the-pipe fittings shall be fusion welded into the pipe line. All fittings shall be factory made.

c. The fusion machine shall have hydraulic pressure control for fusing two pipe ends together; it shall include pressure fusion indicating gauges to correctly monitor fusion pressure. The machines shall be equipped with electric or gasoline engine powered facing units to trim irregularities from the pipe ends. The heating plate on the fusion machine shall be electrically heated and thermostatically controlled and shall contain a temperature gauge for monitoring temperature.

d. Joint strength shall be equal to that of adjacent pipe as demonstrated by tensile test. In addition, results of tensile impact testing of joint shall indicate a ductile rather than a brittle fracture. External appearance of fusion bead shall be smooth without significant juncture groove.

e. Threaded or solvent cement joints and connections are not permitted.

2.1.4.1 Joining, Terminating or Adapting by Mechanical Means:

a. The polyethylene pipe shall be connected to systems or fitting of other materials by means of an assembly consisting of a polyethylene flange adapter butt-fused to the pipe, a back-up ring of either cast iron, steel, or high silica aluminum alloy made to ANSI B16.1 dimensional standards with modified pressure ratings and bolts of compatible material insulated from the fittings where necessary. In all cases, the bolts shall be drawn up evenly and in line.

b. Appurtenances must be bedded on their own foundations and unsupported by the pipe.

2.2 PLASTIC PIPING: All plastic pipe and fittings shall bear the seal of approval of the National Sanitation Foundation for potable water service. Plastic pipe and fittings shall be supplied from the same source.

2.3 THRUST BLOCKS: Provide thrust blocks at major changes in elevation and direction in conformance to standard LANTDIV Plate ND-1, attached to this section. Major changes in elevation and direction shall be defined as changes 1/16 or greater.

2.4 TRACER WIRE FOR NONMETALLIC PIPING: Tracer wire shall be bare copper or aluminum wire not less than 0.10-inch in diameter and shall be provided in sufficient length to be continuous over each separate run of nonmetallic pipe. Wire shall be secured to the pipe sufficiently to insure that the wire remains in place during construction operations.

PART 3 - EXECUTION

3.1 INSTALLATION:

3.1.1 General Requirements: These requirements shall apply to all pipeline installation except where specific exception is made in the "Special Requirements" paragraphs hereunder.

3.1.1.1 Location of Water Lines: The work covered by this section shall be as indicated.

3.1.1.2 Earthwork: Do earthwork in accordance with Section 02202, "Earthwork for Utilities"

3.2 PIPE LAYING AND JOINTING: Pipe, fittings, valves, and accessories will be carefully inspected by the Contracting Officer before and after installation and those found defective will be rejected. Remove fins and burrs from pipe and fittings. Before placing in position, clean pipe, fittings, valves, and accessories and maintain in a clean condition. Provide proper facilities for lowering sections of pipe into trenches. Do not under any circumstances drop or dump pipe, fittings, valves, or any other water line material into trenches. Cut pipe accurately to measurements established at the site and work into place without springing or forcing. Replace by one of the proper dimensions any pipe or fitting that does not allow sufficient space for proper installation of jointing material. Grade the pipeline in straight lines, taking care to avoid the formation of any dips or low points. Support pipe at its proper elevation and grade, taking care to secure firm and uniform support. Wood support blocking will not be permitted. Lay pipe so that the full length of each section of pipe and each fitting will rest solidly on the pipe bedding; excavate recesses to accommodate bells, joints, and couplings. Provide anchors and supports where indicated and where necessary for fastening work into place. Make proper provision for expansion and contraction of pipelines. At the end of each day's work, close open ends of pipe temporarily with wood blocks or bulkheads. Do not lay pipe when conditions of trench or weather are unsuitable.

