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CAMP LEJEUNE
NEW RIVER, N. C.

SPECIFICATION FOR
ADDITION TO WATER TREATMENT PLANT
AND WATER MAINS
CAMP LEJEUNE, N. C.

CONTRACT NOy-11255
SPECIFICATION NO. 15581
SET NO. 19

CARR AND J. E. GREINER COMPANY

ARCHITECT - ENGINEERS

DURHAM, N. C.

BALTIMORE, MD

October, 1944

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NOTICE

Informal written bids
will be received until 2 P.M.

at the office of the Officer-
in-Charge of Construction, Camp
Lejeune, Onslow County, North
Carolina.

SPECIFICATION FOR
ADDITION TO WATER TREATMENT PLANT
AND WATER MAINS
CAMP LEJEUNE, N. C.

UNDER APPROPRIATION "Public
Works, Bureau of Yards and Docks"

NOTE

The Bureau of Yards and Docks will assign a Preference Rating of AA-3 (Certificate No. 3059) to the contract. Information concerning the administration of the Priorities System may be had upon application to the Priorities and Allocation Division, Bureau of Yards and Docks, Navy Department, Washington, D. C. (Telephone Republic 7400 Extension 5181).

1934

IN THE
COURT OF THE COMMONS
IN PARLIAMENT ASSEMBLED
THE 14th DAY OF APRIL 1934
BY VIRTUE OF WHICH
THE SEVERAL STATUTES
IN THAT BEING ENACTED
BY THE PARLIAMENTS
OF GREAT BRITAIN
AND IRELAND
IN PARLIAMENTS ASSEMBLED
IN THE SEVENTEENTH
EIGHTEENTH AND NINETEENTH
CENTURIES
AND ALSO BY VIRTUE OF
THE SEVERAL STATUTES
IN THAT BEING ENACTED
BY THE PARLIAMENTS
OF GREAT BRITAIN
AND IRELAND
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AND IRELAND
IN PARLIAMENTS ASSEMBLED
IN THE TWENTIETH
CENTURY

AND ALSO BY VIRTUE OF

AND

SECTION 1. GENERAL CLAUSES.

1-01. General Intention.- It is the declared and acknowledged intention and meaning to provide and secure additions to an existing water softening, filtering and pumping plant, such additions to be ready to operate as a unit with the existing facilities, also additional water mains.

1-02. General Description.- The additions to the existing facilities consist of extension of the existing building of concrete and brick construction to house two additional filters of 1 M.G.D. capacity each, with the corresponding extension of the pipe gallery and operating floor above; an addition to the chemical feed facilities; the addition of two catalytic softeners of 1 M.G.D. capacity each; installation of one high lift pump of 700 G.P.M. capacity, with electric drive, and the construction of a new 560,000 gallon clear water storage basin interconnected with the existing basin, and pumps, an emergency electric generator and all necessary appurtenances. Water mains are located along Holcomb Boulevard and in Midway Park and are to provide a connection between the Main Area water system and the Midway Park water system.

1-03. Location.- The work shall be located at Camp Lejeune, N. C., approximately as shown. The exact location will be indicated by the Officer in Charge.

1-04. Payment Bond Only, executed on U. S. Standard Form No. 25A, will be required as stipulated in Paragraph 8 of Y&D Form No. 190d.

1-05. Form of Contract.- The contract will be executed on Y & D Form No. 197 with such modifications therein as the Chief of the Bureau of Yards and Docks may determine are proper under the particular circumstances. Liquidated damages for delay in accordance with provisions of Article 11, will not be assessed.

1-06. Time for Completion.- The work in its entirety shall be completed within 120 calendar days after date of receipt of notice of award, a letter of intent, or any other communication authorizing the contractor to proceed. Additional time will be allowed in which to complete fully all work under the section "Landscape Work" according to the planting seasons indicated therein.

1-07. Drawings Accompanying Specification.- The following drawings accompany this specification and are deemed a part thereof. Where "as shown", "as indicated", "as detailed", or words of similar import are used, it shall be understood that reference to these drawings is made unless stated otherwise. Drawings are the property of the Government and shall not be used for any purpose other than that contemplated by the specification.

<u>PW Dwg. No.</u>	<u>Y&L Dwg. No.</u>	<u>Title</u>
<u>Water Distribution System</u>		
302	304825	Water Mains Holcomb Boulevard.
303	304826	Water Mains Holcomb Boulevard.

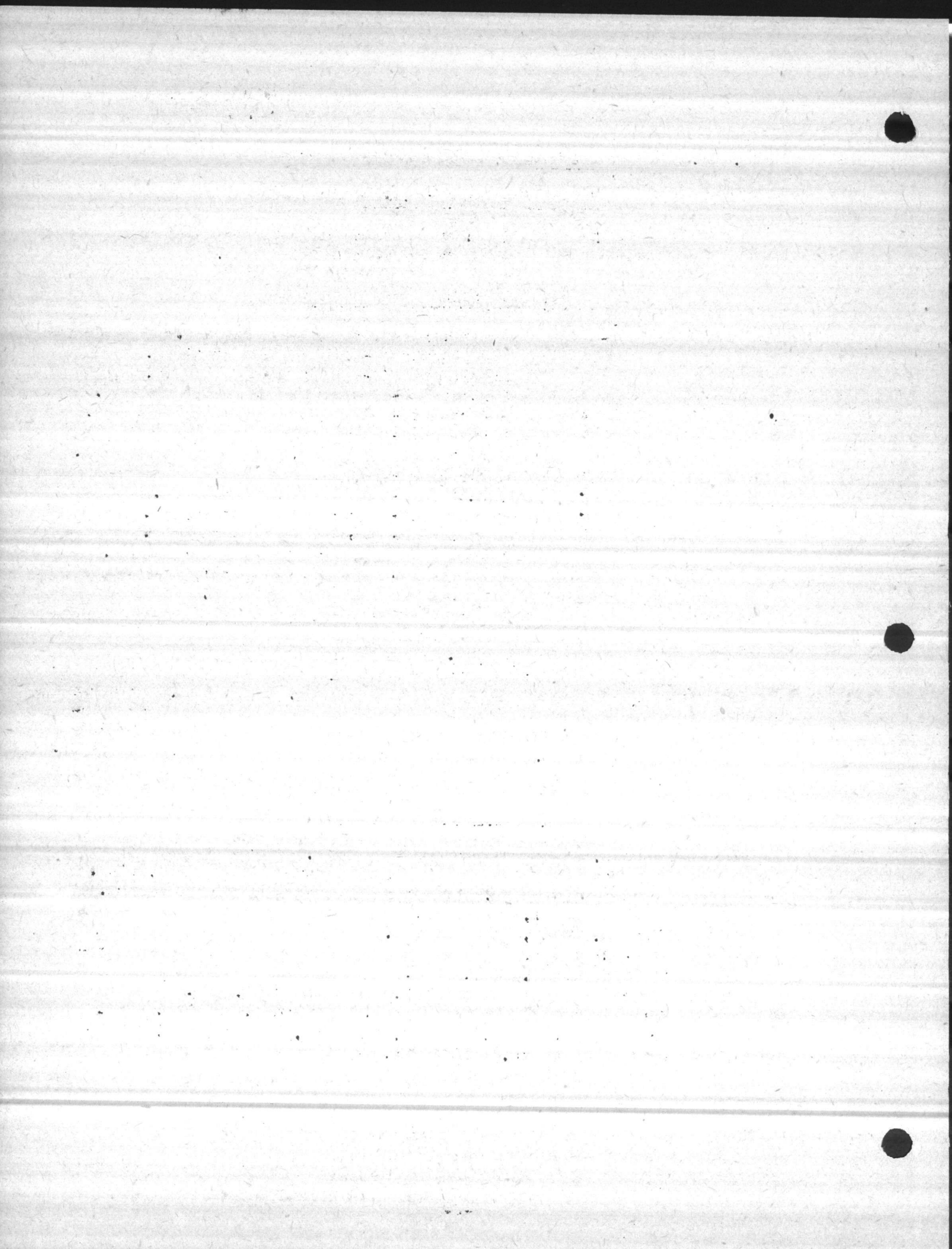
Addition to Water Treatment Plant

304	304810	General Location and Grading Plan.
305	304811	Architectural - Plans and Elevations.
306	304812	Architectural - Sections and Details.
307	304813	Structural - Foundation Plan and Sections.
308	304814	Structural - First Floor Plan and Sections.
309	304815	Structural - First Floor Sections.
310	304816	Structural - Second Floor Plan and Sections.
311	304817	Structural - Typical Details and Sections.
312	304818	Structural - Roof Plan and Sections.
313	304819	Mechanical - Lower Filter Floor Plan.
314	304820	Mechanical - Upper Filter Floor Plan.
315	304821	Mechanical - Piping Between Water Basins.
316	304822	Mechanical - Catalytic Softener
317	304823	Electrical and Heating Layouts.
318	304824	Clear Water Storage Basin.

1-08. Standard Specification. - Except as provided otherwise by this specification and/or its accompanying drawings, the standard specifications given in the following list (including the addenda, amendments, and errata listed) shall govern in all cases where references to such standard specifications are made. Especial care shall be exercised to refer in requests for quotations, in orders, and in subcontracts to these standard specifications thereof.

BUREAU OF YARIS AND LOCKS SPECIFICATIONS

7Yg	Roofing, siding and sheet metal work, dampproofing and membrane waterproofing, incl. Addendum No. 1, June 2, 1934.
E-9Ye	Electric apparatus, distributing systems and wiring, incl. Addendum No. 1, May, 1943.
10Yc	Windows, metal, January 1938.
21Yc	Installation of power-plant, heating and ventilating apparatus and piping, June, 1940.
13Yc	Concrete construction, incl. Addendum No. 1, Oct., 1933.
22Yb	Structural steel welding, incl. Addendum 1, October, 1939.
27Yb	Screens (for doors, windows, transoms, and porches), May 1939.
31Yb	Plumbing systems, April 1943.



AD INTERIM SPECIFICATIONS

32P8 (INT) Pipe covering, thermal insulation, incl. Amendment 1,
January 2, 1944.
66PlA (INT) Power-plant heating and ventilating apparatus and piping,
(shore use), September, 1941.

NAVY DEPARTMENT SPECIFICATIONS

44P10i Pipe, steel, seamless and welded, black and zinc-coated
(galvanized) incl. Amendment 1, May 2, 1938.
45F3f Fittings, pipe, iron (cast) threaded, Sept. 3, 1940.
45F5d Fittings, pipe, iron (malleable) threaded, 150 pound,
September 3, 1940.
45F6b Flanges, iron (malleable), August 1, 1934.

FEDERAL SPECIFICATIONS

E-W-F-406 Fittings, cable and conduit, April 3, 1942.
E-W-O-821a Outlet-boxes, steel, cadmium or zinc-coated with covers
and accessories, February 27, 1942.
E-WW-P-401 Pipe and pipe fittings, soil, cast iron, incl. Amend. 1,
October 29, 1942.
E-WW-P-421 Pipe, water, cast-iron (bell and spigot), incl. Amend.
No. 3, December 21, 1942.
E-WW-P-541a Plumbing fixtures (for) land use, July 9, 1942.
E-WW-T-806a Tubing, electrical, metallic, May 14, 1942,
E-WW-V-76b Valves, gate, 125 lb., threaded and flanged (for land use)
April 1, 1942.
W-P-146 Panelboards, equipped with fuse-connections, etc., incl.
Amend. 1, July 20, 1943:
QQ-S-741 Steel, structural (including welding) and rivet (for)
bridges and buildings, incl. Amend. 2, Dec. 9, 1942.
TT-V-51a Varnish, asphalt, February 2, 1944.
WW-C-571 Conduit, steel, rigid, enameled, June 6, 1933.
LLL-F-321b Fiberboard, insulating, incl. Amend. 1, June 30, 1942.

CAMP LEJEUNE STANDARD SPECIFICATIONS

1003 Clearing of Building Site.
1004 Excavation, Filling and Grading.
1007 Brickwork.
1008 Clay Tile Work.
1009 Cast Stone.
1010 Carpentry.
1011 Roofing and Metal Work.
1014 Glass and Glazing.
1015 Painting.
1016 Sanitary Sewers.
1017 Roads and Appurtenances.
1018 Finish Hardware.
1022 Water Distribution Systems.
1023 Railroad Tracks and Timber Trestles.

RECEIVED
MAY 19 1964

MEMORANDUM FOR THE DIRECTOR
FROM: [Illegible]

SUBJECT: [Illegible]

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SPECIFICATION
NO. 15581

1-09. Proprietary Articles.- Where proprietary articles are specified and/or indicated, bidders may base their bids upon similar articles of equal value and efficiency, but the fact that they have done so shall be stated therein and in all cases when not so stated, such similar articles may be installed only upon approval.

1-10. 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.

1-11. Approval by Officer in Charge.- 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.

1-12. Samples.- The contractor shall submit for approval samples of materials as may be required by the Officer in Charge.

1-13. Drawings Required of the Contractor.- Before commencing the installation of any of this work, the contractor shall submit for approval and in accordance with article 5 of form no. 197, five copies of such drawings as may be required, including those showing reinforcement for concrete, steel and iron work, millwork, pumps and motors, filter equipment, water softening equipment, hydraulic valves, electrical equipment, fire hydrants, etc.

1-14. Strategic and Critical Materials shall not be used except where such use is required or permitted specifically elsewhere herein; however, subject to approval, articles devoid of or conserving any such material (s) may be substituted. Consequent adjustment (s), if any, in the contract price will be made in accordance with Article 10 of the contract.

1-15. Rates of Wages at the Site.-(see Article 30 of form no. 197)
The minimum wages required to be paid mechanics and laborers employed directly upon the site of the work shall be as follows:

	<u>Rate Per Hour</u>
Air Tool Operators (Jackhammermen, vibrator)	\$.50
Asbestos workers	1.25
Asbestos workers' improvers:	
1st year	.40
2nd year	.60
3rd year	.75
4th year	.90
Asphalt and mastic floor layers	1.10
Blacksmiths	1.00
Blasters, powdermen	.50

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SPECIFICATION
NO. 15581

	<u>Rate Per Hour</u>
Boilermakers	\$ 1.25
Boilermakers helpers	1.00
Bricklayers	1.50
Cable splicers	1.25
Cable splicers helpers	.60
Carpenters, journeymen	1.00
Cement finishers	1.10
Electricians	1.25
Electricians helpers	.60
Elevator constructors	1.225
Elevator constructors helpers	.86
Firemen and oilers	.75
Form builders	1.00
Glaziers	1.00
Iron workers, structural	1.50
Iron workers, ornamental	1.50
Iron workers, reinforcing	1.25
Iron workers, apprentices	2/3 of journeymen's rate
Laborers, building	.50
Laborers, concrete	.50
Laborers, unskilled	.50
Lathers	1.375
Lathers' apprentices:	
1st year	.60
2nd year	.70
3rd year	.80
Machinists	1.25
Machinists helpers	.75
Marble setters	1.25
Marble setters helpers	.60
Mason tenders	.50
Mortar mixers	.60
Painters, brush	1.00
Painters, sign	1.10
Painters, spray	1.25
Piledrivermen (wharfbuilders)	.75
Pipelayers (concrete and clay)	.75
Pipe Fitters	1.50
Pipe fitters' helpers	.60
Plasterers	1.50
Plasterers' tenders	.60
Plumbers	1.50
Plumbers' helpers	.60
Power equipment operators:	
Air compressors	1.00
Blade graders	.75
Bulldozers	1.00
Cranes, derricks, draglines	1.25

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Distributor (bituminous surfaces)	1.00
Finish Machine (cement, concrete, pavement)	.75
Hoists, 1 drum	1.00
Hoists, 2 or more drums	1.25
Mixers	1.00
Motor graders	1.00
Piledrivers	1.25
Pumps	.75
Rollers	1.00
Scrapers	1.25
Shovels	1.25
Tractors	1.00
Trenching Machines	1.00
Riggers - receive rate prescribed for craft performing operation to which rigging is incidental.	
Riveters - receive rate prescribed for craft performing operation to which riveting is incidental.	
Roofers, composition	.90
Roofers, slate and tile	.90
Roofers, kettlemen	.50
Sheet metal workers	1.00
Sheet metal workers helpers	.50
Soft floor layers (linoleum)	1.00
Steam fitters and gas fitters	1.50
Steam fitters and gas fitters helpers	.60
Stone masons	1.50
Tank builders	1.45
Tank builders helpers	1.20
Terrazzo workers	1.25
Terrazzo workers helpers	.60
Tile setters	1.25
Tile setters' helpers	.60
Truck drivers	.50
Water proofers	.90
Welders - receive rate prescribed for craft performing operation to which welding is incidental.	
Well drillers	.75
Well drillers' helpers	.50
Wharfbuilders	.75
Wreckers	.50

1-16. Hours of Work.- The contractor shall prosecute the work with diligence and agree to work all laborers and mechanics on the site a minimum work-week of 48 hours except as prevented by conditions beyond his control. In event that the labor policies in the area are such as to permit a longer work-week, the contractor will avail himself of this opportunity to expedite completion of the work. Failure to utilize laborers and mechanics to the fullest extent possible in the prosecution of the work shall be deemed to be a valid cause for termination of the contract.

MEMORANDUM

100-100000-1

TO : SAC, NEW YORK

FROM : SAC, NEW YORK

SUBJECT: [Illegible]

Reference is made to the report of the New York Office dated 1/15/54, captioned as above.

The New York Office is requested to continue its investigation of the above-captioned matter and to report the results thereof to the New York Office and the New York Office.

Very truly yours,
Special Agent in Charge

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1-17. Work Outside Regular Hours.- If the contractor desires to carry on work outside the regular hours or on Sundays or holidays, he may 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.

1-18. Government Work and Material.- The Government will furnish utility services according to Article 21 of Form No. 197.

1-19. Hurricane Protection.- Should hurricane warnings 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 material, tools, and/or equipment from exposed locations, and removing or securing scaffolding and other temporary work.

1-20. Laws and Regulations.- The contractor shall observe all laws and regulations, including Camp Lejeune regulations, which may in any manner affect the equipment or materials used in the proposed construction, those engaged on the work, or the conduct of the work, and shall save the Government and its representatives harmless against any claim arising from violation thereof.

1-21. Cutting and Patching.- The contractor shall do all necessary cutting, fitting and patching of the work of all trades covered by this specification in order that the several parts may come together properly and fit to receive or be received by the work of other trades.

Cutting shall be done only by experienced workmen and in so doing no structural member shall be cut or removed without the consent of the Officer in Charge.

All patching shall be done only by skilled workmen, well trained and thoroughly versed in the trades involved and all work performed by them shall meet the requirements of the specification for each trade.

1-22. Qualifications of Manufacturers.- All of the special equipment specified herein shall be furnished by manufacturers regularly engaged in the design and manufacture of similar equipment and who maintain competent engineering service and who shall furnish such service to verify the correctness of the installation, start the operation and advise and instruct the Officer in Charge in the proper care, maintenance and operation of the same.

