

NAVDOCKS
SPECIFICATION
NO. 46508/62
NOTICE NO. 1

WATER SUPPLY IMPROVEMENTS, TARAWA TERRACE

at the

MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA

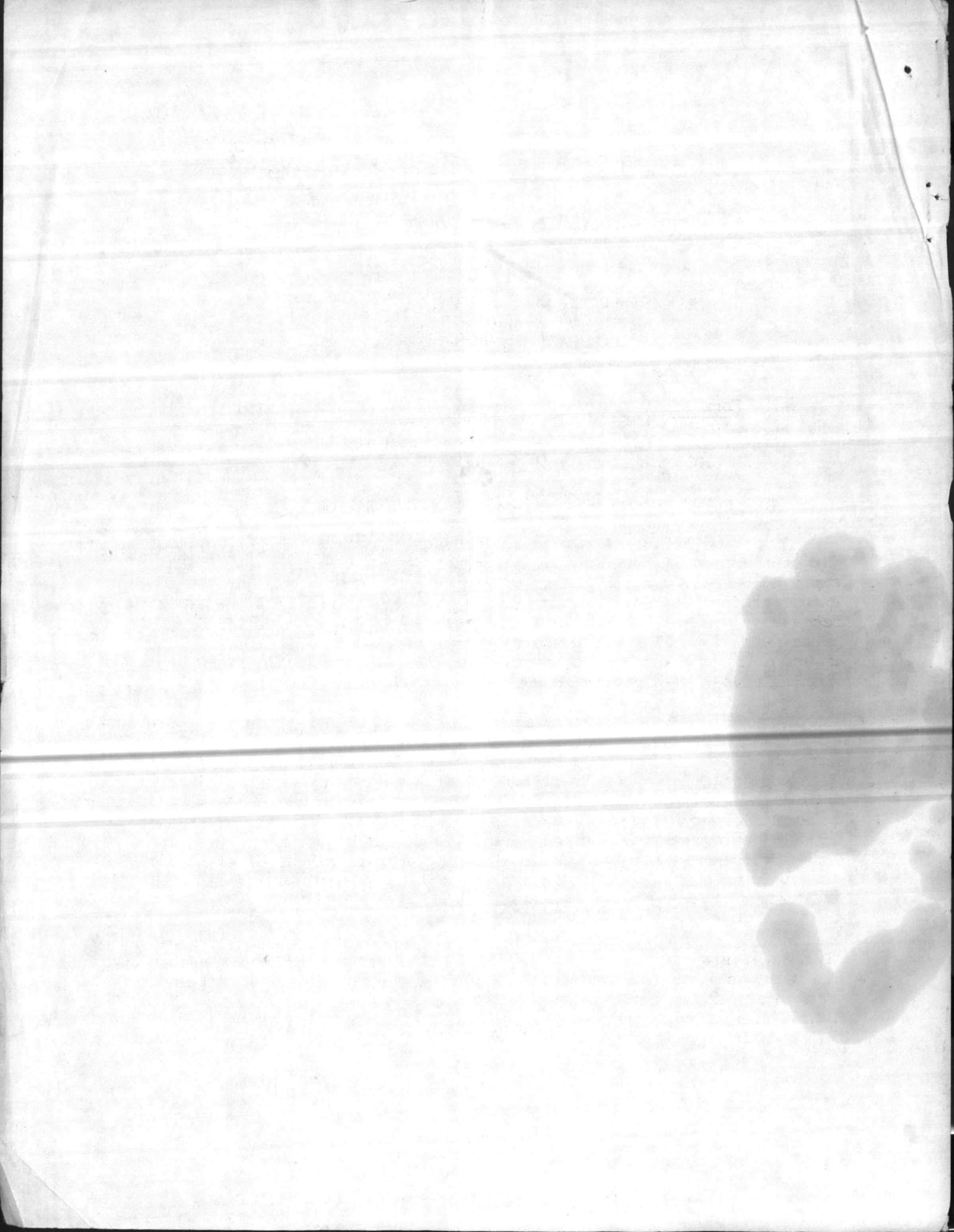
CONTRACT NBy-46508

THE OPENING OF BIDS IS HEREBY POSTPONED FROM
2:00 P.M., E.S.T. ON 23 OCTOBER 1962 TO
2:00 P.M., E.S.T. ON 13 NOVEMBER 1962.

Atlantic Division, Bureau of Yards and Docks
U. S. Naval Station, Norfolk 11, Virginia
27 September 1962

W. C. G. CHURCH, RADM, CEC, USN
Officer in Charge of Construction

46508/62 - NOTICE NO. 1



WATER SUPPLY IMPROVEMENTS, TARAWA TERRACE

at the

MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA

CONTRACT NBy-46508

SECTION 1. GENERAL PARAGRAPHS

1.4 Form of Contract. At the end of the paragraph, add the following:

"Clause 2 of Standard Form 19A is deleted and the following clause is substituted therefor:

"WORK HOURS ACT OF 1962 -- OVERTIME COMPENSATION

"(a) No contractor or subcontractor contracting for any part of the contract work shall require or permit any laborer or mechanic to be employed on such work in excess of eight hours in any calendar day or in excess of forty hours in any workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times his basic rate of pay for all hours worked in excess of eight hours in any calendar day or in excess of forty hours in such workweek, whichever is the greater number of overtime hours.

"(b) In the event of any violation of the provisions of paragraph (a), the contractor and any subcontractor responsible for such violation shall be liable to any affected employee for his unpaid wages. In addition, such contractor or subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed, with respect to each individual laborer or mechanic employed in violation of the provisions of paragraph (a), in the sum of \$10 for each calendar day on which such employee was required or permitted to work in excess of eight hours or in excess of forty hours in a workweek without payment of the required overtime wages.

"(c) The Contracting Officer may withhold, or cause to be withheld from any moneys payable on account of work performed by the contractor or subcontractor, the full amount of wages required by this contract and such sums as may administratively be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for liquidated damages as provided in paragraph (b)."

1900
1901
1902

1903

1904

1905

1906

1907

1908

1909

1910

1911

1912

1913

1914

1915

1916

1917

1918

1919

1920

1921

1922

1923

1924

1925

1926

1927

1928

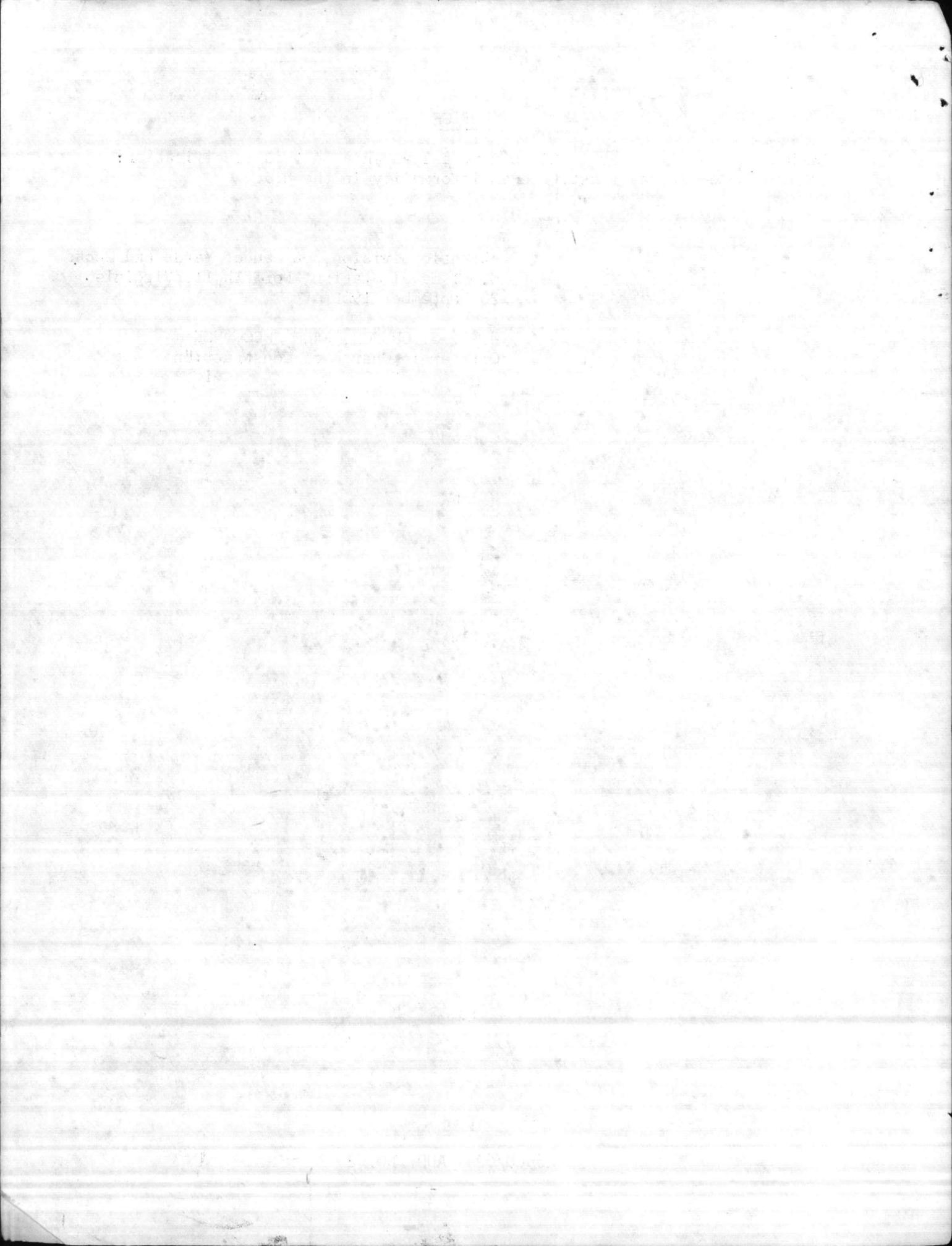
1929

NOTICE

Each bidder shall refer in his bid to all addenda to this specification; failure to do so may constitute an informality in the bid.

Atlantic Division, Bureau of Yards and Docks
U. S. Naval Station, Norfolk 11, Virginia
26 September 1962

W. C. G. CHURCH, RADM, CEC, USN
Officer in Charge of Construction



WATER SUPPLY IMPROVEMENTS, TARAWA TERRACE
at the
MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA
CONTRACT NBy-46508

On the title page, in the upper left corner, under "NOTICE:" delete "District Public Works Office, Headquarters, Fifth Naval District" and substitute "Atlantic Division, Bureau of Yards and Docks".

Third line of the second paragraph, change "DPWO" to "DIRLANTDOCKS".

In the Table of Contents, delete "Section 13. Thermal Insulation" and substitute "13x. Gypsum Roof Plank".

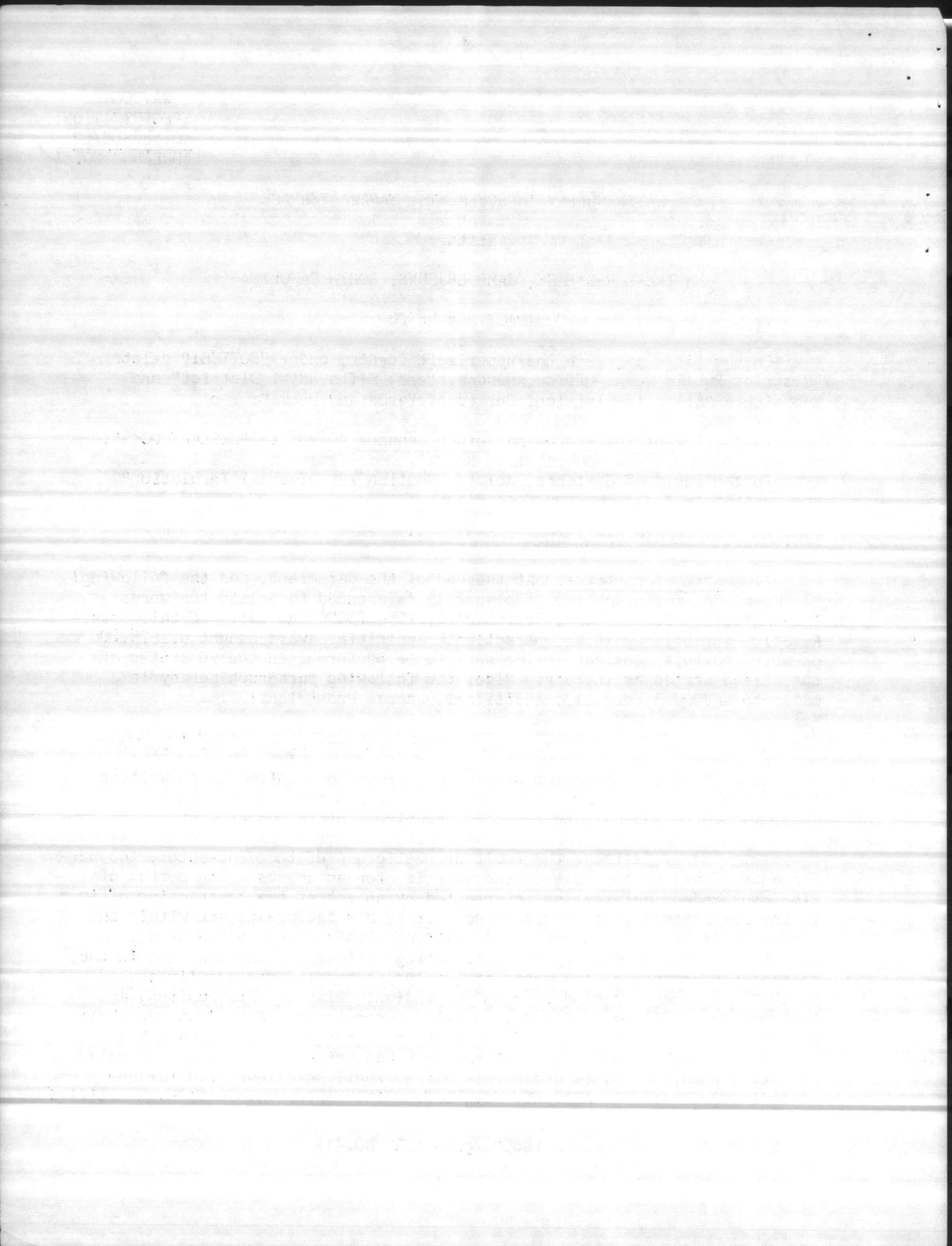
SECTION 1. GENERAL PARAGRAPHS

1.4 Form of contract. At the end of the paragraph, add the following: "In Form 23A, paragraph (a) of clause 19 is amended to delete the words 'and Executive Order 10582, December 16, 1954 (3CFR Supp.)'. If this specification is included in a contract with an initial award amount of \$25,000 or more and this contract is for work to be performed in the 50 states of the United States or in Puerto Rico, the following paragraph hereby is added to NAVDOCKS Form 113, Additional General Provisions:

PRICE ADJUSTMENT FOR SUSPENSION, DELAY, OR INTERRUPTION OF THE WORK

(a) The contracting officer may order the contractor in writing to suspend all or any part of the work for such period of time as he may determine to be appropriate for the convenience of the Government.

(b) If, without the fault or negligence of the contractor, the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted by an act of the contracting officer in the administration of the contract, or by his failure to act within the time specified (or if no time is specified, within a reasonable time), an adjustment shall be made by the contracting officer for any increase in the cost of performance of the contract (excluding profit) necessarily caused by the unreasonable period of such suspension, delay or interruption, and the contract shall be modified in writing accordingly. No adjustment shall be made to the extent that performance by the contractor would have been prevented by other causes even if the work had not been so suspended, delayed, or interrupted. No claim under this clause shall be allowed (i) for any costs incurred more than twenty days before the contractor shall have notified



the contracting officer in writing of the act or failure to act involved (but this requirement shall not apply where a suspension order has been issued) and (ii) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of such suspension, delay, or interruption but not later than the date of final settlement of the contract. Any dispute concerning a question of fact arising under this contract shall be subject to the Disputes Clause."

1.9 Specifications and standards. At the end of the list of FEDERAL specifications, add the following new specifications:

| | |
|-----------|--------------------------------------------------------------|
| SS-S-439 | Slabs, roofing, precast, gypsum |
| TT-P-641b | Primer, paint, zinc dust-zinc oxide, for galvanized surfaces |
| TT-P-56b | Primer coating (primer-sealer) pigmented-oil |

1.13 Minimum wage rates and other labor standards. Fourth line after "AB-894" insert "with Modification No. 1". Modification No. 1 is attached to this Addendum.

1.37 Information regarding Buy-American Act. Delete the paragraph in its entirety and substitute the following new paragraph therefor:

"1.37x Notice regarding Buy American Act (Sep 1962)

(a) The Department of Defense has changed its Buy American Act Rules. Generally speaking, exception from the Buy American Act will be permitted only in the case of nonavailability of domestic construction materials. A bid or proposal offering nondomestic construction material will not be accepted unless specifically approved by the office of the Secretary of Defense.

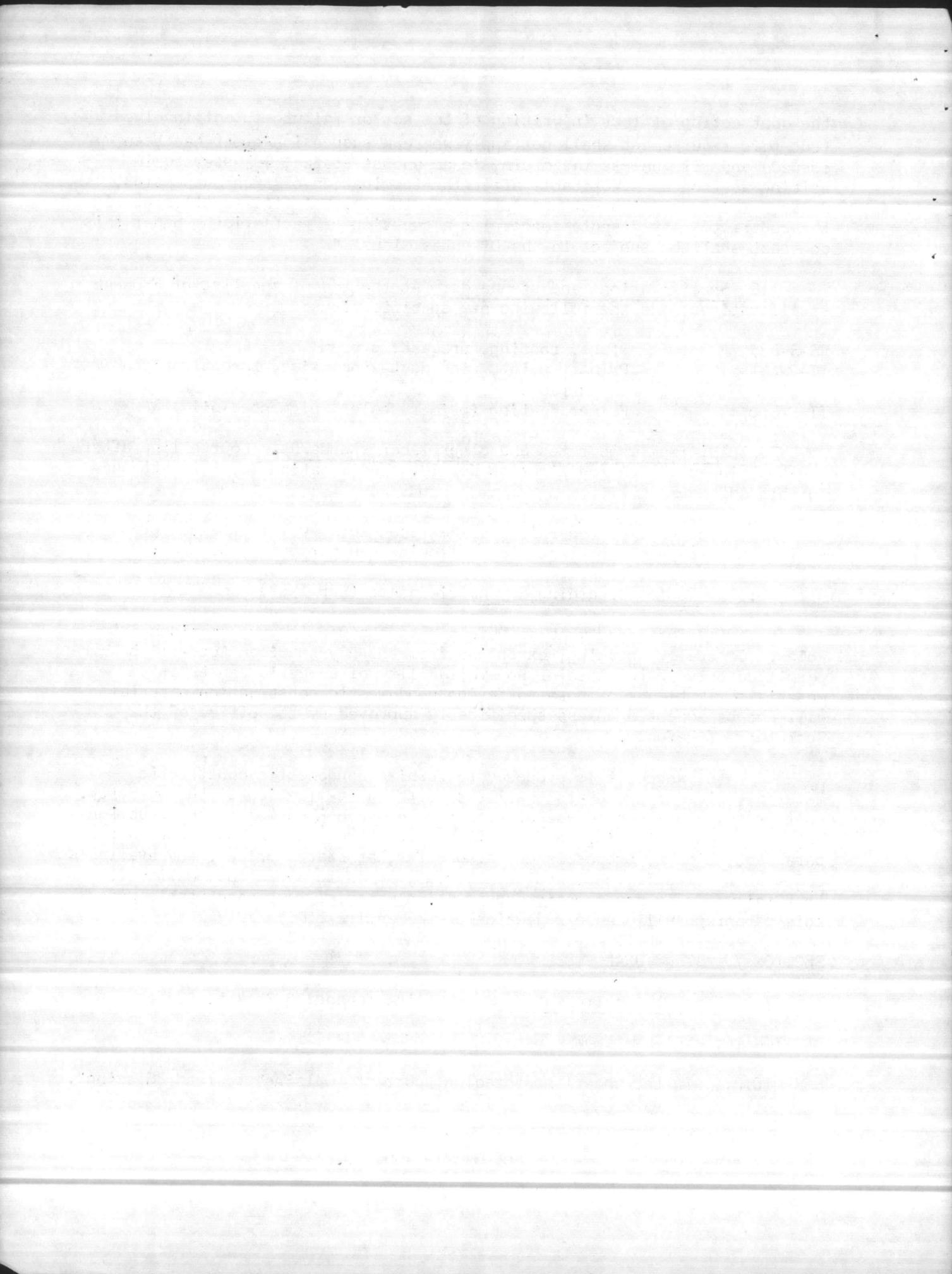
(b) Where it is proposed to furnish nondomestic construction material, bids or proposals shall set forth an itemization of the quantity, unit price, and intended use of each item of such nondomestic construction material. When offering nondomestic construction material pursuant to this paragraph, bids or proposals may also offer, at stated prices, any available comparable domestic construction material, so as to avoid the possibility that failure of a nondomestic construction material to be acceptable under this paragraph will cause rejection of the entire bid."

SECTION 7. STRUCTURAL STEEL WORK

7.1 General requirements. Second line, change "22Yc" to "22Ye".

SECTION 10. METAL WINDOWS

10.2.1 In the underlined heading, correct "Galzing" to read "Glazing".



SECTION 12. ROOFING, SIDING AND SHEET METAL WORK

12.2.4 Built-up roofing for application on insulation Delete the subparagraph in its entirety and substitute the following therefor:

"12.2.4x Built-up roofing for application on gypsum roof plank shall be Type 4TWS. Low slope asphalt and asphalt saturated felts may be used in lieu of coal tar pitch and tar saturated felts."

SECTION 13. THERMAL INSULATION

Delete the Section in its entirety and substitute the following therefor:

"SECTION 13X. GYPSUM ROOF PLANK

"13X.1 General requirements. Gypsum plank shall be in accordance with Type I roofing slabs, as specified in Federal specification SS-S-439, except as indicated or specified otherwise, and shall be 2 inches thick metal edge gypsum plank.

"13X.2 Clips and nails. The gypsum plank shall be secured to the joists with the plank manufacturer's standard galvanized clips. The quantity of clips shall be 200 clips per 1000 square feet of plank. Nails shall be 4d galvanized slaters or 1 inch smooth shank no. 11 gauge galvanized roofing nails. Two nails shall be used per clip.

"13X.3 Installation

"13X.3.1 Placing of plank. All plank shall be laid dry with marked side up and with the GROOVE side advancing. Plank shall be placed on supporting steel with joints tightly interlocked. End joints in adjacent rows shall be staggered not less than 30 inches. Alternate rows shall be started with full units or cut peices long enough to have bearing at not less than two supports. End of rows shall be finished similarly. The remaining rows may be started (or finished) with cut plank long enough to have not less than one support. Cut plank to fit at walls, ridges, valleys and around openings as indicated or required. Plank in the starting and final rows shall be cut so that end joints occur over roof supports.