3.3 SPECIAL REQUIREMENTS FOR INSTALLATION OF POLYETHYLENE PLASTIC PIPE AND ASSOCIATED FITTINGS:

a. High density polyethylene pipe shall be installed in strict accordance with the manufacturer's recommendations and these specifications.

b. The Contractor shall have the manufacturer furnish all necessary technical assistance, installation instructions and jointing supervision required to insure that the pipe is properly installed. The Contractor shall furnish the services of a technical representative of the manufacturer to supervise the joining of at least the first twenty lengths of pipe, and the bedding, laying and backfilling of the first 200 feet of pipe.

c. Upon satisfactory completion of the initial jointing of the 20 lengths of pipe, and bedding, laying and backfilling of the first 200 feet of pipe, the Contractor shall furnish the Contracting Officer a written statement from the manufacturer's technical representative certifying that he has witnessed the work in progress and approves the techniques being used and the results obtained by the Contractor.

d. The manufacturer's technical representative shall have had previous experience with similar work and be fully qualified to supervise and demonstrate proper procedures for jointing and laying the high density polyethylene pipe.

e. The pipe shall be strung out along the pipe line route and the lengths of pipe shall be as long as practical. Road crossings, property and fences will control the lengths of sections assembled on the surface. The fusion welding shall be done by moving the welder along the route of the pipe line as opposed to dragging the pipe through the welding apparatus.

f. Where fusion welding must be done in the trench, it shall be accomplished in accordance with the manufacturer's guidance and instructions. The manufacturer's technical representative shall supervise at least one fusion welded joint in the trench.

g. The handling of the joined pipe line shall be in such a manner that the pipe is not damaged by dragging it over sharp and/or cutting objects. In the event the pipe is gouged or cut more than 1/8-inch deep and two inches in length, such sections shall be cut out and the ends of the pipe fusion welded together.

3.3.1 Installation of Valves: Valves shall be installed in accordance with the applicable installation requirements specified hereinbefore for the respective pipeline material of which valves are a part.

3.3.2 Disinfection: All new potable water lines and affected portions of existing potable water lines shall be flushed and disinfected in accordance with AWWA C601. Application shall be by the continuous feed method.

3.4 INSTALLATION OF TRACER WIRE: Install a continuous length of tracer wire for the full length of each run of nonmetallic pipe. Attach wire to top of pipe in such manner that it will not be displaced during construction operations.

3.5 CONNECTIONS TO EXISTING LINES: Make connections to existing water lines in an approved manner and do so with a minimum interruption of service on the existing line. Where connections to existing lines are made under pressure, make these connections in accordance with the recommendations of a manufacturer of pipe of which the line being tapped is made.

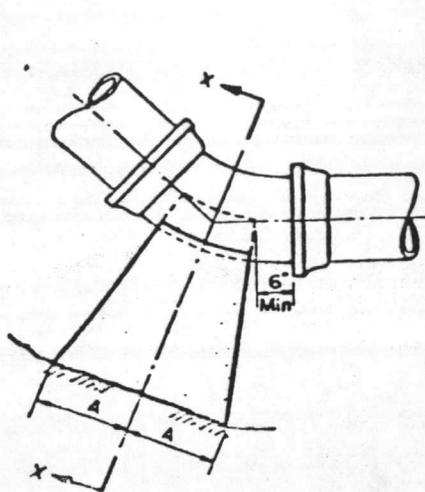
3.6 FIELD TESTS AND INSPECTIONS:

3.6.1 General: The Contracting Officer will conduct field inspections and witness all field tests specified in this section. The Contractor shall perform all field tests, and provide all labor, equipment, and incidentals

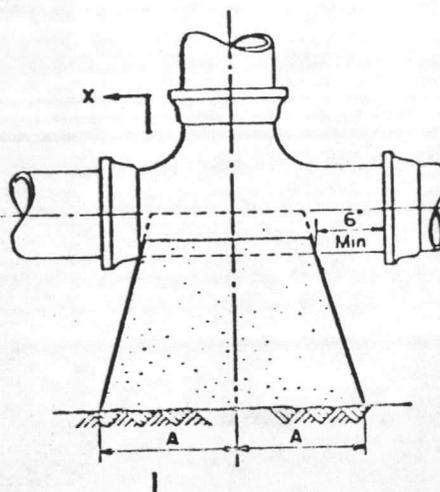
required for testing, except that the Government will provide water and electric power needed for field tests, when available. Approval will be by the Contracting Officer. All work shall be proved to be in first class condition and constructed properly in accordance with the drawings and specifications. All deficiencies found shall be corrected and work affected by such deficiencies shall be completely retested at the Contractor's expense. Piping shall not be buried, covered, or concealed until it has been inspected, tested, and approved.