Consideration will be given only to such treatment processes and equipment which have been thoroughly tried over a period of two or more years, and have proven successful under conditions comparable to those for which they will be used under these specifications. The contractor shall furnish with his bid exact information as to the equipment

ARTICLE I

Section 1

Section 1. All legislative Powers herein granted shall be vested in a Congress of the United States, which shall consist of a Senate and House of Representatives.

Section 2. The House of Representatives shall be composed of Members chosen every second Year by the People in each State, and the Electors in each State shall have the Qualifications requisite for Electors in that State.

Section 3. The Senate of the United States shall be composed of two Senators from each State, chosen by the Legislature thereof, for a Term of six Years; and each Senator shall have the Qualifications requisite for Electors in that State.

Section 4. The Times, Places and Manner of holding the Elections of Senators and Representatives, shall be prescribed in each State by the Legislature thereof; but the Congress may at any time by Law make or alter such Regulations, except as to the Places of Elections.

Section 5. The Congress shall assemble at least once in every Year, and such Meeting shall be held in the City of Washington, District of Columbia, and on the first Monday in January, unless they shall by Law provide for the Date of the next Meeting.

Section 6. The Congress shall be held at such Place as they may by Law determine, and shall assemble on the first Monday in January, unless they shall by Law provide for the Date of the next Meeting.

Section 7. All bills for raising Revenue shall originate in the House of Representatives; but the Senate may propose or concur with Amendments as to the Form of such Bills.

Section 8. The Congress shall have Power to lay and collect Taxes, Duties, Imposts and Excises, to regulate Commerce with foreign Nations, among the several States, and with the Indian Tribes; to borrow Money on the credit of the United States; to regulate the Value of Money, the Weight and Measure, and the Standard of Weights and Measures; to coin Money, to regulate the Value thereof, and the Use of it; to punish Counterfeiting of Money; to regulate the Bankruptcy and Insolvency of the United States, and that of the States; to establish Post Offices and Post Roads; to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries; to grant Patents and Copyrights; to constitute Courts below the Supreme Court; to define and punish Crimes against the Law of Nations, and those against the Law of the United States, and to punish the Pirates and Robbers of the Sea; to declare War, to grant Letters of Marque and Reprisal, and to make Rules concerning Captives on Land and on Sea; to raise and support Armies, but no Appropriation of Money to that Use shall be for a longer Term than two Years; to raise and support the Navy; to make and regulate Militia; to provide for calling forth the Militia to execute the Laws of the Union, to suppress Insurrections, and to repel Invasions; to provide for organizing, arming, and disciplining the Militia, and for governing such Part of them as may be employed in the Service of the United States; to take Care that the Laws be faithfully executed, and to appoint and remove Officers and Ministers of the United States.

Section 9. The Privilege of the Writ of Habeas Corpus shall not be suspended, unless when in Cases of Rebellion or Invasion the public Safety may require it.

Section 10. No State shall enter into any Treaty, Alliance, or Confederation; grant Letters of Marque and Reprisal; coin Money; emit Bills of Credit; make any Thing but gold and silver Coin legal Tender for Payment; or give any other Marks of Office to its Officers; or support any Title of Nobility; or grant any Title of Nobility.

Section 11. No State shall be held responsible for any Debts or Contract entered into by its Legislature before the Adoption of this Constitution; and no State shall be held liable for any Debts or Contract entered into by its Legislature after the Adoption of this Constitution, unless such Debts or Contract shall be made a Part of the public Debt or Contract of the United States.

Section 12. This Article shall be in Force from the first Day of March next.

SPECIFICATION
NO. 15581

he proposes to furnish, together with a list of at least five comparable installations.

1-23. Warranties by Contract Bond.- The contractor warrants the mechanical and electrical equipment to be adequate in design and to be free from defects of material and workmanship for a period of one year from date of acceptance of the contract work, and he shall, upon notice, promptly make good at his expense all defects developing during this period. These warranties are covered by the contract bond; they shall not, however, operate to defer final payment for the period specified.

1-24. Notice to Bidders and Subcontractors.- The successful bidder is expected to cooperate with the Government in facilitating the sale of war bonds among his employees by promptly installing the Treasury Department Payroll Savings Plan on this contract. He is also expected to influence his subcontractors to install this plan among their employees. This is a vital necessity in order that a large number of well paid workmen be given an opportunity to purchase bonds in convenient manner. Compliance with this request is regarded as an essential patriotic duty of any contractor securing a Government contract.

Upon the award of the contract, the successful bidder may obtain from the Officer in Charge of Construction the address of the Treasury War Finance Committee in that locality which upon request will be glad to assist the contractor and his subcontractors in the installation of this purchase plan.

1-25. Divulging Information.- All information regarding Navy Department contracts or location of sites of Defense Projects or of Naval installations shall be kept strictly confidential and shall not be released to the public or to the press.

1-26. Drinking Water.- Drinking water shall be supplied by the Contractor from a source and in a manner approved by the Camp Sanitation Officer.

1-23-44
The following information was obtained from the records of the Office of the Director of the Bureau of Prisons, Washington, D. C., on the subject of the above named individual.

It is noted that the individual named above was committed to the custody of the Federal Bureau of Investigation, New York Office, on the date of the above mentioned arrest. The individual was held in custody at the Federal House of Detention, New York City, until the date of his release on bail.

The individual named above was released on bail on the date of the above mentioned arrest. The individual was held in custody at the Federal House of Detention, New York City, until the date of his release on bail.

1-23-44
The following information was obtained from the records of the Office of the Director of the Bureau of Prisons, Washington, D. C., on the subject of the above named individual.

SECTION 2. EARTHWORK.

2-01. Scope.- Work under this heading includes furnishing all the labor, materials, and equipment necessary for clearing the site and performing all earthwork as herein specified, and as indicated on the drawings.

2-02. Elevations and Obstructions.- Bids shall be based on the following: (a) that the surface elevations are as indicated; (b) that rock will not be encountered; and (c) that no pipes or other artificial obstructions, except those indicated, will be encountered. In case the actual conditions differ from those stated and/or shown, an adjustment in the contract price and/or the time for completion of the work will be made in the same manner as provided by Article 4 of Form 197. Rock shall be defined as solid ledge requiring blasting for economical removal and/or boulders more than one-half cubic yard in volume.

2-03. Clearing.- The area, within which work, including filling and grading, is required to be executed, as indicated on the drawings or as specified, shall be cleared in accordance with applicable requirements of Camp Lejeune Standard Specification No. 1003, "Clearing of Building Site", provided that:

(a) Topsoil shall be stripped to a depth indicated by the Officer in Charge, from all areas to be built upon, paved, excavated or filled and stockpiled as directed.

(b) Stumps and major roots shall be removed entirely.

2-04. Excavating, Filling, Backfilling and Grading.- Work shall conform to applicable requirements of Camp Lejeune Standard Specification No. 1004, "Excavation, Filling and Grading", provided that:

(a) Borrow, if any is necessary, will be available on the reservation, and shall be obtained by the contractor where and as directed by the Officer in Charge.

(b) Surplus excavated materials or materials unsuitable for filling or backfilling, if any, shall be deposited on the reservation where and as directed by the Officer-in-Charge.

(c) Soil at bottom of footings shall have minimum bearing value of 2,000 pounds per square foot. Reimbursement for extensions in width or depth of footings, will be made in accordance with applicable provisions of Contract Form No. 197.

(d) Use of rollers for compaction of earth fill within structures shall be required only where practicable.

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Section 1: Initial paragraph of text, starting with a faint heading.

Section 2: Second paragraph of text, continuing the narrative or report.

Section 3: Third paragraph of text, possibly containing a sub-section or specific detail.

Section 4: Fourth paragraph of text, including a faint heading.

Section 5: Fifth paragraph of text, continuing the document's content.

Section 6: Sixth paragraph of text, possibly a concluding or summary statement.

Section 7: Seventh paragraph of text, including a faint heading.

Section 8: Eighth paragraph of text, continuing the document's content.

Section 9: Ninth paragraph of text, possibly a final paragraph or note.

SPECIFICATION
NO. 15581

(e) Excavating work shall provide sufficient space to permit erection of forms and inspection of foundation.

(f) Work resulting from unauthorized excess excavating shall be performed at the contractor's expense.

(g) Concrete shall not be placed on frozen earth.

(h) When excavating near the foundations of the existing building, every precaution shall be taken to prevent damage to such foundations and to avoid disturbing the soil beneath them, except as indicated on the drawings. The contractor shall provide and install sheet piling for this purpose if necessary, and damage resulting to existing building through neglect of this provision shall be corrected by the contractor at his own expense, and to the satisfaction of the Officer in Charge.

(i) No backfilling shall be done until all work to be covered thereby has been inspected and approved by the Officer in Charge.

(j) Backfill around foundations and elsewhere shall be made only with material approved by Officer in Charge.

(k) Grading around the new construction shall be in such manner as may be required to pitch surface water away from structures, with finished grades as indicated on the drawings.

100-100000-100000

100-100000-100000

(1) The contractor shall not be placed on liquidated damages...

(2) The contractor shall not be placed on liquidated damages...

(3) The contractor shall not be placed on liquidated damages...

(4) The contractor shall not be placed on liquidated damages...

(5) The contractor shall not be placed on liquidated damages...

(6) The contractor shall not be placed on liquidated damages...

(7) The contractor shall not be placed on liquidated damages...

SECTION 3. ALTERATION AND PROTECTION OF EXISTING STRUCTURES.

3-01. Scope.- Work under this heading includes furnishing labor, materials and equipment necessary to alter and protect existing structures as specified herein and as indicated on the drawings.

3-02. Alterations.

(a) Alteration work includes cutting existing structures, where necessary to install new work, and all patching and filling required to produce a finished job. Surfaces exposed by alteration work shall be finished to conform to the finish of adjoining work or to the finish of similar work as specified in this specification.

(b) Such materials as may be re-used in the new work shall be removed carefully from the existing structure and stored and protected from damage. Reinstallation of certain items is specified in other sections of this specification.

(c) Alteration of doors by substitution of louvres for panels shall be executed to the satisfaction of the Officer in Charge.

(d) The "mudlegs" for existing Filters Nos. 2 and 3 shall be changed as necessary to clear the piping for the rotary surface wash.

(e) Alteration work also is specified in the sections "Heating" and "Electrical Work".

3-03. Protection.

(a) The contractor shall exercise all care, and take all the necessary precautions for the protection of the existing structures and equipment, from falling debris, dust and the weather.

(b) In every case when the excavation for the new structure is deeper than the foundations of the existing building or piping, the contractor shall take all necessary precautions to avoid settlement or damage to said structures or piping.

1. The first part of the document is a list of names and addresses of the members of the committee.

2. The second part of the document is a list of names and addresses of the members of the committee.

3. The third part of the document is a list of names and addresses of the members of the committee.

4. The fourth part of the document is a list of names and addresses of the members of the committee.

5. The fifth part of the document is a list of names and addresses of the members of the committee.

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10. The tenth part of the document is a list of names and addresses of the members of the committee.

SECTION 4. CONCRETE WORK.

4-01. Scope.- Work under this heading includes furnishing all the necessary labor, materials and equipment for the installation of all concrete work as specified herein, and as indicated by the drawings.

4-02. Materials.

(a) Except as otherwise specified or indicated on the drawings, materials for concrete work including forms and reinforcement shall conform to applicable requirements of Bureau of Yards and Docks Specification No. 13Yc, including Addendum No. 1.

(b) Reinforced concrete, unless designated otherwise, shall be Class E-1 (3000 pounds).

(c) Plain and mass concrete, unless designated otherwise shall be Class C-1 (2,000 pounds).

(d) Ready mixed concrete and hydrated lime or silicious admixtures may be used if approved by the Officer in Charge.

(e) Reinforcement bars shall be Grade 2 Intermediate Billet steel.

(f) Water stops shall be of copper as described in Bureau of Yards and Docks Specification 13Yc, except that 16 oz. copper shall be used.

4-03. Concrete Installation.

(a) Except as otherwise specified, concrete mixing, placing and curing, including reinforcement placing, shall conform to applicable requirements of Yards and Docks Specification 13Yc, including Addendum No. 1.

(b) Forms and Form Work. All forms and form work shall conform with the applicable parts of Bureau of Yards and Docks Specification No. 13Yc. All forms above the tops of footings shall be constructed of 5-ply sanded plywood of approved thickness. The plywood shall be made with a waterproof glue, and shall be especially manufactured for concrete form work. All studs shall be surfaced two edges to a uniform width.

(c) Full size sheets of plywood must be used except where small pieces will cover an entire area. All horizontal and vertical joints shall be backed solidly to prevent leakage and the edges of abutting sheets shall be nailed to the same stud or backing, with six penny box nails, not farther apart than eight inches. Joints in the plywood shall be kept to a minimum and shall be placed to make a uniform pattern. All joints shall be butted tightly together and sealed with an approved paste as the plywood is nailed in place.

SECTION 1. PURPOSE AND SCOPE

The purpose of this document is to provide a comprehensive overview of the project's objectives and the scope of the work to be performed. This document is intended for the use of all personnel involved in the project.

1-01. Objectives

(a) The primary objective of this project is to develop a system that will enable the user to perform the required tasks efficiently and accurately. The system should be designed to meet the following requirements:

(b) The system should be able to handle a volume of work that is consistent with the current workload. The system should be able to handle a volume of work that is consistent with the current workload.

(c) The system should be able to handle a volume of work that is consistent with the current workload. The system should be able to handle a volume of work that is consistent with the current workload.

(d) The system should be able to handle a volume of work that is consistent with the current workload. The system should be able to handle a volume of work that is consistent with the current workload.

(e) The system should be able to handle a volume of work that is consistent with the current workload. The system should be able to handle a volume of work that is consistent with the current workload.

(f) The system should be able to handle a volume of work that is consistent with the current workload. The system should be able to handle a volume of work that is consistent with the current workload.

1-02. General Requirements

(a) The system should be able to handle a volume of work that is consistent with the current workload. The system should be able to handle a volume of work that is consistent with the current workload.

(b) The system should be able to handle a volume of work that is consistent with the current workload. The system should be able to handle a volume of work that is consistent with the current workload.

(c) The system should be able to handle a volume of work that is consistent with the current workload. The system should be able to handle a volume of work that is consistent with the current workload.

(d) The system should be able to handle a volume of work that is consistent with the current workload. The system should be able to handle a volume of work that is consistent with the current workload.

(e) The system should be able to handle a volume of work that is consistent with the current workload. The system should be able to handle a volume of work that is consistent with the current workload.

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(d) Vibration of the concrete shall be required according to paragraph 6-03 "Vibration" of Bureau of Yards and Docks Specification No. 13Yc.

4-04. Concrete Finishes. - Concrete shall be finished in accordance with requirements of Bureau of Yards and Docks Specification No. 13Yc, including Amendment No. 1, as provided in Section 8 "Surface Finishes" (except Floor Finishes) specifically sub-section 8-01, "Standard Finish" and in Section 9 "Floor Finishes" specifically (1) "Monolithic Topping Finish" (subparagraph 9-02 I) shall be applied to the Filter Operating Room floor, (2) all other floors, including the floor and the top of the roof slab of the new Clear Water Storage Basin, shall receive "carpet float" finish by use of wood float and brushing out or otherwise removing ridges in the surface and (3) interior stair treads shall be finished according to paragraph 9-05(b) "Non-Slip Finish".

4-05. Membrane waterproofing conforming to Type MW2T or MW2A in Section 2-07, Bureau of Yards and Docks Specification No. 7Yg "Roofing, Etc." shall be installed under the concrete floor slab of the Lime Pump Room (finished floor elevation 20.63).

SECRET
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CONFIDENTIAL - SECURITY INFORMATION
The following information is being furnished to you for your information and is not to be disseminated outside your organization.

1-05. The following information is being furnished to you for your information and is not to be disseminated outside your organization. This information is being furnished to you for your information and is not to be disseminated outside your organization. This information is being furnished to you for your information and is not to be disseminated outside your organization.

2-05. The following information is being furnished to you for your information and is not to be disseminated outside your organization. This information is being furnished to you for your information and is not to be disseminated outside your organization. This information is being furnished to you for your information and is not to be disseminated outside your organization.

SECTION 5. MISCELLANEOUS STEEL AND IRON.

5-01. Scope.- Work under this heading includes furnishing labor, materials and equipment necessary to provide and install miscellaneous steel and iron as specified herein, and as indicated on the drawings.

5-02. Miscellaneous Iron or Steel Work shall be either structural grade steel or common iron as defined by A.S.T.M. designation No. A81-33. Iron and steel members shall be well finished, clean and free from mill scale, flake rust and rust pitting. Steel and iron shall be well formed to shape and size with sharp lines and surfaces. Permanent connections shall be welded or riveted where practicable.

5-03. Cast iron shall conform to requirements of Navy Department Specification No. 4616c, class to be that best suited for the work. Castings shall be sound and free from warp or defects that impair strength or appearance. Exposed surfaces shall have a smooth finish and sharp well defined lines and arrises. Joints shall be milled to a close fit.

5-04. Structural Steel may be supplied from stock material.

5-05. Welding shall be done in accordance with requirements of Navy Specification No. 22Yb.

5-06. Supports for downspouts shall be similar to the supports for the downspouts required to be removed from the existing structure. Such removed downspout supports may be reinstalled if acceptable to the Officer in Charge.

5-07. Miscellaneous Items.

(a) The contractor shall provide any other miscellaneous items, including all necessary anchors, rods, straps, sockets, etc. for securing metal work and wood work to construction, as indicated on the drawings or required to complete the work in a manner satisfactory to the Officer in Charge.

(b) Measurements shall be made of previously installed construction before fabrication of connecting work.

(c) Details and specifications of items, for which standard products are available, are representative guides for these items. Standard products meeting these general requirements will be acceptable subject to the approval of the Officer in Charge.

5-08. All miscellaneous steel and iron work except reinforcing steel shall be given a shop coat of lead and oil paint before delivery to the site. Working surfaces shall be given a heavy coat of grease to prevent rusting.

MINISTRATION

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2-01. [Faint text, possibly a title or header]

2-02. [Faint text, possibly a title or header]

2-03. [Faint text, possibly a title or header]

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2-06. [Faint text, possibly a title or header]

2-07. [Faint text, possibly a title or header]

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SECTION 6. MASONRY.

6-01. Scope.- Work under this heading includes furnishing all the labor, materials and equipment necessary to install the masonry work as herein specified and as indicated on the drawings.

6-02. Standard Specifications.- Materials for masonry work and the installation thereof shall conform to the requirements for the respective materials set forth in Camp Lejeune Standard Specifications Nos. 1007, "Brickwork", 1008, "Clay Tile Work", and 1009, "Cast Stone", provided that:

(a) Masonry, including brickwork, hollow tile and cast stone work, shall be similar to the same work now installed in the existing building. Cast stone salvaged from the alteration work on the existing structure may be reused if permitted by the Officer in Charge.

(b) Wall ties consisting of 7/8" x 7" long corrugated 22 gauge metal shall be furnished and built into the walls where hollow tile partitions abut same and also at intersections and at corners of hollow tile walls. Spacing of wall ties shall be about 12-1/2 inches apart in vertical lines, thus corresponding to joints in hollow tile walls. Anchor slots of 24 gauge metal and dovetail end ties of 16 gauge metal shall be furnished for installation on concrete forms where brick and tile partitions or walls abut vertical concrete surfaces.