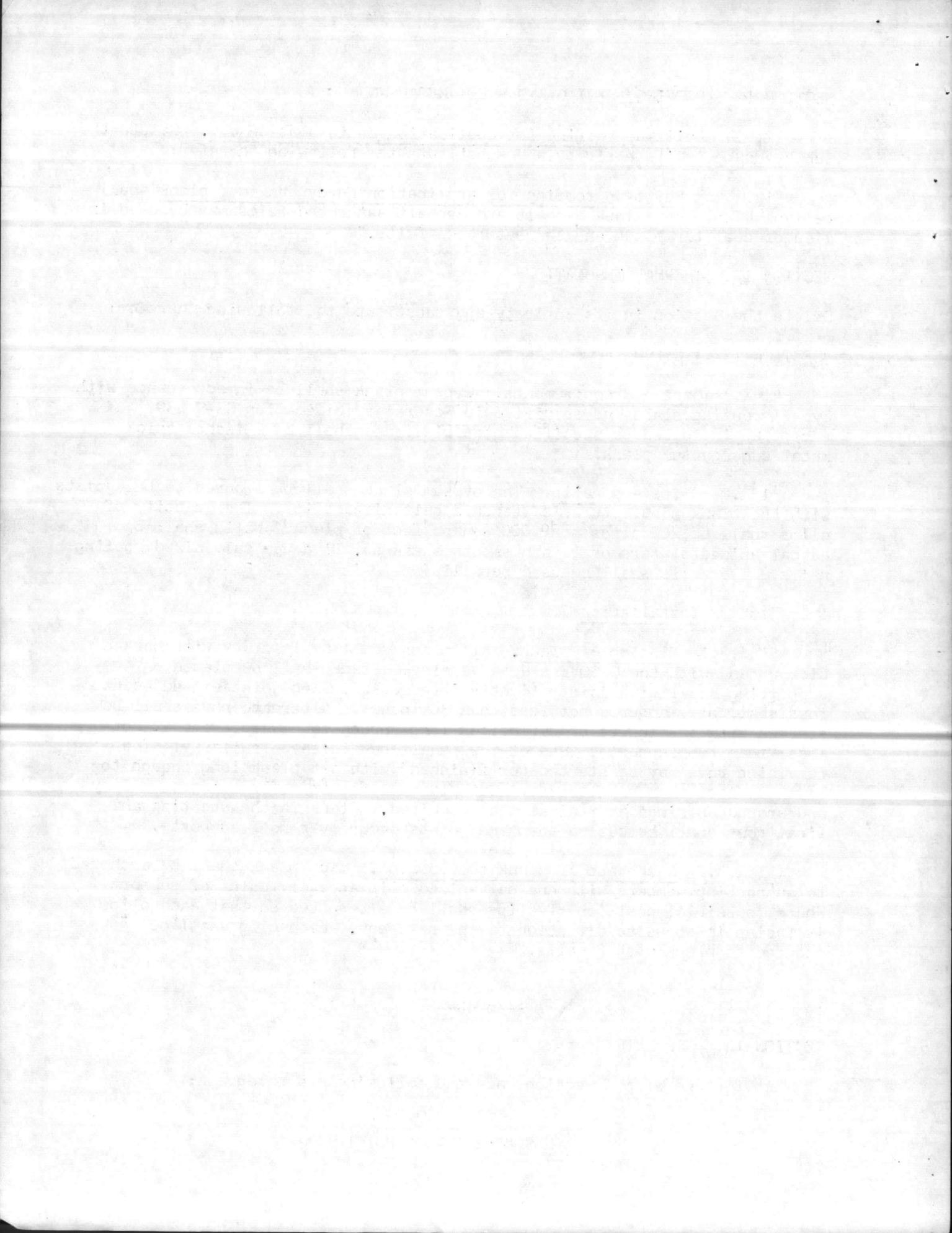
"13X.3.2 Anchorage of plank to supports. Each plank shall be anchored to supporting members with one galvanized clip at every point of support. Where possible, position of clips shall be alternated so that each clip is facing in opposite direction to the next one. Each clip shall be secured to plank with 2 nails."

---oOo---

SECTION 14. CARPENTRY

At the end of the section, add the following new paragraph:

46508/62 - ADD. NO. 1



"14.6 Ceiling insulation shall be mineral wool bats, Type I, Class B, conforming to specification HH-I-521c, having a "C" factor of 0.12. The insulation shall be placed over the entire ceiling area and shall be fitted between the ceiling joists."

SECTION 17. MECHANICAL EQUIPMENT

17.3.13 Gasoline engine.... At the end of the subparagraph add the following: "The gasoline engine shall be installed in accordance with the requirements of National Board of Fire Underwriters Pamphlet No. 37."

17.3.14. Gasoline storage tank First line, after "constructed" insert "and installed".

SECTION 18. PIPING

18.1 General requirements. At the end of the paragraph, add the following: "Gasoline piping shall be installed in accordance with National Board of Fire Underwriters Pamphlet No. 30."

SECTION 19. INSTRUMENTATION AND CONTROLS

19.4.1 Transmitter. Add the following new subparagraph:

"19.4.1.1 Shut-down of pumps. The transmitter shall also be arranged to cause the pumps to shut down in the event of depletion of water supply in the ground level reservoir."

SECTION 21. FIELD PAINTING

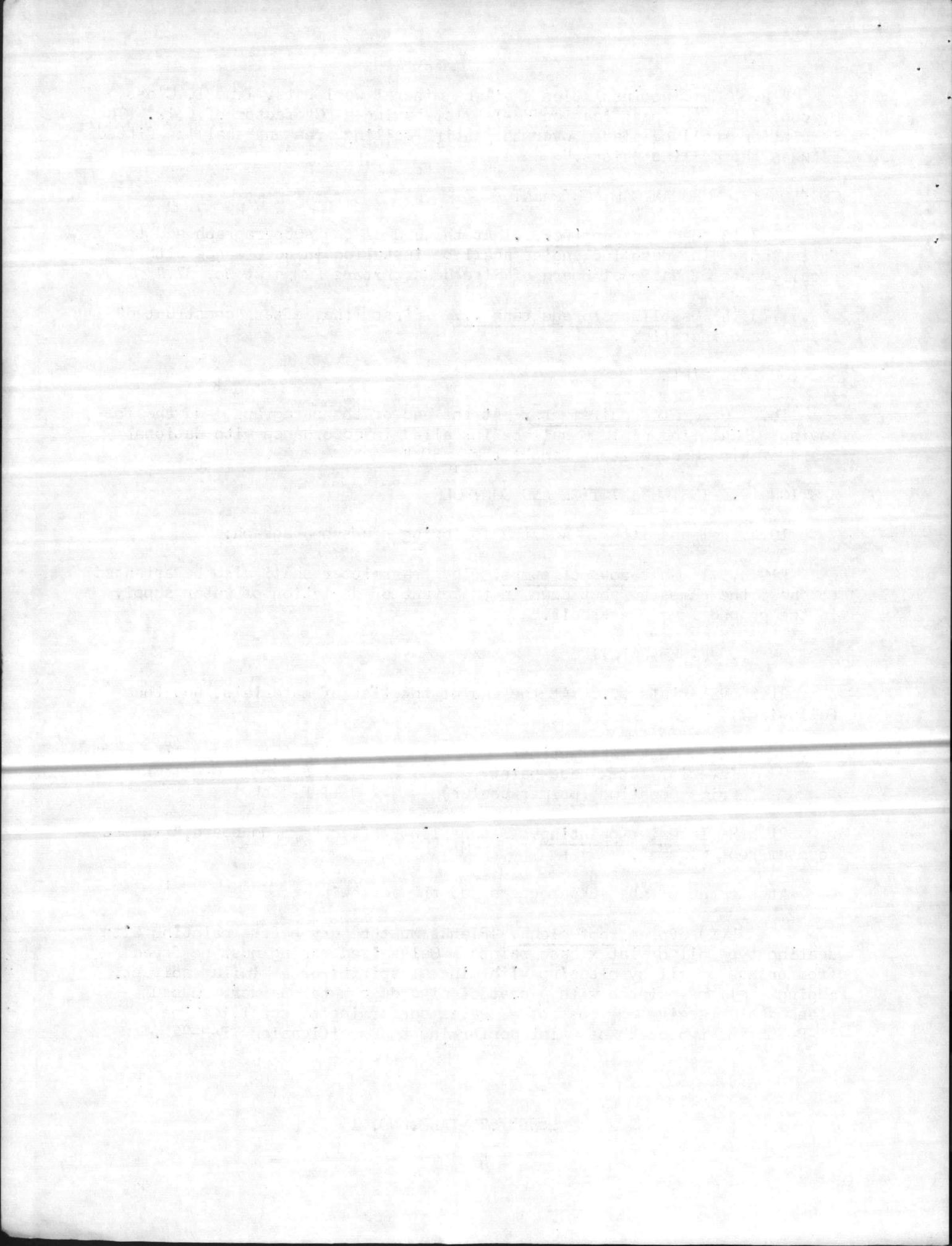
21.2 Materials At the end of the list of materials, add the following:

| | |
|--------------------------------|--------------------|
| "Zinc dust metal primer | TT-P-641b, Type II |
| Interior latex-base paint | TT-P-29b |
| Primer coating (primer-sealer) | TT-P-56b" |

21.4.2 Interior painting. Second line, after "gypsum board," insert "gypsum roof plank,".

At the end of the subparagraph add the following:

"(f) Gypsum roof plank. Planks must be dry before painting with sealing type oil or latex base paints. Galvanized edging must be freed from grease or oil by cleaning with mineral spirits or a similar solvent. Edging shall be painted with a coat of zinc dust metal primer. Gypsum plank shall receive one coat of a sealer conforming to specification TT-P-56b and two coats of paint conforming to specification TT-P-29b."



SECTION 23. BIDS

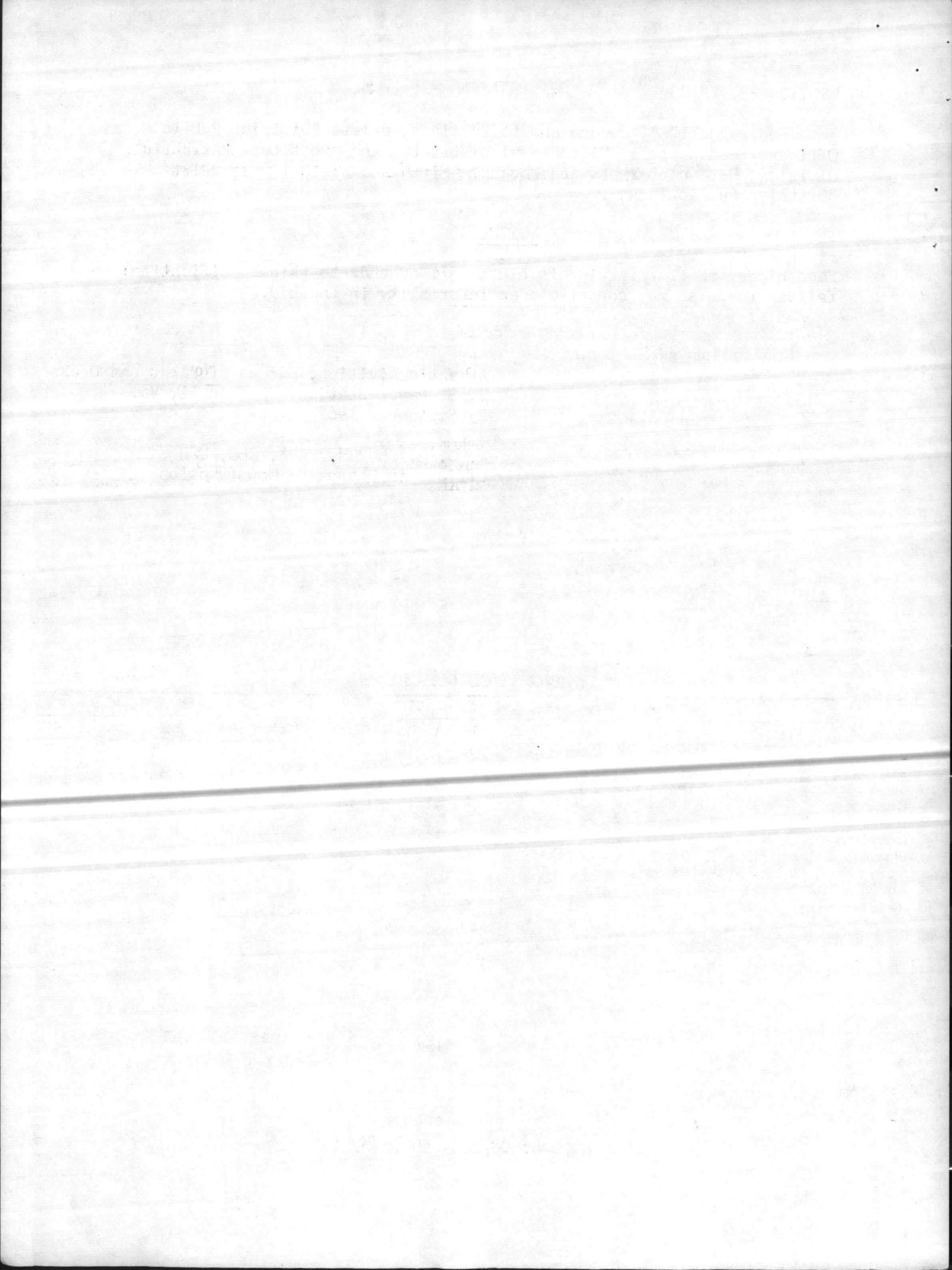
Under "NOTICE", second and third lines, delete "District Public Works Officer, Headquarters, Fifth Naval District," and substitute "Atlantic Division, Bureau of Yards and Docks", Fifth and sixth lines, delete "District Public Works".

NOTICE

Each bidder shall refer in his bid to all addenda to this specification; failure to do so may constitute an informality in the bid.

Atlantic Division, Bureau of Yards and Docks
U. S. Naval Station, Norfolk 11, Va.
25 September 1962

W. C. G. CHURCH, RADM, CEC, USN
Officer in Charge of Construction



U. S. DEPARTMENT OF LABOR
OFFICE OF THE SECRETARY
WASHINGTON

NOTICE OF MODIFICATION — DECISION OF THE SECRETARY

TO: Department of the Navy
Bureau of Yards and Docks

| | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-------------------------|
| | DATE OF THIS MODIFICATION 8 - 7 - 62 | MODIFICATION NO. 1 |
| DESCRIPTION OF WORK Miscellaneous building construction (including incidental utilities and incidental paving), dredging and marine construction. 54A Camp Lejeune | DECISION NO. AB - 894 | EXPIRES 10 - 26 - 62 |
| | COUNTY Onslow | STATE North Carolina |

Upon review of current data, changes as noted below are hereby directed. The rates in the enumerated wage determination decision, as amended by previous modifications, and as modified herein, are to be considered prevailing (or, in the case of the Federal Airport Act, as the minimum) in accordance with applicable law.

ADD: Apprentice Schedule

12 - N. C.

APPRENTICE SCHEDULE

| Craft | Interval | PERIOD AND RATE * | | | | | | | | | |
|--------------------------|----------|-------------------|--------|------|------|-----|-----|-----|-----|-----|------|
| | | 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th | 9th | 10th |
| Bricklayers | 6 mos. | 40 | 45 | 50 | 60 | 70 | 80 | | | | |
| Carpenters | year | \$1.05 | 1.15 | 1.25 | 1.40 | | | | | | |
| Cement masons | 6 mos. | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | | |
| Electricians | 6 mos. | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | | |
| Ironworkers | 6 mos. | 50 | 60 | | | | | | | | |
| Ironworkers | year | | 66-2/3 | | | | | | | | |
| Plumbers & Steam fitters | 6 mos. | 37½ | 40 | 45 | 50 | 55 | 60 | 66½ | 75 | | |
| Sheet metal workers | 6 mos. | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 80 | | |
| Soft floor layers | year | \$1.05 | 1.15 | 1.25 | 1.40 | | | | | | |
| Sprinkler fitters | 6 mos. | 63 | 66 | 69 | 72 | 75 | 78 | 81 | 84 | 87 | 90 |

* The apprentice rate is by percentage of the journeymen's rate unless otherwise indicated.

By direction of the Secretary,
/s/t/ CHARLES DONAHUE
Solicitor of Labor

U. S. DEPARTMENT OF LABOR

OFFICE OF THE SECRETARY

OFFICE OF THE SECRETARY

TO THE SECRETARY OF LABOR
FROM THE SECRETARY OF LABOR
DATE

RE: [Illegible]

BY: [Illegible]

ATTEST: [Illegible]

NOTICE:

Bids to be opened at 2:00 P. M., EST
23 OCT 1962 at the District
Public Works Office, Headquarters,
Fifth Naval District, U. S. Naval
Station, Norfolk 11, Virginia

NAVDOCKS
SPECIFICATION
NO. 46508/62

WATER SUPPLY IMPROVEMENTS, TARAWA TERRACE

at the

Marine Corps Base, Camp Lejeune, North Carolina

CONTRACT NBy-46508

Appropriation: 17-97X4297.2570 ARRW

A priority rating shall apply to this contract upon award. The contractor will be required to follow the provisions of DMS Reg 1 and of all other applicable regulations and orders of Business and Defense Services Administration in obtaining controlled materials and other products and materials needed to fill this contract.

All questions concerning the bidding or any other phase of the plans and specifications occurring prior to bid opening shall be presented to the Engineering Division, DPWO, Building N-26, Room 345, U. S. Naval Station, Norfolk, Virginia, telephone MA 2-8211, extension 4481.

To inspect the site of the work before bid opening, prior appointment must be made with the Resident Officer in Charge of Construction, Jacksonville, North Carolina Area, Building 1005, Marine Corps Base, Camp Lejeune, North Carolina, telephone, Jacksonville, North Carolina, 346-2111, extension 7-5625.

CONTENTS

SECTION

SECTION

- | | |
|------------------------------------------|----------------------------------|
| 1. General Paragraphs | 13. Thermal Insulation |
| 2. Demolition | 14. Carpentry |
| 3. Earthwork | 15. Caulking |
| 4. Concrete Construction | 16. Glazing |
| 5. Brick and Concrete Masonry | 17. Mechanical Equipment |
| 6. Light Gauge Steel Construction | 18. Piping |
| 7. Structural Steel Work | 19. Instrumentation and Controls |
| 8. Steel Form Decking | 20. Electrical |
| 9. Miscellaneous Metal Work | 21. Field Painting |
| 10. Metal Windows | 22. Fencing |
| 11. Metal Doors, Frame and Hardware | 23. Bids |
| 12. Roofing, Siding and Sheet Metal Work | |

SECTION 1. GENERAL PARAGRAPHS

1.1 General intention. It is the declared and acknowledged intention and meaning to provide and secure Water Supply Improvements, Tarawa Terrace, complete and ready for use.

1.2 General description. The work includes the provision of a new pump house, approximately 23 by 36 feet, complete with pumping equipment, piping, controls, metering equipment and electrical services for power and lighting; the provision of two additional pressure filters complete with valves, piping and appurtenances; removal of existing pumping equipment together with piping and electrical services; and alterations and extension to yard piping, fencing and concrete walks. The work further includes alterations and repairs to the existing water plant building, renewal of asphalt shingles and built-up roofing, waterproofing exterior walls, interior and exterior painting, renewal of metal window screens and other incidental and associated work.

1.3 Location. The work shall be located at the Marine Corps Base, Camp Lejeune, North Carolina, approximately as shown. The exact location will be indicated by the Resident Officer in Charge of Construction.

1.4 Form of contract. The contract will be executed on U. S. Standard Form No. 23, January 1961, Construction Contract; U. S. Standard Form No. 23A April 1961, General Provisions; U. S. Standard Form No. 19A, January 1959, Labor Standards Provisions; and NAVDOCKS 113, revised June 1961, Additional General Provisions, with the following modification: the phrase "including connection charges" is inserted after the word "utilities" in the fifth sentence of Clause 30, Government Utilities, of NAVDOCKS 113.

1.5 Performance and payment bonds, executed on Standard Forms Nos. 25 and 25A, respectively, will be required as stipulated on the reverse side of U. S. Standard Form No. 20, January 1961, Invitation for Bids.

1.6 Time for completion. The entire work shall be completed within 180 calendar days after the date of receipt of a notice of award or any other communication authorizing the contractor to proceed.

1.7 Damages for delay in accordance with Clause 5 of U. S. Standard Form No. 23A shall be at the rate of \$50 per calendar day. The Government will take no action pursuant to Clause 5, Liquidated Damages to terminate the right of the contractor to proceed or to assess liquidated or actual damages where the failure of the contractor to complete the work within the time specified is due solely to the operation of the priorities and allocations system and is not otherwise caused by the fault or negligence of the contractor. It is understood and agreed that such delays will be considered an act caused by the Government and as such will be excusable within the meaning of Clause 5, and the contractor will be entitled to a time extension by reason thereof.

1.8 Drawings.

1.8.1 Drawings accompanying specification. The following drawings accompany this specification and are a part thereof. Drawings are the property of the Government and shall not be used for any purpose other than that contemplated by the specification. The drawings included with this specification are half-size. Full-size drawings are available at the bidder's or contractor's expense. Information on procuring these full-size drawings may be obtained from the Officer in Charge of Construction. Full-size drawings may be inspected during regular working hours, at the office of the Officer in Charge of Construction.

| <u>Y&D Drawing No.</u> | <u>Title</u> |
|----------------------------|------------------------------------------------------------------------|
| 859314 | Location and Index |
| 859315 | Site |
| 859316 | New Pump House and Fuel Tank Pit, Foundation and Floor Framing Details |
| 859317 | New Pump House Floor Plan, Elevations and Framing Details |
| 859318 | New Pump House, Miscellaneous Details |
| 859319 | Existing Plant and New Filter, Piping Plans and Details |
| 859320 | New Pump House, Piping and Equipment Layout |
| 859321 | Instrumentation and Controls |
| 859322 | Electrical |
| 859329 | Alterations to Existing Building |

1.8.2 The following drawings are included for information purposes. They present the general construction of the existing water plant building and reservoir. The bidder is advised to visit the premises, determine existing conditions and the amount of work to be done.

| <u>Y&D Drawing No.</u> | <u>Title</u> |
|----------------------------|--------------------------------------------|
| 613664 | Water Facilities, 750,000 Gallon Reservoir |
| 613655 | Water Treatment Building |
| 613656 | Water Treatment Building |

1.9 Specifications and standards. The specifications and standards in the following list, mentioned elsewhere herein, or referenced in these specifications or standards (including the addenda, amendments and errata listed) shall govern in all cases where references to specifications or standards are made. In case of difference between these specifications or standards and this specification or its accompanying drawings, this specification or its accompanying drawings shall govern to the extent of such difference, otherwise the specifications and standards shall apply. Extra care shall be exercised to refer in requests for quotations, in orders and in subcontracts to the specifications and standards and to all modifications thereof. The requirements for packaging, marking, packing and preparation for shipment or delivery included in the referenced specifications shall apply only to materials and equipment that are furnished directly to the Government and not to materials and equipment that are to be furnished and installed by the contractor. Unless specified otherwise in this specification, the following requirements included in referenced specifications are modified as follows:

- Radio interference suppression - not required
- Fungus control - not required
- Identification or name plate - manufacturer's standard acceptable
- Technical publications - manufacturer's standard acceptable
- Production test model - in lieu of tests performed on a production test model such tests, if required at the manufacturer's plant shall be performed on the equipment being furnished under this specification.