3.6.2 Testing Procedure: Testing procedure for water lines shall be in accordance with the appropriate AWWA publication specified herein, except for the special testing requirements given hereinafter. Testing procedure and allowable leakage for plastic water lines made with PE plastic water pipe shall be in accordance with recommendations of pipe manufacturer.

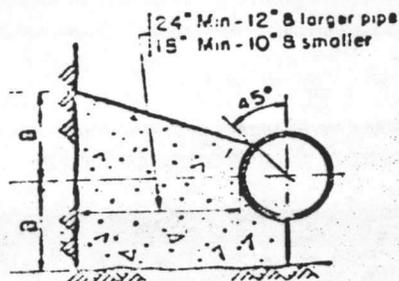
3.6.3 Special Testing Requirements: Hydrostatic pressure for pressure test shall be 50 psi in excess of the maximum working pressure of the system, but shall be not less than 200 psi and shall be held for a period of not less than two hours. Prior to the pressure test, that portion of the water line being tested shall be filled with water for a soaking period of not less than 24 hours. Hydrostatic pressure for leakage test shall be not less than 150 psi. Leakage test may be performed at the same time and at the same test pressure as the pressure test.



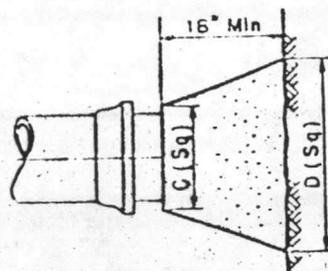
PLAN
BENDS



PLAN
TEES



SECTION X-X
BENDS & TEES



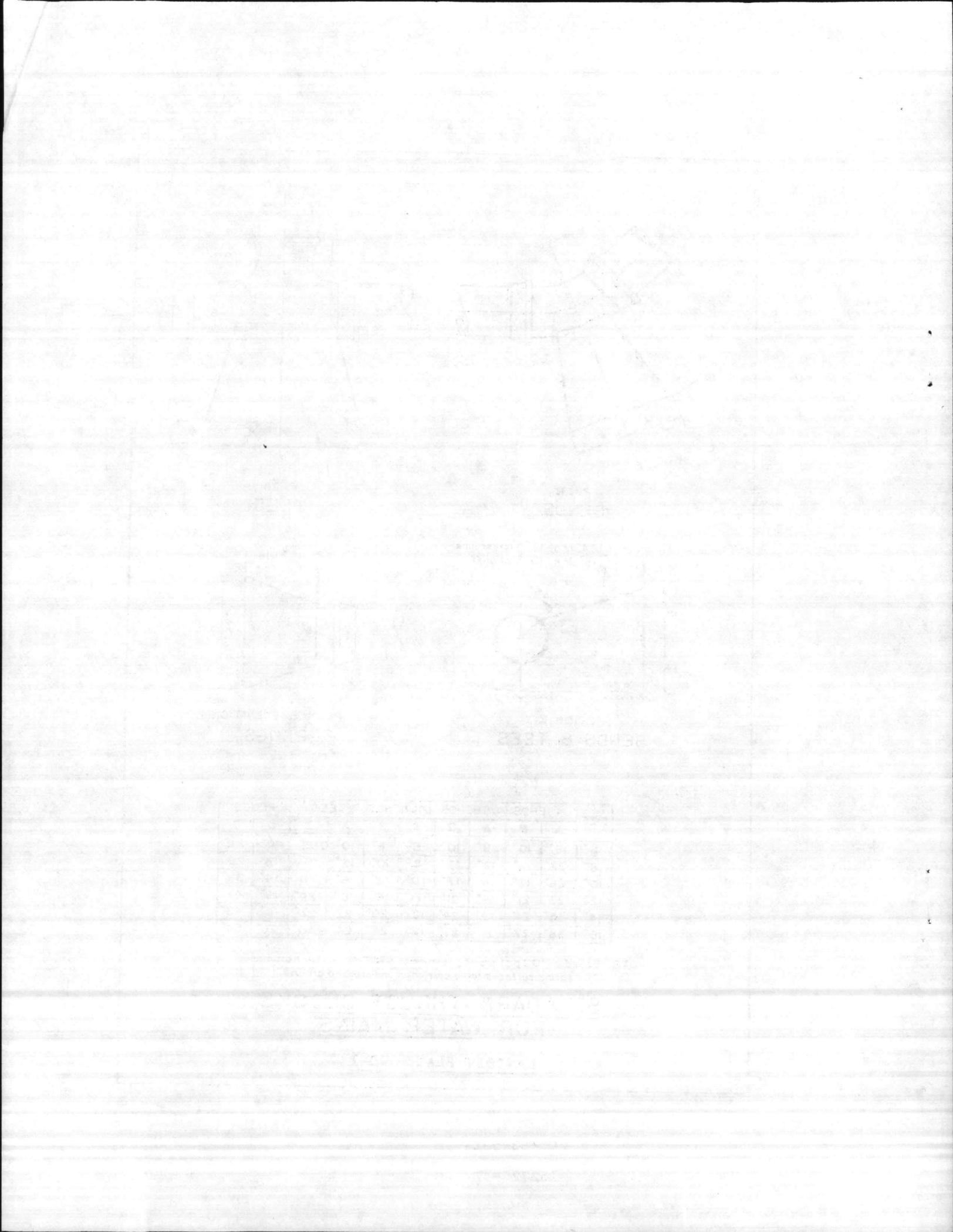
PLAN & ELEVATION
PLUGS

SIZE	1/4 BENDS		1/8 BENDS		1/4 C BENDS		TEES		PLUGS	
	A	B	A	B	A	B	A	B	C	D
6"	16"	10"	9"	10"	6"	8"	10"	12"	10"	21"
8"	22"	13"	12"	13"	8"	10"	13"	16"	12"	29"
10"	26"	17"	14"	17"	10"	13"	16"	20"	14"	36"
12"	29"	21"	16"	21"	11"	16"	18"	24"	16"	41"
14"	35"	24"	19"	24"	12"	20"	22"	27"	18"	48"
16"	38"	27"	21"	27"	12"	24"	24"	30"	20"	54"

NOTE: Based on 100 psi static pressure plus A.W.W.A. water hammer
All bearing surfaces to be carried to undisturbed ground