6-03. Brick manholes are specified in Camp Lejeune Standard Specification No. 1016, "Sanitary Sewers", Section 14, "Manholes".

SECTION 10

10-1. The work under this heading includes furnishing all the
labor, materials and equipment necessary to install the machinery and
equipment specified in this section on the premises.

10-2. The work under this heading includes furnishing all the
labor, materials and equipment necessary to install the machinery and
equipment specified in this section on the premises.

10-3. The work under this heading includes furnishing all the
labor, materials and equipment necessary to install the machinery and
equipment specified in this section on the premises.

10-4. The work under this heading includes furnishing all the
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equipment specified in this section on the premises.

10-6. The work under this heading includes furnishing all the
labor, materials and equipment necessary to install the machinery and
equipment specified in this section on the premises.

10-7. The work under this heading includes furnishing all the
labor, materials and equipment necessary to install the machinery and
equipment specified in this section on the premises.

SECTION 7. CARPENTRY.

7-01. Scope.- Work under this heading includes furnishing all the labor, materials and equipment necessary to install all the carpentry work as herein specified and as indicated on the drawings.

7-02. Materials for the Water Treatment Plant and installation of same shall conform with applicable requirements of Camp Lejeune Standard Specifications No. 1010, "Carpentry", provided that window screens for metal windows shall be as specified in the section "Metal Windows" of this specification and that end sealer for wood shall be omitted. Installation of finish hardware in accordance with section "Hardware" of this specification shall be included in the work.

7-03. Removal and reinstallation of hollow metal doors, screen doors, metal stop and metal threshold shown on the drawings shall be included in the work.

7-27. In view of the fact that the information of this nature is being furnished to the press and other interested parties, it is necessary to take certain steps to protect the information from unauthorized disclosure.

7-28. It is recommended that the information be classified as "Confidential" and that appropriate security measures be taken to prevent unauthorized access to the information.

7-29. It is further recommended that the information be disseminated only to those personnel who have a valid "need to know" and that the information be destroyed when it is no longer required.

7-30. In view of the fact that the information of this nature is being furnished to the press and other interested parties, it is necessary to take certain steps to protect the information from unauthorized disclosure.

7-31. It is recommended that the information be classified as "Confidential" and that appropriate security measures be taken to prevent unauthorized access to the information.

7-32. It is further recommended that the information be disseminated only to those personnel who have a valid "need to know" and that the information be destroyed when it is no longer required.

SECTION 8. METAL WINDOWS.

8-01. Scope.- Work under this heading includes labor, materials and equipment necessary for the provision and installation of metal windows as specified herein and as indicated on the drawings.

8-02. Metal windows removed from the existing structure shall be re-installed at the indicated locations provided they are acceptable to the Officer in Charge. Otherwise, new windows shall be provided at those locations.

8-03. Metal windows shall be factory built products of a recognized manufacturer specializing in the production of steel windows and, except as may be modified herein or on the drawings, shall be that manufacturer's standard for the particular type, weight and construction specified. All necessary supplementary parts for the windows shall be furnished although not shown on the drawings or specified.

8-04. Metal windows and their installation shall conform with applicable requirements of Bureau of Yards and Docks Specification No. 10Yc, for the type indicated on the drawings and closely shall approximate those on the existing building. Operating mechanism shall be similar to that installed in similar locations in the existing building.

8-05. Metal windows shall be equipped with screens, conforming to applicable requirements of Navy Department Bureau of Yards and Docks Specification No. 27Yb "Screens", and otherwise having tubular metal frames fitted with screen cloth. Screens closely shall approximate the screens in similar locations in the existing building.

8-06. Window Frames, Screen Frames and Sash, shall receive rust-prevention treatment, "Bonderizing" or equal, after a thorough cleaning of mill scale, rust, oil, chemicals and other foreign matter. After this treatment, the items listed above shall be given a prime coat of enamel, and oven-baked for at least 60 minutes at a temperature of not less than 300°.

8-07. Metal windows and screens shall be stored in a vertical position at the site to prevent destruction or injury to the hardware or finish.

8-08. Painting and glazing of metal windows are specified in the sections "Painting" and "Glass and Glazing", respectively.

8-09. Caulking material shall be an elastic, waterproof compound which shall not stain the stone or brick nor corrode metals. It shall not be affected by long exposure to extremes or outside temperatures. It shall be mixed to the proper consistency at the factory and used as delivered. All caulking compound shall be forced into place by a pressure gun and finished smooth at surface. Perimeters of all metal windows shall be caulked to provide a weatherproof joint.

SECTION 9. HARDWARE.

9-01. Scope.- Work under this heading includes furnishing all the hardware as specified herein or as indicated on the drawings.

9-02. Hardware shall conform to the applicable requirements of Camp Lejeune Standard Specification No. 1018, "Finish Hardware".

9-03. List of Hardware.

- (a) 1- Exterior Door, Number 1/7, 3'-0" x 7'-0" x 1-3/4"
Wood L H, open in.

Butts	2080 $\frac{1}{2}$ P - 5"
Door Closer	3002, 111, H.A.
Lockset	88, 210, 320, 330

Screen Door, number 1/7, 3'-0" x 7'-0" x 1-3/8" wood,
open out.

Butts	2010 $\frac{1}{2}$ - 3 $\frac{1}{2}$ " x 3 $\frac{1}{2}$ "
Door Closer	3002, 11
Pull	1274c
Kickplate	28" x 7" x 3/16"

- (b) 1- Interior Door Number 101, 2'-6" x 7'-0" x 1-3/4"
Wood L H.

Butts	2014 $\frac{1}{2}$ P - 4" x 4"
Door Stop	1332A
Lockset	91C, 210, 320, 330

(c) Hardware for steel windows is specified under a separate section.

Section 1

1-1. [Illegible text]

1-2. [Illegible text]

1-3. List of hardware

(a) 1- Extension door, number 117, 31-0" x 71-0" x 1-3/4" wood
Wood 1/2" diam. in.

Date: 2/20/54
Post Office: 300, 111, H.A.
1-1-1-1-1, 300, 300

Section door, number 117, 31-0" x 71-0" x 1-3/4" wood

Date: 2/20/54
Post Office: 300, 111, H.A.
1-1-1-1-1, 300, 300

(b) 1- Interior door, number 101, 31-0" x 71-0" x 1-3/4" wood
Wood 1/2" diam.

Date: 2/20/54
Post Office: 300, 111, H.A.
1-1-1-1-1, 300, 300

(c) Hardware for steel window installed under a

SECTION 10. GLASS AND GLAZING.

10-01. Scope.- Work under this heading includes furnishing all the labor, materials and equipment necessary to install the glass as herein specified or as indicated on the drawings.

10-02. Glass and glazing shall conform to requirements of Camp Lejeune Standard Specification No. 1014, "Glass and Glazing", provided that glass in steel windows shall be secured with steel clips or glazers points and puttied and that all glass shall be "clear".

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1-01. This and all other...
...of the...
...of the...

1-02. This and all other...
...of the...
...of the...

SECTION 11. PAINTING.

11-01. Scope.- Work under this heading includes furnishing all labor, materials and equipment necessary to execute the painting work as herein specified or indicating by the drawings.

11-02. Painting work shall conform to applicable requirements of Camp Lejeune Standard Specification No. 1015 "Painting", provided that:

(a) Metal windows shall be painted as specified in paragraph 7-03 "Structural Steel and Miscellaneous Iron Work".

(b) Insulation covering on heating pipes shall be painted as specified in paragraph 7-09 "Exposed Piping".

(c) All exposed pitch-covered piping (except that exposed along Holcomb Boulevard at the bridge crossing and adjacent thereto), fittings, meters and valves shall receive one heavy coat of asphalt varnish conforming to Federal Specification No. TT-V-51a.

(d) Zinc-coated and copper piping and valves shall not be painted.

(e) Steel wash-water troughs shall receive one shop coat as specified and, prior to installation, two field coats of a bakelite-type varnish acceptable to the Officer in Charge.

(f) Transition piece and underdrainage piping in Filters shall not be painted.

(g) Loss-of-head and rate-of-flow actuators in Pipe Gallery shall receive a coat of rust-inhibiting paint, matching original color.

(h) Paint-work on operating tables shall be "touched up" as necessary.

(i) The solenoid valves in the chlorinating equipment shall be painted to match the original coating.

- (1) The applicant shall be a citizen of the United States or a resident of the United States for at least one year immediately preceding the date of application.
- (2) The applicant shall be at least 18 years of age at the time of application.
- (3) The applicant shall be of sound mind and body, and shall not be suffering from any mental or physical defect which would render him incapable of performing the duties of the office.
- (4) The applicant shall not be a person who has been convicted of a crime involving moral turpitude within ten years of the date of application.
- (5) The applicant shall not be a person who has been declared bankrupt within five years of the date of application.
- (6) The applicant shall not be a person who has been convicted of a crime involving the sale of securities within five years of the date of application.
- (7) The applicant shall not be a person who has been convicted of a crime involving the sale of commodities within five years of the date of application.
- (8) The applicant shall not be a person who has been convicted of a crime involving the sale of futures within five years of the date of application.
- (9) The applicant shall not be a person who has been convicted of a crime involving the sale of options within five years of the date of application.
- (10) The applicant shall not be a person who has been convicted of a crime involving the sale of contracts within five years of the date of application.
- (11) The applicant shall not be a person who has been convicted of a crime involving the sale of derivatives within five years of the date of application.
- (12) The applicant shall not be a person who has been convicted of a crime involving the sale of securities, commodities, futures, options, or contracts within five years of the date of application.
- (13) The applicant shall not be a person who has been convicted of a crime involving the sale of derivatives within five years of the date of application.
- (14) The applicant shall not be a person who has been convicted of a crime involving the sale of securities, commodities, futures, options, contracts, or derivatives within five years of the date of application.
- (15) The applicant shall not be a person who has been convicted of a crime involving the sale of securities, commodities, futures, options, contracts, derivatives, or securities within five years of the date of application.
- (16) The applicant shall not be a person who has been convicted of a crime involving the sale of securities, commodities, futures, options, contracts, derivatives, securities, or securities within five years of the date of application.
- (17) The applicant shall not be a person who has been convicted of a crime involving the sale of securities, commodities, futures, options, contracts, derivatives, securities, securities, or securities within five years of the date of application.
- (18) The applicant shall not be a person who has been convicted of a crime involving the sale of securities, commodities, futures, options, contracts, derivatives, securities, securities, securities, or securities within five years of the date of application.
- (19) The applicant shall not be a person who has been convicted of a crime involving the sale of securities, commodities, futures, options, contracts, derivatives, securities, securities, securities, securities, or securities within five years of the date of application.
- (20) The applicant shall not be a person who has been convicted of a crime involving the sale of securities, commodities, futures, options, contracts, derivatives, securities, securities, securities, securities, securities, or securities within five years of the date of application.

SECTION 12. ROOFING, SHEET METAL WORK AND INSULATION.

12-01. Scope.- Work under this heading includes furnishing all the labor, materials and equipment necessary to install the roofing, sheet metal work and insulation as herein specified and as indicated on the drawings.

12-02. Roofing and Sheet Metal Work shall conform with applicable requirements of Camp Lejeune Standard Specification No. 1011, "Roofing and Metal Work".

12-03. Copper flashing and copper water stops in brickwork shall weigh not less than 16 ounces per square foot and shall be installed where and as shown on the plans and shall be continuous with joints lapped one-inch and locked and soldered.

12-04. Two scuppers, downspouts and wire strainers shall be removed from the existing building and may be reinstalled where same is required on the new work if condition is satisfactory to the Officer in Charge. Alteration work also includes removal of flashing and counterflashing from existing walls which are to be removed. If condition of the material is satisfactory, it may be reinstalled.

12-05. Joining of new materials with existing work and repair of damages to existing work arising from the contractor's operations shall be made to the satisfaction of the Officer in Charge.

12-06. Insulation shall be insulating board one-inch thick conforming to requirements of Federal Specification No. LLL-F-321b, Class C, and shall be installed in accordance with applicable provisions of Bureau of Yards and Docks Specification No. 7Yg, Paragraph 2-17.

SECTION 13. BUILDING WITH CORROSION RESISTANT MATERIALS

13-01. Roofs - Some under the heading include furnishing all the labor, materials and equipment necessary to install the roofing, sheet metal work and insulation as shown on the drawings and indicated on the drawings.

13-02. Roofs and Scaffolding - This includes all scaffolding, ladders, and other equipment necessary for the erection and maintenance of the roof and scaffolding.

13-03. Copper Fixtures and Repair - This includes all copper fixtures, valves, and repair work in buildings and other structures.

13-04. Structural Steel - This includes all structural steel work, including beams, columns, and girders, and the erection and maintenance of the same.

13-05. Structural Steel - This includes all structural steel work, including beams, columns, and girders, and the erection and maintenance of the same.

13-06. Structural Steel - This includes all structural steel work, including beams, columns, and girders, and the erection and maintenance of the same.

SECTION 13. HEATING.

13-01. Scope.- The work covered under this section of the specifications shall include the furnishing and installation of all materials, labor, equipment and machinery necessary for the complete installation of the steam heating system in the new addition to the existing water treatment building. This shall include radiators, piping, fittings, valves, traps, insulation, hangers, installation and testing. The addition to the heating system shall be installed complete and in perfect working order in full accordance with the intent and meaning of these specifications, and the accompanying drawings, and to the complete satisfaction of the Officer in Charge.

13-02. Protection.- All work and materials shall be protected adequately at all times, and the contractor shall be held responsible for any and all damage that may occur to his work.

13-03. Kind and Quality of Material.- All material and equipment shall be in strict accordance with these specifications and shall be new and of the best grade and quality.

13-04. Existing System.- The existing heating system is a low pressure, two pipe, gravity return system. Steam is supplied from a pressure reducing valve station at approximately 5# p.s.i. Condensate is returned by pumps to the existing central heating plant. The addition to the system shall be of the same type and shall tie-in with the existing system as shown, and specified herein.

13-05. General Description.

(a) The contractor shall connect new steam main to existing steam main at ceiling of first floor and extend on ceiling as shown on the drawings. The existing connection to radiator on second floor shall be removed and radiator reconnected to new main as shown. Ends of steam main shall be dripped to return through float and thermostatic traps provided with gate valves and strainers. All down-feed radiator connections shall be dripped to low return through thermostatic traps with gate valves and dirt pockets. Return lines shall be extended and connected to existing return main as shown on drawings.

(b) No changes shall be made in the existing heating system except as shown or specified.

(c) The drawings show the general arrangement and size of piping and equipment to be used in the work. Should conditions necessitate any changes, the contractor shall apply to the Officer in Charge for further instructions. All vertical piping shall be run true and plumb, out of the way of all doors, windows and all equipment, and in locations where shown on the drawings. All horizontal piping shall be run at right angles to or parallel with the building lines with an uniform grade

13-01. The work covered under this section of the specification shall include the installation of all materials, labor, equipment and necessary permits for the complete installation of the heating system in the new addition to the existing building. This shall include radiators, valves, piping, insulation, hangers, brackets and fittings. The contractor shall be responsible for the installation and maintenance of the heating system with the furnace and equipment of the building. The contractor shall also be responsible for the installation of the boiler in the basement.

13-02. Protection - All work and materials shall be protected and safety at all times. The contractor shall be held responsible for any damage caused by his work.

13-03. Material and Equipment - All material and equipment shall be in strict accordance with the specification and approved by the architect.

13-04. Existing Conditions - The existing heating system is of the gravity return type. It is to be replaced by a hot water system with a circulation pump. The contractor shall be responsible for the removal of the existing system and the installation of the new system. The contractor shall also be responsible for the installation of the boiler in the basement.

13-05. General Requirements (a) The contractor shall be responsible for the removal of the existing heating system and the installation of the new system. The contractor shall also be responsible for the installation of the boiler in the basement. (b) The contractor shall be responsible for the removal of the existing heating system and the installation of the new system. The contractor shall also be responsible for the installation of the boiler in the basement.

(c) The contractor shall be responsible for the removal of the existing heating system and the installation of the new system. The contractor shall also be responsible for the installation of the boiler in the basement.

(d) The contractor shall be responsible for the removal of the existing heating system and the installation of the new system. The contractor shall also be responsible for the installation of the boiler in the basement.

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throughout the entire length. Horizontal mains shall be given a pitch of 1-inch in forty feet with branch mains being taken from the top of pipes.

13-06. Radiators.- Radiators shall be of sectional, modern, slender tube design, legless type, supported on brackets. Radiator sections shall be made of the best grade gray cast iron, free from defects of any kind. All radiators shall be tapped at top and bottom opposite ends for supply and return. Return tapping shall be made by the use of eccentric bushings turned down. Radiators shall comply with Navy Specification 66Pla (INT), Section E-101, "Cast Iron Radiators".

13-07. Valves, Radiator.- Radiator valves shall be of angle pattern and of the quick opening packless type, of sizes shown on plans. Radiator valves shall be in accordance with Navy Specification 66Pla (INT).

13-08. Valves, Gate Pattern.- All valves shall be in accordance with Navy Specification 66Pla (INT). All gate valves used on low pressure service shall be Class "L". All Class "L" valves shall comply in general with Federal Specification No. E-WW-V-76b, and shall be type BNT for valves 2" and smaller.

13-09. Traps, Thermostatic.- All radiators and down feed steam supply to radiators shall be equipped with thermostatic traps. These shall be in accordance with Navy Specification 66Pla (INT), Section E-53 and shall be of the sizes shown on the drawings.

13-10. Traps, Float and Thermostatic.-Float and thermostatic traps shall be furnished and installed at ends of steam mains and elsewhere, as noted on the drawings. All float and thermostatic traps shall be in accordance with Navy Specification 66Pla (INT), Section 54.

13-11. Strainers.- Strainers shall be installed in line ahead of all float and thermostatic traps. Strainers shall have cast iron body and shall be of the "Y" type. Strainers shall be made of bronze wire or perforated bronze plate, having not less than sixteen perforations per inch, and shall have cleanout plug placed at the bottom of strainer assembly. Arrows shall be cut on the strainer indicating direction of flow.

13-12. Pipe.- All pipe used in the system shall be standard weight steel pipe in accordance with Navy Department Specification 44Pl0i for Class I, Type "A" pipe.

13-13. Fittings.- All fittings and nipples shall be standard weight, black cast iron threaded pattern. All fittings shall have the name and monogram of the manufacturer and design pressure cast on, and shall conform in all respects to applicable sections of Navy Specification Nos. 66Pla (INT) and 45F3f.

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1931

Throughout the entire length of the shaft, the valves shall be spaced at intervals of 10 feet, and shall be of the type known as "gate" valves.

13-06. Valves - All valves shall be of the type known as "gate" valves, and shall be spaced at intervals of 10 feet, and shall be of the type known as "gate" valves.

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13-13. Valves - All valves shall be of the type known as "gate" valves, and shall be spaced at intervals of 10 feet, and shall be of the type known as "gate" valves.

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13-14. Joints.- Joints on pipe 2 inches and smaller shall be screwed. Screw joints shall be made perfectly tight, using a taper thread, drawn up leaving not more than three threads showing. Male threads shall be coated with graphite pipe joint compound. After pipe has been cut and threaded, and before fitting into work, it shall be carefully reamed, stood on end and tapped to remove all scale, burrs, etc.