BUREAU OF YARDS AND DOCKS

| | | |
|------|----------|-------------------------------------------------------------------------------------------------------|
| 7Yi | Feb 1962 | Roofing, Siding, Sheet Metal Work; Dampproofing and Membrane Waterproofing |
| 9Yg | Sep 1956 | Electric Apparatus, Distributing Systems, and Wiring, including Addendum 1 and Change 2 to Addendum 1 |
| 10Yd | Dec 1960 | Metal Windows (Steel and Aluminum) and Addendum 1 |
| 13Yf | Dec 1960 | Concrete Construction |
| 22Ye | Jan 1962 | Structural Steelwork |
| 28Yd | Jan 1960 | Carpentry and Woodwork |
| 32Yb | Jun 1961 | Metal Doors, including Addendum 1 |
| 42Yb | Jan 1961 | Drainage, Sanitary, Electrical and Water Service Appurtenances |
| 49Ya | Dec 1961 | Thermal Insulation for Buildings |

MILITARY

When a number in parenthesis is suffixed to a Military specification, it denotes the effective amendment of the specification.

| | |
|--------------|--------------------------------------------------------------------|
| MIL-P-00735A | Primer Coating, Exterior Metal (yellow), Zinc Chromate, Alkyd Type |
| MIL-S-12935A | Sealer, Surface, Knot |

| | |
|--------------|---------------------------------------------------|
| MIL-P-15149 | Paint, Stencil |
| MIL-G-15328B | Primer, Pretreatment (Formula No. 117 for Metals) |
| MIL-V-18436 | Valves, Check |
| MIL-V-18634 | Valves, Safety Relief (Shore Use) |
| MIL-V-18826 | Valves, Globe and Angle, Cast Iron |

FEDERAL

When a number in parenthesis is suffixed to a Federal specification, it denotes the effective amendment of the specification.

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------|
| J-C-103b (2) | Cable, Power, Electrical, (Rubber-Insulated, Building-Type) and Wire, Electrical, (Rubber-Insulated, Building Type) |
| O-G-93 | Galvanizing Repair Compound |
| W-P-131a (2) | Panelboards, Equipped with Automatic Circuit-Breakers |
| W-P-146 (1) | Panelboards, Equipped with Fuse-connections, or Switches and Fuse Connections |
| DD-G-451a (1) | Glass, Flat and Corrugated, for Glazing, Mirrors and other Uses |
| FF-H-106a (1) | Hardware, Builders, Locks and Door Trim |
| FF-H-116c (3) | Hinges, Hardware, Builders |
| FF-H-121c | Hardware, Builders, Door-Closing Devices |
| GG-G-76a | Gages, Pressure and Vacuum, Dial Indicating, (For Air, Steam, Oil, Water, Ammonia and Freon) |
| HH-F-341a | Filler, Expansion-Joint, Preformed, Nonextruding and Resilient Types (For Concrete) |
| HH-I-521c (1) | Insulation, Building, Mineral-Wool, Batts, Loose-Fill and Granular-Fill |
| HH-I-526a | Insulation Board, Thermal-Acoustical Mineral Wool (For Roofs) |
| QQ-L-00156a | Lead, Calking |
| QQ-S-741a (1) | Steel Plates, Shapes and Bars, Carbon, Structural |
| QQ-S-775b | Steel, Sheet, Carbon, Zinc-Coated |
| RR-F-183 (1) | Fence-Posts, Gates and Accessories |
| RR-F-191a | Fencing, Chain-Link Fabric |
| RR-F-221b (1) | Fencing, Barbed Wire, Woven Wire and Wire Netting |
| RR-S-141a (2) | Screening, Wire, Insect |
| SS-B-750b | Building Board, Asbestos-Cement, Corrugated |
| SS-C-188 | Cement, Plastic, Fatty Acid Pitch Base |
| SS-C-192d | Cement, Portland |
| SS-Q-351 | Quicklime, For Structural Purposes |
| SS-S-164 (1) | Sealer, Hot-Poured Type, For Joints in Concrete |
| SS-S-158a | Sealing Compound, Cold Application Ready-Mixed Liquefier Type, For Joints in Concrete |
| SS-S-300 | Shingles, Asphalt, Mineral-Surfaced, Uniform Thickness |
| SS-W-51a (2) | Wallboard, Gypsum |
| SS-W-00110 | Water-Repellent, Colorless, Silocone Resin Base |
| TT-E-506c | Enamel, Tints and White, Gloss, Interior |

| | |
|---------------|-----------------------------------------------------------------------------------------------|
| TT-E-508 (4) | Enamel, Interior, Semigloss, Tints and White |
| TT-E-543 | Enamel-Undercoat, Interior, Tints and White |
| TT-P-21 (2) | Paint, Cement-Water, Powder, White and Tints (For Interior and Exterior Use) |
| TT-P-25a (1) | Primer, Paint, Exterior (Undercoat for Wood, Ready-Mixed, White and Tints) |
| TT-P-29b | Paint, Latex Base, Interior, Flat, White and Tints |
| TT-P-51e | Paint, Oil, Interior, Flat, White and Tints |
| TT-P-86c | Paint: Red-Lead-Base, Ready-Mixed |
| TT-P-102a | Paint, Oil: Titanium-Lead-Zinc and Oil, Exterior, Ready-mixed, White and Light Tints |
| TT-P-320a | Pigment, Aluminum; Powder and Paste, for Paint |
| TT-P-791a (1) | Putty: Pure-Linseed-Oil, for Wood-Sash-Glazing |
| TT-R-266a (1) | Resin, Alkyd, Solutions |
| UU-P-264a | Paper, Concrete-Curing, Waterproofed (Kraft) |
| WW-C-581d | Conduit, Metal, Rigid; and Coupling, Elbow, and Nipple, Electrical Conduit: Zinc-Coated |
| WW-H-171b | Hangers and Supports, Pipe |
| WW-P-421b | Pipe, Cast-iron, Pressure (For Water and Other Liquids) |
| WW-P-441b (2) | Pipe, Wrought Iron (Welded, Black or Zinc-Coated) |
| WW-T-799a (1) | Tubing, Copper, Seamless (For use with Solder-Joint or Flared-Tube Fittings) |
| WW-V-51a (2) | Valves, Bronze, Angle, Check and Globe, 125-and 150-pound, Screwed and Flanged (For Land Use) |
| WW-V-54 (2) | Valves, Bronze, Gate, 125-and 150-Pound, Screwed and Flanged (For Land Use) |
| LLL-I-535 (1) | Insulation Board, Thermal and Insulation Block, Thermal |

GOVERNMENT

Government Safety Code

NON-GOVERNMENT

NOTE: Non-Government standards are not available for distribution by the Department of the Navy; application therefor should be made to the issuing organization. They may be examined at the office where the bids are being received.

American Institute of Steel Construction - Steel Construction Manual

American Iron and Steel Institute - Light Gauge Steel Manual and Design of Light Gauge Steel Structural Members

American Society Mechanical Engineers - Unfired Pressure Vessels

American Association State Highway Officials -

M-148-57
T180-57

American Society for Testing Materials -

A194-59T
A245-58T
A303-58T
A307-58T

C55-55
C62-58
C90-59
C91-59
C144-52T
C207-49

D1556-58T

American Standards Association - B16.3

American Water Works Association

C500-61
C504-58
C502

American Welding Society

Commercial Standard - CS120-58

National Board Fire Underwriters - Pamphlet No. 30

National Electrical Manufacturer's Association

Underwriters Laboratories, Inc.

1.10 Factory inspection. (See Clause 10 of U. S. Standard Form No. 23A and Clause 26 of NAVDOCKS 113). Factory inspection of material and equipment for which tests at the place of manufacture are required may be waived at the option of the Government, provided notarized copies of factory test reports are furnished that show compliance with the specification requirements. Factory inspection will not be required for lumber provided it is grade-marked and trade-marked by the association under whose rules it is graded, or provided it is accompanied by Certificates of Inspection issued by the association under whose rules it is graded or by another inspection agency that is satisfactory to the Officer in Charge. 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 such inspection and tests are requested by the contractor.

1.11 Samples. The contractor shall submit for approval samples of the following and of such other materials and equipment as may be required whether mentioned specially herein or not.

1. Asphalt shingles

~~1.12~~ 1.12 Information required of the contractor. The contractor shall submit for approval, and in accordance with Clause 25(f) of NAVDOCKS 113, such drawings, catalogue cuts and/or descriptive data as may be required. Shop drawings shall be submitted and approval obtained before commencing the fabrication of the work. Other data requested shall be submitted and approval obtained prior to installation of the item or associated item. Information shall include but not be limited to the following:

1. Reinforcing steel - shop drawings
2. Light gauge steel - shop drawings
3. Structural steel - shop drawings
4. Panelboards and switches - manufacturer's data and electrical characteristics
5. Electric motors and motor controllers - manufacturer's data and electrical characteristics including wiring diagram
6. Metal doors and windows - manufacturer's data
7. Insulation - manufacturer's data
8. Piping - shop drawings
9. Pumps - shop drawings, characteristic curves, and manufacturer's data
10. Filters - shop drawings, operational data and manufacturer's data

11. Instrumentation and controls:
 - (a) Transmitter - shop drawings, manufacturer's data and operating data
 - (b) Receiver - shop drawings, manufacturer's data and operating data
 - (c) Pump programming control - shop drawings, manufacturer's data and operating data
 - (d) Venturi meter - shop drawings and characteristic curves depicting loss of head and efficiencies
 - (e) Wiring diagram depicting operation of functional components for each separate telemetering facility
 - (f) Existing raw water transmitter and receiver - shop drawings and manufacturer's data showing alterations for conversion to new capacity.
12. Valves - affidavit for compliance with AWWA standards
13. Auxiliary gasoline engine - shop drawings, characteristic curve and manufacturer's literature.

1.13 Minimum wage rates and other labor standards. The contractor shall pay mechanics and laborers employed or working directly upon the site of the work wage rates not less than those contained in the Wage Determination Decision of the Secretary of Labor No. AB-894, which is attached hereto. Any class of laborers and mechanics not listed in the Secretary's Decision, which will be employed on the contract, shall be classified or reclassified by the contractor or subcontractor conformably to the Secretary's Decision, subject to the approval of the Contracting Officer. Mechanics and laborers shall be classified in conformance with prevailing practice. In the event of any difference between the contractor and the Government concerning the proper wage rates to be paid, the classification of employees to conform to prevailing practice, the amount of wages due employees, or any other application or interpretation of the labor standards provisions of this contract, the differences shall be referred to the Contracting Officer (the Chief of the Bureau of Yards and Docks or his specially authorized representative), and the Contracting Officer shall determine the matter with advice from and reports to the Secretary of Labor as required by Department of Labor regulations. This determination shall not be appealable under the Disputes Clause, and the contractor shall promptly comply with the determination of the Contracting Officer. If the Contracting Officer determines that the contractor has not satisfied his obligations under the labor standards provisions of the contract, the Contracting Officer will forward a report on the violations to the Department of Labor and the Comptroller General for appropriate action.

1.13.1 Site work defined. Employment "directly upon the site of the work", referred to in 1.13 above, has been interpreted by the Secretary of Labor to include certain activities that, although physically located away from the geographical confines of the construction site, are nevertheless considered on site since they are set up for, and operated as an integral part of the construction work. These activities include, but are not limited to, operation of sand and gravel pits, rock crushers, material processing plants, batching plants and prefabrication plants that are established primarily to serve the needs of the particular contract work. Also, these activities include all hauling operations to and from the construction site when performed by employees of a contractor or subcontractor, but not when the hauling is performed by employees of a bonafide materialman who accomplishes such hauling in the due course of ordinary commercial supply operations. In the event of doubt as to whether particular anticipated work will be considered to be directly upon the site of the work within the meaning of the Davis-Bacon Act and this contract, bidders may obtain assistance from Regional Attorneys of the U. S. Department of Labor or from the Solicitor of Labor, U. S. Department of Labor, Washington 25, D. C.

1.13.2 Investigation of labor conditions. The Wage Determination Decision of the Secretary of Labor attached hereto is made a part of this contract solely for the purpose of setting forth the minimum hourly wage rates required to be paid by the Davis-Bacon Act and is not to be considered as a guaranty, warranty, or representation as to the Wage Determination Decision, the wage rates therein, the prevailing wages, or the availability of labor at the wage rates indicated. Bidders are advised to make their own investigations and to rely solely upon their own information as to local labor conditions, such as wage rates necessary to attract labor, the length of the work day and work week, overtime compensation, health and welfare contributions and available labor supply, and as to prospective changes or adjustments of wage rates or employment conditions in the area concerned which might affect the operations under the contract. Neither a mistake in attaching the Wage Determination Decision of the Secretary of Labor or in the determination or statement of the wage rates set forth therein, nor the payment of higher wage rates than those set forth therein shall entitle the bidder to the cancellation of his bid or contract, to an increase in the contract price, or to other additional payment or recovery, except when the Contracting Officer modifies the specified wage rates and when the requirements of the subparagraph 1.13.3 below are satisfied.

1.13.3 Modification of minimum wage rates. The Contracting Officer reserves the right to require the contractor to pay the minimum wages set forth in the Wage Determination which is applicable to this contract and in effect at the time of award (irrespective of the wage rates set forth in the specification) and, if necessary, to modify the contract accordingly. The Government shall not be liable to the contractor to increase the contract price or to make any other additional payment as a result of any such modification made by the Contracting Officer in the specified wage rates, except that an equitable contract price adjustment shall be made (1) when the contractor clearly demonstrates that his investigation of the wage rates at the site did not, and that a reasonable investigation could not, disclose that wage rates higher than those previously specified would have

to be paid, and (2) when the contractor clearly demonstrates that he actually and reasonably based his bid or proposal upon wage rates lower than those required to be paid by such modification.

1.13.4 Apprentices employed pursuant to this determination of wage rates must be registered in a bonafide apprenticeship program registered with a State apprenticeship council recognized by the Federal Committee on Apprenticeship, U. S. Department of Labor, or if no such recognized council exists in a State, it shall mean a program registered with the Bureau of Apprenticeship, U. S. Department of Labor. The ratio of apprentices to journeyman mechanics shall not exceed that recognized by the agency of registry as prevailing.

1.13.5 Posting of wage rates. Where compliance with Clause 1 of Form 19A requires posting the Wage Determination Decision in an exterior location, it shall, along with other documents required to be similarly posted, be displayed in a weatherproof display case.

1.14 Price adjustment for suspension, delay or interruption of the work.

1.14.1 The Contracting Officer may order the contractor in writing to suspend all or any part of the work for such period of time as he may determine to be appropriate for the convenience of the Government.

1.14.2 If, without the fault or negligence of the contractor, the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted by an act of the Contracting Officer in the administration of the contract, or by his failure to act within the time specified (or if no time is specified, within a reasonable time), an adjustment shall be made by the Contracting Officer for any increase in the cost of performance of the contract (excluding profit) necessarily caused by the unreasonable period of such suspension, delay or interruption, and the contract shall be modified in writing accordingly. No adjustment shall be made to the extent that performance by the contractor would have been prevented by other causes even if the work had not been so suspended, delayed, or interrupted. No claim under this clause shall be allowed (i) for any costs incurred more than 20 days before the contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply where a suspension order has issued) and (ii) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of such suspension, delay or interruption but not later than the date of final settlement of the contract. Any dispute concerning a question of fact arising under this contract shall be subject to the Disputes Clause.

1.15 Work outside regular hours. If the contractor desires to carry on work outside the regular hours or on Saturdays, Sundays or holidays, he must submit application to the Officer in Charge, but shall allow ample time to enable satisfactory arrangements to be made by the Government for inspecting the work in progress. At night he shall light the different parts of the work in an approved manner.

1.16 Optional requirements. Where a choice of materials and/or methods is permitted herein, the contractor will be given the right to exercise the option unless stated specifically otherwise.

1.17 Definitions. Where "as shown", "as indicated", "as detailed", or words of similar import are used, it shall be understood that reference to the drawings accompanying this specification is made unless stated otherwise. Where "as directed", "as required", "as permitted", "approved", "acceptance", or words of similar import are used, it shall be understood that the direction, requirement, permission, approval, or acceptance of the Officer in Charge is intended unless stated otherwise. As used herein, "provide" shall be understood to mean "provide complete in place", that is "furnish and install".

1.18 Approval of samples, cuts and drawings. Matter submitted for approval shall be accompanied by complete information concerning the material, articles and/or design proposed for use in sufficient detail to show compliance with the specification, and shall be approved before incorporation into the work. Approval thereof will not be construed as relieving the contractor of compliance with the specification, even if such approval is made in writing, unless the attention of the Officer in Charge is called to the noncomplying features by letter accompanying the submitted matter. Partial submittals or submittals of less than the whole of any system made up of interdependent components will not be considered. Approval of drawings, cuts and samples by the Officer in Charge shall not be construed as a complete check or approval of the detailed dimensions, weights, gauges and similar details of the proposed articles. The conformance of such details with the contract requirements, together with the necessary coordination of dimensions and details between the various elements of the work and between the various subcontractors and suppliers, shall be solely the responsibility of the contractor, approval of submitted matter notwithstanding.

1.19 Methods and schedules of procedure. The work shall be executed in a manner and at such times that will cause the least practicable disturbance to the occupants of the building and to the normal activities of the Base. Before starting any work, the sequence of operations, the methods of conducting the work and the schedule of the work shall have been approved. Should the contractor desire to modify the schedule during the construction period, such modifications likewise shall be approved. If the contractor proceeds without obtaining prior approval of the Officer in Charge, at the option of the Officer in Charge, any work accomplished shall be removed and replaced.

1.20 Operation of Base 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 Officer in Charge, giving reasonable advance notice when such operation is required.

1.21 Examination of premises. Before submitting proposals, bidders are expected to visit and inspect the site of the work and satisfy themselves as to the physical conditions at the site; the general and local conditions, including availability of labor; the nature and extent of the work; the character and effect of existing adjoining and/or adjacent work; and other factors that can affect the cost of the performance of the contract to the extent that such information is reasonably obtainable.

1.22 Changed conditions. Wherever changed conditions as defined in Clause 4 of U. S. Standard Form No. 23A 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 provision for a change in price for such variation is specified, the Officer in Charge must be notified in writing and written direction to do so must be obtained before quantities stated in the contract documents are exceeded.

1.23 Protection and repairs. The contractor shall comply with the fire prevention requirements, security rules and regulations of the activity; and shall provide approved means necessary for the protection of all Government or private property, including contents of buildings affected directly or indirectly by his operations. All damage to Government or private property, resulting directly or indirectly from the contractor's actions shall be made good by him without expense to the Government.

1.24 Existing work damaged or otherwise affected by the contractor's operations shall be restored to a condition as good as existed before the work was commenced, except where indicated or specified otherwise. Where new construction adjoins, connects to, or abuts the existing work, the junction shall be made in a substantial workmanlike and weathertight manner as the case requires. All new work shall match, as nearly as practicable, the existing adjoining and/or adjacent similar work unless indicated or specified otherwise. Except where specifically designated as being retained by the Government or to be reinstalled in the new construction, all materials, fixed equipment and/or debris resulting from demolition and removal operations, shall be removed by the contractor to designated areas at such times during the progress of the work as directed.

1.25 Lines and grades required for execution of the work shall be established by the contractor.

1.26 Payrolls and affidavits. The prime contractor, subcontractor and sub-subcontractors will be required to submit a copy of each weekly payroll together with a Contractor's Weekly Statement of Compliance covering the payroll to the Officer in Charge within seven days after the regular payment date of the payroll period. The receipt of these payrolls and statements is made a condition precedent to payment for any amounts due under the contract.

1.26.1 Payroll. The payroll shall be identified by the name of the contractor, contract number and the location of the site of the work. Payrolls shall state accurately and completely for each employee, his name,

classification, social security number, rate of pay, daily and weekly hours worked, wages earned, all deductions from such wages and the actual weekly wages paid. Contractors are required to submit employee's address with the payroll on which the employee's name first appears.

1.26.2 Contractor's Weekly Statement of Compliance shall be executed on the form furnished for the purpose by the Officer in Charge. Contractors shall list by title or name, all deductions made, omitting from the listing the dollar amount of the deductions.

1.26.3 A sworn affidavit accomplished by the contractor, stating that he and his subcontractors have complied with the labor standards provisions of the contract, must accompany each request for reimbursement. Affidavit forms will be furnished by the Officer in Charge.

1.27 Subcontractors and personnel. Promptly after the award of the contract, the contractor shall submit to the Officer in Charge, 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 address and telephone number for use in event of any 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.

1.28 Storm protection. Should warnings of winds of gale force or stronger be issued, the contractor shall take every practicable precaution to minimize danger to persons, to the work, and to adjacent property. These precautions shall include closing all openings; removing all loose materials, tools, and/or equipment from exposed locations; and removing or securing scaffolding and other temporary work.

1.29 Safety requirements. A copy of the Department of the Army, Corps of Engineers, "Safety Requirements", referenced in Clause 24(d) of NAVDOCKS 113, may be examined on application to the office where the bids are being received. (Copies of this publication may be obtained upon application to the Office of Chief of Engineers, U. S. Army, Washington 25, D. C., at the established price.) Prior to commencement of the work, the contractor shall meet in conference with representatives of the Officer in Charge to discuss and develop mutual understandings relative to administration of the safety program.

1.30 Base regulations. The contractor will be required to comply with provisions of Marine Corps Base Orders issued by the Commanding General of this activity that pertain to his work. Information pertaining to these Base Orders will be supplied by the Officer in Charge prior to commencing work.

1.31 As-built drawings. On completion of the work, one 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, and delivered to the Officer in Charge. Where a choice of materials and/or

methods is permitted herein; and where variations in the scope or character of the work from the entire 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 practices 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 before acceptance.

1.32 Materials from Soviet-controlled areas. No materials, supplies, or manufactured products originating from sources within Soviet-controlled countries or areas shall be used, furnished or installed under this contract. The prohibited areas presently include: Albania, Bulgaria, China, including Manchuria (and excluding Taiwan (Formosa)) includes Inner Mongolia; the provinces of Tsinghai and Sikang; Sinkiang; Tibet; the former Kwantung leased territory, the present Port Arthur Naval Base area and Lisoning Province; communist-controlled area of Viet Nam and Communistic-controlled area of Laos, Cuba, Czechoslovakia, East Germany (Soviet zone of Germany and the Soviet section of Berlin), Estonia, Hungary, Latvia, Lithuania, North Korea, Outer Mongolia, Poland and Danzig, Rumania, Union of Soviet Socialist Republics.