STANDARD THRUST BLOCKS FOR WATER MAINS

LANTDIV PLAZE WD-1



SUPERSEDES DECISION

STATE: NORTH CAROLINA
 DECISION NUMBER: NCS1-1148
 Supersedes Decision No.: NCT9-1125, September 7, 1979, 44 FR 52577
 DESCRIPTION OF WORK: Water and Sewer construction projects and Heavy construction projects excluding Gas construction projects

COUNTIES: Statewide
 DATE: Date of publication

	Basic Hourly Rates	Fringe Benefits Payments			
		M. & Y.	Pensions	Vocaton	Education and/or Appr. Tr.
Ericklayers	\$4.47				
Carpenters	5.16				
Cement masons	5.01				
Fence erectors	4.04				
Ironworkers:					
structural	4.81				
Laborers:					
asphalt makers	3.95				
pipelayers	3.98				
powermen	5.95				
unskilled	3.37				
Manhole builders	4.00				
Millwrights	4.00				
Painters	5.50				
Piledrivermen	6.29				
Plumbers & Pipefitters	5.25				
Power Equipment Operators:					
asphalt paver	3.98				
backhoe	4.99				
boom operator	4.00				
bulldozer	4.50				
compactor	3.75				
crane	5.87				
dragline	5.50				
drills:					
air	4.81				
well	4.50				
loader:	4.48				
mechanic	5.16				
motor grader	4.25				
oiler	3.75				
pump operator	3.75				
roller	3.35				
scraper (pan)	4.25				
screed	4.03				
tractor	4.75				
trenching machine	5.00				
Truck drivers	3.67				
*ELECTRICIAN	6.50				

Unlisted classifications needed for work not included within the scope of this classification may be added only after award as provided in the labor standards contract clauses (29 CFR, 5.5 (2) (1) (3)).

*MODIFICATION NO. 1 (45 FR 86200 - DECEMBER 30, 1980)

WAGE DETERMINATION

05-83-5814