13-15. Pipe Hangers.- All piping shall be supported by approved type steel hangers supported from the structure by means of suitable steel rods, and shall have a turn-buckle in hanger rod permitting adjustment. Suitable connections for attaching to the structure shall be provided, using inserts in concrete slabs, and the entire hanger so designed as to permit free movement of the pipe. Hangers shall be spaced not over 10 feet on centers.

13-16. Radiator Hangers.- All radiator hangers shall be of steel, adjustable, two-bolt type to suit radiation installed. Each radiator shall have at least two hangers. Exact spacing and method of securing hangers to walls shall be as approved by the Officer in Charge.

13-17. Sleeves.- All pipes passing through masonry walls or floors shall be fitted with sleeves of standard weight steel pipe as specified in Bureau of Yards and Docks Specification 21Yc, section 3-03. Where pipes pass through sleeves located below grade or floors they shall be caulked with reclaimed fiber or jute butts and elastic caulking compound. Pipes passing through partitions or ceilings shall be fitted with 26 gauge black sheet iron sleeves, properly installed and secured.

13-18. Finishing Plates.- All exposed pipes passing through floors, walls, or ceilings shall be fitted with approved type finishing plates.

13-19. Insulation.-

(a) All steam piping, except exposed connections at radiators, shall be covered with standard thickness thermal insulation pipe covering, Grade I, Class A, Type A, in accordance with Navy Specification 32P8 (INT). All fittings shall be insulated to match piping.

(b) Return piping shall not be insulated.

(c) All insulation shall be applied in accordance with Bureau of Yards and Docks Specification 21Yc.

13-20. Cleaning. - All piping shall be blown out and thoroughly cleaned of all grease, iron cuttings and any other extraneous matter. Should any part of the system be clogged by such matter after the system has been accepted, the contractor will be required to pay for all damage, including the dismantling, cleaning and reconnecting of the equipment.

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13-21. Expansion and Contraction.- All pipe connections shall be made in such manner as to permit the free expansion and contraction of the same without injury to the connections themselves, and any apparatus connected to them or to any portion of the building. The connections shown to the various apparatus are intended as an indication only, the actual connections at the time of installation shall be so made and arranged as to fully and best suit the requirements of each particular case and minimize the amount of space required for same. Connections shall be so made that any change due to expansion and contraction shall not affect the operation of the particular system.

13-22. Tests.- All steam and return piping shall be tested and proved tight under 50 pounds p.s.i. hydraulic pressure, in accordance with Bureau of Yards and Docks Specification 21Yc. After the installation is complete, a thorough working test shall be made of the entire system. For this test the U. S. Navy Department will furnish steam and the contractor shall furnish all labor, materials and equipment necessary for the test. The working test shall demonstrate a free and uniform circulation of steam to and condensation from each radiator. All defects disclosed as a result of these tests shall be remedied to the satisfaction of the Officer in Charge.

The following information is being furnished to you for your information and guidance. It is based on the records of the Department of the Interior, Bureau of Land Management, and is subject to change without notice. The information is being furnished to you for your information and guidance only and should not be used for any other purpose.

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SECTION 14. ELECTRICAL WORK.

14-01. Scope.

(a) Work under this heading includes the furnishing of all necessary labor and materials and installation of the complete electric light and power wiring for the entire addition to the existing water treatment building, including emergency plant, transfer switch, panel board, cut-outs, feeders, circuit to outlets, connections, and incidental conduit, wiring apparatus and fittings for this equipment.

(b) The work also includes the furnishing and installation of all work in connection with the emergency lighting system, together with certain designated connections and changes to existing wiring, all in the existing building.

(c) All work shall be as specified herein and shown on the accompanying drawings, or as required.

14-02. Systems.- Secondary service in the existing building is three phase, 4 wire, 120/208 volts, 60 cycle. Lighting circuits for the new addition shall be connected to present lighting circuits in existing building, these present branch lighting circuits being two and three wire, single phase, 115/230 volts, 60 cycle; power branch feeders shall be three phase, 208 volts, three wire, 60 cycle. Emergency plant shall furnish three phase, four wire 120/208 volts, 60 cycle current.

14-03. General.

(a) The material and workmanship shall conform to Navy Department, Bureau of Yards and Docks Specification E-9Ye, unless otherwise specified. All electrical materials shall be new and as approved by the Underwriters' Laboratories, Inc., for the specific purpose for which they are to be used, except as otherwise specified and noted. Defective equipment or equipment damaged in the course of installation or test shall be repaired or replaced in a manner meeting the approval of the Officer in Charge.

(b) Shop Drawings. The contractor shall submit to the Officer in Charge shop drawings on all mechanical units.

(c) Present wiring in existing building shall not be touched, except as herein specified and noted on the drawings. New wiring, connections, emergency plant, power feeders, etc. shall, however, be installed in existing building as shown and herein specified.

(d) Power wiring and feeders, connections to all motors, starters, switches, etc. also shall be included as a part of this contract.

SECTION 11 - Installation

11-01. Scope

(a) This work shall include the furnishing and installation of all necessary labor and materials and installation of the existing electrical and power wiring for the entire addition to the existing water treatment building, including emergency alarm, fire alarm, panel board, switches, fuses, circuit breakers, conduits, raceways, and miscellaneous work, with a view to the installation of this equipment.

(b) This work also includes the furnishing and installation of all work in connection with the emergency lighting system, together with certain electrical connections and changes to existing wiring in the existing building.

(c) All work shall be completed within the time specified in the accompanying schedule, or as required.

(d) The contractor shall be responsible for the design and installation of all electrical equipment and wiring to be installed in the existing building, and shall submit a complete set of electrical drawings for the approval of the Engineer before any work is commenced. The drawings shall show the location of all electrical equipment, wiring, and conduits, and shall be in accordance with the National Electrical Code and all applicable local codes and regulations.

(e) The material and workmanship shall conform to the requirements of the National Electrical Code and all applicable local codes and regulations. The contractor shall be responsible for the selection and procurement of all materials and equipment to be used in the work, and shall submit a list of the same for the approval of the Engineer before any work is commenced. The contractor shall also be responsible for the installation and testing of all electrical equipment and wiring, and shall submit a certificate of completion and test report to the Engineer upon completion of the work.

(f) The contractor shall be responsible for the protection of all existing electrical equipment and wiring, and shall be liable for any damage to the same caused by the work.

(g) The contractor shall be responsible for the safety of all workers and the public, and shall take all necessary precautions to prevent accidents and injuries.

(h) The contractor shall be responsible for the cleanup and removal of all debris and waste materials from the work site, and shall leave the site in a clean and safe condition.

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(e) All feeders and conduit sizes for their respective classes of wiring shall be as noted on the drawings and detail sheet.

(f) Lighting fixtures shall be furnished and installed complete.

(g) All of the electrical work shown throughout the drawings and not mentioned to the contrary shall be included as a part of the work to be done under this section.

(h) All of the above shall be furnished and installed complete in accordance with the attached specifications and conditions and the accompanying drawings, and turned over to the Officer in Charge in readiness for regular and satisfactory use.

(i) All wiring shall be installed in accordance with the applicable provisions of the National Electric Code, except where otherwise specified herein or shown on the drawings.

14-04. Approval of Materials.- Within thirty days after official award of contract or notice to proceed, the contractor shall submit to the Officer in Charge for approval, a complete list, in triplicate, of materials and equipment, giving the manufacturers' names, catalog numbers and other pertinent information covering each article which he proposes to install. In the event that the contractor submits items, material and equipment that are not in conformity with the specifications, the Officer in Charge reserves the right to reject such material and equipment, in which case the contractor shall submit for approval other material and equipment which is in conformity with the specifications. If the contractor fails to submit data for approval within thirty days after the award of the contract or notice to proceed covering any of the required items, the Officer in Charge reserves the right to select such items of material and equipment and the contractor shall furnish and install the same without additional cost.

14-05. Grounding.- The neutral conductor of the wiring system in the new addition, conduit systems and the framework of all service equipment including cases, switches, motor frames, controllers, etc. shall be grounded permanently and effectively to the high pressure water main ahead of all fittings or pumps. Where no water service is available, grounding shall be provided by means of approved ground rods or pipes and shall not exceed twenty-five ohms in compliance with National Electric Code requirements.

14-06. Wiring in Existing Building.

(a) As shown and indicated, lighting circuits to outlets in new addition shall be connected to present circuits and outlets in the existing building. At all outlets where new connections are noted,

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the present lighting fixture or receptacle shall be taken down, new conduit and wiring connected and extended complete, all as required and directed. At connections indicated, one new wire to complete the circuit shall be pulled in the present existing conduit. If this new wire cannot be pulled in the conduit with the existing wire in place, all wiring shall be removed as required and new wire and existing wires pulled in the conduit together. All work in removing, disconnecting, re-hanging and re-connecting present fixtures and receptacles to accomplish the work as noted shall be done complete as required.

(b) New power branch feeders and cut-outs, new emergency plant and connections, breaking into present power feeder, and new panel and emergency lighting circuits, shall all be furnished and installed complete in present existing building as shown and specified herein.

(c) A new power feeder to the new water pump to be installed in existing building also shall be furnished and installed complete as shown and specified. This new feeder shall be connected to present distribution center on the first floor. A previous contract contemplated the installation of a safety switch, conduit, conduit fittings and outlet boxes in anticipation of subsequent provision of this pumping unit (water pump). Any such equipment, if acceptable to the Officer in Charge and available at the indicated location, may be utilized for the installation herein required.

14-07. Interruption to Service.

(a) The contractor shall make all necessary temporary connections to keep the existing building in regular operation and service, and such temporary wiring as necessary shall be considered a part of this contract, all as required and directed.

(b) No present connections and services shall be broken without the permission of the Officer in Charge.

14-08. Panel Board.- The lighting panel board shall be dead front type, with fused main switch and branches consisting of single pole, tumbler switch and plug fuse units conforming to Federal Specification No. W-P-146.

14-09. Conduit.

(a) Standard rigid conduit and electrical metallic tubing (E.M.T.) shall be employed as raceways as indicated on the drawings, except where otherwise noted.

(b) Rigid conduit shall conform to Federal Specification No. WW-C-571 entitled, "Conduit, Steel, Rigid, Enamelled".

MEMORANDUM

DATE: 11/15/54

The first thing I noticed when I stepped out of the plane was a cold wind that seemed to penetrate my coat. I had heard that the weather in the mountains was unpredictable, but I had not realized how quickly it could change. The air was crisp and clear, and the view of the valley below was breathtaking. The mountains were covered in a thick blanket of snow, and the trees were bare and dark against the white landscape. I had never seen anything like this before, and it was both beautiful and intimidating.

(a) The mountain range is a series of jagged peaks and ridges that stretch for miles. The snow is deep and soft, and the air is so clean that you can see for miles. The sun is shining brightly, and the sky is a clear, pale blue. The overall atmosphere is one of peace and tranquility, but there is also a sense of isolation and solitude. It's a beautiful but lonely place.

(b) The mountain range is a series of jagged peaks and ridges that stretch for miles. The snow is deep and soft, and the air is so clean that you can see for miles. The sun is shining brightly, and the sky is a clear, pale blue. The overall atmosphere is one of peace and tranquility, but there is also a sense of isolation and solitude. It's a beautiful but lonely place.

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(d) The mountain range is a series of jagged peaks and ridges that stretch for miles. The snow is deep and soft, and the air is so clean that you can see for miles. The sun is shining brightly, and the sky is a clear, pale blue. The overall atmosphere is one of peace and tranquility, but there is also a sense of isolation and solitude. It's a beautiful but lonely place.

(e) The mountain range is a series of jagged peaks and ridges that stretch for miles. The snow is deep and soft, and the air is so clean that you can see for miles. The sun is shining brightly, and the sky is a clear, pale blue. The overall atmosphere is one of peace and tranquility, but there is also a sense of isolation and solitude. It's a beautiful but lonely place.

(f) The mountain range is a series of jagged peaks and ridges that stretch for miles. The snow is deep and soft, and the air is so clean that you can see for miles. The sun is shining brightly, and the sky is a clear, pale blue. The overall atmosphere is one of peace and tranquility, but there is also a sense of isolation and solitude. It's a beautiful but lonely place.

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(c) Electrical metallic tubing shall conform to Federal Specification No. E-WW-T-806a entitled, "Tubing, Electrical, Metallic".

(d) All fittings used in making up conduit shall conform to Federal Specification E-W-F-406.

14-10. Outlet Boxes, Etc.

(a) All outlet, switch, receptacle and other similar boxes shall conform to Federal Specification No. E-W-O-821a.

(b) Condulets for exposed work, motor and equipment connections, shall be of approved type.

14-11. Pull and Junction Boxes.-

(a) Pull and junction boxes shall be furnished and installed where indicated or required to facilitate the proper installation of wires and cables. Standard type boxes shall be employed if practicable.

(b) All boxes shall be of code gauge steel, generally with blank cover held in place with sufficient number of screws and standard knock-out arrangement. Boxes shall be protected adequately from corrosion. Flush or surface type boxes shall be used as required.

14-12. Switches (Room). - All local wall switches shall be of the totally enclosed tumbler type, and shall conform to the Bureau of Yards and Docks Specification No. E-9Ye.

14-13. Receptacles (Wall).-

(a) Wall receptacles shall be of the duplex double pole type, unless otherwise noted. Receptacles shall conform to the Bureau of Yards and Docks Specification No. E-9Ye.

(b) Heavy duty receptacles shall be the polarized twist lock type having the ampere capacity and number of poles as indicated on the drawings, set within suitable flush or surface type outlet boxes as required. The attachment plug for each receptacle shall be metal covered and provided with a strain relief device and cord grip. The receptacles shall be provided with an extra pole for grounding to the conduit system. Contacts in surface fittings shall grip both sides of the inserted blade.

(c) Special power receptacles shall be Crouse-Hind ARE-3422 with APJ-3463 plugs, Russell & Stoll, or approved equal.

14-14. Device Plates.- Device plates for use in interior areas not subject to hard usage shall be of a suitable composition material.

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14-15. Safety Switches.

(a) Safety switches shall be fused, Type "A", and shall be equipped with non-renewable type fuses.

(b) Safety switches shall be furnished and installed complete for all motors throughout the work. The contractor also shall provide safety switches noted or required at other points shown or specified. Motor circuit switches shall have horsepower rating at least equal to that of the motor controlled.

14-16. Fuses.- Plug fuses shall be of the non-renewable type with capacity plainly marked. Cartridge fuses shall be of the renewable type. Fuses indicated on the drawings as having extreme time delay characteristics shall be of the non-renewable type that will carry not less than 500 per cent load for 10 seconds. A complete set of fuses shall be installed for all switches and panels shown as required. Sizes shall be in accordance with National Electric Code requirements. The contractor shall furnish 24 extra fuse links for each different size of renewable type cartridge.

14-17. Wire and Cable.

(a) The sizes of the several feeders shall be as shown on the plans. All branch lighting circuits, unless specially noted, shall be two #14 wires in 1/2" conduit up to 100 ft. in length and two #12 wires in 1/2" conduit for circuits over 100 ft. in length from the center outlet of circuit to the panel. Lighting branch circuits, however, may if desired by the contractor, be grouped in single conduit with not more than two circuits being run in any one conduit.

(b) All wiring under 600 volts in conduit throughout the addition and existing building shall be in accordance with the Bureau of Yards and Docks Specification No. E-9Ye.

14-18. Power Wiring.

(a) This contract also covers the furnishing and installation of all conduit and wiring for the several motors, controllers, etc. throughout the buildings. These connections shall be complete from switches connected to main power feeders to motors and controllers, etc., including connections between motors and controllers, etc.

(b) The contractor shall receive and care for properly all starters, switches, etc. All necessary work to erect and connect up same complete shall be done by the contractor. The contractor shall check the various plans and specifications relating to the various equipment required and shall install all required wiring and connections to such apparatus. Feeders from controllers and switches to motors shall

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be run in floor where possible. Same shall be lead covered where run in ground.

(c) The contract also shall cover the furnishing and installation of all conduit and wiring to pumps, special receptacles and various apparatus, etc., as shown and sized on the plans.

(d) The present electric hoist shall be taken down by this contractor and re-erected complete, on the second floor crane rail where shown and indicated. Present electric cord on hoist shall be lengthened to a total length of 45 feet by this contractor. New cord shall be heavy duty, all rubber.

(e) In general, power feeders will rise on walls to a height of approximately 4'-6". All of the above wiring shall be run in steel conduit. The contractor shall provide conduit fittings at all terminals and at all changes in direction. Wiring, conduits, etc. shall be of the same quality and installed in the same manner as noted for lighting wiring. Condulets shall be porcelain bushed type.

14-19. Gasoline-Engine Driven Generator (Emergency Plant).--

(a) The contractor shall furnish and install complete one 15 KVA horizontal, gasoline-engine driven generator unit at location noted on drawings, as an emergency plant. Gasoline Engine Driven Generator Unit shall be model GD12 as manufactured by the Bardco Mfg. and Sales Co., Model WC6-15A of the D. W. Owan & Sons or approved equal.

(b) The gasoline-engine driven generator unit shall be equipped with all accessories so that the unit will start automatically, generate electric current and carry the load when the service from the distb. system is interrupted. The transfer of the designated lights and motors to the emergency unit shall be by means of automatic transfer switch which shall be furnished and installed as shown and specified.

(c) Engine and generator shall be mounted in a completely enclosed, sturdily built all metal housing. Side panel doors of housing shall be either hinged or lift-off design. Gasoline tank also shall be mounted inside of this housing and shall be not less than 17-1/2 gallons capacity. The unit further shall be equipped with air filter, gasoline carburetor, fuel pump, radiator and fan, water circulating pump, thermostat and by-pass assembly, governor, distributor, oil pressure and water temperature gauges, battery ammeter, starter and accessories for automatic starting, oil filter battery charger, exhaust silencer, generator panel, and all other equipment necessary to make the unit complete and ready to operate.

(d) The engine shall have six cylinders and shall develop not less than 50 brake horsepower when operating at full load and its rated speed of 1200 R.P.M. The engine shall operate without undue noise,

in general, the contractor shall be held responsible for the performance of the work under this contract.

(a) The contractor shall be held responsible for the performance of the work under this contract, and shall be held responsible for the performance of the work under this contract.

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vibration or excessive heating. The engine shall govern with quickness and precision and the instantaneous speed change due to load changes of 100% of the full load of the generator either thrown on or off, shall not exceed 6% of the rated speed. The speed shall not vary more than 2% from the rated speed when operating at any intermediate changes of load of 1/4 or 1/2 or 3/4 generator load and shall recover normal governed speed within two seconds.

(e) Crank shaft shall be drop forged high carbon steel, four bearing, and shall be counter weighted and balanced. Cam shaft shall be high test cast iron, with four bearings.

(f) Lubrication shall be positive pump pressure to all main, crank shaft, cam shaft and lower connecting rod bearings.

(g) Engine shall be equipped with centrifugal water pump for cooling purposes. Water circulation shall be controlled thermostatically with by-pass allowing recirculation of water in the block before thermostat opens. Water cooling system shall be connected to the water supply and waste piping.