(a) The contractor shall not acquire for use in the performance of this contract any supplies or services originating from sources within Soviet-controlled areas as listed above, or from Hong Kong or Macao, without written approval of the Contracting Officer.

(b) The contractor agrees to insert the provisions of subparagraph (a), including the Soviet-controlled areas listed above and this subparagraph (b) in all subcontracts hereunder.

1.33 Responsibility for testing. Where tests are specified to be made by the Government, the Government will make the initial tests at its expense. Should the initial samples fail to meet the requirements of the specifications, all succeeding tests of additional samples shall be made by an approved testing laboratory or agency at the expense of the contractor.

1.34 Schedule of prices. Within ten days after receipt of a notice of award or other advice to proceed, the contractor shall prepare and submit for approval a detailed breakdown of the contract price giving the quantities of the various kinds of work and the unit and the total price therefor. This breakdown shall be submitted to the Officer in Charge on NAVDOCKS Form 83 in octuplicate. The forms will be furnished by and shall be executed in a manner satisfactory to the Officer in Charge. The required data, when approved by the Officer in Charge, shall serve as a basis for estimating partial payments during the progress of the work, but shall not otherwise affect the contract terms.

1.35 Prints furnished to contractor. Five one-half size prints of each drawing accompanying this specification will be furnished the contractor without charge. Additional prints and full size prints required by the contractor shall be reproduced by him at his own expense.

1.36 Priorities, allocations and allotments. The contractor agrees, in the procurement and use of materials required for the performance of this contract, to comply with the provisions of all applicable rules and regulations of the Business and Defense Services Administration, including Defense Materials System Regulations. If the initial contract price hereunder does not exceed \$100,000 this project is made a rated order pursuant to DMS Regulation 2 and is assigned DO rating C-2. The contractor is hereby made a self-authorizing contractor as defined in Section 3(u) of that regulation and is required to use the self-authorization provision of Section 15 in obtaining controlled materials, as well as products and materials other than controlled materials needed to fill this rated order.

1.37 Information regarding Buy American Act.

1.37.1 Pursuant to the Buy American Act (41 U. S. Code 10 a-d), it is generally required that only domestic construction materials will be used in the performance of the contract. See Clause entitled "Buy American Act", of U. S. Standard Form No. 23A. This requirement does not apply to construction materials or their components, included in the list set forth in paragraph 6-206 of the Armed Services Procurement Regulation.

1.37.2 Additional exceptions are permitted if the Government determines as to particular construction materials that the requirement would be impracticable or would unreasonably increase the cost. Therefore, bids or proposals proposing the use of nondomestic construction materials (other than those referred to in paragraph 1.37.1 above), may be eligible for award if such nondomestic construction materials are specifically designated in the bid or proposal and if accompanied by data demonstrating that, as to each such designated nondomestic construction material, use of any corresponding domestic construction material would be impracticable or would unreasonably increase the cost. If the Government determines that an exception from the Buy American Act should be made, an exception for the particular construction materials designated will be noted in the contract and the findings which justified the exception may be inspected upon request.

1.37.3 To show that the use of a particular domestic construction material would unreasonably increase the cost, accompanying data must show that the cost of any available acceptable domestic construction material, delivered at the construction site, would exceed by more than six percent (6%) the cost of the designated nondomestic construction material delivered at the construction site (including any applicable duty). The accompanying data shall reflect a thorough canvass of dealers and suppliers handling the construction material involved.

1.38 Quarantine. The entire Camp Lejeune Reservation has been quarantined by the United States and North Carolina Departments of Agriculture for the White Fringed Beetle. Compliance with the quarantine regulations established by these authorities as set forth in the USDA Quarantine No. 72 and North Carolina State Quarantine No. 7 is required for operations hereunder. Pertinent requirements of the quarantine include the following.

1.38.1 Certification is required for the following articles and they shall not be moved from the Reservation unless accompanied by a valid inspection certificate issued by an authorized White Fringed Beetle Inspector.

(a) Soil, sand or gravel moved independently or attached to other articles, such as heavy equipment, including draglines, road grading machines, ditch diggers, bulldozers and equipment with tracks or cleats.

(b) Nursery stock, plants and sod.

(c) Scrap metal.

1.38.2 Authorization for movement of equipment shall be obtained from the Officer in Charge and requests for inspection shall be made sufficiently 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. Articles and materials requiring certification for movement shall be removed from the equipment by washing with water and such other means as are necessary to accomplish complete removal. Resulting spoil shall be wasted as directed.

 1.39 North Carolina Sales and Use Taxes Clause for Construction Contracts performed in North Carolina.

The North Carolina Sales and Use Taxes on materials, equipment and supplies used in the performance of this construction contract with the United States are included in the contract prices as State taxes in effect and applicable to the performance of this contract in accordance with the contract General Provision entitled: FEDERAL, STATE AND LOCAL TAXES.

The Department of Justice contemplates litigation contesting the legality of the application of these taxes to construction contractors of the United States on the grounds that they discriminate against the United States and those with whom it deals.

Notwithstanding any other provision of the contract it is hereby expressly provided that:

(1) The Government reserves the right to direct the successful bidder to institute proceedings to contest these taxes and the contract price shall be equitably adjusted to cover the costs to the contractor of such action, including any reasonable attorneys' fees.

(2) If the contractor is not required to pay or bear the burden, or obtains a refund, in whole or in part, of these taxes, the contract price shall be correspondingly decreased or the amount of such relief or refund shall be paid to the Government, as directed by the Contracting Officer. The contract price also shall be correspondingly decreased if the contractor, through his fault or negligence or his failure to follow instructions of the Contracting Officer, is required to pay or bear the burden or does not obtain a refund of any such taxes, interest or penalty. Interest paid or credited to the contractor incident to a refund of taxes shall inure to the

benefit of the Government to the extent that such interest was earned after the contractor was paid or reimbursed by the Government for such taxes.

(3) The contractor shall maintain accurate records of all payments of North Carolina Sales and Use Taxes on materials and supplies used in the performance of this contract.

1.40 Construction equipment. Entry of construction equipment on the job site shall conform to the approved progress schedule. After entry on the job site, major construction equipment shall not be removed without approval of the Officer in Charge. Major construction equipment includes all equipment items more than two horsepower in size or not hand-held for operation.

1.41 Government work and material. *Mr. William (CWO)*

1.41.1 The Government will remove the existing chlorinating equipment from the chlorinator room and reinstall the equipment after the new floor slab is provided.

Start. Should know 3 mo. in advance when needed.

1.41.2 The Government through others will provide one pair of telephone wire for telemetering circuit from the terminal at the water tank site to terminal in instrument room of the water treatment plant.

1.41.3 The Government through others will provide new electric service drops to the new pump house and to the existing water treatment plant.

1.42 Special conditions.

1.42.1 It is intended that the water treatment plant remain in operation and that security of the area be maintained during the improvement work. The contractor shall carefully plan his operations to accomplish the work under these conditions.

1.42.2 It is necessary that the work be accomplished with a minimum of interference to the normal operations of the water treatment plant. The following procedure shall be followed.

(a) Work on new pump house shall not be started until all materials required for construction of floor system are on hand.

Mr. Barker, water plant 24 hr. notice
(b) The Government will drain the reservoir and leave it empty for a maximum period of ten days. The contractor shall expedite his operations and complete all work in the reservoir including alterations to existing roof, structural steel work, brick work, steel form decking, reinforcing steel, concrete floor slab, flashing and roof repairs. Openings in slabs for pump shafts and other equipment shall be temporarily sealed in a watertight manner to prevent possible contamination of the treated water. Upon completion of this work, the contractor shall sterilize the reservoir, as specified, and the reservoir shall be returned to service.

(c) Upon completion of pump house including pumping equipment and electrical work, connection shall be made to existing 12-inch main and valves installed and the main returned to service in such manner that both new and old pumps may be operated until the new equipment is tested under operating conditions.

(d) Piping and electrical work indicated for removal shall not be removed until similar replacement items are ready to be connected.

(e) Outages to electrical and water service shall not occur except as approved by the Officer in Charge. When outages are required, the contractor shall request them in writing at least 48 hours in advance giving the desired time and estimated length of outage, together with a schedule of work to be accomplished during the outage.

1.43 Salvageable items removed from existing work shall be delivered as directed. Distance of haul shall not exceed 10 miles.

1.44 Cleaning-up. Upon completion of the work, the contractor shall remove all debris from the site. All debris shall be hauled to a Government dump, a distance not exceeding one mile from the site of the work, and placed where directed and the premises shall be left free from all litter and refuse; exterior grounds shall be left in a raked, clean condition.

SECTION 2. DEMOLITION

2.1 General requirements. The work includes the removal of roofing materials on the existing water plant building, a portion of the roof construction over the existing concrete reservoir, concrete apron, concrete slab in chlorinator room and water pumps, together with suction and discharge piping, valves and fittings, concrete pump foundations, motors, gasoline engine and fuel tank, starters, switches, wiring, conduit and other incidental and associated items indicated, specified or required for accomplishment of the improvement work. The work of demolition shall be executed in a careful and orderly manner and the contractor shall provide all necessary safeguards for protection of those portions of the buildings and equipment that are indicated to remain in place.

2.2 Materials which have been removed and are not to be reused shall not be permitted to accumulate and shall be promptly removed from the site. Materials shall be hauled to selected sites as directed. All pumping equipment, piping, valves and fittings, gasoline engine, motors and all other electrical and mechanical items removed and not to be reused, shall remain the property of the Government and shall be delivered as directed.

SECTION 3. EARTHWORK

3.1 Elevations and obstructions. Bids shall be based on the following:

- (a) that the surface elevations are as indicated;
- (b) that no pipes or other artificial obstructions, except those indicated will be encountered; and
- (c) that hard material will not be encountered.

In case the actual conditions differ substantially from those stated and/or shown, the provisions of Clause 4 of Standard Form No. 23A respecting an adjustment for changed conditions shall apply, subject to the requirement of notification thereunder being given. Hard material shall be defined as solid ledge rock, boulders more than 1/2 cubic yard in volume or any cemented material requiring blasting for removal.

3.2 Topsoil shall be removed from all excavations having material suitable for topsoil. Topsoil shall be deposited in piles separate from other excavated material and shall be so located that the material may be used readily for finish surface grading and shall be protected and maintained until needed. Topsoil shall be spread uniformly over the ground in the areas where natural soil conditions has been disturbed by this contract.

3.3 Shoring and pumping. Excavations shall be shored and braced by members of suitable size and arrangements where necessary to prevent danger to persons or structures, injurious caving and erosion. Shoring, bracing and sheeting shall be removed as excavations are backfilled in a manner to prevent injurious cavings. Excavations shall be kept free from water while construction therein is in progress.

3.4 Excavation general. Excavations shall be made to the lines and grades indicated and shall extend a sufficient distance from walls and footings of structures to allow for placing and removing of forms, installation of services and for inspection.

3.5 Excavation for trenches. Trenches for pipe lines shall be excavated to the line and grade and, unless indicated otherwise, shall provide a minimum of six inches between the outside of the pipe and the sides of the trench or bracing, with a minimum width of trench of two feet. The bottom of the trenches shall be accurately graded to provide uniform bearing and support for each section of pipe and shaped to fit the lower 1/4 of the circumference of the pipe on firm soil throughout its length, except for portions of the pipe sections where it is necessary to excavate for bell holes and the proper sealing of joints. Such excavations shall be made after trench bottom has been graded. Minimum cover, unless indicated or specified otherwise, shall be two feet.

3.6 Filling, backfill and grading.

3.6.1 All backfill about structure shall be placed after the foundation wall has cured and shall be placed and compacted as directed.

3.6.2 Fill and backfill shall be constructed of approved materials and shall be free from vegetable matter, roots, refuse or other unsuitable material and the moisture content shall be of such that proper compaction will be obtained. If the mixture is excessively moistened by rain, it shall be aerated until the moisture content of the mixture is satisfactory. Fill shall be placed in layers of not more than six-inch thickness and thoroughly compacted to a minimum density of 95 percent at optimum moisture content as specified hereinafter. The mixture shall be compacted with pneumatic hand tampers. The surface layer shall be finished smooth and free from waves and inequalities.

3.6.3 Trench backfill. As soon as practicable after the pipe has been installed and joints have acquired a suitable degree of hardness, backfilling of the space between pipe and sides of the trench shall be packed by hand shovel with selected earth and thoroughly compacted with hand tamper as fast as placed up to a level one foot above top of pipe. The fill shall be placed uniformly on both sides of the pipe and neither horizontal nor vertical alignment of the pipe shall be disturbed. The remainder of the trench shall be filled with clean earth free from vegetable or other objectionable material and thoroughly compacted in layers not exceeding 12 inches in depth by mechanical tamping. If required, the backfill material shall be wet by sprinkling before tamping. Care shall be taken that lumps shall not become nested and that all voids between lumps shall be completely filled with fine material. No large masses of backfilling material shall be dropped into the excavation, as from a grab bucket, in such a manner as to disturb pipe or structure.

3.6.4 Grading. The contractor shall perform all grading in areas so indicated. Fill shall be brought to finished grades indicated and shall be graded to drain water away from structure. Existing grades which are to remain and which are disturbed by the contractor's operations shall be graded to provide surfaces suitable for the proper use of mowing machines.

3.7 Disposal of surplus material. Surplus material not required or unsuitable for fill, backfill or grading shall be wasted as directed; waste haul shall not exceed one mile.

3.8 Compaction tests. Wherever in the specifications, percentages of density are called for, the maximum density at optimum moisture content shall be determined in accordance with AASHO Standard Method T180-57. Determination of density of soil in place shall be made in accordance with ASTM Designation D1556-58T. Compaction test will be performed by the Government at no expense to the contractor.

3.9 Vegetation.

3.9.1 The work includes seedbed preparation in all areas specified to receive topsoil. Liming, fertilizing and seeding will be accomplished by others.

3.9.2 Seedbed preparation. The areas to be vegetated shall be prepared by plowing, heavy discing, or other approved equipment to thoroughly loosen the soil to a depth of four inches. After loosening the soil, all surface irregularities, where surface water could collect and pond, shall be smoothed out. A firm and compact seedbed is required, and after smoothing, it shall be lightly compacted with a land roller, such as a cultipacker. All tillage operations shall be as near on the contour as is practical.

SECTION 4. CONCRETE CONSTRUCTION

4.1 General requirements. Concrete construction, including reinforcing, shall be in accordance with Specification 13Yf, except as modified herein. Concrete for floor slabs shall be Class E-3/4. All other concrete except as specified or indicated otherwise shall be Class D-1. Horizontal wall steel not otherwise indicated shall return lap 18 inches at corners. Sidewalks shall be constructed as hereinafter specified.

4.2 Expansion joints and cleavage joints between vertical and concrete surfaces and slabs shall be 1/2-inch wide, unless otherwise indicated, and expansion joint material shall extend the full thickness of the concrete, except that at all exterior joints, it shall extend from the bottom of the slab to within 3/4-inch of the top of slab. Joints shall be filled with preformed joint filler conforming to Specification HH-F-341a. After concrete has cured, the top of the exterior joints shall be cleaned thoroughly and filled with joint filler conforming to Specification SS-S-164 or Specification SS-S-158a.

4.3 Surface finishes

4.3.1 All exposed surfaces cast against forms shall be given a special grout finish.

4.3.2 All exterior concrete pads, steps and slabs on grade shall be given a wood float finish.

4.3.3 All interior floor surfaces shall be given a dusted-on finish.

4.4 Setting miscellaneous material. All dowels, bolts, anchors, pipes, hangers, insets, sleeves, and all other material in connection with the concrete work shall be placed and secured in position, when practicable, before the concrete is placed.

4.5 Concrete sidewalks and driveways.

4.5.1 Materials.

(a) Concrete shall be Class D-1 normal concrete in accordance with Specification 13Yf, except that the water content shall not exceed 6.5 gallons per sack of cement.

(b) Joint filler shall conform to Type I, Class A, Specification HH-F-341a.

4.5.2 Forms shall be of wood or metal of the depth of the concrete, straight, or curved as required, free from warp or kinks and of sufficient strength. They shall be staked securely enough to resist the pressure of the concrete and of the finishing operations without springing. When ready for the concrete to be deposited, they shall not vary from true line and grade and shall be maintained in position until the concrete has set. All forms shall be cleaned and oiled each time before concrete is placed against them. Concrete shall not be placed until the forms have been inspected and approved.

4.5.3 Placing. Concrete shall be deposited on the prepared subgrade in approximately its final position, and spread by shovel. It shall be compacted thoroughly and brought to grade by screeding with an approved template. Concrete adjacent to the forms and expansion joints shall be tamped and spaded to prevent honey-combing along these surfaces.

4.5.4 Jointing.

(a) Expansion joints shall be provided between the ends and edges of sidewalks and all structures and pavement abutting thereto; and between the concrete of the sidewalks and any material passing through the sidewalks. They shall be 1/2-inch in thickness unless indicated otherwise. In addition, expansion joints shall be provided forming separate uniform slabs not more than 50 feet in length. The joint filler shall extend from the bottom of the concrete to within 1/8-inch of the finished surface. All expansion joints shall be fastened securely in place before concrete is placed, and if disturbed by the placing and finishing operation, shall be removed and re-set.

(b) Dummy joints shall be provided transversely to divide the walks into uniformed blocks not more than five feet in length. Dummy joints shall be cut to a depth of at least 1/3 the thickness of the concrete. They shall be formed by a "T" bar that will produce uniform edges, rounded as specified hereinafter. The edges of slabs and joints shall be rounded to 1/4-inch radius unless directed otherwise. Edging shall be accomplished after the water sheen has disappeared from the surface and before the concrete has attained its initial set.

(c) Finishing. Screeding shall be accomplished by advancing the template with a combined longitudinal and cross-wise motion, a small surplus of concrete being maintained ahead of the template. At expansion joints the template shall be worked in both directions away from the joints. Surfaces shall be sloped as indicated so that water shall drain readily from the surfaces. Prior to floating, all excess moisture shall be removed from the concrete surface. The surface shall then be worked with a wood float to produce a uniform texture. After the wood working, the surface shall be worked with a steel trowel to a smooth texture while the concrete is still plastic. After the steel troweling, just before the concrete becomes non-plastic, the surface of the slab shall be given a light broom finish. The broom shall be pulled gently over the surface of the sidewalk from edge to edge. Adjacent strokes shall be slightly over-lapped. Brooming shall be perpendicular to the center line of the sidewalk and so executed that the corrugations thus produced will be uniform in character and width. The broomed surface shall be free from porous spots, irregularities, depressions and small spots or rough spots, such as may be caused by accidentally disturbing particles of aggregate embedded near the surface.

(d) Curing. Concrete shall be cured by one of the following methods. The curing period for all damp curing methods shall be not less than seven days. Curing shall be applied as soon as the surface has set sufficiently so that it will not be damaged by the curing process.

(1) covering with wet burlap, straw or hay; the covering shall be kept saturated during the curing period;

(2) covering with concrete curing paper conforming to Specification UU-P-264a, Type I or II;

(3) ponding or continuous sprinkling;

(4) coating with transparent curing compound conforming to AASHO Designation M-148-57, applied in accordance with Specification 13Yf.



SECTION 5. BRICK AND CONCRETE MASONRY

5.1 General requirements. Masonry work of the types indicated shall be provided, and masonry work shall be properly coordinated with the work of other trades.

5.2 Materials. Cement, lime and other cementitious materials shall be delivered to the site and stored in unbroken bags, barrels, or other approved containers, plainly marked and labeled with the manufacturer's names and brands. Mortar materials shall be stored in dry, weathertight sheds or enclosures, and shall be stored and handled in a manner which will prevent the inclusion of foreign materials and damage by water or dampness. Masonry units shall be handled with care to avoid chipping and breakage and shall be stored as directed. Masonry materials shall be properly protected from contact with the earth and exposure to the weather, and shall be kept dry until used. Materials containing frost or ice shall not be used.

5.2.1 Common brick shall conform to ASTM Specification C62-58, Grade SW. The average dimensions of brick shall be within the range of 2-1/8 to 2-1/2-inches high, 3-3/8 to 4-inches thick, and 7-1/2 to 8-1/2-inches long, subject to the tolerances specified in ASTM Specification C62-58.

5.2.2 Concrete brick shall be Grade A conforming to ASTM Standard C55-55 and shall be natural color with surface texture matching that of the concrete masonry units. Size of brick shall conform to that specified for clay brick.

5.2.3 Concrete masonry units shall be Grade A conforming to ASTM Standard C90-59. The units shall be free from deleterious matter that will stain stucco, mortar, plaster or paint, or that will corrode ferrous metal. Cinders for aggregate is prohibited. All units shall have a coarse granular texture. Special units shall be provided as necessary, and shall be of the sizes and shapes suitable for the conditions for which they are to be used. Concrete masonry units may be air, water, or high pressure or high-temperature steam cured; air cured units shall be held in storage at the plant site a minimum of 28 days before use; high pressure and high-temperature steam cured block may be used after three days storage at the plant site. All concrete masonry units shall be protected and kept dry until used. All units shall be made by the same manufacturer of the same materials and by the same methods. The units shall be of uniform face dimensions nominally 8 by 16 inches of thickness indicated.

5.2.4 Special shapes, such as closures, header units, and jamb units shall be provided as necessary to complete the work, and shall conform to the applicable portions of the specifications for the units with which they are used.

5.3 Mortars.

5.3.1 Mortar for brick and concrete masonry unit work shall be mixed in the proportions by volume of one part Portland cement, one part lime paste, and six parts sand, or of one part masonry cement and three parts sand. The aggregates shall be introduced and mixed in such a manner that

the materials will be distributed uniformly throughout the mass, after which a sufficient amount of water shall be added gradually and the mass further mixed until a mortar of the plasticity necessary for the purpose intended is obtained. The mortar may be machine mixed in approved mixers of the type in which the quantity of water can be controlled accurately and uniformly. Mortar boxes, pans and/or mixer drums shall be kept clean and free of debris or dried mortar. The mortar shall be used so that it will be in place before the initial setting of the cement has taken place; retempering of mortar in which cement has started to set will not be permitted. The color of the cement and sand used in the exposed exterior work shall produce without the admixture of any coloring matter, a mortar of uniform shade.

5.3.2 Portland cement shall be Type I, conforming to Specification SS-C-192d.

5.3.3 Masonry cement shall be Type II, conforming to ASTM specification C91-59.

5.3.4 Lime paste shall be made with pulverized quicklime, or with hydrated lime, which shall be allowed to soak not less than 72 hours before use; except that hydrated lime, processed by the steam method, shall be allowed to soak not less than 24 hours and shall be made by adding the lime to the water. In lieu of hydrated-lime paste for use in mortar, the hydrated lime may be added in the dry form.

(a) Hydrated lime shall be Type S, conforming to ASTM Specification C207-49.

(b) Pulverized quicklime shall conform to Specification SS-Q-351, shall pass a No. 20 sieve, and 90 percent shall pass a No. 50 sieve.

5.3.5 Sand shall conform to ASTM Specification C144-52T.

5.3.6 Water for mixing shall be potable.

5.4 Mortar joints shall be uniform in thickness, and the average thickness of any three consecutive joints shall be 3/8 to 1/2 inch, unless specified otherwise. "Story poles" or "gage rods" shall be made and approved prior to starting the work, and shall be used throughout the work. Changes in coursing or bonding after the work is started will not be permitted. Exposed joints shall be tooled slightly concave with a round or other approved jointer, when the mortar is thumbprint hard. The jointer shall be slightly larger than the width of the joint, so that complete contact is made along the edges of the units, compressing and sealing the surface of the joint. Joints in masonry which will not be exposed shall be struck flush. Horizontal joints shall be tooled first. Joints shall be brushed to remove all loose and excess mortar. All horizontal joints shall be level; vertical joints shall be plumb and in alignment from top to bottom of wall within a tolerance of plus or minus 1/2-inch.

5.5 Work in freezing weather. Masonry shall not be laid when the air temperature is below 40 degrees F., on a falling thermometer, or when it appears probable that temperatures below 40 degrees F., will be encountered before the mortar has set, unless, subject to approval, proper precautionary measures are taken. Masonry work may be started at 34 degrees F., on a rising thermometer.

5.6 Workmanship. Masonry walls shall be carried up level and plumb all around. One section of the walls shall not be carried up in advance of the others, unless specifically approved. Unfinished work shall be stepped back for joining with new work; toothing shall not be permitted, except where specified. Heights of masonry shall be checked at sills and heads of openings to maintain the level of the walls. Door and window frames, anchors, pipes, and conduits shall be built in carefully and neatly as the masonry work progresses.

5.6.1 Brickwork. Brickwork shall be laid in common bond without through headers. The exterior and interior wythes shall be bonded together with an approved crimped or corrugated zinc-coated sheet steel ties not less than 0.034-inch thick by 7/8-inch wide by about seven inches long. Ties shall be placed not more than 24 inches on centers vertically and horizontally. All joints between bricks shall be filled completely with mortar. Bed joints shall be formed of a thick layer of mortar, which shall be smoothed or furrowed lightly. Head joints shall be formed by applying to the brick to be laid, a full coat of mortar on the entire end, or on the entire side, as the case requires, and then shoving the mortar covered end or side of the brick tightly against the brick laid previously; the practice of buttering the corners of bricks and then throwing mortar into the empty joints will not be permitted.

5.6.2 Concrete masonry unit work. Exterior walls shall be laid with the cells vertical. The first course shall be laid in a full bed of mortar for the full width of the unit; the succeeding courses shall be laid with broken joints. Concrete masonry units shall have the bed-joints formed by applying the mortar to the entire top surfaces of the inner and outer face shells, and the head joints formed by applying the mortar for a width of about one inch to the ends of the adjoining units laid previously. The mortar for joints shall be smooth, not furrowed, and shall be of such thickness that it will be forced out of the joints as the units are being placed in position. Where anchors, bolts, and ties occur within the cells of the units, such cells shall be filled with mortar or grout as the work progresses. Metal lath shall be placed under cells before they are filled. Concrete brick shall be used for bonding walls, working out the coursing, topping out walls under sloping slabs, distributing concentrated loads, backing brick headers, and elsewhere as required. Concrete masonry units shall not be dampened before or during laying

5.7 Wall coping. Terra-cotta wall coping shall be free from fractures, large or deep cracks, blisters and other defects. All wall coping corners, tees, closed ends and starters shall be provided as required for a complete watertight installation.

5.8 Cleaning. Upon completion, all masonry work shall be pointed where necessary. All exposed surfaces of exterior and interior brickwork shall be washed with a suitable solution of muriatic acid and rinsed thoroughly with clean water. All other work that might be damaged, stained or discolored shall be protected during the cleaning, and all work so affected by the process of cleaning shall be replaced.

SECTION 6. LIGHT GAUGE STEEL CONSTRUCTION

6.1 General requirements. Light gauge steel studs, channels, joists and incidental framing shall be designed in accordance with the Light Gauge Steel Manual and the Specifications for the Design of Light Gauge Steel Structural Members, latest revision, of the American Iron and Steel Institute. Connections shall be welded, unless otherwise indicated. All supplementary parts, miscellaneous fastenings and accessories necessary for the proper completion of the work are included.

6.2 Material. Steel shall conform to specifications ASTM A245-58T or ASTM A303-58T. Minimum thickness of material shall be .060 inch.

6.3 Connections. Connections shall be designed to transmit the maximum stress in the connected member with proper regard for eccentricity. Fusion and resistance welds shall be used and proportioned to conform to the referenced specifications. Welded connections shall be made in conformance with the code of the American Welding Society.

6.4 Fabrication. Fabrication shall be in accordance with the practice of modern structural shops. All materials shall be well formed to shape and size. Connecting members shall be cut along smooth lines for even, snug fit to provide proper surfaces for welding. Shearing or punching shall leave clean true lines and surfaces.

6.5 Handling and erection. Material shall be unloaded, stored and handled in a manner and with appliances and care that will prevent distortion and damage of the members and keep them clean and properly drained. Material that is damaged shall be replaced by and at the expense of the contractor. The various members forming parts of a completed frame or structure after being assembled, shall be aligned and adjusted accurately before being fastened. Erecting equipment shall be suitable for the work and shall be kept in first class condition. Members shall be set plumb and true, and temporary bracing shall be introduced wherever necessary to take care of all loads to which the structure may be subjected, including that of erection equipment and the operation of the same. Such bracing shall be left in place as long as may be required for safety. As erection progresses, the work shall be securely fastened to take care of all dead load, wind and erection stresses. All connections shall be made in accordance with the detailed shop drawings as furnished by the contractor and approved.

6.6 Shop painting. All steel framing shall be given a baked-on coat of rust-resisting red zinc-chromate or equivalent rust-resisting paint at the factory.

6.7 Field painting. All abrasions due to handling or erection shall be touched up in the field with a rust-resisting paint. All welds shall be sealed, cleaned and painted with a rust-resisting paint.

227E
~~227E~~

SECTION 7. STRUCTURAL STEEL WORK

7.1 General requirements. Steel work including shop painting, except as otherwise specified, shall be in accordance with Specification ~~227E~~, as specified or statically and dynamically loaded structures. Connections for which details are not indicated shall be designed in accordance with the latest edition of the Steel Construction Manual of the American Institute of Steel Construction. Connections shall be welded, except as indicated otherwise. Holes shall be provided where necessary for erection bolts and for securing other work to steel framing.

7.2 Structural steel shall conform to Specification QQ-S-741a, Type II, for welded work.

7.3 Fastenings. Bolts, clips, angles and other miscellaneous fastenings shown, specified or necessary for securing the work in place shall be furnished and installed.

7.4 Column cap plates shall be set accurately to elevations indicated using a grouting mortar to obtain uniform bearing on the concrete. Steel anchor bolts for securing the structural steel to existing concrete columns shall be provided as necessary.

7.5 Grouting mortar for setting base plates of steel columns or bearing plates shall be a non-shrinking type. Mortar shall be a mixture of one part blended Portland cement to two parts well graded fine aggregate and enough water to provide a stiff mix consistency suitable for the intended use. The blended Portland cement shall be a mixture of cement with 1/4-ounce of aluminum powder to each sack of cement. An acceptable and approved type of commercial expanding aggregate may be used with sand and normal cement in lieu of the above mix when proportioned and used in accordance with the manufacturer's recommendations. Surfaces to receive the mortar shall be clean and moistened thoroughly immediately before placement of mortar. Exposed surfaces of mortar shall be water cured with wet burlap for seven days.

7.6 Erection tolerances. Individual pieces shall be erected so that deviation from plumb or level shall not exceed one to 500.

7.7 Shop painting and surface protection. All structural steel work, except steel work which will be encased in concrete or mortar, shall be shop painted in accordance with the fabricator's standard practice. Surfaces, where the shop coat of paint has been damaged, shall be retouched using the same system as the original shop painting.

SECTION 8. STEEL FORM DECKING

8.1 General requirements. The work includes all material, equipment and labor required for the installation of high tensile steel sheets for forming concrete floor slab.

8.2 Material shall be ribbed or corrugated steel sheets not less than 0.024-inch thick with a tensile strength not less than 80,000 psi. Sheets shall be formed to a pattern of approximately 4-1/2 inches pitch by 1-5/16 inches depth. Section modulus per foot of width shall not be less than 0.136. Nominal overall width of sheets shall be not less than 30 inches with a cover width of approximately 27 inches. Sheets and accessories shall be hot-dipped, zinc-coated, 1.25 ounce per square foot coating class. Sheets shall be of lengths as necessary to span a minimum of three supports wherever practical.

8.3 Delivery and handling. Steel form decking shall be delivered, stored, handled, and installed in such manner that it will not be damaged or deformed. Special care shall be exercised not to damage or overload the roof deck during the concrete curing period. The maximum uniform distributed load shall not exceed 70 psf. The decking shall not be used for storage or as a working platform until the sheets have been welded in position. Decking stored at the site before erection shall be stacked on platforms, or pallets, and covered with tarpaulins, or other suitable weathertight covering.

8.4 Erection. Sheets shall be placed with corrugation edges up and with corrugations perpendicular to supports. Sheets shall be placed end-to-end along one side of building. Adjacent rows shall be placed in like manner, side lapping one corrugation with previously placed row. End laps shall occur over supporting beams and shall be centered over the support. Minimum end lap shall be two inches. Sheets shall be attached to supports by plug welding through special curved washers to supporting beam flange. Welded sheets shall have the following minimum welding requirements:

(a) end laps - weld top sheet in valley of side lap (through four sheet thicknesses) and again at middle of sheet;

(b) intermediate supports - weld in valley of side lap to every structural support;

(c) side laps - weld, bolt or clip not to exceed 36-inch centers.

A 16-gauge washer shall be placed in the rib or corrugation, atop the lapped sheets. The weld shall be made between the washer and the support. The electrode shall burn down through the sheets from the pre-punched hole in the washer to the support; a puddle weld shall be formed, penetrating into the support and flowing back up through the hole in the washer where an overlapping bead is formed. Decking sheets shall be weighted at the point of welding with sand bags or other suitable device to hold them in firm contact with each other and the steel supports. Special care shall be taken to secure solid welds without overburning the steel sheets. Proper size and type welding machine, electrodes and other welding equipment suitable for light gauge steel shall be used.

8.5 Cutting and fitting. Openings for pumps, pipes and other projections through the floor shall be cut and fitted neatly and shall be reinforced as necessary for rigidity and load-carrying capacity.

8.6 Repair of zinc-coating. All zinc-coating that has been damaged in welding shall be repaired by the application of stick or thick paste material conforming to Specification O-G-93. Areas to be repaired shall be cleaned, slag shall be removed from welds prior to making repairs. Surfaces to which stick or paste material is applied shall be heated with a torch to a temperature to melt the metallics in the stick or paste; the molten material shall spread uniformly over all surfaces to be coated and the excess material wiped off. Adjacent zinc-coated surfaces damaged by heat shall be repaired in the same manner.

SECTION 9. MISCELLANEOUS METAL WORK

9.1 General requirements. Miscellaneous metal shall consist of standard shapes of commercial quality. Cast iron shall be soft, tough, gray iron; castings shall have sharp corners and edges, and shall be clean, smooth and true to pattern. Welding shall be done in a manner that will prevent permanent buckling and all welds exposed in the finished work shall be ground smooth.

9.2 Workmanship and finish. Workmanship and finish shall be equal to the best practice of modern shops for the respective work. Exposed surfaces shall have smooth finish and sharp well defined lines and arises. Sections shall be well formed to shape and size with sharp lines and angles; curved work shall be sprung evenly to curves. All necessary rabbets, lugs, and brackets shall be provided so that the work can be assembled in a neat and substantial manner. Holes for bolts and screws shall be provided. Fastenings shall be concealed where practicable. Thickness of metal and detail of assembly and supports shall provide ample strength and stiffness.

9.3 Shop painting. All surfaces of steel and iron work, except zinc-coated work, and work with bituminous or other priming, shall be shop painted in accordance with the fabricator's standard practice.

9.4 Anchors and fastenings. Ties, anchors and other miscellaneous fastenings shown, specified or necessary for the securing of the work in place shall be furnished and installed.

9.5 Threshold shall be extruded aluminum, four inches wide and shall be countersunk for door bolts. Threshold shall be set in mastic and fastened with expansion screws not more than three inches from ends and staggered not more than eight inches on centers between end screws.

SECTION 10. METAL WINDOWS

10.1 General requirements. The work includes the provision of metal windows in the new pump house and the renewal of insect wire in metal screens on existing windows in the water plant building.

10.2 Metal windows. Metal windows shall conform to the applicable requirements of Specification 10Yd, except as specified otherwise herein, and shall be of the types and sizes indicated or specified. Windows shall be steel.

10.2.1 Glazing provision. Windows shall be designed for either inside or outside glazing with glazing clips and metal glazing compound.

10.2.2 Shop finish. Members shall be phosphate treated and shop primed.

10.2.3 Anchors and fastenings shall be provided as indicated, or as necessary to hold the windows firmly in position. Anchors and fastenings shall be built into, bolted to, or anchored otherwise to the heads, jambs, and sills of openings, and shall be fastened securely to the windows and frames. Anchors shall be the type recommended by the window manufacturer for the specific type of construction.

10.2.4 Windows shall be projected windows conforming to the requirements specified for commercial type steel windows.

10.2.5 Hardware for windows shall be malleable iron or hot-dip zinc-coated steel.

10.2.6 Insect screens, storm sash, and weatherstripping are not required.

10.3 Renewal of insect wire. Insect wire screening shall be removed from all existing steel screen frames and new insect wire screening provided. New insect wire shall be 18 by 14 mesh, Type III (bronze), conforming to Specification RR-S-141a.

SECTION 11. METAL DOORS, FRAME AND HARDWARE

11.1 General requirements. Metal doors and frame shall conform to the applicable requirements of Specification 32Yb, except as indicated or specified otherwise.

11.2 Hollow pressed steel frame shall be the full welded type.

11.3 Hollow metal doors. Doors shall be Type III industrial type doors and shall be a complete integral package unit with doors, frame and hardware. Hardware shall conform to the applicable requirements of Specifications FF-H-106a, FF-H-116c and FF-H-121c. One key tag and holder as hereinafter specified shall be provided for each key. Hardware shall be provided as follows:

3 pair hinges, Type T2127, USP, 4-1/2 by 4-1/2 inches
one lock set, Type 161A-4
1 chain bolt, Type 1021A, 6 inches long
1 foot bolt, Type 1021B, 6 inches long.

SECTION 12. ROOFING, SIDING AND SHEET METAL WORK

12.1 General requirements. The work includes the removal of existing asphalt shingles, nails and felt underlayment, and existing built-up roofing on water plant building and the provision of new asphalt shingles and built-up roofing; provision of built-up roofing on new pump house and on new addition to water plant; and alterations and renewal of existing flashing and the provision of new flashing, hatch covers, gutters, downspouts and other incidental and associated work. The work further includes the provision of corrugated asbestos-cement siding on exterior walls of the new pump house. Materials and methods of installation shall be in accordance with Specification 7Yi, except as indicated or specified otherwise.

12.2 Materials. Manufactured roofing materials shall be delivered to the site in the original sealed containers or packages bearing the manufacturer's name and brand designation. Where materials are covered by a referenced specification, the containers or packages shall bear the specification number, type and class as applicable.

12.2.1 Mineral-surfaced asphalt shingles shall weigh not less than 235 pounds per 100 square feet, and shall conform to the requirements of Specification SS-S-300, Type 2. They shall be strip shingles, 3-tab, 12 inches wide by 36 inches long and shall be of an approved self-sealing type; they shall be nailed with zinc-coated, large-head roofing nails as hereinafter specified. Color shall be off-white as approved by the Officer in Charge.

12.2.2 Nails for applying asphalt roofing and metal drip strips shall be large-headed, sharp-pointed, hot galvanized steel nails with barbed or otherwise deformed shanks. Nails shall be made of 11 or 12 gauge wire and heads from 3/8-inch diameter to 7/16-inch diameter. Nails for applying shingles and metal drip strips over existing wood deck shall be one inch long.

12.2.3 Built-up roofing for application on existing wood surfaces and on new wood surfaces shall be Type 4AWS. *See addendum
Page 3*

12.2.4 Built-up roofing for application on insulation shall be Type 4A1S.

12.2.5 Aggregates for surfacing built-up roofing shall be slag or gravel.

12.2.6 Sheet metal for drip strips, gravel stops, hatch covers, metal flashing, gutters and downspouts shall be zinc-coated sheet steel, flat type, conforming to Specification QQ-S-775b for class d coatings and shall be not lighter than 24 gauge before forming and coating.

12.2.7 Corrugated cement-asbestos sheets and shapes for siding shall be Type A conforming to Specification SS-B-750b and shall be installed in accordance with the manufacturer's recommendations, except as indicated otherwise.

12.3 Removal of existing roofing materials. Where indicated, all existing asphalt shingles, roofing felt, roofing nails, built-up roofing and flashing shall be removed. The existing sheathing shall be cleaned as required to provide a clean smooth surface for the new roofing materials. Materials which have been removed shall not be permitted to accumulate and shall be promptly removed from the site. Materials shall be hauled to a Government dump; haul not to exceed one mile.

12.4 Application of shingles. All roof decks to which roofing is to be applied shall be dry, clean, smooth and free from projections that might puncture the felt. All felts and shingles shall be kept dry prior to and during installation. Storage loading of shingles on roofs or platforms shall be limited to 25 psf, uniformly distributed. The application of new roofing materials will not be permitted when the temperature is below 40 degrees F.; or when there is any ice, frost, surface moisture, or dampness visible on the roof deck.

12.4.1 Strip shingles. Galvanized metal drip strips, as indicated, shall be applied along the eaves. This strip shall be applied on the existing deck forming a drip edge and shall be secured with one inch roofing nails spaced eight to ten inches apart along the inner edge. Similar drip strips shall be applied at the rakes after the felt underlayment has been applied. A single layer felt underlayment shall be provided and shall be applied with two inch wide side laps and four inch end laps, secured with 3/4-inch zinc-coated roofing nails sufficiently to hold it in place until the shingles are applied. The underlayment shall be turned-up vertical surfaces not less than four inches and an additional width of felt shall be applied continuously over ridge of roofs and at all valleys and hips. A starter strip shall be applied along the eaves, overlaying and extending 3/8-inch beyond edge of the drip strip. Nailing shall be done in a line parallel to and three to four inches above the eave edge. The nails shall be placed so that the heads will not be exposed in the cutouts of the first course of shingles. Shingles shall be applied with five inch exposure and cutouts breaking joints at halves. A minimum of six nails shall be provided, placed one inch each side of cutouts and one inch in from strip ends and all nails located on a horizontal line 5/8-inch above the top of cutouts.

12.4.2 Ridge row shingles shall be applied over the ridges and hips. They shall be bent over the ridge or hip; extending six inches on each side; four inches shall be exposed to the weather. Shingles shall be heated as required in cold weather and shall be nailed on each side 1-1/2 inches from the side and five inches from the exposed end. Nails shall be concealed by the overlapping shingle.

12.4.3 Closed or woven valley. Valley construction shall be as follows: a 36-inch width of 55-pound or heavier rolled roofing shall be centered in the valley over the two layers of 15-pound underlayment. Valley shingles shall be laid over the lining, either (1) by applying them on both roofs at the same time, weaving each course in turn over the valley or (2) by covering each roof first to a point approximately three feet from the center of the valley and weaving the valley shingles in place later.

When following the first procedure, the first course shall be laid along the eave of one roof up to and over the valley, extending it along the adjoining roof deck for a distance of at least 12 inches. The first course shall then be laid along the eave of the adjoining roof and carried over the valley on top of the previously applied shingle. Succeeding course shall then be laid alternately, first along one roof deck and then along the other, weaving the valley shingles over each other. If the second procedure is followed, the valley shingles shall be woven in the same manner. Shingles shall be pressed tightly into the valley and nailed in the normal manner, except that no nails shall be located closer than six inches to the valley center line, and that two nails shall be applied at the end of each terminal strip. If necessary to avoid placing a nail too close to the center of the valley, a strip that would otherwise end near the center shall be cut short and a full length strip placed over the valley.

12.4.4 Field applied sealant. If the "seal-down" type of shingles approved does not provide the "seal-down" feature for the tabs of first row shingles, or if the ridge and hip shingles are not "seal-down" type, the tabs shall be sealed down in the field with plastic cement. The plastic cement shall be applied not less than 1/16-inch thick with two approximately one square inch dabs applied to each tab. Extreme care shall be exercised to keep the cement off the exposed surfaces of tabs. Each tab shall be pressed firmly into the plastic cement to insure bonding of the tab.

12.5 Performance of roofing and siding. In addition to the requirements specified, roofing, siding and flashing shall be completely weathertight. The contractor shall furnish in writing, warranties providing for repairs to roofing, siding and flashing at no additional cost to the Government, as follows:

(a) Built-up roofing. The contractor shall repair all leaks or defects in roofing and flashing materials and workmanship, appearing within one year of date of acceptance, except those caused by acts of God and/or improper use of the roof by the Government.

(b) Shingles. The contractor shall repair all leaks or defects in roofing and flashing materials and workmanship, appearing within one year of date of acceptance, except those caused by acts of God and/or improper use of the roof by the Government and as specified otherwise herein. In addition, self-sealing shingles shall be warranted by the manufacturer for a period of two years from date of acceptance. The warranty shall provide, that within the warranty period, if the self-sealing shingles tear, or blow off, because of winds of any velocity less than 75 miles per hour, as determined by the nearest United States Weather Bureau office, the manufacturer shall be responsible for (1) replacement of shingles including labor and materials of any shingles torn, damaged or blown off during the warranty period; and (2) hand sealing of any shingle tabs found to be free of adhesion during the last 30 days of the warranty period.

(c) Corrugated asbestos cement siding, after installation, shall be completely weathertight, free of abrasions, loose fasteners or deformations. The contractor shall correct all leaks occurring in the siding within one year from the date of acceptance by the Government.

see addendum
page 3

SECTION 13. THERMAL INSULATION

13.1 General requirements. The work includes the provision of roof insulation with vapor barrier on roof of new pump house and the provision of insulation above ceiling of new addition to water treatment plant. Materials and method of installation shall be in accordance with Specification 49Ya, except as indicated or specified otherwise.

13.2 Material.

13.2.1 Roof insulation shall have a "C" factor of 0.24 and shall be one of the following:

(a) Rigid fiberboard (vegetable fiber) conforming to the applicable requirements of Specification LLL-I-535, Class C, except that it shall be treated chemically to resist decay, insects and fungus growth. The insulation shall be either bituminous impregnated or bituminous-coated on all surfaces. Bituminous coatings may be applied either in the factory, or in the field, subject to approval. Integrally treated insulation boards may be furnished optionally, if they provide a rate of moisture absorption equal to, or less than, the bituminous-coated or impregnated boards.

(b) Fibrous glass board shall conform to the requirements of Specification HH-I-526a having a bituminous impregnated kraft paper covering on the upper exposed surface and on the ends and having a density of not less than 11 pounds per cubic foot.