(h) On the exhaust from the gasoline engine there shall be furnished and installed a gas tight muffler made of plate steel with welded joints, suitable for inside installation. Muffler shall be insulated with fire-proof material in an approved manner.

(i) The gasoline engine shall be direct connected through a flexible coupling to a 15 KVA 120/208 volts, 3 phase, 4 wire, 60 cycle generator, rated for 80% power factor (0.8 P.F.) with direct connected exciter. Generator shall have anti-friction bearings and dynamically balanced revolving members. Generator shall be designed and built in accordance with the standards of A.I.E.E. and N.E.M.A. throughout.

(j) Generator control panel shall be mounted on unit proper, and shall be complete with A.C. voltmeter, A.C. ammeter, ammeter transfer switch, necessary instrument transformers, automatic pilot relay, and other devices to automatically transfer the load from normal power supply to emergency generating plant and return to normal supply; main circuit breaker, trickle type battery charger and charger disconnect switch, necessary small wiring and terminal block, exciter field rheostat and voltage regulator to maintain voltage within (plus or minus) 2-1/2%, from no load to full load. Control panel shall be connected to the generator as required to complete the installation.

(k) The engine starting battery shall be of ample size for the purpose intended, and shall be mounted inside or outside of base. If located outside of base, exact location shall be as directed. Battery shall be connected complete to trickle charger and engine as required.

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(l) All wiring, material and workmanship for connections of transfer switch and other accessories to generator shall be similar in all respects to that specified for electric wiring throughout the building.

(m) The concrete base for the generator set shall be in the form of a pan, 8 inches thick, with 6-inch wide curbs 6 inches high and 8 inches out from the base of equipment, to retain gasoline in case of leakage.

14-20. Transfer Switch.

(a) The contractor shall furnish and install as shown on the drawings one automatic double throw transfer switch, to transfer automatically the designated motors and lights to the emergency power service. Transfer switch shall be mounted on wall as shown, enclosed in approved steel box with hinged cover and lock. Switch shall be Type G as manufactured by the Hart Mfg. Company, or approved equal. Switch shall be connected up complete and ready to operate. The normal power service will be 208 volts, 3 wire, 3 phase, 60 cycle. The only lighting load on this plant will be the new emergency lighting previously specified to be installed. The emergency service shall be 120/208 volts, 3 phase, 4 wire, 60 cycle. The emergency tie feeder from plant to transfer switch and the feeder to the lighting panel for the emergency lights shall be taken off 4 wire bus of the emergency plant accordingly.

(b) Transfer switch may if so desired, or if the manufacturer's standard equipment is so built, be mounted in the control panel of the emergency plant. Feeders connected to the transfer switch shall, in this event, be installed to suit the new location of the transfer switch for complete and satisfactory operation.

14-21. Fire Extinguishers.- The contractor shall furnish and install on the first floor, as shown on the drawings, near the emergency generator plant, two 2-1/2 gallon foam producing type fire extinguishers. Extinguishers shall be of approved make, bearing the Underwriters' label. Extinguishers shall be equipped with handles and hung from brackets securely mounted on wall or column.

14-22. Installation of Lighting Fixtures and Lamp Bulbs.-

(a) The contractor shall furnish and install a lighting fixture on each ceiling and wall fixture outlet in new addition, as listed in schedule of lighting fixtures and noted on the drawings. The contractor shall provide lamp bulbs for all fixtures.

(b) All fixtures, as noted above for the new addition shall be tested out and left ready for use with all lights in service and properly controlled by proper switches.

(1) All wiring, electrical and mechanical for connections of transfer switch and associated to transfer shall be similar to all equipment to that specified for listed fire alarm devices.

(m) The transfer switch for the generator set shall be in the form of a unit, 3 phase, 4 wire, with 6-inch wide open 6 inches high and a handle on the right side of the unit. It shall be mounted on a wall of concrete.

(a) The generator shall be of the type which will operate on the normal and emergency power. The generator shall be of the type which will operate on the normal and emergency power. The generator shall be of the type which will operate on the normal and emergency power. The generator shall be of the type which will operate on the normal and emergency power.

(b) Transfer switch shall be of the type which will operate on the normal and emergency power. The transfer switch shall be of the type which will operate on the normal and emergency power. The transfer switch shall be of the type which will operate on the normal and emergency power.

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(a) The transfer switch shall be of the type which will operate on the normal and emergency power. The transfer switch shall be of the type which will operate on the normal and emergency power. The transfer switch shall be of the type which will operate on the normal and emergency power.

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14-23. Waterproofing.- All waterproofing and dampproofing installed by the contractor shall be cleared and left unharmed in satisfactory manner by the work under this section.

14-24. Installation.

(a) All conduit and outlet boxes, etc. in the new addition shall be concealed in concrete slabs, walls, floors, etc. except power feeder conduits noted, which shall be run exposed on walls, etc. All exposed conduit shall be run in a neat and true manner, using conduit fittings at all changes in direction. All conduit, etc., in the existing building shall be run exposed.

(b) All feeder and power wiring shall be run in steel conduit and electric metal tubing, branch circuits, etc. in electric metal tubing throughout both buildings.

(c) Circuit runs shown to outlets are for indication only, the actual runs of conduit being determined by the particular location and building construction. All conduit runs made in concrete slabs must parallel reinforcing, clearing reinforcing rods. No crossing at conduit in slab will be permitted unless so directed by the Officer in Charge.

(d) All conduit and outlet boxes shall be firmly and adequately secured to the building construction. All outlets also shall be equipped with adequate support for lighting fixtures.

(e) All outlet boxes and conduit when completed shall be thoroughly tight without burrs or obstructions. The contractor shall provide all needed pull or junction boxes where necessary to permit the ready installation or removal of wiring.

(f) All conduit ends at boxes, panel boards, etc. shall be provided with approved bushings and locknuts. Outlet boxes or approved fittings shall be provided at each outlet, switch, receptacle, etc.

(g) The several connections indicated on the drawings to the various apparatus, outlets, etc. are particularly intended as an indication only, the actual connections at the time of installation shall be made and arranged so as fully and best to suit the requirements of each particular case and minimize the amount of space required for the same.

14-25. Painting.- Upon completion of the work all exposed metal work, conduits, etc. shall be thoroughly cleaned and painted as specified under "Painting".

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14-26. Cleaning.- All dirt, debris, etc. shall be removed by the contractor and after completion of the work the whole shall be left in neat and clean condition.

14-27. Tests and Inspection.-

(a) Upon completion the work must be free from short circuits and grounds. Prior to the energizing of equipment, building services, etc., all switches shall be placed in open position. Voltage test on line side of all building service switches shall be made. The contractor shall correct voltage errors and phase relations before placing buildings' electrical services in service.

(b) Feeders and branches inside of each building shall be continuous from service contact point to each outlet, all switches, panels, feeders and devices connected, and fuses in place. Systems shall test free from short circuits and ground with insulation resistance, not less than outlined in Section 3018, 1940 NEC.

(c) The contractor shall advise the Officer in Charge in advance of tests so that he can arrange to witness tests. The contractor shall submit certified copies of the test report for record.

(d) Failure or defects in workmanship revealed by tests shall be corrected promptly and tests reconducted. The contractor shall submit certified copy of the report on reconducted test.

(e) The contractor shall provide testing equipment necessary to conduct all tests required.

Contractor shall be responsible for the maintenance of the work area and shall be held liable for any damage to the work area or equipment.

Article 10 - Testing and Inspection

(1) The Contractor shall be responsible for the maintenance of the work area and shall be held liable for any damage to the work area or equipment. The Contractor shall be responsible for the maintenance of the work area and shall be held liable for any damage to the work area or equipment.

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SECTION 15. CAST IRON WATER PIPING.

15-01. Scope.- Work under this heading includes furnishing all labor, materials and equipment necessary for the construction of interior and exterior cast iron water pipe and appurtenances as herein specified or as indicated on the drawings.

15-02. Cast iron water pipe shall conform to the applicable requirements of Camp Lejeune Standard Specification No. 1022 (except Section 1, General Conditions, thereof), provided that:

(a) Except as otherwise specified or indicated, cast iron pipe shown exterior to the structures shall be laid in the ground with a minimum of four feet of cover. For the cast iron water pipe laid along Holcomb Boulevard, the coverage may be reduced to two feet where the ground is more than four feet lower than the edge of the pavement. Where the ground is higher than the edge of pavement, then the top of pipe shall be at least one foot lower than the near edge of the pavement.

(b) It is contemplated that the contractor may desire to change existing road cut-slopes along Holcomb Boulevard to prevent caving. This may be done by permission of the Officer in Charge, provided that the finished slopes are no steeper than the original and that excess excavated material is disposed of as directed and that vegetation be restored to the satisfaction of the Officer in Charge.

(c) Material for filling joints in bell and spigot pipe shall be reclaimed fiber or jute butts packing and caulked lead according to Section 9, Camp Lejeune Standard Specification No. 1022. Gaskets for mechanical joints shall be rubber body with duck backs and duck tips. Gaskets for flanged joints shall be 1/16 inch thick ring type, cold water gaskets of approved material.

(d) Reimbursement will be made according to provisions of Contract Form No. 197 for work directed to be performed under Section 12, Camp Lejeune Standard Specification No. 1022, "Blocking and Timber Foundations".

(e) All cast iron water pipe shall be Class 150 bell and spigot meeting the requirements of Federal Specification No. E-WW-P-421, except where other classes or types are specified or indicated.

(f) Mechanical joint indicated for Class 250 pipe shall consist of (1) a flange, cast integrally with the pipe, (2) a rubber gasket, (3) a cast iron follower ring, and (4) bolts necessary to assemble the joint. The follower ring and bell shall be of such shape as to permit a deflection of three degrees at the joint. The bolts shall be of annealed high strength cast iron with an ultimate strength of 60,000 pounds per square inch. Each pipe shall be laid so that the spigot of one length is separated 1/4-inch from the shoulder of the bell in which it is

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entered. Before entering the spigot into the bell, both bell and spigot shall be cleaned of all earth, sand, grease, lumps of tar coating and other foreign materials. The gasket then shall be seated evenly in the bell at all points. Next, the follower ring shall be placed against the gasket, bolts placed in the flange and the nuts tightened. Nuts shall be alternately tightened in pairs 180 degrees apart until all nuts have drawn up evenly to the tightness recommended by the pipe manufacturer.

(g) Flanged pipe shall be Class 150 with 125 pounds American Standard for steam. Flanges shall be faced and drilled. Flanged joints shall be made up with the gasket material specified above. Flanges shall be drawn up evenly and snugly with square head machine bolts and hexagonal nuts without producing stress in the pipe.

(h) Cement-asbestos pipe shall not be substituted for the cast iron pipe specified herein.

(i) Fire hydrants shall conform closely to the type shown on the drawings and preferably shall be of the same manufacture as those already installed. Before completion of the work, the contractor shall demonstrate to the Officer in Charge that threads on all new fire hydrants match those on existing fire hydrants.

(j) Cast iron frame and cover suitable for the indicated location may be substituted for the reinforced concrete frame and cover required on the drawings for the gate valve and air relief valve vault.

(k) Valves and fire hydrants shall be installed in accordance with the details shown on the drawings.

(l) Vaults for air valves and gate valves indicated on the drawings shall be constructed in accordance with applicable requirements for manholes of Camp Lejeune Standard Specification No. 1016, "Sanitary Sewers" (except Section 3, General Conditions, thereof).

(m) Timber supports shown on the drawings to be installed on the Wallace Creek Bridge shall be constructed in accordance with applicable requirements of Camp Lejeune Standard Specification No. 1023, "Timber Trestles" (except Section 1, General Conditions, thereof). The pipe at this location shall be laid so as to provide a flexible joint on the land edge of each timber abutment.

(n) Pipe entering and leaving the structures shall be supported so as to protect the pipe against settlement. Pipe within structures shall be supported by members capable of taking the weight and shall be provided with necessary standard or special hangers, saddles, rollers, brackets, piers or other supports as shown on the drawings or as necessary for support.

(o) Wall castings for pipe passing through walls shall be

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standard and of the type indicated and shall be set in the wall at the time of pouring concrete with special care to insure their remaining in true line and grade.

(p) Mechanical couplings on piping within structures shall be cast iron of approved type.

(q) Piping within structures shall be subjected to a water pressure of 150 pounds per square inch for a period of one hour during which time the pipe shall remain tight.

(r) Piping across bridge on Holcomb Boulevard shall be of "Mechanical Joint" type as previously specified.

SECTION 16. MISCELLANEOUS PIPING.

16-01. Scope.

(a) Work under this heading includes furnishing labor, materials and equipment necessary for the provision and installation of all miscellaneous piping not specified elsewhere herein, as required and/or indicated on the drawings.

(b) Piping also is specified in other sections of this specification.

16-02. Piping indicated as screw piping, galvanized steel piping, conduit (excluding electrical) and any water piping, 4 inches and less in diameter, unless specified or indicated otherwise, shall be zinc-coated standard weight steel pipe conforming to applicable requirements of Navy Department Specification No. 44P10i. Fittings and flanges for such pipe shall be zinc-coated malleable iron conforming to applicable requirements of Navy Department Specification No. 45F5d and No. 45F6b, respectively. Screw or flange end shall be as indicated or as required.

16-03. Cast iron soil pipe and fittings shall conform to applicable requirements of Federal Specification No. E-WW-P-401, victory weight, uncoated. Jointing materials shall be reclaimed fiber or jute butts and caulked lead. Changes in pipe sizes shall be made with increaser fittings. Changes in direction shall be made with wyes and bends. Sanitary tees shall be installed at the base of vertical stacks.

16-04. Rubber hose for the lime feed piping shall be rubber-covered three-braid smooth bore water hose acceptable to the Officer in Charge for the service intended. Both ends of each length shall be fitted with a malleable iron hose connection securely held in place by hose clamps. All such connecting fittings shall be female threaded except that one end of the discharge length of the central stand-by pump shall have a male threaded end fitting, which is intended for connecting to the female connection (pump end) of the rubber discharge piping from either of the other two pumps. Threads shall be similar to those on the existing apparatus.

16-05. Rubber hose and appurtenances for conveying the chlorine solution shall be of quality and type acceptable for use in the intended service. Installation shall be in conduit as indicated on the drawings.

16-06. Cast iron soil pipe and screw jointed steel pipe shall be installed in accordance with applicable paragraphs of Navy Department Bureau of Yards and Docks Specification No. 31Yb, Section 3, and as herein specified. Sleeves shall be provided where indicated and for all pipes passing through walls and floors, except where water-tight joints require other treatment. Floor sleeves shall extend not less than 1/2 inch nor more than 3/4 inch above the floor and shall afford approximately 1/4 inch annular space around the pipe. Such space shall be

SECTION 10. MISCELLANEOUS PROVISIONS

10.1. This section shall include provisions for the maintenance and repair of the system and the replacement of any equipment which may become obsolete or worn out.

(b) This section is amended in other sections of this

10.2. The system shall be designed to operate at a pressure of not less than 100 pounds per square inch and not more than 150 pounds per square inch. The system shall be designed to operate at a temperature of not less than 40 degrees Fahrenheit and not more than 120 degrees Fahrenheit.

10.3. The system shall be designed to operate at a flow rate of not less than 100 gallons per minute and not more than 150 gallons per minute. The system shall be designed to operate at a flow rate of not less than 100 gallons per minute and not more than 150 gallons per minute.

10.4. The system shall be designed to operate at a flow rate of not less than 100 gallons per minute and not more than 150 gallons per minute. The system shall be designed to operate at a flow rate of not less than 100 gallons per minute and not more than 150 gallons per minute.

10.5. The system shall be designed to operate at a flow rate of not less than 100 gallons per minute and not more than 150 gallons per minute. The system shall be designed to operate at a flow rate of not less than 100 gallons per minute and not more than 150 gallons per minute.

10.6. The system shall be designed to operate at a flow rate of not less than 100 gallons per minute and not more than 150 gallons per minute. The system shall be designed to operate at a flow rate of not less than 100 gallons per minute and not more than 150 gallons per minute.

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caulked with packing and elastic cement. Exposed pipes passing through floors, walls, partitions by means of sleeves shall be fitted with non-metallic plates on each exposed surface. Unions shall be installed in screw-jointed piping in locations indicated on the plans and elsewhere as directed by the Officer in Charge. Piping ends at connection between steel pipe and rubber hose shall be provided with proper malleable iron fittings to provide male screw end with proper threads.

16-07. Existing drainage piping affected by the new construction shall be supported properly and service maintained during progress of the new work, and at the completion of the work, shall be in its proper position supported securely so as to protect the pipe against settlement.

16-08. All fittings shall be provided and installed in and all necessary changes made for connecting up the new piping to existing piping as indicated on the drawings.

16-09. Pipes carrying filtered water shall be sterilized as provided in the section "Cleaning and Sterilizing".

1. Existing business papers affected by the new construction shall be supported primarily and where appropriate by the new work, and as the character of the work shall be in the nature of continuing support of existing work as to the other details.

15-07. Existing business papers affected by the new construction shall be supported primarily and where appropriate by the new work, and as the character of the work shall be in the nature of continuing support of existing work as to the other details.

15-08. All existing work to be provided and furnished in the future shall be supported primarily and where appropriate by the new work, and as the character of the work shall be in the nature of continuing support of existing work as to the other details.

SECTION 17. VALVES.

17-01. Scope.- Work under this heading includes furnishing all the labor, materials and equipment necessary to provide valves as specified herein and as indicated on the drawings.

17-02. Except as otherwise indicated or specified, valves shall be gate valves conforming to Federal Specification E-WW-V-76b and Navy Specification No. 66Pla(INT) as applicable. Gate valves 2-1/2 inches and over shall have cast iron body, bronze mounted and double discs. Gate valves less than 2-1/2 inches shall be bronze valves with single bronze wedge disc and shall conform to paragraph E-20b, "Bronze Valves", of the Navy Specification No. 66Pla(INT). Gate valves shall have non-rising stems with interior screw unless otherwise indicated or specified, and shall be equipped with cast iron hand wheels or two-inch square wrench nuts as required. Valves shall have hub, flange or screw ends as indicated or as required for connection to the piping.

17-03. Underground valves shall be equipped with standard square nuts and a cast iron extensible valve box except where installed in manholes.

17-04. All gate valves 4 inches or larger installed on pump suction and discharges shall be of the rising stem type with outside screw and yoke, equipped with stationary hand wheels.

17-05. Hydraulic Valves.

(a) Hydraulic valves in Filter wash water and sewer connection piping shall be flanged end, square double disc having guide surfaces extending the full length of the gate, especially designed for long life under conditions where throttling is used to secure variable rates of flow. These valves shall be suitable for operation with 0 to 25 pounds pressure against the gates with 40 to 60 pounds available in cylinders.

(b) Hydraulic valves in Filter influent and effluent and re-wash piping shall have standard circular discs in lieu of square ends and special guide surfaces. They shall operate with 40 to 60 pounds cylinder pressure and 25 pounds pressure against the gates.