13.2.2 Ceiling insulation shall be mineral wool bats, Type I, Class B, conforming to Specification HH-I-521c, having a "C" factor of 0.12. The insulation shall be placed over the entire ceiling area and shall be fitted between the ceiling joists.

SECTION 14. CARPENTRY

14.1 Materials and method of application shall conform to the applicable requirements of Specification 28Yd, except as modified by the drawings and/or specification.

14.2 Lumber grades shall be as follows:

- (a) Framing and blocking - No. 2 dimension Southern pine.
- (b) Sheathing - T&G No. 2 boards Southern pine or T&G standard Douglas fir.
- (c) Trim and millwork - B and better Southern pine, C select Ponderosa pine or C select Northern white pine.
- (d) Plywood for panelboards - Exterior Douglas fir, Grade A-D or B-D.

14.3 Door shall be Grade 1F Ponderosa pine conforming to requirements of Commercial Standard CS120-58 and shall be stock design of the panel type. Door shall have 1-1/2 pair of butts, Type 2127 USP, 4-1/2 inches by 4-1/2 inches; and one knob latch, Type 161N in accordance with Specification FF-H-106a.

14.4 Gypsum wallboard shall conform to the applicable requirements of Specification SS-W-51a, except that it shall have tapered or recessed edges to allow for joint concealment by a perforated tape and cement system. Wallboard shall be nailed to framing members with 5d nails, spaced not more than six inches on center. All joints and nails shall be concealed and shall be completely invisible in the finished work. All joints shall be concealed by use of a perforated tape and cement system; nail and other surface defects shall be filled and concealed with subsequent coatings of cement.

14.5 Eave vents. Insect wire screening shall be 18 by 14 mesh, Type VII (aluminum) conforming to Specification RR-S-141a. Existing insect wire shall be removed and new insect wire provided on all eave vents.

14.4 Ceiling insulation
see page 4 addendum

SECTION 15. CAULKING

15.1 General requirements. The work includes caulking around new openings and recaulking around existing openings of all joints between wood trim and brick and concrete masonry surfaces at all doors, windows, louvers and other openings in walls; and where indicated or necessary to provide weatherproof and watertight construction. Unless otherwise specified, the caulking materials shall be applied with a gun in an approved manner.

15.2 Material. Caulking material shall be plastic cement conforming to Specification SS-C-188, and shall be non-staining and gray in color.

15.3 Preparation of surfaces. Joints and spaces to be caulked or recaulked shall be thoroughly dry before the caulking compound is applied and the joints shall be free from dust by swabbing with waste moistened with turpentine or mineral spirits. Where the joints or spaces are deeper than 3/4-inch, they shall be filled solidly to within 3/4-inch of the face with oakum.

15.4 Application. Caulking compound shall not be installed when the temperature is below 40 degrees F. All joints and spaces shall be filled completely with the caulking compound, forming neat and smooth beads with the edges flush with the adjoining surfaces and with the beads not extending more than 1/4-inch out beyond the face of frames or moldings.

SECTION 16. GLAZING

16.1 General requirements. Glass shall conform to Specification DD-G-451a. A good grade of commercial glazing compound shall be used for glazing metal doors and windows.

16.2 Door. Clear sheet glass, Type II, B quality 7/32-inch shall be used for glazing door.

16.3 Windows. Clear sheet glass, Type II, B quality, double strength shall be used for glazing windows.

16.4 Workmanship. All glass shall be accurately cut to fit the openings and shall be set with equal bearing on the entire width of the pane. Glass shall be properly bedded and backputtied and set without springing or forcing. Glass in doors shall be held in place with stop beads. The corners in putty shall be carefully made and all excess putty shall be removed and surface cleaned. On completion, all dirt and stains shall be removed and the glass shall be washed.

16.5 Puttying. Prior to repainting, all existing putty and glazing compound shall be carefully examined and all loose or misplaced material shall be removed and new putty and glazing compound provided.

SECTION 17. MECHANICAL EQUIPMENT

17.1 General requirements. The work includes provision of the new water pumps, complete with electric motors, motor controls, combination drive, auxiliary gasoline engine, gasoline storage tank and accessory equipment; provision of the new water filters and appurtenances; and removal of pumps, motors, gasoline engine and related equipment in the existing building. The equipment and materials provided shall be standard products that have been in regular production for a period of at least one year by a manufacturer regularly engaged in the production of equipment of this type.

17.2 Drawings and details. The contract drawings depict the general layout and arrangement of piping and equipment. Any modification of this general layout and arrangement to facilitate purchased equipment must be approved prior to purchase of equipment. Requests for modification shall be accompanied by detail plans and drawings depicting the proposed modification.

17.3 Pumps shall be the vertical turbine type, water lubricated and provided with a nonreverse ratchet to prevent reverse rotation.

17.3.1 Discharge head shall be of close grained cast iron of uniform quality, free from blow-holes, porosity, hard spots, shrinkage, cracks and other injurious defects and shall not be welded, plugged, or otherwise repaired. It shall be of the heavy duty type and designed for vertical hollow shaft drive and shall be adapted for use with electric motors, right angle gear drives or a combination thereof. The pump shall have flanged, above slab discharge.

17.3.2 Discharge column shall be of standard weight genuine wrought iron. It shall be in sections not to exceed ten feet in length. It shall be of proper diameter to eliminate undue friction when pumping at designed capacity.

17.3.3 Line shaft. The line shafting shall be ground and polished high grade steel of proper size to transmit the full horsepower of the pumping unit without distortion or vibration. The shaft shall be furnished in interchangeable sections not over ten feet in length and shall be fastened with threaded steel couplings having a strength of not less than 100 percent of the strength of the shaft after being assembled. The ends shall be machine finished and undercut for proper butting of the shafts. All threads shall be lathe cut.

17.3.4 Bearings. The guide assembly shall have sufficient guide bearings to maintain the alignment of the shafting and to prevent vibration. The bearings shall be spaced not over ten feet apart, and they shall be water lubricated rubber cut-and-throw type.

17.3.5 Bowls. The pump bowls shall be made of close grained cast iron, free from blow-holes and all other defects which would impair their strength or durability for the service, and shall be lined with vitreous porcelain enamel. Bowls shall have smooth, curved vanes to efficiently

direct the flow of water and to prevent air locking. The bowls shall be of suitable thickness and strength to withstand the shut-off pressure of the unit. Bowls shall be fastened together in such a manner that accurate alignment is assured and maintained. Guide passages for water shall be so designed and finished as to reduce friction to a minimum.

17.3.6 Impellers shall be of the enclosed type, of heavy construction, and lined with vitreous porcelain enamel. Each impeller shall be accurately fitted and perfectly balanced both dynamically and hydraulically. Impeller shaft shall be of high grade stainless steel, carefully ground and polished and furnished with lathe cut threads. No keyways shall be cut into the shaft. Impellers shall have non-overloading characteristics and shall have head characteristics as steep as possible so that an increase or decrease in the operating head above the design point will not cause an excessive decrease or increase in pump capacity. Impellers shall be attached and locked to pump shaft in such a manner that they may easily be removed, and that they will not work loose for any reason.

17.3.7 Suction pipe. The suction end of the pump shall be terminated with a bell-shaped intake as indicated.

17.3.8 Packing box shall be grease sealed with a suitable seal ring and shall be so designed as to assure tight packing without excessive wear or friction on the shafts and to prevent the leakage of air or water. Glands shall be of the split type and shall be easily removable for repacking.

17.3.9 Operating conditions. Each pump shall provide the indicated minimum capacity for the total dynamic head (TDH) shown. The TDH shown does not include pump losses and the contractor must allow for this additional head in providing capacity at the indicated efficiency. The rotational speed of the pumps shall not exceed 1800 RPM.

PUMPING CONDITIONS

| <u>Pump No.</u> | <u>TDH</u> | <u>Minimum Capacity</u> | <u>Wire to Water Efficiency</u> |
|-----------------|------------|-------------------------|---------------------------------|
| 1 | 166 | 1250 gpm | 70 percent |
| 1 | 187 | 1050 gpm | 68 percent |
| 2 | 160 | 1000 gpm | 70 percent |
| 2 | 187 | 800 gpm | 68 percent |
| 3 | 154 | 750 gpm | 70 percent |
| 4 | 153 | 500 gpm | 70 percent |

17.3.10 Motors shall be of the vertical, hollow shaft, polyphase, squirrel-cage induction type and shall be designed to operate on 240 volt, 3 phase, 60 cycle current. Motors shall be continuous duty, open drip-proof, having a low starting current, and shall conform to the applicable

requirements of Specification 9Yg. Motors shall have ample capacity to properly operate their respective pump through its entire head capacity range without exceeding the temperature limits of NEMA and shall be rated on a basis of 40 degrees centigrade temperature rise. The motor base shall be flanged to match the pump head flange and shall be bolted and doweled in position. The motors shall be equipped with a heavy duty anti-friction type ball thrust bearing capable of carrying the hydraulic thrust of the pump and the weight of the rotating element and with a safety clutch to disengage the lineshaft from the hollow motor shaft in the event of reverse rotation.

17.3.11 Motor controllers. Each motor shall be provided with an auto-transformer type reduced voltage starter having a rating equal to or in excess of the motor. Starters for motors of 50 HP or less shall have taps for 50 percent and 65 percent voltage. Starters for motors having greater than 50 HP shall have taps for 50 percent, 65 percent, and 80 percent voltage. All starters shall be provided with a manual-off-automatic selector switch. They shall be equipped with a start-stop push button arrangement for operation on the manual position and shall be equipped with means of connecting remotely located indicating lights. The starters shall conform to the requirements of Specification 9Yg for NEMA Type I enclosure, and shall have three phase thermal overload protection and under-voltage release for use with a maintained-contact pilot device.

17.3.12 Combination drive. A combination electric motor and right angle gear drive shall be provided on Pump No. 1. The drive shall have the proper gear ratio to transmit the power from the engine to the pump at their normal operating speeds and shall be of the vertical, hollow shaft, spiral bevel gear type equipped with anti-friction bearings and a base flange matching the pump head flange. It shall be conservatively rated to transmit the maximum power requirements of the pump and be equipped with a heavy duty ball thrust bearing capable of carrying the hydraulic thrust of the pump and the weight of the rotating element. An oil reservoir of ample capacity shall supply adequate lubrication to the gears and bearings. A suitable motor stand shall be furnished which provides ample room for a sliding clutch for alternating the prime movers. The sliding clutch shall be mounted on the head shaft so the gears do not operate when the pump is driven by the electric motor. A non-reverse ratchet shall be incorporated in the clutch to prevent backspin in the event of reverse rotation.

17.3.13 Gasoline engine, for dual driven Pump No. 1 shall be a complete self-contained, multi-cylinder, water cooled, heavy duty gasoline power plant with maximum horsepower of at least 30 percent in excess of the maximum brake horsepower required to operate the pump continuously at its rated speed, over the entire head capacity range of the pump. The engine shall be arranged for motor cranking and shall be equipped with a high tension ignition system, battery, and required appurtenances, shall include an adjustable governor, carburetor, gasoline pump and filter, air cleaner, 18 ampere generator, oil filter, starting crank, exhaust pipe muffler, radiator and clutch take-off assembly.

17.3.14 Gasoline storage tank shall be constructed in accordance with NBFU Pamphlet No. 30 and shall bear the Underwriters' label. Tank shall have a capacity of 1000 gallons and be provided with fittings and accessories shown, including gravity tank and hand pump for filling gravity tank.

17.3.15 Exhaust pipe from the engine shall be carried through the wall of the pump house in an asbestos cement sleeve and a suitable muffler shall be mounted on the end of the exhaust pipe, one foot from the wall. The muffler shall be properly supported in an approved manner.

17.3.16 A metal instruction plate shall be mounted on the engine unit giving the manufacturer's recommendations for lubricating oil and other pertinent information.

17.3.17 Tests. Such field tests as required shall be made to assure that the equipment has been provided in conformity with the specifications.

17.3.18 Pump characteristic curves. The contractor shall submit for each pump for approval prior to ordering, certified characteristic curves prepared by the pump manufacturer, showing the capacities, heads, efficiencies and brake horsepower through the entire range of the pump.

17.3.19 Nameplates. A corrosion resistant metal nameplate shall be attached to each pump in a conspicuous place. The following information shall be plainly marked on the nameplate:

- (a) Name and address of the pump manufacturer
- (b) Speed
- (c) Capacity and head at maximum efficiency
- (d) Required horsepower
- (e) Serial number, model number and such other information as the manufacturer may consider necessary for complete identification.

17.4 Battery charger, electric type, shall be mounted on wall of pump house where directed and shall be the rectifier type for operation with 120 volt, 60 cycle current. Charger shall be protected by an automatic circuit breaker and shall have capacity to charge two six-volt batteries or one 12-volt battery at eight to five amps. One direct current ammeter shall be included and shall be flush mounted on the front of the enclosure. All metal parts shall be corrosion resistant or shall be suitably protected against corrosion.

17.5 Filters. The new water filters shall be manually operated, vertical, pressure type units, complete with all appurtenances. They shall be used for filtering the spiractor effluent water which is lime treated raw water derived from deep wells. The filters shall be a regular commercial product of the manufacturer or his supplier.

17.5.1 Filter tanks. The shells shall be of welded steel construction and conform to ASME rules for the construction of Unfired Pressure Vessels for 75 psi working pressure and shall be equipped with screw jack supports. Each shell shall have a manhole and handholes for permitting easy access to the entire interior and shall not be lined. Class 125 ASA flanged connections shall be provided for the unfiltered water inlet and filtered water outlet. A hand operated vent shall be placed on top of the shell.

17.5.2 Water distribution and collection system shall be the header-lateral underdrain type. The piping manifold shall be either wrought iron or brass and shall have stainless steel non-clogging nozzles. The filter service flow shall be downward and the backwash flow shall be reversed. Baffles shall be provided as necessary to prevent channeling of sand and gravel bed and to cause the water to have an even distribution across the filter media. Each filter shall have a self-propelled rotary surface washer to thoroughly agitate the media during filter backwashing. The tanks shall be designed to provide for a minimum expansion of 50 percent of the sand bed during a backwashing operation with a water rise rate of 30 inches per minute.

17.5.3 Filter media. Each filter shall be provided with an aggregate depth of at least 42 inches of a filtering media consisting of suitable grades of screened silica filter sand and gravel with layers apportioned approximately as follows:

22 inches of sand

4 inches of 1/8-inch to 1/4-inch gravel

4 inches of 1/4-inch to 1/2-inch gravel

8 inches of 1/2-inch to 1-inch gravel

4 inches of 1-inch to 1-1/2-inch gravel

The sand shall have an effective size of 0.45 to 0.55 millimeters with a uniformly coefficient of .70 (max) to 1.20 (min).

17.5.4 Loss of head. Immediately after backwashing and rinsing, the filters shall be capable of filtering service run water having a temperature of 60 degrees F. at a rate of three gpm per square foot of filter surface with a hydraulic head loss between the shell inlet and outlet nozzles not to exceed 1.5 feet. The inlet and outlet nozzles shall be provided with altitude gauges to permit visual observation of head loss at all times.

17.6 Operation and maintenance instructions. Five copies of manual covering each item of control equipment shall be furnished the Officer in Charge. The manual shall contain, but not limited to the following: operating instructions, illustrations, drawings, detail description, installation instructions, adjustments, tests, parts list, etc.

SECTION 18. PIPING

18.1 General requirements. The work includes the provision of all new pipe, fittings, valves and accessories and the modifications to existing piping.

18.2 General arrangement. *gas pipe NBFU Pamy 30* Piping shall be placed to follow the general arrangement shown and shall be entirely out of the way of lighting fixtures, doors, windows and other openings. Any deviation from the arrangement shown shall be subject to approval and made at the contractor's expense.

18.3 Pipe.

18.3.1 Pipe larger than three inches, unless otherwise detailed, shall conform to the applicable requirements of Specification WW-P-421b for Class 150 pipe, and shall be coated inside and outside. Pipe shown with flanged ends shall have ASA Class 125 flanges.

18.3.2 Pipe three inches and smaller, except instrumentation tubing, shall be wrought iron pipe in accordance with Specification WW-P-441b, Class A. All pipe in this category, except the gasoline piping, shall be zinc-coated.

18.3.3 Instrumentation tubing shall be Type K in accordance with Specification WW-T-799a.

18.4 Fittings.

18.4.1 Fittings larger than three inches shall be ASA short body fittings. Flanged fittings shall have Class 125 flanges.

18.4.2 Fittings three inches and smaller, except for instrumentation shall be 150 pound malleable iron conforming to ASA Specification B16.3. All fittings in this category, except for gasoline piping, shall be zinc-coated.

18.4.3 Instrumentation fittings shall be flared end with a union connection provided for attachment to equipment.

18.4.4 Dresser-type couplings shall be black steel, sized to fit the pipe with which they are used and shall have center ring removed. Bolts shall have hexagon nuts.

18.5 Valves.

18.5.1 Gate valves.

(a) Gate valves larger than three inches shall be double disc type, non-rising stem, and shall conform to the American Water Works Association Standard C500-61. Valves shall be of one make and shall open by a counter clockwise rotation of the valve stem.

(b) Gate valves three inches and smaller shall be bronze wedged disc type in accordance with Specification WW-V-54, Type 2, Class A.

18.5.2 Check valves.

(a) Check valves for use with pipe larger than three inches shall be cast iron body, bronze mounted, Class 150, non-slamming type and shall conform to the applicable requirements of Specification MIL-V-18436, Type 2, Style A.

(b) Check valves three inches and smaller shall be Class A, Type IV, in accordance with Specification WW-V-51a.

18.5.3 Butterfly valves shall be rubber-seated, cast iron body, Class 125-8, conforming to AWWA Standard C504-58, with chain wheel operators.

18.5.4 Safety relief valve shall be in accordance with Specification MIL-V-18634, Class 2. The valve shall be designed for use with water at a working pressure of 65 psig. The valve shall be set to discharge at 100 psig. The valve shall have a cast iron body with a four-inch flanged 250-pound inlet connection and a six-inch flanged 125 pound outlet connection.

18.5.5 Globe valve shall be Type I, Class 125A with renewable disc in accordance with Specification MIL-V-18826.

18.5.6 Air release valve. Where indicated, an approved pressure air valve shall be provided to automatically permit air to escape while the pipe line is in service and under pressure. The valve shall be iron body, bronze mounted and designed for 125 pounds working pressure. The float shall be made of hard rubber with phosphor-bronze levers. The seat shall be hard rubber and plunger of hard quality soft rubber. The construction of the valve shall be such that valve seats may easily be replaced.

18.6 Hydrant shall be a standard type conforming to the latest specification, C502 of the AWWA. Depth of bury shall be three feet. Hydrant shall be six inches in diameter with five-inch clear opening through the valve and shall be provided with a 4.5-inch pumper connection and two 2.5-inch hose connections. Hydrant shall be of the frostproof and non-flooding type which will not flood in case the barrel or valve stem is damaged, with waste orifices for draining the hydrant when the valve is closed, and shall be of the type which opens against the water pressure. Hydrant construction shall permit 360-degree orientation without disturbing sub-surface setting. The hydrant shall be designed for 150 pounds working pressure or 300 pounds hydrostatic pressure and shall open counter-clockwise. All working parts shall be bronze. Hose and pumper connection threads and operating nut shall be National Standard. Hydrant shall be installed as shown on Plate No. 26 of Specification 42Yb.

18.7 Joints.

18.7.1 Flanged joints shall be made with flanges set perpendicular to the axis of the pipe and shall be removable without forcing or springing the pipe. Flange surfaces shall be true and unwarped planes. Gaskets shall

be of composition asbestos. Bolts shall be regular hexagon machine bolts of materials conforming to ASTM Specification A307-58T, Grade B, without heat treatment other than stress relief. Hexagon nuts shall be of materials conforming to ASTM Specification A194-59T.

18.7.2 Screwed joints shall have threads cut to conform to the American Standard for Taper Pipe Threads and not more than three threads on the pipe shall remain exposed. Pipe lubricant shall be applied to the male threads only.

18.7.3 Bell and spigot joints shall be made by placing spigot end firmly into bell, caulking braided hemp or jute into the aperture to prevent molten lead from entering the pipe and filling the remainder of the opening with molten lead. The lead shall not be less than 2-1/4-inches deep. The lead shall conform to Specification QQ-L-00156a.

18.8 Installation. Pipe laid underground shall be inspected prior to lowering into the trench. Defective, damaged or unsound pipe shall be rejected. Except when necessary for making connections with other lines, pipe shall be laid with the bells faced upgrade. Pipe shall be laid on a bed of firm material and the backfill shall be hand tamped to a depth of one foot above the pipe. Where cutting of pipe is necessary, it shall be done with approved mechanical cutters in a manner that will not damage the pipe. The interior of all pipe and fittings shall be thoroughly cleaned of debris and foreign matter prior to installation, and kept clean through the installation operation. When work is not in progress, open ends of pipes and fittings shall be secured with plugs or other approved methods in such a manner as to prevent water or other foreign matter from entering the pipe.

18.9 Pipe supports and braces. All piping shall be supported in a manner to adequately carry the weight of the lines and maintain proper alignment. Exposed piping shall be adequately supported from floor, ceilings, or walls as shown or required to prevent excessive vibration and undue strains on equipment served. Hangers, unless shown otherwise, shall conform to Specification WW-H-171b, Type II. Tie rods and collars shall be provided where indicated and shall be given a heavy coat of bituminous prior to backfilling. Underground bends shall be braced with standard thrust blocks conforming to Specification 42Yb, except as indicated otherwise.

18.10 Gauges shall be Class 2, Type A, bronze case at least 4-1/2 inches in diameter with a black dial in accordance with Specification GG-G-76a. Dial graduation shall indicate altitude (0-160 feet). Gauges will not be panelboard mounted. Each gauge shall be provided with a gauge cock.

18.11 Valve boxes. Each valve on underground piping shall be provided with an adjustable cast iron roadway box of a size suitable for the valve on which it is used. The head shall be round and shall have the word "WATER" cast upon it. The least diameter of the shafts of the boxes shall be 5.25-inches. Boxes shall be given a heavy coat of bituminous paint.

18.12 Chlorine solution facilities.

18.12.1 Chlorine solution distribution panel shall be the standard product of a manufacturer for use with chlorine solutions and shall be the "two-in and two-out" type. Valves, fittings and piping shall be hard rubber or PVC mounted on a steel or plastic panelboard.

18.12.2 Chlorine solution hose shall be the wrapped type, reinforced to withstand a pressure of 125 psi.

18.12.3 Diffuser shall be a silver solution tube. Corporation cock shall be equipped with a packing gland, providing a watertight connection.

18.12.4 Manholes shall be constructed as indicated. Materials and workmanship shall be in accordance with Specification 42Yb. Vitrified clay conduit shall be standard vitrified clay bell and spigot pipe with oakum and cement mortar joints.

18.13 Sterilization. Every precaution shall be exercised to protect the existing distribution system from contamination and the entrance of foreign material.

18.13.1 Piping and equipment. Before being placed into service, all new piping, equipment and connections to existing piping and equipment shall be thoroughly swabbed with a strong chlorine solution, or placed in contact with a strong chlorine solution, or both, as directed, in an approved manner.

18.13.2 Reservoir. Before being placed in service, the reservoir and piping shall be flushed out and scrubbed with scrub brushes and rinsed. After rinsing, the interior surface of the reservoir, outer surface of all pipes, columns, valve and appurtenances and manhole steps shall be mopped or sprayed with a strong chlorine solution and allowed to stand for four hours. The reservoir shall be given a final flushing prior to filling.

SECTION 19. INSTRUMENTATION AND CONTROLS

19.1 General. All materials and equipment shall be new and unused, unless otherwise shown or specified. The work includes provision of the following facilities complete with piping, tubing, electrical wiring and all related accessories necessary for proper facility function:

- (a) Telemetry facility for determining and recording the depth of water in the elevated tank and for automatically operating the high lift pumps using the depth of water as a basis of control.
- (b) Metering facility for determining and recording the rate and quantity of treated water delivery.
- (c) Metering facility for determining and recording the depth of water in the reservoir.
- (d) Modifications to the existing raw water metering facility.
- (e) Panelboard with the pertinent instrumentation components mounted thereon to facilitate observation, analyzation and control of the various plant operations.

19.2 Telemetry and water pump controller facility. The contractor shall provide at the elevated water tank telemetry transmission equipment complete with all appurtenances, electrical connections, piping connections and shelter. The transmitter shall continually dispatch signals on Government leased telephone lines and terminal cabinets which are also used for voice transmission, to the receiving and pump controlling equipment as described in these specifications and to be provided by the contractor at the water treatment plant. The transmission equipment shall be designed to dispatch signals relating the water level in the elevated tank to the receiving and pump controlling equipment in a manner that will not interrupt or interfere with voice transmission on the remaining telephone lines or be otherwise detrimental to the use of the remaining telephone lines for voice transmission.

19.2.1 Transmitter. The transmitter shall be housed in a suitable metal wall mounted, moisture proof case and shall incorporate an adjustable pressure measuring element which shall be subjected to a total head of ~~442~~ ⁴⁴³ feet which includes a suppression head of ~~443~~ ⁴⁴³ feet and an operating ^{and measuring} range of ~~35~~ feet. The transmitter shall send out mechanically timed direct current electrical impulses, the duration of which shall be proportional to the measured pressure. The signal dispatched by the transmitter shall reflect the level of the water in the tank within an accuracy of 16 inches.

19.2.2 Receiver and pump controller. The receiver shall be the indicating recording type and shall have a circular recording chart approximately 12 inches in diameter for 24 hour rotation with graduations uniformly ^{and equally} spaced from 0 to ~~35~~ feet. The receiver shall have incorporated with it, or in an auxiliary control box; a pump programming control equipped with mercury switches actuated at the receiver by the transmitted duration signals to

provide adjustable start and separate adjustable stop contacts wired, in each case, into the operating coil circuit of the respective pump motor magnetic starter. The pump programming control shall be designed to operate the four pumps automatically as determined by the water level in the tank, the limits of which shall be adjustable, and shall be in accordance with the sequence of operations indicated. The receiver and pump programming control shall be housed in a suitable panelboard mounted metal case or cases and shall have doors providing easy access to all parts with glass in front of the recording chart and in front of the indicator. The equipment shall also include warning and indicating systems to indicate a telemetering reception outage, to indicate a high water level condition to be incorporated as outlined below.

(a) There shall be provided an alarm system with a horn mounted on the panelboard so circuited with the receiver that in the event of signal failure between the transmitter and the receiver, the horn will blow. The horn shall be provided with a manually operated cut-off switch which may be used to interrupt the horn signal; otherwise the horn will blow throughout the duration of a receiver signal outage.

(b) There shall be provided on the panelboard a bell which shall be so circuited with the receiver that the bell will ring when all pumps are shut off as caused by the water in the elevated tank reaching its upper limit. The bell shall be provided with a manually operated cut-off switch which may be used to interrupt the bell signal; otherwise the bell shall ring throughout an "all pumps off" condition as caused by the water level in the tank being at its upper limit.

19.3 Metering facility for delivery of treated water. The contractor shall provide in the new pump house a venturi tube and transmitting equipment complete with all appurtenances. The transmitter shall continually dispatch signals on electrical transmission lines to a receiver to be provided on the panelboard in the water treatment plant. The facility shall be designed to measure and record flows from a minimum rate of 500 gpm to a maximum rate of 2500 gpm with an average error not exceeding plus or minus two percent over the entire range. The average pressure at the venturi tube will be approximately 65 psi. The equipment shall be capable of operating on 120 volt, 60 cycle current.

19.3.1 The venturi tube shall be of the concentric type constructed of good gray cast iron of Class 150 thickness with flanged ends for installation in the 12-inch discharge main. The tube shall be designed for measurement of clear water and shall have a bronze lined throat. There shall be an annular pressure ring at the main diameter with a sufficient number of holes leading from the interior of the tube to the pressure ring. These holes shall be bronze bushed with the ends of the bushing at right angles to and flush with the inside diameter of the tube and free of burrs. There shall also be a pressure ring at the throat section of the venturi tube, the inner wall of which shall consist of the bronze throat liner. The liner shall contain a sufficient number of holes leading from the inside diameter of the throat section to the pressure ring, these holes being at right angles to the throat and free from burrs. On each pressure ring, there shall be at

least two properly designed handholes and at least four suitably designed cleaning valves. Immediately downstream of the throat section, there shall be a handhole by means of which inspection can be given to the throat and upstream barrel at any time.

19.3.2 Transmitter. The transmitter shall be a wall mounted, mercury, float-operated pressure differential type for use with a venturi. The instrument shall use the time impulse transmission method with time impulse signal being directly proportional to the rate of flow. The unit shall be provided with a direct reading, uniformly graduated, concentric flow scale having a radial length of approximately six inches and indicating U. S. gallons per minute with a range of 0 to 2500. The transmitter shall indicate the instantaneous flow at all times. The equipment shall be housed in a dust tight, moistureproof case and all working parts shall be corrosion resistant.

19.3.3 Receiver. The receiver shall be an indicating, recording and totalizing meter register housed in a dust tight, moistureproof case and designed for mounting on a panelboard. All working parts shall be corrosion resistant. The instrument shall indicate the instantaneous flow at all times on a uniformly graduated direct reading flow scale having a peripheral length of approximately nine inches and depicting U. S. gallons per minute with a range of 0 to 2500. The rate of flow shall be recorded on a 12-inch diameter evenly spaced circular and concentrically graduated chart designed for daily removal. The totalizer shall have at least six digits and shall record the total amount pumped in thousands of U. S. gallons. The totalizer and chart elements shall be actuated by electric clock drives. There shall be included with the receiver a year's supply of charts, pens, ink, usual tools and accessories, together with a setting device for checking the accuracy of the meter at any time.

19.4 Reservoir water depth metering facility. The contractor shall provide in the new pump house a float operated transmitter complete with float, float cage and all appurtenances. The transmitter shall continually dispatch signals on electrical transmission lines to a receiver to be provided on the panelboard. The facility shall be designed to measure and record the depth of water in the reservoir at all times and the equipment shall be capable of operating on 120 volt, 60 cycle current.

19.4.1 Transmitter. The transmitter shall be a pedestal mounted, float-operated, depth differential type. The instrument shall use the time impulse transmission method with time impulse signal being directly proportional to a depth of water. The unit shall be provided with a direct reading, uniformly graduated, concentric scale approximately 12 inches in diameter and indicating depth in feet. The transmitter shall indicate the depth at all times. The equipment shall be housed in a dust tight, moistureproof case and all working parts shall be corrosion resistant. *The measuring range shall be 12 feet.*

19.4.2 Receiver. The receiver shall be an indicating and recording meter register housed in a dust tight, moistureproof case and designed for mounting on a panelboard. All working parts shall be corrosion resistant. The instrument shall indicate the instantaneous depth at all times on a

The depth shall be recorded in feet, with a range of 0 to 12 on an equally spaced concentric graduated chart having a diameter of approximately 12 inches.

uniformly graduated direct reading scale having a diameter of approximately 12 inches and depicting depth in feet. ~~The depth shall be recorded on a 12-inch diameter evenly spaced circular and concentric graduated chart designed for daily removal.~~ The recorder and chart elements shall be actuated by electric clock drives. There shall be included with the receiver a year's supply of charts, pens, ink, usual tools and accessories, together with a setting device for checking the accuracy of the meter at any time.

19.5 Modifications to existing raw water meter. The equipment comprising the existing raw water metering facility was manufactured B-I-F Industries, 345 Harris Avenue, Providence, Rhode Island, and has that company's following identification:

- (a) 12-inch Model VTS-4 Venturi Tube Serial No. 26364
- (b) Model CTUAX Chronoflo Transmitter Serial No. CTM 4376 with 60-inch differential range tube
- (c) Model CRB-TIR Chronoflo Receiver graduated 0-1000 gpm.

19.5.1 The contractor shall effect all necessary modifications to this existing equipment to provide a raw water metering facility with a capacity of 1200 gpm. This includes providing a new range tube for the transmitter with a differential equivalent to that produced by the venturi with a 1200 gpm flow and alterations to the receiver to provide a graduated range of 0-1200 gpm.

19.5.2 The contractor shall remove and salvage the surge tanks from the leads between the venturi and the transmitter. He shall relocate the transmitter to permit installation of the panelboard and shall mount the receiver on the panelboard. He shall provide a final installation with the functional components interconnected and calibrated to produce a reading accurate to plus or minus 0.5 percent of span while operating within 20-100 percent of span standard.

19.5.3 All modifications to the existing equipment and the calibration of the converted product shall be made under the direct supervision of the manufacturer's representative.

19.5.4 The contractor shall provide one year's supply of charts for the converted receiver.

19.6 Panelboard. Instrument panelboard shall be constructed of plastic coated plywood. Spacing and arrangement of instruments shall be dependent upon size of instruments provided but general arrangement shall be as indicated. Color of panelboard shall be green. Names of instruments shall be painted on with white paint; letters shall be 3/4-inch high. Bolts and other fasteners used for mounting instruments shall be chrome plated. *In lieu of plywood panelboard, specified and shown, the contractor, at his option, may provide an approved standard steel factory made panelboard suitable for fulfilling the depicted limitations. The contractor shall submit shop drawings for approval.*

19.7 Operation and maintenance instructions. Five copies of manual covering each item of control equipment shall be furnished the Officer in Charge. The manual shall contain, but not limited to the following: operating instructions, illustrations, drawings, detail description, installation instructions, adjustments, tests, parts list, etc.

19.8 Installation. Equipment provided shall be a standard manufactured product normally used for this purpose and shall be installed to conform with the general arrangement shown. Final adjustments on the installed equipment shall be made under the direction of a supervisory engineer regularly employed by the manufacturer of the equipment. The contractor shall perform operational tests with the installed equipment as required to demonstrate a satisfactory facility.

SECTION 20. ELECTRICAL

20.1 General requirements.

(a) The work includes the provision of a main service entrance to the new pump house, lighting and power circuits in conduit, panelboards, circuit breakers, disconnect switches, wiring of motor starters and automatic control devices, lighting fixtures, complete with lamps, wall switches, receptacles and other miscellaneous items as required to provide complete and operating lighting and power circuits.

(b) The work also includes alterations to lighting and power circuits in the existing water treatment plant, provision of a new main service entrance, panelboard and reconnection of certain switches and panels indicated to remain and the removal of existing main service entrance and certain power circuits, switches, starters and motors serving pumping equipment being abandoned.

(c) The work further includes the provision of a power circuit to telemetering equipment at elevated water tank site, telemetering circuit from the tank site via telephone cable circuit to the water plant building and connection to the depth recorder on the instrument panelboard; and control circuits and pilot light circuits between the instrument panelboard in the water plant and the motor control equipment within the new pump house.

(d) Service drops to buildings and telephone circuit between elevated water tank and water treatment plant will be provided as hereinbefore specified in the GENERAL PARAGRAPHS under Government work and materials.

(e) Materials and methods of installation shall be in accordance with Specifications 9Yg and 42Yb, except as indicated or specified otherwise.

20.2 Existing conditions. The pump house in which work is to be done is a new structure to be built over an existing reservoir. The existing water treatment plant in which work is to be done is a concrete masonry building with concrete slab on grade, wood frame roof construction. Interior walls are concrete masonry. Ceilings are gypsum board.

20.3 Electrical characteristics. Electrical service to the existing water treatment plant is 120/240 volt, 3 phase, 4 wire open delta, 60 cycle. The new electrical services shall have the same characteristics.

20.4 Drawings diagramatic. The electrical drawings are primarily diagramatic in nature, intended to indicate the purpose and connections of the conduit and/or circuits rather than the exact locations of the runs which may be modified by the contractor to meet conditions at the time of work.

20.5 Method of wiring. All wiring, except as indicated otherwise, shall be in rigid conduit exposed on walls and ceilings. Control wiring shall run above ceiling in existing water treatment plant.

20.6 Additional supports. Wherever required to secure the location shown on drawing for the lighting fixtures, conduit, electrical devices or control equipment, the contractor shall provide and install additional supports such as angle iron or channel construction, steel strap extension or by other approved means, effect the proper and rigid support of the electrical work.

20.7 Wires and cables shall conform to applicable requirements of Specification J-C-103b.

20.7.1 All wire installed in conduit in dry locations shall be Type RH, except that service entrance shall be Type RHW.

20.7.2 All wire installed in conduit, installed wholly or in part in damp locations, outside, in or under floor slab or underground shall be Type RHL.

20.7.3 No conductor smaller than #12 AWG shall be used except for controls which shall be not less than #14 AWG.

20.8 Rigid steel conduit shall conform to Specification WW-C-581d and shall be zinc-coated on both inner and outer surfaces. Rigid steel conduit installed underground shall be encased in concrete; the concrete encasement on risers shall extend a minimum of six inches above the finished grade. All conduit shall be cut with a hacksaw and reamed to size. No bends shall be made of greater than 90 degrees and manufactured elbows shall be used on one inch size and above. Conduit for connections to motors shall be the flexible type.

20.9 Outlet boxes. Outlet boxes wherever used to terminate conduit at equipment or lighting fixture location shall be hot dipped zinc-coated boxes, sized to suit equipment, with a cover in each case suitable for the respective purpose. Pendant fixture boxes shall have aligning covers. All surface mounted outlet boxes shall have threaded hubs.

20.10 Pull and junction boxes shall be zinc-coated, constructed of code gauge of steel standard for the respective dimensions and equipped with a turned-in flange to which the cover shall be mounted by screws into threaded holes. For exposed work, junction boxes and conduit fittings shall be cast or malleable iron with threaded hubs.

20.11 Local wall switches. Wall switches shall be single pole, toggle type, "T" rated, 20 ampere, 125 volt, in composition base. Covers shall have chrome finish.

20.12 Convenience receptacles. Convenience receptacle outlets shall be as indicated. Duplex receptacles shall be 15 ampere, 125 volts, grounding type, parallel slot, double sided contacts with four terminal screws in composition base. Covers shall have chrome finish.

20.13 Hand holes. Hand holes shall conform with applicable requirements of Specification 42Yb. Hand holes shall be Type 1, three feet square and constructed as indicated on Plate No. 6, except that ground rod and clamp, pulling-in irons, drain, drain piping and dry well shall be omitted.

20.14 Panelboards shall be complete with cabinets and shall conform to the Underwriters' Laboratories, Inc. Standard for Panelboards. Cabinets shall conform to the Underwriters' Laboratories, Inc. Standard for Cabinets and Boxes. Cabinets shall be made from steel sheets zinc-coated by the hot-dip process. Fronts shall be finished to resist corrosion with not less than one priming coat and one pearl-gray finishing coat. Exposed parts of trim and doors shall be finished after erection as directed. Three keys shall be furnished, each of which shall operate all panelboard cabinet locks included in the project. Adjacent poles of single-pole devices shall be of opposite polarity with split-phase bussing. Circuits shall be numbered serially from top to bottom with odd numbers on the left. A suitable directory with a transparent protective cover shall be provided on the inside of the panelboard cover.

20.14.1 Main and power panelboards shall be of the automatic circuit breaker type and shall conform to Specification W-P-131a.

20.14.2 Lighting panelboards may include some power circuits and shall be the automatic circuit-breaker type or the switch-and-fuse type, as indicated. The automatic circuit breaker type shall conform to Specification W-P-131a. The switch-and-fuse type shall conform to Specification W-P-146, and shall be equipped with fuses, and an extra set of fuses shall be furnished for each panelboard.

20.15 Backboards at service entrances and distribution locations. Wall mounted switches and panels shall be mounted on a backboard consisting of channel iron uprights secured to the building structure and surfaced with 3/4-inch Grade A-D, exterior type Douglas fir plywood. Previous to mounting equipment, the backboard shall be given two coats of asphaltum varnish.

20.16 Incandescent fixtures shall be of the highest quality of the types shown. Where the schedule refers to Specification 9Yg, number and modification symbols, the basic features shown and specified therein, shall be included in the design. Fixtures varying in minor design detail will be acceptable if drawings are submitted and approved.

20.17 Floodlight lampholders shall be medium base cast aluminum, factory wired, built with completely weatherproof articulated link between socket housing and mounting arm for smooth, firm universal adjustment. Holders shall have moulded gaskets to provide weatherproof seal between lamp and socket and shall have a baked enamel protective finish. Holders shall be listed by Underwriters' Laboratories, Inc. Lamp holders shall be mounted in groups of two as indicated. Each holder shall be equipped with a 300-watt reflector flood bulb.

20.18 Motors and motor controllers, unless otherwise specified, shall be provided in conjunction with driven equipment as specified in the Mechanical Equipment section of this specification, but shall be wired, together with all controls under this section. The electrical drawings show design values for horsepower, voltage, number of phases and associated wiring, and controls. If the approved equipment differs from that indicated, the contractor shall provide the correct wiring and control for same at no expense to the Government. Motors rated 1/2 horsepower and greater, unless otherwise specified, shall be rated for 240 volts, 3 phase. Motors of less than 1/2 horsepower shall be single phase 120 volts.

20.19 Control circuits. Complete and operating control circuits shall be provided for operation of the control devices specified in INSTRUMENTATION AND CONTROL section. Location of circuits, materials and workmanship shall be as indicated and herein specified. Number of individual circuits provided shall be as required by the equipment provided and connections shall be made in accordance with the manufacturer's approved wiring diagrams. Control circuits and telemetering circuits shall run in separate conduits.

20.20 Pilot lights. Red and green pilot lights, one set for each pump motor shall be provided on the panelboard in the water plant to indicate which pumps are in operation. Red light shall burn when pumps are in operation and green light when pumps are not in operation. Outlet boxes shall be mounted flush with panelboard and pilot lights shall be flush type. Covers shall be chrome finish. Pilot light circuits shall be provided as required from the panelboard to the pump house. Pilot lights shall be activated by means of contactors provided with motor controllers. All appurtenances shall be provided as necessary to provide a complete and operating system.

20.21 Grounding. Each service neutral wire shall be grounded to the underground pressure water pipe at entrance or exit from the building or pump house.

20.21.1 The continuity of grounding shall be assured by use of conduit lock nuts inside and outside of metallic enclosures, the removal of insulating coatings at points of contact, and bonding across any insulated joints. Grounding connections through continual metal raceways or conductor armor back to service ground will be considered effective.

20.21.2 All exposed metallic non-current carrying materials of electrical equipment forming a part of the interior electrical system shall be effectively grounded, including conduit, metal enclosures of switching equipment, panelboard and motor frames.

20.22 Interruptions to service. The contractor shall carefully plan the electrical work in a manner to keep interruptions to existing service to a minimum. If and when interruptions to service become unavoidable, the contractor shall so notify the Officer in Charge 48 hours in advance and shall interrupt service only at such times and for such duration as directed.

SECTION 21. FIELD PAINTING

21.1 General requirements. Surfaces to be painted shall be thoroughly cleaned and shall be dry when the paint is applied. Painting materials shall be worked into all joints, crevices and open spaces thoroughly. Finished surfaces shall be smooth, even and free from defects. Damaged painting shall be retouched before applying the succeeding coat. Existing bare surfaces and surfaces made bare by cleaning methods, shall be primed prior to painting. Storage of paints and paint materials and the mixing of paints shall be restricted to the locations directed.

21.2 Materials shall be in accordance with the standard specifications listed hereinafter; those not covered by such standards shall conform to the requirements given and shall be of approved commercial brands. Paint and paint materials shall be delivered in unbroken original packages bearing the manufacturer's name and brand designations. Thinners shall be of the type required by the individual paint specification.

| | | |
|-------------------------------------------|------------------------------|---------------------------------|
| Knot sealer | MIL-S-12935A | <i>Dupall Stain Cover NS0W7</i> |
| Metal pretreatment coating | MIL-C-15328B | <i>E 41 N 1</i> |
| Exterior wood primer | TT-P-25a | <i>SWP A 2 W 2</i> |
| Exterior titanium-lead-zinc and oil paint | TT-P-102a, Class A | <i>SWP A 2 W 8</i> |
| Cement water paint | TT-P-21, Type 1, Class A | <i>Loxon K15W 3</i> |
| Silicone water-repellent | SS-W-00110 | <i>A 5 W 2 3</i> |
| Red-lead paint | TT-P-86c, Type I or Type III | <i>B 50 E 2</i> |
| Zinc-chromate primer | MIL-P-00735A | <i>E 41 N 1</i> |
| Interior enamel undercoater | TT-E-543 | <i>B 4 9 W 2</i> |
| Interior flat oil paint | TT-P-51e | <i>A 5 5 A 2 2 or B 4 9 W 4</i> |
| Interior semi-gloss enamel | TT-E-508 | <i>A 3 4 B 3 7 or B 4 7 W 8</i> |
| Interior gloss enamel | TT-E-506c | <i>Enameloid or B 4 7 W 9</i> |

Specially formulated aluminum paint shall be a field mixture of vehicle conforming to Specification TT-R-266a, Type III and 1-1/2 pounds of aluminum paste conforming to Specification TT-P-320a, Type II, per gallon of vehicle. Paste shall be mixed with vehicle immediately before application. No paint shall be used more than 3-1/2 hours after mixing. Where two coats of paint are required, the first coat shall be tinted.

Rum Plate B 4 7 5 4 or Silver Bright B 4 9 6 6

21.3 Preparation of surfaces. All dirt, rust, scale, loose particles, disintegrated paint, grease, oil, and other deleterious substances shall be removed from all surfaces which are to be painted or waterproofed.

21.3.1 Wood surfaces shall be free from dust and in an approved condition to receive the paint. The use of water on unpainted wood shall be avoided. Prior to application of paint, knots and resinous wood shall be treated with an application of knot sealer. Puttying of cracks and nail-holes shall be done after the priming coat has been applied and has dried properly. Sandpapering, when required, shall be done after the undercoats are dry. New wood doors, frames, and trim shall be given the priming coat immediately following delivery to the job site.