(c) All hydraulic valves shall have cylinders of seamless bronze or of cast iron lined with seamless bronze, with cast iron heads and steel tie rods. The pistons shall be double cup, best quality, oak chrome leathers, with cast iron backing plates and bronze piston tail rods. Valves shall be set in vertical position.

(d) Valve operating mechanism shall conform to Navy Specification No. 66Pla (INT), Section E-18, "Valve Operating Mechanism", specifically paragraph E-18a, "Chain Wheels" and paragraph E-18b, "Floor Stands". Chain shall be the proper kind, size and length to operate the valve from the floor.

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17-06. Check Valves shall conform to requirements of Navy Department Specification No. 66PlA(INT), paragraph E-21 "Check Valves" and further shall be non-slam, lubricated check valves, iron body, bronze mounted, with flanged ends suitable for 125 pounds working pressure except that check valves smaller than four inches shall be all bronze suitable for 125 pounds working pressure. Check valves shall be installed where indicated on the drawings and also in the discharge piping at each lime feed pump.

17-07. Plug valves shall conform to requirements of Navy Specification No. 66PlA(INT) specifically paragraph E-29 "Lubricated Plug Valves" and further shall be cast iron body, bronze mounted, pressure lubricated, wrench operated with indicator to show open and closed positions. Plugs shall turn easily and shall be tight against leakage. Plug valves shall be installed in locations indicated on the drawings.

17-08. Hose bibbs shall conform to requirements of Federal Specification No. E-WW-P-541a, specifically paragraph E-39c "Lawn Faucet". Hose bibbs shall be pattern suitable for the installation and shall have detachable wheels.

17-09. Unless otherwise indicated, valves shall be of the same size as that of the pipe line in which they are installed.

17-10. Valves required at connections between rubber and metal piping shall have threads on the hose end similar to those in the existing plant.

17-11. Valves indicated to be removed and reinstalled shall be submitted for examination by the Officer in Charge. The contractor shall remove such foreign matter as may be detached with a wire brush without dismantling the valve.

17-12. Removal and reinstallation of a valve as indicated on the drawings shall include removal and reinstallation of any floor stand, stem supports, valve box or other accessories connected with the valve.

SECTION 18. VITRIFIED CLAY AND CAST IRON DRAINS.

18-01. Scope.- Work under this heading includes furnishing all labor, materials and equipment necessary for the construction of vitrified clay and cast iron pipe drains as herein specified or as indicated on the drawings.

18-02. Materials for and installation of vitrified and cast iron drains shall conform to applicable requirements of Camp Lejeune Standard Specification No. 1016, "Sanitary Sewers" (except Section 3, General Conditions, thereof), provided that:

(a) Reimbursement will be made as provided in Contract Form No. 197 for additional work, not specified herein or shown on the drawings, which may be required under Section 9 "Special Foundations" and the final sentence of Section 13, paragraph 3, "Pipe Laying".

(b) Bituminous jointing material shall be used for vitrified clay piping and lead for cast iron piping. The inner braided gasket or packing shall be reclaimed fiber or jute butts in lieu of hemp, oakum or jute indicated.

(c) Cast iron pipe shall conform with Federal Specification No. E-WW-P-421, Class 150. Care shall be taken that caulking shall not overstrain the pipe.

(d) Vitrified pipe for open-joint drains under concrete slabs shall be two-foot lengths laid with open joints. A small piece of wood shall be placed in the bell of each length to center the next length and to provide a smooth flow line. Each joint shall be wrapped with a strip of roofing felt and the gravel shall be covered with roofing paper for protection while pouring concrete slab. Gravel shall be clean and shall be placed with largest size nearest the pipe.

18-03. The floor drain in the Spiractor Building shall be a combination drain and sump with (1) extra heavy cast iron body having cast integrally three 4-inch hub inlets and a 4-inch hub outlet; (2) a cast iron "P" trap having cast iron head equipped with bronze fitted swing check valve; (3) cast iron cover (perforated) and ring 15 inches in diameter; and (4) sheet metal collar for extension through concrete to floor level. Weight shall be approximately 110 pounds.

18-04. Floor drains shall consist of a cast iron head with 12-inch diameter strainer and weighing approximately 50 pounds. The drain shall have hub outlet same size as connecting pipe which shall include cast iron trap with provision for cleanout.

SECTION 19, FILTERS.

19-01. Scope.

(a) Work under this heading includes furnishing all labor, materials and equipment necessary to complete and make this part of the work ready for operation as specified herein or indicated on the drawings.

(b) The work consists of underdrains, gravel and sand beds, operating tables, wash water troughs, loss-of-head and rate-of-flow gauges, rate-of-flow controllers and rotary surface washers for two one-million gallon per day rapid sand filter units arranged side by side and adjoining three existing filters, also the installation of rotary surface washers to two of the existing filters similar to that indicated for new filters.

19-02. Underdrains.

(a) Each filter shall be equipped with a system of underdrains consisting essentially of a cast iron transition piece and a cast iron manifold with cast iron laterals.

(b) The transition piece and its installation shall conform to the details and notes in the drawings. Joint between transition piece and manifold shall be made with 1/16-inch thick rubber gasket between the flanges which shall be bolted together tightly without straining the castings. The opening around transition piece shall be filled completely with concrete through suitable pouring gates arranged so as to complete the filling under a 6-inch head.

(c) The manifold shall be high velocity water wash type, shall conform to dimensions on the drawings and shall have thickness and quality for operating pressure of 60 pounds per square inch. The manifold shall be cast in lengths of about 60 inches with flanged ends and bells for receiving the laterals. The free end of each manifold shall be closed. Joints shall be made up with 1/16-inch rubber gaskets between the flanges which shall be bolted tightly together. The umbrella type distributing nozzles indicated on the drawings shall be Tobin bronze and shall be installed properly on the top of the manifold on centers of six inches both ways. The manifold shall be laid to exact alignment and elevation indicated on the drawings and shall be grouted in place with a mortar composed of one part of Portland cement and two parts of clean sharp sand. The back end of the manifold shall be blocked securely against the filter back wall.

(d) The laterals shall be 2-inch I.D. cast iron pipe drilled and installed as indicated on the drawings with caulked lead and packing joint at connection to manifold and the other end blocked solidly against the filter wall. The laterals shall be kept in the indicated position at right angles to the center line of the filter.

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(2) Work shall be done in accordance with the following instructions and specifications, and the contractor shall be responsible for the completion of the work in accordance with the schedule of work set forth in the contract.

(a) The work consists of the construction, erection and maintenance of the following structure, to be located at the site indicated on the drawings. The structure shall be constructed of reinforced concrete and shall be designed to carry a load of 100 pounds per square foot. The structure shall be constructed in accordance with the specifications and drawings attached hereto.

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The contractor shall be responsible for the completion of the work in accordance with the schedule of work set forth in the contract.

(b) The contractor shall be responsible for the completion of the work in accordance with the schedule of work set forth in the contract. The contractor shall be responsible for the completion of the work in accordance with the schedule of work set forth in the contract.

(c) The contractor shall be responsible for the completion of the work in accordance with the schedule of work set forth in the contract. The contractor shall be responsible for the completion of the work in accordance with the schedule of work set forth in the contract.

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(e) The greatest possible care shall be taken to clean the manifold and laterals and to keep them free from foreign matter which might clog the drilled holes and impair the correct operation of the filters. Clogged openings shall be cleared at the contractor's expense.

19-03. Gravel and Sand Beds.

(a) Gravel and sand beds shall be installed as shown on the drawings and as specified herein.

(b) Gravel shall be a siliceous material, free from dirt, vegetable and foreign matter and shall consist of reasonably smooth, rounded pebbles, particularly selected and processed for use in water filters. Gravel shall not lose more than 15% of its dry weight after immersion in warm hydrochloric acid for a period of 24 hours. Thickness and graded sizes for the gravel layers are indicated on the drawings. The bottom layer shall be dumped in small batches and worked into place by hand to avoid obstructing the drilled holes in the lateral pipes. The various gravel layers shall be placed in uniform layers and shall be kept free from dirt and all foreign matter.

(c) Sand shall be selected particularly and processed for use in water filters. It shall be hard silica sand free from dirt, vegetable and foreign matter and carefully shall be washed, dried, cleaned and graded. It shall be placed on the topmost layer of gravel in sufficient depth so that the elevation of the finished bed after washing and hydraulic grading shall conform to that shown on the drawings. Hydraulic grading shall consist of not less than three treatments after each of which approximately 1/8" to 1/4" of surface sand shall be scraped off carefully and removed. The sand, after these treatments, shall have an effective size of not less than 0.40 mm. or more than 0.55 mm. and a uniformity coefficient not less than 1.4 nor more than 1.75. The sand shall be of such composition as not to lose more than 5% of its dry weight after immersion in warm hydrochloric acid for a period of 24 hours.

(d) The finished work shall be maintained in a sanitary condition, free from dirt and all foreign matter. If it becomes necessary for workmen to enter the beds, boards, tarpaper or other covering material shall be provided to cover the filter beds completely.

19-04. Wash Water Troughs.

(a) Wash water troughs shall be installed in locations shown on the drawings and as specified herein.

(b) Wash water troughs shall conform to the section indicated on the drawings and shall be formed steel plates, not less than 3/16 inch thick, reinforced along the outer edges of the trough lips with

(1) The contractor shall be responsible for the maintenance and repair of the drainage system during the term of the contract. The contractor shall be liable for the cost of any damage to the drainage system caused by his negligence or that of his employees or subcontractors.

19-03. Gravel and Sand

(a) Gravel and sand beds shall be installed as shown on the drawings and as specified herein.

(b) Gravel shall be washed material, free from dirt, vegetable and foreign matter and shall consist of reasonably uniform rounded pebbles, preferably selected and processed for use in water filters. Gravel shall not be less than 1/8" of the nominal size and it is recommended that a portion of the gravel be placed on the bottom of the filter by hand to avoid disturbing the filter cover in the lateral pipes. The gravel shall be placed in the filter cover and the filter cover shall be closed and the filter cover shall be locked.

(c) Sand shall be washed and free from dirt, vegetable and foreign matter. It shall be hard silica sand free from dirt, shells and foreign matter and preferably shall be washed, sieved and stored in a clean, dry place. The sand shall be placed in the filter cover and the filter cover shall be closed and the filter cover shall be locked. The sand shall be placed in the filter cover and the filter cover shall be closed and the filter cover shall be locked. The sand shall be placed in the filter cover and the filter cover shall be closed and the filter cover shall be locked.

19-04. Iron Water Treatment

(a) The iron water treatment shall be installed as shown on the drawings and as specified herein.

(b) The iron water treatment shall be installed as shown on the drawings and as specified herein.

suitable steel angles welded in place.

(c) Wash troughs shall be of sufficient cross sectional area properly to carry away the backwash water when it is being applied at rates up to 18 gallons per minute per square foot of filter area, without flooding troughs or having water level in troughs higher than 3/4" below trough lips.

(d) Wash water troughs shall be installed as shown on the plans. Troughs shall be absolutely level throughout their entire lengths. The contractor is cautioned particularly that this part of the work must be carried out with absolute accuracy.

(e) The troughs shall receive one shop coat as specified. Field painting is specified in the section "Painting".

19-05. Operating Tables.

(a) An operating table shall be provided for each filter to control its hydraulic valves as follows: Influent, Effluent, Sewer, Wash and Rewash, and shall be similar in construction to the operating tables for the filters in the existing plant. Table tops shall be self-supporting. Tops and pieces, rails and stiles shall be joined firmly together with corner and cross braces to assure rigidity.

(b) Valve opening indicators, operated directly from the tail rods of the hydraulic valves, shall be mounted on the table tops. Indicators shall show the exact openings of the respective valves. Each indicator backing plate shall be of non-corrosive metal and shall have the name of its valve cast in the plate. The plates shall be not less than 1/8" thick with heavy raised lettering and border, and shall be integral with respective operating mechanism backing plate.

(c) Operating levers shall be enameled cast iron with neat hard rubber grips. Each lever shall be attached to its four-way valve with a connecting rod, and shall be capable of locking in either "neutral" or "closed" position.

(d) The four-way valves, which shall be mounted within the table, shall be solid bronze with all working parts of bronze or stainless steel. They shall be positive seating disc type, in which the discs are held in place by line pressure, and the valves shall have self-contained supply and waste manifolds, so that, when mounted in battery, they form complete units including the manifolds.

(e) A rigid welded steel floor frame shall be furnished for each table, and the frames shall carry brackets to support the four-way valves. External hardware shall be bronze, heavily chromium plated and polished. If such material is not obtainable, substitute material, best available for the purpose, may be provided. The backing plates shall be

(a) Each valve shall be of sufficient cross-sectional area to allow the backflow of water when it is being applied to the valve and shall be of sufficient cross-sectional area to allow the backflow of water when it is being applied to the valve and shall be of sufficient cross-sectional area to allow the backflow of water when it is being applied to the valve.

(b) Each valve shall be installed as shown on the plans. The valve shall be installed so that its operation is not affected by the weight of the pipe or the weight of the pipe contents.

(c) The valve shall receive one end as specified in the plans.

Valve Details

(1) The valve shall be of the type specified in the plans. The valve shall be of the type specified in the plans. The valve shall be of the type specified in the plans. The valve shall be of the type specified in the plans. The valve shall be of the type specified in the plans.

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(3) The valve shall be of the type specified in the plans. The valve shall be of the type specified in the plans. The valve shall be of the type specified in the plans. The valve shall be of the type specified in the plans. The valve shall be of the type specified in the plans.

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(7) The valve shall be of the type specified in the plans. The valve shall be of the type specified in the plans. The valve shall be of the type specified in the plans. The valve shall be of the type specified in the plans. The valve shall be of the type specified in the plans.

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so made that lines and lettering will be clean, straight and sharply defined. Recessed backgrounds of the plates shall be stippled and finished in dull black.

(f) Each table shall contain loss-of-head and rate-of-flow indicating dials as specified below.

(g) The operating table shall be set level and shall be fastened securely to the floor. A 1-inch pressure supply shall be run to each table. Each hydraulic valve for a given filter shall be connected with its respective control valve in the operating table by means of 3/4 inch line, one at the top of a given cylinder and one at the bottom.

(h) A 1-inch waste water line shall be run from each operating table to terminate 4 inches above the gutter which extends through the pipe gallery. Flexible, non-corrosive cable shall be run from the tail rod of each hydraulic valve to its indicator and control plate on the operating table. Cables shall change direction by means of sheaves which shall be securely fastened to adjacent pipes or structures, placed so as to give the shortest and most direct route from tail rod to indicator.

(i) The installation shall be similar to like work in the existing plant. Consideration will be given only to equipment which has operated successfully over a period of two or more years under comparable conditions.

19-06. Loss-of-Head and Rate-of-Flow Gauges.

(a) Each filter shall be provided with gauges of differential mercury type to indicate loss of head and rate of flow, the same to be table mounted. The materials used in constructing the instruments shall be best quality obtainable, machined and finished with precision. All shafts shall be Tobin bronze, mounted on hardened and ground stainless steel pivots. Corrosion resistant metals and alloys shall be used throughout. Gauge cases shall be cast aluminum. Exterior finish shall be black crinkle lacquer.

(b) Indicating dials shall be ivory sheet pyralin with engraved black graduations and lettering. Dial openings shall be covered with glass. Loss-of-head indicating dials shall be graduated to read from zero to 15 feet loss of head. Rate-of-flow indicating dials shall be graduated to read from zero to 1050 G.P.M.

(c) Mercury chambers with open riser tubes shall be provided for operating the gauges. Mercury chamber bodies shall be cast iron with built-in equalizer valves. Screws shall be provided for leveling the chambers after the bases are fastened in place. Mercury chambers of rate-of-flow gauges shall be bakelite, and the outer chambers shall be

no more than one and a half inches in diameter and shall be
limited to a maximum of one inch in diameter and shall be
of the same material as the shaft.

(1) The shaft shall contain four of these and shall be
of the same material as the shaft.

(2) The covering shall be of the same material as the shaft
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shaped to produce equal float movements for equal flow increments, to provide for uniform graduations on indicating dials and charts. Zinc-coated steel pipe, with zinc-coated malleable iron fittings not less than 3/8 inch diameter, shall be used for connecting mercury chambers with the filters and the respective filter controller venturi tube.

19-07. Filter Rate-of-Flow Controllers.

(a) There shall be provided in the effluent of each filter a rate-of-flow controller of venturi type, and each shall be designed to discharge normally 700 G.P.M. and capable of ready adjustment by means of a controller setter to rates from 50% above to 50% below normal. Each shall discharge the rate for which it is set within 3% above or below that rate as long as there is sufficient operating head to produce the flow.

(b) Rate setters shall be manually operated over a dial graduated and calibrated for all rates within the range specified.

(c) The control valve shall be operated hydraulically by self-contained mechanism mounted on the venturi meter. Valve bodies and working parts shall be non-corrosive materials machined accurately and fitted to give long life.

(d) Each filter rate controller shall be provided with an automatic reset device which, when connected to the filter effluent valve, will close automatically the control valve when the effluent valve is closed. The reset mechanism shall operate in such manner that when the effluent valve is opened, the controller will open from closed position gradually to the rate for which it is set.

(e) There shall be provided as a part of each filter rate of flow controller, a gradual shut-off from filter levels. When water levels in the respective filters fall below a predetermined elevation, the gradual shut-off shall become operative and cause flow through controller gradually and progressively to lessen until the controller valve is closed completely when water levels have dropped to a second predetermined lower elevation. Conversely, when water levels rise, this action shall be reversed and the controller shall operate at rate for which it is set when water levels in filter are higher than the first mentioned elevation.

(f) Controllers shall be equipped with 125 lb. American standard flanges for assembly with 10-inch diameter cast iron flanged pipe or fittings.

19-08. Rotary Surface Washers.

(a) A rotary washer consisting of four rotating units shall be installed in each of new Filters Nos. 4 and 5 and in each of existing

... to provide each flow ...
... for ...
... with ...
... and ...

Flow Control System

(a) There shall be provided in the ...
... of each ...
... and ...
... and ...
... and ...

(b) The control valve shall be ...
... and ...

(c) The control valve shall be ...
... and ...

(d) Each flow control valve shall be ...
... and ...

(e) There shall be provided as a part of each flow control valve a bypass line ...
... and ...

(f) Each flow control valve shall be provided with a bypass line ...
... and ...

(g) Each flow control valve shall be provided with a bypass line ...
... and ...

Filters Nos. 2 and 3.

(b) Rotary surface washers shall consist of all the piping, fittings, bearings, nozzles and incidental accessories necessary to make a complete assembly. Bidders shall submit, with their bids, drawings showing the recommended arrangement of the equipment, its essential working parts, and a description of its operation.

(c) Mechanical Requirements.- The equipment offered shall be constructed throughout of non-corrosive materials, shall be self-propelling, and shall rotate on ball bearings. The equipment shall not use more than 350 gallons per minute of water per filter at 50 to 60 lbs. pressure. The rotating arms shall have sufficient spread and shall contain a sufficient number of orifices or nozzles to agitate the entire surface of the filter bed without leaving dead spots. The operation of the equipment shall be positive and adjustments once made shall be final except for occasional maintenance.

(d) Installation and Operating Instructions.- The manufacturer shall furnish complete detailed plans for the installation and operation of the equipment. He also shall show the extent of the complete assembly contemplated. He shall indicate the flow in gallons per minute and pressure required.

(e) Qualifications.- The equipment shall be furnished by a manufacturer who previously has supplied surface washing equipment of this type and has had the same in successful operation for a period of two years.

19-09. Sterilizing Filters.- Filters, after completion, shall be sterilized thoroughly by filling and applying chlorine so that a uniform concentration of 100 parts per million will be secured from maximum water operating level throughout the underdrainage system and piping to the respective operating valves. The chlorine solution shall be left for 24 hours and then shall be thoroughly washed and flushed out.

19-10. Adjustment.- The manufacturers shall furnish an experienced engineer to check the correctness of the installation and to make all necessary adjustment for the accurate operation of their instruments and apparatus. He shall instruct the Officer in Charge in the adjustment, operation, and care of the equipment.

(1) Before and after shall consist of all the...
...necessary to make
...with their bids, drawings
...the equipment, its condition, and
...of its operation.

(2) Essential Requirements - The equipment offered shall
be constructed throughout of non-corrosive materials, shall be
... The equipment shall be
... use more than 500 gallons per minute of water per hour at 30 to 40 lbs.
... pressure. The rotating parts shall have sufficient speed and
... with a sufficient number of blades or vanes to rotate the entire
surface of the filter bed without leaving dead spots. The operation of
the equipment shall be positive and substantial throughout its
... except for occasional maintenance.

(3) Installation - The contractor shall be responsible for
... further shall furnish complete details for the installation and
... operation of the equipment. He shall also be responsible for the
... parts assembly, construction, and installation of the equipment and
... minute and pressure required.

(4) Warranty - The equipment shall be guaranteed by
... manufacturer who specifically warrants the equipment for
... the type and condition of the equipment for a period of
... two years.

(5) Operation - The contractor shall be responsible for
... connection of the water supply to the equipment and shall
... water operating level throughout the underdrainage system and shall be
... the equipment. The contractor shall be responsible for the
... 24 hours and shall be responsible for the maintenance of the
... equipment.

(6) Inspection - The contractor shall be responsible for
... and shall be responsible for the inspection and to make all
... cooperation. He shall also be responsible for the adjustment,
... operation, and care of the equipment.

SECTION 20. WATER SOFTENING EQUIPMENT.

20-01. Scope.-

(a) Work under this heading includes furnishing all the labor, materials and equipment necessary for the installation of equipment intended for the softening of water by the catalytic process as specified herein and as indicated on the drawings.

(b) Apparatus shall include two softening units, two rate-of-flow controllers and three lime feed pumps with all accessories necessary for proper operation.

20-02. Softening Units.

(a) The process contemplated provides for the introduction of raw water and lime solution at the bottom of a tank containing a catalyst, contact with which, during upward passage, will cause precipitation of the minerals desired to be removed from the water. Treated water, leaving the tank at the top, shall have the chemical characteristics specified herein.

(b) The softening unit shall be such a tank, conical shaped, and dimensioned to produce the necessary initial and final velocities of flow for obtaining the most effective results and equipped with the indicated accessories. Contact period of water and catalyst shall permit the precipitates to cling to or "plate out" on previously formed precipitates. The treated water shall leave the tank at its top through a collecting system designed to give uniform flow throughout the entire travel of the water through the tank.

(c) The tank shall be fabricated from 1/4-inch steel plates with watertight welded joints and shall be supported by structural steel legs equipped with steel plate shoes for bolting down to a concrete base slab. The assembly shall be strong and rigid with structural members of ample size safely to carry all imposed loads and stresses. Structural steel and welding shall conform to applicable requirements of Federal Specification No. QQ-S-741 and Navy Department, Bureau of Yards and Docks Specification No. 22Yb, respectively. The various parts of the equipment shall be factory fabricated to require a minimum of field work as may be compatible with transportation facilities. Pipe connections shall be equipped with 125 lb. flanges, American Standard, faced and drilled. Before shipment, all metal parts shall be primed thoroughly with the following mixture: Ferric Oxide 65.2%, Lead Chromates 10.5%, Silicates 24.3% with a water-resistant vehicle.

(d) Softeners and piping connections and arrangement shall be similar in construction and installation to those in the existing plant.

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20-03. Rate-of-Flow Controllers.

(a) Rate-of-flow controllers shall consist of a venturi tube, an actuator and a control valve whose assembled action shall be positive and shall have capacity for a normal discharge of 700 G.P.M. with manual adjustment to rates of flow 50% above or below normal. The control valve shall be operated hydraulically by self-contained mechanism mounted on the venturi meter. Valve bodies and working parts shall be of non-corrosive materials machined accurately and fitted to give long life.

(b) The rate of flow controller shall be equipped with a manometer type rate of flow indicator with dial calibrated to read directly in gallons per minute. The manometer shall be of rugged construction for out-of-door use and shall be furnished complete with mercury or liquid and all immediate pipe, fittings and control valves.

(c) The rate of flow controller shall be installed in the influent line of each softener. Rate of flow indicators shall be installed at eye level on the north wall of the softener pit.

20-04. Lime Feed Pumps.

(a) Pumps shall be of the plunger type with positive and easily regulated rates of discharge (by adjusting length of stroke). The rate of discharge shall be shown clearly on a graduated scale. Pumps shall be capable of adjustment 50% above or below the normal rate of discharge of 100 gallons per hour. Pumps shall be constructed throughout to give the highest possible efficiency without clogging and shall be constructed from materials best suited to withstand the action of lime slurry.

(b) Motors shall be enclosed totally and starters shall be furnished. Motors and starters shall be suitable for 220 volts, 3 phase, 60 cycles. Total discharge head will not exceed 100 feet. Each pump motor shall have an automatic cut-out actuated by low liquid level in the lime mixing tanks as called for elsewhere herein.

(c) The pumps and motors shall be placed at the indicated locations on a level, true and smooth foundation surface and bolted into position without straining or warping the assembly.

(d) Motor starters shall be mounted where and as directed.

(e) Piping shall be connected to the pumps without straining.

20-05. All of the apparatus specified under this section shall be furnished complete by one manufacturer who is engaged regularly in the design and manufacture of apparatus of this character, which shall have been tried thoroughly over a period of two or more years and shall have been proven successful under conditions comparable to those for which it

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(a) Rate of flow controller shall consist of a venturi tube
an actuator and a control valve whose assembly shall be positive
and shall have capacity for a normal discharge of 100 G.P.M. The control valve
adjustment for rate of flow shall be on a normal basis. The control valve
shall be operated by a bellows or other self-contained mechanism mounted on
the venturi tube. Valve bodies and working parts shall be of non-
corrosive material and shall be fitted to give long life.

(b) The rate of flow controller shall be equipped with a
manometer type rate of flow indicator which is calibrated to read direct
in gallons per minute. The manometer shall be of rugged construction
for out-of-door use and shall be furnished with a memory or float
and all necessary pipe, fittings and control valves.

(c) The rate of flow controller shall be installed in the
effluent line of each filter. Rate of flow indicators shall be installed
in the effluent line of each filter.

(d) Pumps shall be of the centrifugal type with positive and
capable of discharging the effluent at a rate of 100 G.P.M. The
rate of discharge shall be such as to give a normal rate of flow
of 100 gallons per hour. Pumps shall be constructed to withstand
the highest possible effluent concentration. Effluent shall be con-
tained from materials best suited to the effluent of fine sludge.

(e) Motors shall be of the squirrel-cage type and shall be
furnished with a motor which shall be suitable for 220 volts, 3 phase,
60 cycles. Total discharge head will not exceed 100 feet. Each pump
motor shall have a minimum efficiency of 75 percent at full load.
The motor shall be of the enclosed type and shall be suitable for
outdoor use.

(f) The pumps and motors shall be provided with the indicated
lubrication on a regular basis and shall be provided with the indicated
oil.

(g) Motor starters shall be provided with the indicated
equipment.

(h) The pumps shall be connected to the effluent line of the
filters.

(i) The pumps shall be provided with the indicated
equipment.

(j) The pumps shall be provided with the indicated
equipment.

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will be used under these specifications.

20-06. A thoroughly skilled and competent operator shall be furnished by the Contractor at his own expense to start and adjust the apparatus to the satisfaction of the Officer in Charge.

20-07. Chemical Characteristics and Requirements.- The chemical characteristics of the water supply to be treated are as follows:

	<u>Raw Well Water</u>	<u>Treated Water</u>
Total hardness as CaCO ₃	180 p.p.m.	68 p.p.m.
Calcium hardness " "	172 "	61 "
Magnesium hardness as CaCO ₃	8 "	7 "
Methyl Orange Alk. " "	194 "	74 "
Phenolphthalein " " "	0 "	30 "
Caustic " " "	0 "	0 "
Free CO ₂	20-30 "	0 "
pH	7.2 -7.7 "	9.4 "
Iron as Fe	1.0 -3.0 "	0.1 "
Turbidity	15 "	0.2 "
Temperature	about 63°F.	

Turbidity after softening shall not exceed 10 p.p.m.

20-08. Determination of Operating Results.- Operating results will be based upon laboratory determinations made in accordance with standard methods of water analysis of the American Public Health Association, latest edition. In the event that the normal chemical constituents of the raw water, at the time of any analysis, vary from the quantities stated in the preceding paragraph, a proportionate allowance shall be made in the requirements for treated water.

20-09. Painting.- Painting the above specified apparatus and piping is further specified in the section "Painting".

SECTION 21. CHLORINATING EQUIPMENT.

21-01. Scope.

(a) Work under this heading includes furnishing labor, materials and equipment necessary for the provision of chlorinating equipment as specified herein and as indicated on the drawings.

(b) It is the intent of the plans and specifications to provide the water treatment plant with equipment for mixing chlorine gas with water and for injecting the resulting chlorine solution into the raw water supply and to improve operating conditions in the existing plant by installing auxiliary equipment.

(c) Equipment required herein shall be the standard product of a recognized manufacturer and shall be constructed of materials designed to give long life in the service intended.

21-02. The Chlorinator shall function to mix chlorine gas with water and shall be of the solution feed vacuum type manually operated. Chlorine gas shall be metered and controlled under a vacuum of approximately two inches of water. The chlorinator shall be capable of delivering a maximum of 200 pounds of chlorine per 24 hours. It shall be pedestal mounted with working parts operating in a vacuum and visible during operation. All parts shall be accessible readily and design shall provide for easy disassembly and assembly for inspection, cleaning and repair. The chlorinator shall be relatively similar to those in the existing building and shall be equipped with a chlorine pressure gauge, chlorine pressure reducing valve, vacuum relief, chlorine meter, make-up water valve, booster pump, and main and auxiliary injectors as specified hereinafter.

21-03. Chlorine Pressure Gauge shall be flush mounted on the front of the chlorinator and shall be of the silver diaphragm type with the Bourdon tube and diaphragm compartment filled completely with special oil.

21-04. Chlorine Pressure Reducing Valve shall function to reduce the pressure of the gas and maintain an essentially constant vacuum ahead of the chlorine meter. The control shall be such that the chlorine flow shall not vary more than 2% at maximum capacity with a change in cylinder pressure from 25 to 125 pounds per square inch. Also, it shall shut off automatically the flow of chlorine gas should any interruption take place in the water supply to the chlorinator or should any stoppage occur in the chlorine solution discharge line. Further, to prevent the possibility of chlorine leakage, all portions of the chlorinator between the pressure reducing valve and the injector discharge shall operate under a partial vacuum.

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(a) The following items shall be included in the list of materials and equipment necessary for the provision of emergency equipment as specified herein and as indicated on the drawings.

(b) In the event of the plane and specifications to provide the water treatment plant with equipment for mixing chlorine gas with water and for injecting the resulting chlorine solution into the water supply and for improving operating conditions in the existing plant by installing and using equipment.

(c) Equipment specified herein shall be of the standard type of a recognized manufacturer and shall be of the type which is designed to give long life in the service intended.

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21-05. Vacuum Relief shall function to limit the vacuum within the chlorinator and to provide a suitable vent to the outside atmosphere for the escape of any chlorine gas released through improper operation of the equipment.

21-06. Chlorine Meter shall be of the fixed orifice type with no moving parts and its construction shall be entirely of glass. The meter scale shall be contained in an adjustable sealed glass tube attached to the meter and it shall be graduated in pounds of chlorine per 24 hours. The graduations on the meter scale shall be spaced so as to permit easy and accurate setting for any rate of feed. The zero setting shall be constant and fixed for all rates of feed. The chlorine flow meter and scale shall be accurate to within 4% of the true rate of feed on all flows within the graduated range. Slight jarring of the machine shall not change the rate of feed. Furthermore, after the water supply has been shut off and is turned on again, the chlorine feed shall return promptly to the original setting. The design shall provide for manual operation of the chlorinator and for easy installation of the chlorine meter and meter scale without the use of tools.

21-07. Make-up Water Valve shall be a float valve of the pilot-operated diaphragm type, through which all make-up water shall be supplied to the injector. The valve shall function to hold the water level constant with a variation not exceeding 1/4 inch. Regulation of the water level shall be accompanied by a simple screw adjustment of the pilot valve. To prevent unnecessary waste of water, the flow from the chlorinator tray or water reservoir shall be visible and the supply controlled accurately by float or other means.

21-08. Main Injector shall function to receive all chlorine and make-up water and discharge the resulting solution direct to the point of treatment. The injector body shall be of molded hard rubber and the throat of one-piece ceramic material. A ball check valve shall be provided in the main injector suction, construction of which shall prevent water from getting back into the chlorine gas inlet line and other dry gas control parts. The main injector shall be supplemented by an auxiliary injector which shall function on an auxiliary water supply and discharge into the soil pipe drain at a point beyond the trap. The injectors shall provide for completely automatic, semi-automatic and zero-flow conditions.

21-09. The one-inch corporation cock at the point of treatment shall be tapped into the 18-inch main halfway in the upper quadrant. The rubber chlorine solution hose shall terminate in a securely clamped specially designed silver tube which shall be inserted through the corporation cock to the center of the main. The corporation cock shall be equipped with union nut and gasket and packing nut and packing to prevent escape of water past the tube. Installation of the corporation cock shall include provision of a manhole as specified in which the main shall be offset sufficiently to permit withdrawal and re-insertion of the silver tube within the manhole.

The chlorinator and its piping shall be provided with a suitable vent to the outside atmosphere for the escape of any chlorine gas released through leakage or action of the chlorinator.

3-5. Chlorinator shall be of the fixed orifice type and shall be provided with a suitable vent to the outside atmosphere for the escape of any chlorine gas released through leakage or action of the chlorinator. It shall be provided with a suitable vent to the outside atmosphere for the escape of any chlorine gas released through leakage or action of the chlorinator. The chlorinator shall be provided with a suitable vent to the outside atmosphere for the escape of any chlorine gas released through leakage or action of the chlorinator. The chlorinator shall be provided with a suitable vent to the outside atmosphere for the escape of any chlorine gas released through leakage or action of the chlorinator.

3-6. The chlorinator shall be provided with a suitable vent to the outside atmosphere for the escape of any chlorine gas released through leakage or action of the chlorinator. The chlorinator shall be provided with a suitable vent to the outside atmosphere for the escape of any chlorine gas released through leakage or action of the chlorinator. The chlorinator shall be provided with a suitable vent to the outside atmosphere for the escape of any chlorine gas released through leakage or action of the chlorinator.

3-7. The chlorinator shall be provided with a suitable vent to the outside atmosphere for the escape of any chlorine gas released through leakage or action of the chlorinator. The chlorinator shall be provided with a suitable vent to the outside atmosphere for the escape of any chlorine gas released through leakage or action of the chlorinator. The chlorinator shall be provided with a suitable vent to the outside atmosphere for the escape of any chlorine gas released through leakage or action of the chlorinator.

3-8. The chlorinator shall be provided with a suitable vent to the outside atmosphere for the escape of any chlorine gas released through leakage or action of the chlorinator. The chlorinator shall be provided with a suitable vent to the outside atmosphere for the escape of any chlorine gas released through leakage or action of the chlorinator. The chlorinator shall be provided with a suitable vent to the outside atmosphere for the escape of any chlorine gas released through leakage or action of the chlorinator.

3-9. The chlorinator shall be provided with a suitable vent to the outside atmosphere for the escape of any chlorine gas released through leakage or action of the chlorinator. The chlorinator shall be provided with a suitable vent to the outside atmosphere for the escape of any chlorine gas released through leakage or action of the chlorinator. The chlorinator shall be provided with a suitable vent to the outside atmosphere for the escape of any chlorine gas released through leakage or action of the chlorinator.

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21-10. Booster Pump shall function to increase the pressure of the water supply to the chlorinator from approximately 50 pounds per square inch to the pressure necessary to operate the main injector against the back pressure at the point where the chlorine solution is injected into the raw water main. The pump shall be the turbine type and shall be constructed of non-corrosive metal suitable for the service intended. The motor shall be suitable for and shall have ample capacity for the service intended and shall operate at the speed designated by the manufacturer with current characteristics 208 volts, 3 phase, 60 cycles. The motor shall be equipped with a magnetic type starter having overload and undervoltage protection and suitable for wall mounting. The pump shall be equipped with a churn valve.

21-11. The following equipment shall be provided for installing in connection with the chlorinators or otherwise for delivery to the Officer in Charge as spare parts:

- 6 - Auxiliary tank valves
- 2 - 3/4 inch chlorine header valves
- 2 - large size flexible tank connections
- 1 - 100 ft. length of chlorine solution hose
- 1 - 10 ft. length of air relief hose
- 1 - 10 ft. length of drain hose
- 1 - extra chlorine meter (in addition to that required above)
- 1 - extra chlorine pressure reducing valve assembly (in addition to that required above)
- 1 - Five-tank manifold
- 1 - 1500 lb. capacity portable platform scale complete with weights.

The various items listed above shall be of materials and shall be designed for the intended service.

21-12. Each of the two existing Wallace and Tiernan Type MASV-M chlorinators in the existing plant shall be equipped with auxiliary injector for completely automatic, semi-automatic and zero flow conditions. The work shall include all necessary and incidental piping, valves, etc. required for a complete installation which shall be done in workmanlike manner and shall be satisfactory to the Officer in Charge.

21-13. The services of a qualified engineer shall be furnished to check the installation, to start and adjust the equipment and to instruct the Officer in Charge in its operation and maintenance. One complete set of operating instructions for all equipment shall be furnished.

INSTALLATION

Water shall be supplied to the engine from a water tank... The engine shall be installed in a location... The engine shall be installed in a location... The engine shall be installed in a location...

2-11. The following details shall be provided for installation in connection with the dimensions of the engine for delivery to the site.

2-11.1. The engine shall be installed in a location...

2-11.2. The engine shall be installed in a location...

2-11.3. The engine shall be installed in a location...

2-11.4. The engine shall be installed in a location...

2-11.5. The engine shall be installed in a location...

2-11.6. The engine shall be installed in a location...

2-11.7. The engine shall be installed in a location...

2-11.8. The engine shall be installed in a location...

2-11.9. The engine shall be installed in a location...

2-11.10. The engine shall be installed in a location...

2-11.11. The engine shall be installed in a location...