21.3.2 Exterior brick and concrete masonry. Exposed mortar joints in brick work and concrete masonry work shall be tested with hammer and chisel. Mortar proven loose by this test shall be removed to a depth of one inch; shell joints shall be removed to expose the entire opening and all joints repointed their entire depth with mortar. Cracks in concrete masonry work shall be cut out V-shaped to a minimum depth of 1/2-inch and refilled with mortar. Brick surfaces to which the water repellent is applied shall be dry, clean, and free of all loose mortar, efflorescence, glaze and loose particles.

21.3.3 Wallboard. Prior to painting, all joints, cracks, holes, and other surface defects shall be repaired with patching plaster, filled out flush and smooth and sanded.

21.3.4 Metal surfaces.

(a) Existing metal surfaces. All loose mill scale, rust and disintegrated paint shall be removed by power tool cleaning. Power tool cleaning is defined as a method of preparing surfaces for paint by use of power wire brush, power impact tools, power grinders or power sanders, or by a combination of these tools. It is not intended that all mill scale, rust and paint shall be removed by this process, but mill scale, rust and paint which is loose, or other detrimental foreign matter shall be removed. All tools shall be operated in such a manner that no burrs or sharp ridges are left on the surfaces and no sharp cuts are made into the steel. Areas unaccessible for cleaning by power tools shall be cleaned by hand tools. Surfaces made bare by cleaning shall be given a pretreatment coating as soon as possible after cleaning.

(b) New metal surfaces. Surfaces to be in permanent contact with concrete or masonry, or embedded in masonry, shall receive a coat of asphalt primer and two coats of asphalt varnish in the field, before being made inaccessible. Other surfaces to be inaccessible for painting in the finished work shall be painted two coats of the same material used for the priming coat before being made inaccessible and other finish painting of such surfaces will not be required. Shop priming coats and factory applied coatings, where damaged, shall be touched up with the same materials used for the shop or factory coatings before additional paints are applied. Any surfaces not shop or factory primed shall be prepared, given a pretreatment coating and primed with red-lead paint or zinc-chromate primer for ferrous metals and zinc-chromate for zinc-coated surfaces to a thickness of not less than 1.5 mils prior to finish painting. Surfaces fully factory finished; that is, having finish coatings in addition to the prime coating, shall be restored to their original finished condition wherever damaged and additional painting will not be required.

21.4 Scope of work.

21.4.1 Exterior painting. The work includes painting of all new and existing exterior wood and metal surfaces of the water treatment plant, reservoir and new pump house; waterproofing new and existing exterior brick masonry and concrete masonry surfaces of the water treatment plant;

and painting new and existing exposed metal surfaces of plant piping and equipment located outside of the buildings.

(a) Wood surfaces. New wood and bare wood shall receive one coat of exterior wood primer. All primed and painted wood surfaces shall be given two finish coats of exterior titanium-lead-zinc and oil paint. Putty and caulking shall receive two coats of paint as specified for wood surfaces.

(b) Metal surfaces. Bare and new metal surfaces of buildings shall receive one coat of primer. Red-lead primer shall be used for ferrous metal. Zinc-chromate primer shall be used for zinc-coated surfaces. All primed and painted metal surfaces shall be given two finish coats of exterior titanium-lead-zinc and oil paint. Metal surfaces to be painted shall include metal doors, window and screen frames, flashing, ventilators, smoke jacks, gutters and downspouts. Exterior metal surfaces of structural steel framing of pump house shall be given two finish coats of specially formulated aluminum paint.

(c) Brick work. Existing brick masonry surfaces shall be given two coats of silicone water repellent.

(d) Concrete masonry. New and existing concrete masonry surfaces shall be given two coats of cement water paint.

(e) Piping and equipment.

(1) Existing painted metal surfaces of exposed exterior piping and equipment shall be cleaned, spot primed with red-lead primer, spot painted with one coat of specially formulated aluminum paint and given one finish coat of specially formulated aluminum paint.

(2) Exposed exterior metal surfaces of new piping and equipment shall be cleaned, spot primed with red-lead primer and given two finish coats of specially formulated aluminum paint.

21.4.2 Interior painting. The work includes painting of all new and existing interior wood, gypsum board, masonry and metal surfaces of the water treatment plant and new pump house, including piping, conduit and equipment, except existing surfaces within the lime storage room. The work further includes painting of the new structural steel work exposed within the reservoir.

(a) Wood surfaces, dado (painted on wainscot) and ferrous metal surfaces, except piping and equipment.

(1) Existing surfaces shall be painted one coat of semi-gloss enamel, except in toilet room, one coat of gloss enamel shall be provided. Colors shall match existing colors.

(2) New surfaces including lightweight metal framing in pump house shall be given two finish coats of semi-gloss enamel. Colors shall match similar existing work.

(b) Masonry (above dado) and ceilings.

(1) Existing surfaces shall be given one coat of latex base paint, except that in toilet room, one coat of semi-gloss enamel shall be provided. Colors shall match existing colors.

(2) New surfaces shall be prime coated and given two finish coats of latex base paint. Colors shall match similar existing work.

(c) Piping and equipment.

(1) Existing surfaces shall be spot primed and given one finish coat of gloss enamel.

(2) New surfaces shall be given two finish coats of gloss enamel. Varnished pipe, valves and fittings shall be given one prime coat of aluminum paint.

(d) Surfaces of new structural steel work exposed in reservoir shall be given two finish coats of red-lead paint, Type III. XXX

(e) Electrical switches and control panels shall be color painted to conform to the Government Safety Code requirements. Electric conduit, where exposed in room spaces, shall be painted to match the space in which it occurs.

21.5 Workmanship shall be first class in every respect. Paint and enamel finish shall be applied carefully with good clean brushes, or approved rollers, or approved spraying equipment, except that the initial coat to be provided on any new or previously unpainted surface shall be applied by brush. The work shall be so conducted as to avoid damage of other surfaces and public and private property in the area; any damage thereto shall be made good by the contractor at his expense. Sufficient time shall be allowed between coats to assure thorough drying, and each coat shall be in proper condition before the next coat is applied; sanding and dusting, as required to produce finishes free of visible defects when viewed from a distance of five feet shall be performed. Finish coats shall be smooth and free from runs, sags or other defects. Each coat of paint shall be of sufficient thickness to cover completely the previous coat or surface. Exterior paint shall not be applied during foggy or rainy weather; the temperature shall be above 45 degrees F. and not over 95 degrees F. Interior paint may be applied at any time provided the surfaces to be painted are dry and the temperature can be kept above 45 degrees F. during the application of ordinary paints, and between 65 degrees F. and 95 degrees F. during the application of enamels.

21.6 Waterproofing with cement water paint. Following the preparation as specified hereinbefore, surfaces shall be drenched thoroughly and uniformly with water several hours prior to painting and dampened again with a fog spray immediately before the first coat of paint is applied; free water shall not be permitted to remain on these surfaces. The paint shall be mixed in accordance with the manufacturer's instructions and in quantities not in excess of those that can be used within four hours after mixing. To prevent

settling, the paint shall be stirred with a paddle frequently during painting operations and with the brush at each dipping. The paint shall be applied in two coats with approved stiff fiber brushes using a scouring or scrubbing motion, filling the pores of the surfaces being painted. Paint shall not be applied to surfaces under the direct rays of the sun; it shall be applied preferably during cloudy weather or on the several areas while they are shaded from the direct rays of the sun. After the first coat has hardened sufficiently so as not to be damaged by spraying, it shall be sprayed lightly with clean water and kept damp until the second coat is applied. The second coat shall also be sprayed with clean water, after sufficient hardening, and shall be kept damp for two to four days, depending upon atmospheric conditions, until it has cured and hardened.

21.7 Waterproofing with silicone water repellent. Following the preparation of surfaces as hereinbefore specified, silicone water repellent shall be applied by a low pressure spray unit or by brush in strict accordance with the manufacturer's written instructions. Water repellent splashed upon glass surfaces and adjoining surfaces not being coated shall be removed immediately with a cloth dampened with mineral spirits and wiped dry with a clean cloth.

21.8 Clean-up. Paint shall be removed immediately when spilled or splattered on surfaces adjacent to the work, including fixtures, glass and fittings. The premises shall be kept free at all times from accumulation of waste material and rubbish resulting from the work, and upon completion of the work, all tools, scaffolding, surplus material and rubbish shall be removed and the premises left clean.

SECTION 22. FENCING

22.1 General requirements. The work includes the relocation of portions of the existing five foot chain link fence and gate as indicated and the provision of additional fencing, posts and accessories as required for a complete installation.

22.2 Materials. Fence posts and accessories shall conform to Specification RR-F-183. The fabric shall conform to Specification RR-F-191a, and the barbed wire to Specification RR-F-221b.

22.3 Fence posts and accessories. Line posts, corner and gate posts shall be set in concrete footings. Footings for line posts shall be 36 inches deep by 11 inches in diameter and posts set to bottom of concrete. Corner and gate post footings shall be 42 inches deep and 16 inches in diameter and post set 36 inches in the concrete. Concrete footings shall be Class D-1 in accordance with Specification 13Yf. The footings shall extend about two inches above the finished grade with the tops and exposed surfaces floated to a smooth finish. Top rail and bottom reinforcing wire shall be provided. An approved type of post top having one arm approximately 18 inches long set at approximately 45 degrees carrying three lines of barbed wire shall be provided for each post. The arm shall face outboard of the fence.

22.4 Fabric shall be Type A, two inch diamond mesh woven wire having No. 9 wire and shall be 60 inches in height with the top and bottom selvage having a twisted and barbed finish.

22.5 Barbed wire shall be Type A, four-point. Strand shall be 12 gauge and barb shall be 14 gauge. Three strands of wire shall be constructed above the woven mesh fabric. The uppermost barbed wire shall be approximately 12 inches horizontally from the fabric line.

22.6 Installation. Fencing shall be installed in a workmanlike manner with the wires stretched and fastened securely to the posts and fabric stretched so that there will be no slack edges or warped sections.

SECTION 23. BIDS

23.1 Instructions to Bidders, U. S. Standard Form No. 22, January 1961 and Invitation for Bids, U. S. Standard Form No. 20, shall be observed in the preparation of bids. Standard Form 22 is modified to change the word "may" in the third line of Article 4 to read "shall". Bidders shall affix their names and return addresses in the upper left corner of bid envelopes. Envelopes containing bids must be sealed.

23.2 Bid guarantee will be required as stipulated on the reverse side of U. S. Standard Form 20.

23.3 Items of Bids. Bids shall be submitted, in duplicate, on U. S. Standard Form No. 21, January 1961, Bid Form, and in accordance with U. S. Standard Forms Nos. 20 and 22 upon the following item:

Item 1. Price for the entire work complete in accordance with the drawings and specifications.

23.4 Telegraphic modifications of bids in accordance with U. S. Standard Form No. 22 may be made. Two signed copies of the telegram in a sealed envelope marked "Copies of telegraphic modification of bid for Water Supply Improvements, Tarawa Terrace, Specification No. 46508/62", should be forwarded immediately to the office to which the written bids were submitted.

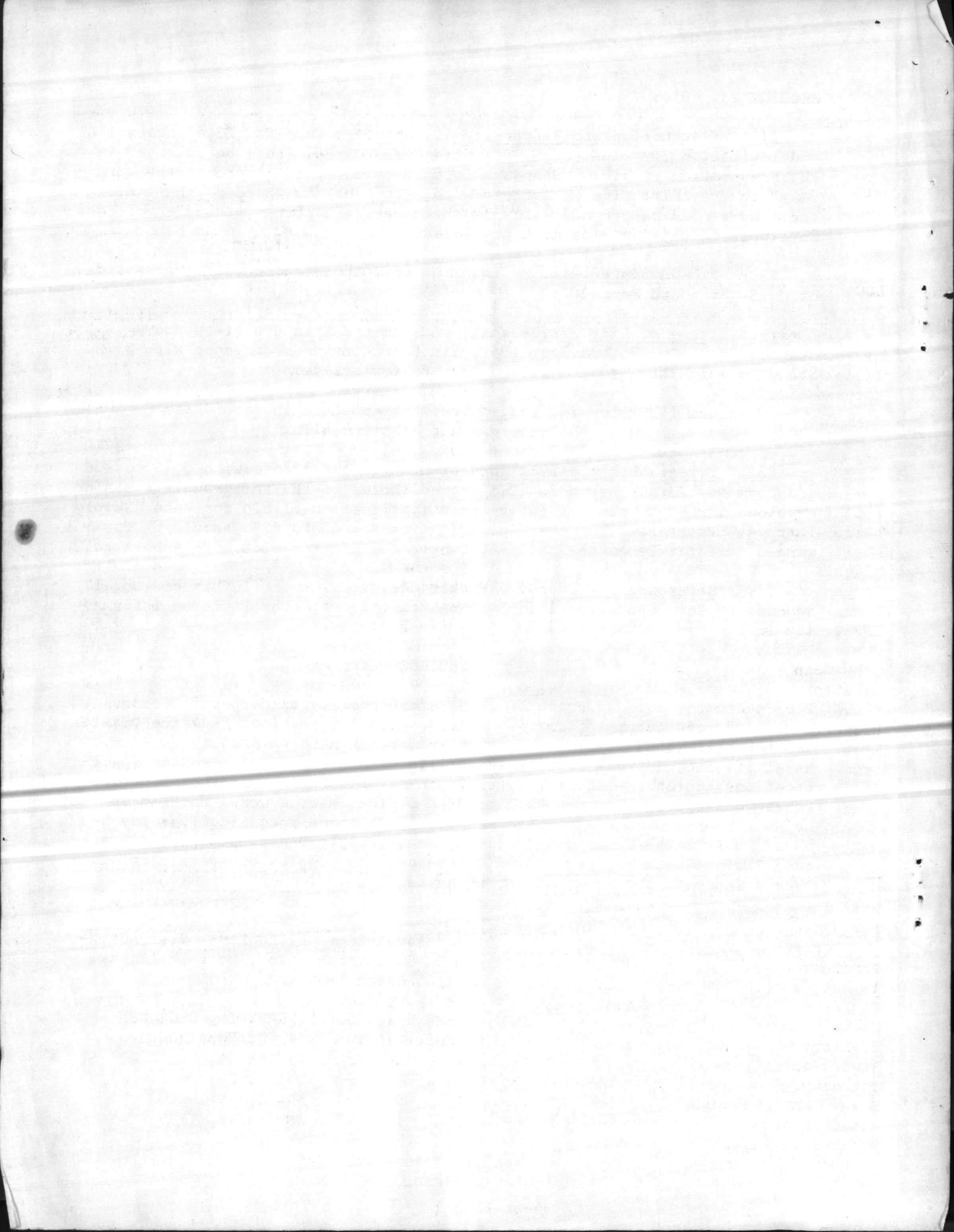
23.5 Reference to addenda. Each bidder shall refer in his bid to all addenda to this specification; failure to do so may constitute an informality in the bid.

NOTICE

The Government forms, Bureau of Yards and Docks standard specifications mentioned, and other information necessary may be obtained from the District Public Works Officer, Headquarters, Fifth Naval District, U. S. Naval Station, Norfolk 11, Virginia. The remainder of the standard specifications and other material referred to may be examined at that District Public Works Office or the Public Works Office, Marine Corps Base, Camp Lejeune, North Carolina, or the standard Government specifications may be obtained from the Commanding Officer, Naval Supply Depot, 5801 Tabor Avenue, Philadelphia 20, Pennsylvania; requests for copies of specifications should indicate the contract for which required.

Headquarters, Fifth Naval District
U. S. Naval Station, Norfolk 11, Va.
14 August 1962

HENRY C. SHAID, CAPTAIN, CEC, USN
Officer in Charge of Construction



| | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------------------|
| DEPARTMENT, AGENCY, OR BUREAU Navy Yards and Docks | | DECISION NO. AB-894 |
| DESCRIPTION OF WORK Miscellaneous building construction (including incidental utilities and incidental paving), dredging and marine construction 12-N.C. 1-J, 2-J | | LAW CODE DB |
| | | DATE OF DECISION 7-27-62 |
| | | EXPIRES 10-26-62 |
| LOCATION (CITY OR OTHER DESCRIPTION) Camp Lejeune | STATE North Carolina | COUNTY Onslow |

| | PER HOUR | | PER HOUR |
|--------------------------------------------|----------|-------------------------------------------------------------------------------------------------|----------|
| Air tool operator (Jackhammermen vibrator) | \$1.15 | Marble setters | \$3.00 |
| Asbestos workers | 2.75 | Marble setters helpers | 1.25 |
| " " improvers: | | Mason tenders | 1.15 |
| 1st year | 1.25 | Mortar mixers | 1.15 |
| 2nd year | 1.64 | Painters, brush | 1.65 |
| 3rd year | 1.85 | Painters, structural steel | 2.00 |
| 4th year | 2.07 | Painters, spray | 2.00 |
| Asphalt rakers | 1.20 | Pipe layers | 1.50 |
| Boilermakers - Blacksmith | 3.95 | Plasterers | 2.50 |
| Boiler makers helpers | 3.70 | Plasterers tenders | 1.15 |
| Bricklayers | 2.75 | Plumbers | 2.50 |
| Carpenters | 1.65 | Roofers | 1.65 |
| Cement masons | 2.00 | Sheet metal workers | 1.65 |
| Electricians | 2.50 | Soft floor layers | 1.95 |
| Cable splicers | 2.50 | Steam fitters | 2.50 |
| Groundman | 1.25 | Stone masons | 2.50 |
| Linemen | 2.50 | Sprinkler fitters | 3.80 |
| Elevator constructors | 2.20 | Terrazzo workers | 3.00 |
| Elevator constructors helpers | 1.54 | Terrazzo workers helpers | 1.25 |
| Glaziers | 1.64 | Tile setters | 3.00 |
| Ironworkers, structural | 1.65 | Tile setters helpers | 1.25 |
| Ironworkers, ornamental | 2.50 | Piledrivermen | 1.65 |
| Ironworkers, reinforcing | 1.15 | Truck drivers | 1.15 |
| Laborers | 1.15 | Welders - receive rate prescribed for craft performing operation to which welding is incidental | |
| Lathers | 2.75 | | |

APPRENTICE SCHEDULE 12-N.C.

The apprentice rate is by percentage of the journeymen's rate unless otherwise indicated.

| Craft | Interval | PERIOD AND RATE | | | | | | | | | |
|-------------------------|----------|-----------------|--------|------|------|-----|-----|-----|-----|-----|------|
| | | 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th | 9th | 10th |
| Ironworkers | 6 Mo. | 50 | 60 | | | | | | | | |
| Ironworkers | Year | | 66-2/3 | | | | | | | | |
| Carpenters | Year | 1.05 | 1.15 | 1.25 | 1.40 | | | | | | |
| Electricians | 6 Mo. | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | | |
| Plumbers & steamfitters | 6 Mo. | 37½ | 40 | 45 | 50 | 55 | 60 | 66½ | 75 | | |
| Sprinkler fitters | 6 Mo. | 63 | 66 | 69 | 72 | 75 | 78 | 81 | 84 | 87 | 90 |
| Bricklayers | 6 Mo. | 40 | 45 | 50 | 60 | 70 | 80 | | | | |
| Sheet metal workers | 6 Mo. | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 80 | | |
| Cement masons | 6 Mo. | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | | |
| Soft floor layers | Year | 1.05 | 1.15 | 1.25 | 1.40 | | | | | | |

POWER EQUIPMENT OPERATORS:

| | <u>PER HOUR</u> |
|-----------------------------------|-----------------|
| Backhoes | \$2.125 |
| Cranes | 2.125 |
| Cableway | 2.125 |
| Derricks | 2.125 |
| Boom hoists | 2.125 |
| Draglines | 2.125 |
| Dredges and other floating equip. | 2.25 |
| Piledrivers | 2.00 |
| Pavers | 2.125 |
| Mechanics | 2.00 |
| Scrapers, wheel type | 2.00 |
| Shovels | 2.125 |
| Truck cranes | 2.125 |
| Tractors with attachments | 2.125 |
| Tractors without attachments | 1.875 |
| Tractors farm type | 1.15 |

POWER EQUIPMENT OPERATORS:

| | <u>PER HOUR</u> |
|----------------------------|-----------------|
| Distributors, asphalt | \$1.35 |
| Front end loaders | 2.00 |
| Trench machines | 2.125 |
| Air compressors | 1.25 |
| Bulldozers | 2.00 |
| Fireman | 1.55 |
| Hoist, double drum | 1.875 |
| Hoist, one drum | 1.625 |
| Finishing machine | 1.35 |
| Mixers (larger than 10-S) | 1.75 |
| Mixers (smaller than 10-S) | 1.625 |
| Motor graders | 2.00 |
| Pumps over 2" discharge | 1.75 |
| Pumps under 2" discharge | 1.625 |
| Rollers, earth | 1.75 |
| Rollers, asphalt | 1.35 |
| Oilers | 1.55 |

DREDGE-2-At1. 4-C

HYDRAULIC DREDGES - 20 inches & Over

| | |
|-------------------|--------|
| Levermen | \$2.75 |
| Engineers | 2.70 |
| Derrick operators | 2.50 |
| Mates | 2.05 |
| Firemen | 1.80 |
| Oilers | 1.75 |

HYDRAULIC DREDGES - 14 - 18 Inches

| | |
|------------------|------|
| Levermen | 2.46 |
| Welders | 2.30 |
| 1st Engineer | 2.24 |
| 2nd Engineer | 2.14 |
| 3rd Engineer | 2.02 |
| Launchmen | 1.81 |
| Mate | 1.80 |
| Oilers | 1.75 |
| Deckhand, dredge | 1.45 |
| Shoremen | 1.35 |

HYDRAULIC DREDGES - 12 Inches & Under

| | |
|--------------------|------|
| Engineer | 1.90 |
| Leverman | 1.75 |
| Assistant Engineer | 1.50 |
| Oiler | 1.15 |
| Mate | 1.50 |
| Laborer-Deckhand | 1.15 |
| Launchman | 1.50 |
| Steward | 1.50 |
| Mess Boy | 1.25 |
| Welder | 1.50 |

DIPPER AND CLAMSHELL DREDGES

| | |
|---------------------|--------|
| Operator - Levermen | \$2.75 |
| Cranemen | 2.65 |
| Welders | 2.30 |
| 1st Engineer | 2.10 |
| 2nd Engineer | 2.00 |
| 3rd Engineer | 1.85 |

| | |
|--------------------|------|
| Mates | 2.05 |
| Launchmen | 1.81 |
| Firemen | 1.80 |
| Breastwire Tenders | 1.70 |
| Scowmen | 1.60 |
| Deckhands | 1.55 |

TUG BOATS

| | |
|----------------|------|
| Tug Captain | 2.40 |
| First Engineer | 2.40 |
| Engineer | 2.05 |
| Tug Mates | 2.15 |
| Cooks | 1.60 |
| Deckhands | 1.50 |

GALLEY CREWS - DREDGE 14" AND UP

| | |
|------------|------|
| Cooks | 1.75 |
| Mess Cooks | 1.53 |
| Janitors | 1.45 |