2-11.12. The engine shall be installed in a location...

2-11.13. The engine shall be installed in a location...

2-11.14. The engine shall be installed in a location...

2-11.15. The engine shall be installed in a location...

SECTION 22. CONNECTIONS TO EXISTING FACILITIES.

22-01. Scope.- Work under this heading includes furnishing labor, materials and equipment for connecting the new work to that in the existing plant as specified herein and as indicated on the drawings.

22-02. The contractor is particularly cautioned that before performing any work which involves cutting into existing pipe lines or which may in any way interfere with the operation of the pumping plant or the water mains, that he first must consult the Officer in Charge and arrange to do all such work at a time and in such manner as the Officer in Charge may approve.

22-03. Methods and details of pipe cutting and installation of connecting pipes and fittings shall be satisfactory to the Officer in Charge.

22-04. Joints in new connection work shall be made in the manner specified for similar materials elsewhere in this specification.

22-05. Work of connecting up new electrical lines to the existing is specified in the section "Electrical Work".

SECTION 23. CLEANING AND STERILIZING.

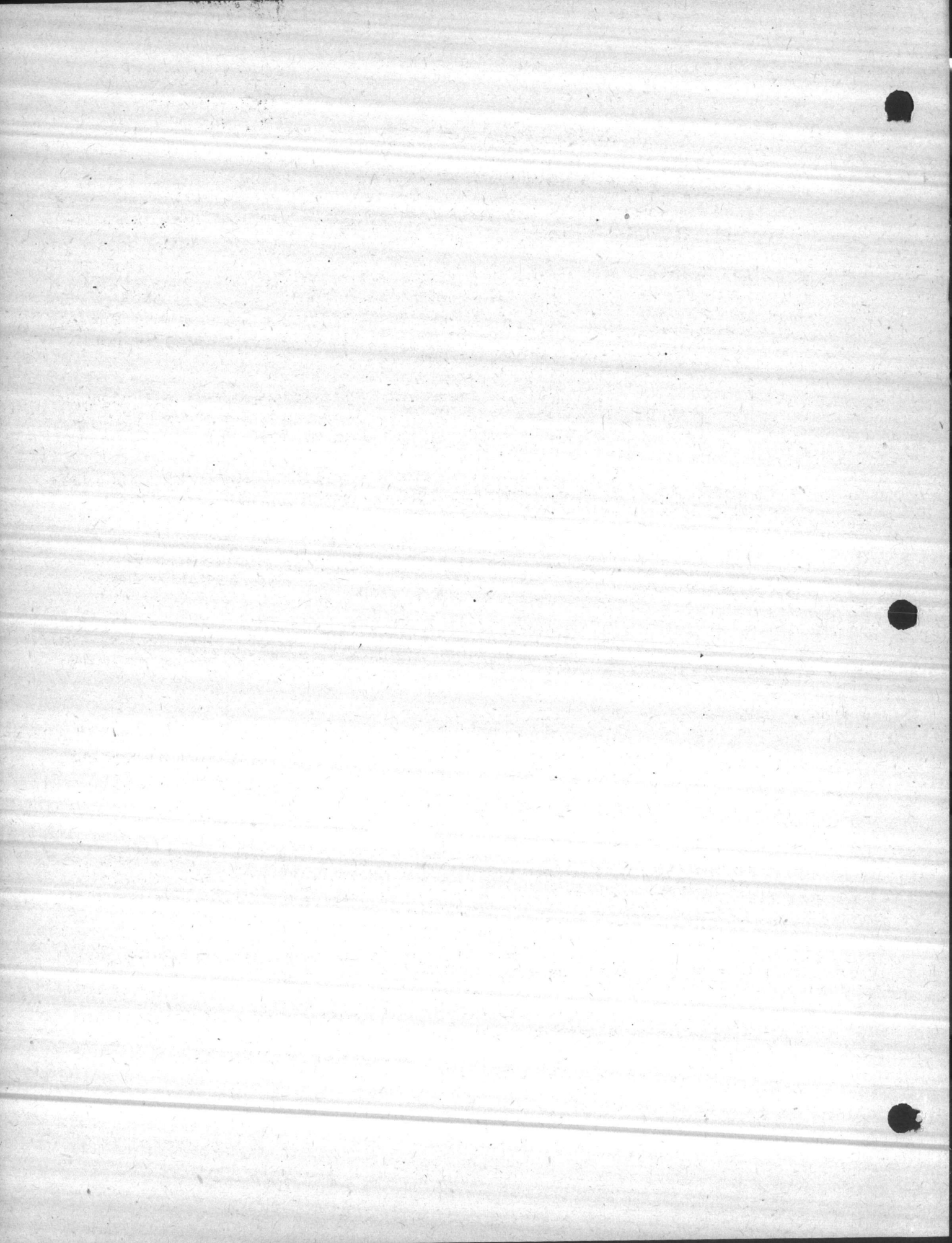
23-01. General. - The contractor is cautioned that all new pipe lines, pumps and structures conveying or containing water shall be kept clean and free from earth or foreign matter which may contaminate same or cause damage to pumps or other mechanical equipment. Immediately before placing in operation, the contractor shall flush thoroughly and sterilize all such pipe lines, pumps and structures as follows:

23-02. Pipe Lines. - Sterilization shall be made by introducing chlorite of lime or chlorine solution in the respective pipe lines in such quantities as will produce a uniform concentration of 100 parts of chlorine per million, the solution to remain in the pipe line for 24 hours and then thoroughly flushed out. The above sterilization to be repeated until samples free from contamination are obtained.

23-03. Structures. - After completion, structures conveying or containing water shall be filled to a depth of about 14 inches and chlorine shall be applied to make a uniform solution of 100 parts per million. The solution shall be sprayed by means of a force pump over the entire inside of the structure and stiff brooms shall be used as needed to remove dirt or other foreign matter. After 24 hours the structure shall be hosed down thoroughly, flushed out and put into service immediately.

23-04. Filters. - Sterilizing of filters is specified in the section 19, under Filters.

23-05. Protection of Existing System. - The contractor shall conduct his work in such order and take all necessary precautions to prevent heavily chlorinated or polluted water from entering any part of the existing water system.



SECTION 24. ROADS AND LANDSCAPE WORK.

24-01. Scope.- Work under this heading includes furnishing all labor, materials and equipment necessary for the construction of roads and the execution of the landscape work as herein specified or as indicated on the drawings.

24-02. The paving work indicated on the drawings shall consist of base course, levelling course and surface course and shall be constructed in accordance with applicable requirements of Camp Lejeune Standard Specification No. 1017, "Roads and Appurtenances", (except Section I, General Conditions, thereof), specifically that:

(a) The base course shall be constructed on the subgrade in conformance with Section 6.03 "Traffic Bound Macadam" provided that the compacted thickness shall be five inches.

(b) The levelling course shall be constructed on the base course in conformance with Section 6.04 "Sand Asphalt", provided that the compacted thickness shall be one inch.

(c) The surface course shall be constructed on the levelling course in conformance with Section 7.01 "Sand Asphalt" provided that the compacted thickness shall be one inch.

(d) Construction equipment requirements shall be adapted to the size and conditions to obtain results contemplated in the specification.

24-03. Landscape Work.

(a) All areas receiving topsoil or disturbed by grading operations shall be prepared for and sown with grass seed.

(b) Materials.

(1) Topsoil shall be that stripped as described in the section "Earthwork". Additional topsoil, if necessary, shall be obtained from areas within the reservation where and as directed by the Officer in Charge.

(2) Lime shall be an approved hydrated agricultural lime delivered to the site in standard paper bags.

(3) Fertilizer shall be ready mixed fertilizer of organic base, delivered in unopened containers bearing analysis of a recognized authority. Formula for fertilizer shall be 6% Nitrogen, 8% Phosphoric Acid and 4% Potash.

OFFICE OF THE ATTORNEY GENERAL

WHEREAS, the Commission on the Organization of the Executive Branch of the Government has recommended that the Department of Justice be reorganized to improve its efficiency and effectiveness in the administration of justice;

AND WHEREAS, the Commission has recommended that the Department of Justice be reorganized to include the following offices and functions:

(a) The Department of Justice shall be organized to include the following offices and functions:

(b) The Department of Justice shall be organized to include the following offices and functions:

(c) The Department of Justice shall be organized to include the following offices and functions:

(d) The Department of Justice shall be organized to include the following offices and functions:

(e) The Department of Justice shall be organized to include the following offices and functions:

(f) The Department of Justice shall be organized to include the following offices and functions:

(g) The Department of Justice shall be organized to include the following offices and functions:

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(4) Grass seed shall be the current crop of heavy grass seed which shall be delivered to the site in unopened bags, each bearing the formulae guaranteeing the seed mixture represented in percentage by weight. Seed mixtures shall have the following percentages:

50% Bermuda Grass
25% Chewings Fescue
15% Perennial Rye Grass (Italian Rye Grass)
10% Japanese Clover (or Dutch White Clover)

No seed in the mixture shall show a purity of less than 90% and germination quality less than 85%.

(b) Lawnmaking.

(1) Planting seasons are: Spring- March 1 to June 1st and Fall - August 15 to November 15th. Seeding shall be completed only within these seasons provided that exception may be made because of unseasonable weather.

(2) The sub-grade of lawn areas is established in the section "Earthwork" as four inches below finished grade.

(3) The sub-grade soil shall be loosened to a depth of four inches and graded to remove all ridges and depressions so that the sub-grade will be everywhere parallel to the finished grade. All stones over two inches in any dimension, sticks, rubbish and other extraneous matter shall be removed during this operation. Any hard soil areas found after smoothing shall be loosened again. No heavy objects except lawn rollers shall be moved over the subgrade as prepared unless the subgrade soil is again loosened and prepared as specified above, before topsoil is spread. After the subgrade has been approved, the topsoil shall be spread uniformly and sufficiently to have a depth of four inches after settling. The finished grade soil shall be free of hollows and other inequalities and of stones, sticks and other extraneous matter.

(4) Lime shall be applied to the finished grade soil at the rate of 800 pounds per acre and the fertilizer at the rate of 400 pounds per acre at least three days before seeding. The lime and fertilizer shall be thoroughly raked into the top two inches of the surface and then the area shall be thoroughly watered.

(5) The seed shall be sown at the rate of 200 pounds per acre uniformly by hand or appropriate seeding equipment. No seed shall be sown when the wind is strong or when the soil of the seed bed is extremely wet or otherwise in an unworkable condition. Immediately after the seed is sown, the surface shall be lightly harrowed, dragged, raked or otherwise worked so as to cover the seed with a thin layer of soil. The seeded surface then shall be compacted with an appropriate roller weighting not more than 1000 pounds and satisfactory to the Officer in Charge. Thereafter, the ground shall be thoroughly watered with a fine spray.

(1) The purpose of this document is to provide information regarding the activities of the [redacted] in the [redacted] area. This information is being provided to you for your information and is not to be disseminated outside of your organization.

(2) The information contained in this document is classified as [redacted] and is being provided to you under an exemption from the provisions of the Freedom of Information Act. This information is being provided to you for your information and is not to be disseminated outside of your organization.

(3) The information contained in this document is classified as [redacted] and is being provided to you under an exemption from the provisions of the Freedom of Information Act. This information is being provided to you for your information and is not to be disseminated outside of your organization.

(c) Lawn Maintenance.

(1) Unless otherwise directed by the Officer in Charge, all areas seeded for lawn shall be maintained by watering, mowing and weeding for a period of sixty days after the close of the planting season above specified. The work shall be done so as to keep the grass in a moist growing condition to the satisfaction of the Officer in Charge. All bare spots shall be re-seeded at intervals of 14 days until the entire seeded area is covered with a stand of grass. It will not be necessary to add additional lime and fertilizer to patched areas.

(2) All grassed areas disturbed by trenching work shall be provided with grass as specified herein.

(c) Planting

(1) Unless otherwise directed by the District Engineer, all areas seeded for lawn shall be reseeded by the contractor for a period of sixty days after the date of the original seeding. The contractor shall be held responsible for the maintenance of the lawn in grass in a state of readiness to be reseeded at intervals of 15 days until the entire seeded area is covered with a stand of grass. It will not be necessary to add additional seed and fertilizer to the lawn.

(2) All grassed areas disturbed by finishing work shall be provided with grass as specified herein.

SECTION 25. MISCELLANEOUS EQUIPMENT.

25-01. Scope.- Work under this heading includes labor, materials and equipment necessary for the provision and installation of miscellaneous equipment as indicated on the drawings and as specified herein.

25-02. 700 G.P.M. Pump and Motor.

(a) The pump shall be electrically driven and shall be constructed as follows:

(b) Pump Casing.- Pump casing shall be of high tensile strength iron designed and cast to provide smooth efficient waterways. The casing shall be split horizontally, flanged and bolted together with 1/64" gasket between the flanges to make a perfectly water-tight joint. Dowels shall be set in the upper and lower cases to insure exact alignment in assembling the case. Bearing brackets shall be cast integrally with the main body of the pump or they shall be otherwise rigidly fixed so as to maintain accurate and permanent alignment of the shaft and impeller. The exterior of the casing shall be finished smooth and shall be free from defects of any kind. Ample provision shall be made for carrying away drip from the stuffing boxes and overflow holes shall be provided to protect the bearings against flooding should the drains become stopped. The suction and discharge nozzles shall be cast integrally with the lower half of the case, the same to be equipped with American Standard flanges faced and drilled for 125 lbs. working pressure.

(c) Shaft Assembly.- Shaft shall be made of alloy steel, forged, machined and accurately ground to size, and shall be of sufficient diameter to transmit the maximum power at low working stresses, without vibration. Shaft shall be enclosed in hard metal sleeves, extending from the impeller through the full length of the stuffing boxes, to protect the shaft against abrasion and wear. Sleeves shall be sealed and locked on the shaft to rigid position by such means as will provide for easy removal and replacement.

(d) Impeller.- Impeller shall be of the enclosed, double suction type, cast in one piece of hard bronze, with carefully finished surfaces, as required on the exterior and interior to produce smooth surfaces. Impeller shall be keyed to shaft and axial adjustment shall be provided as well as positive locking after adjustment has been completed. Impeller shall be hydraulically and dynamically balanced.

(e) Bearings.- Bearings may be of the deep groove ball-bearing type of ample size to withstand all axial and radial loads, or they may be of the sleeve type, accurately finished, with provisions for continuous lubrication by means of oil rings and reservoirs. Bearings must in all cases be covered in dust- and water-tight housings. The housings must be positioned by means of dowel pins or other positive means for correct alignment.

CONFIDENTIAL - This document contains information that is exempt from disclosure under the Freedom of Information Act, 5 U.S.C. 552, because its disclosure would be likely to result in the identification of a confidential source of information.

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(d) This document contains information that is exempt from disclosure under the Freedom of Information Act, 5 U.S.C. 552, because its disclosure would be likely to result in the identification of a confidential source of information.

(o) Motor Starter.- The pump motor shall be actuated by a full-voltage, across-the-line magnetic starter of the automatic air-break magnetic switch type with thermal overload and under-voltage protection. The starter shall be enclosed in a suitable case with push button control. Thermal overload relays shall be provided with resetting mechanism and interchangeable thermal units. The starter shall be suitable for a 40 H.P. motor when operating from 220 to 240 volts, 3 phase, 60 cycles. Equipment shall conform to the applicable requirements of the National Electrical Manufacturers' Association.

25-03. Lime Hoist in the existing Chemical Feed Building shall be removed and reinstalled on the new hoist track beams shown on the drawings, complete and ready to operate.

25-04. Water Level Control shall be provided to indicate the water level in the new Clear Water Storage Basin and to warn of high and low water depths by means of a 4" electrically operated bell. The control apparatus shall include a controller, a float, a dial, indicating in feet, and an alarm circuit with an electrically operated alarm bell.

(a) The controller shall be the pedestal type and shall be mounted on the Filter Operating Floor where indicated on the drawings. The controller shall be the float operated type with mercury filled switches actuated by means of cams on a rotating shaft. The switches shall be readily adjustable for variable setting . . . between the maximum and minimum water levels in the clear water basin and shall be set initially to ring with high water at Elevation 26.0 and low water at Elevation 20.0.

(b) The float and tape shall be of non-corrosive materials. The float shall be suitable for installation in the 8-inch float tube and shall be connected by means of the tape to the controller.

(c) The equipment shall be provided with counterweight, depth indicator, coded wires for electrical connections and shall be installed complete in every detail, ready for operation.

(d) The alarm bell shall be installed on the wall adjacent to the indicated location of the water level control in a manner satisfactory to the Officer in Charge. Current supply characteristics will be 120 volts, 3 phase, 60 cycles. Connection for electrical energy shall be made as indicated.

(1)

The first part of the document is a list of names and addresses. The names are listed in the first column, and the addresses are listed in the second column. The names are: [Illegible names]

(2)

The second part of the document is a list of names and addresses. The names are listed in the first column, and the addresses are listed in the second column. The names are: [Illegible names]

(3)

The third part of the document is a list of names and addresses. The names are listed in the first column, and the addresses are listed in the second column. The names are: [Illegible names]

(4)

The fourth part of the document is a list of names and addresses. The names are listed in the first column, and the addresses are listed in the second column. The names are: [Illegible names]

(5)

The fifth part of the document is a list of names and addresses. The names are listed in the first column, and the addresses are listed in the second column. The names are: [Illegible names]

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(f) Wearing Rings.-- Casing rings shall be renewable, machined to tolerances which will produce high efficiency. They shall be held in place by such means as will provide positive alignment. Impeller rings shall be renewable.

(g) Stuffing Boxes and Glands.-- Stuffing boxes shall be designed to receive not less than five rings and packing. They shall be equipped with non-corrosive lantern rings and complete water-seal assembly. Stuffing box glands shall be of the split type made of non-corrosive metal, the two halves to be held in place by means of swing type bolts which also shall serve for making necessary adjustments.

(h) Base Plate.-- The pumping unit shall be securely mounted in perfect alignment, upon a cast iron base plate. The plate shall have a drip trough extending around its edge and shall be drilled for hold-down bolts not less than 5/8 inch diameter. The equipment shall be securely mounted in perfect alignment, with ample provision for bolting to concrete foundation.

(i) Flexible Couplings.-- Flexible couplings of the pin and rubber bushing type shall be furnished between electric motor and pump. Bushings shall have non-corrosive metal linings. Both halves of couplings shall cover all coupling nuts and shall be machined to gauge so that the halves may be used for aligning the equipment.

(j) Finishing.-- All exterior surfaces of the pump shall be finished smooth and the entire unit filled and coated with a durable paint.

(k) Conditions of Pump Operation.-- The pump normally will operate against 150 feet total discharge head, including friction loss, with positive suction head of about 4 feet. At this point the pump shall discharge 700 gallons per minute at not less than 80% efficiency, and shall require not more than 34 horsepower.

(l) Piping and foundation work under a previous contract were installed in anticipation of subsequently providing this pumping unit. All piping, fittings, valves, etc. shall be provided and installed properly to connect up the pump to the existing piping. Installing the pump unit shall include removal of any concrete covering the existing foundation, placing foundation bolts and any necessary concrete properly to set the pump unit.

(m) Pressure Gauge.-- One 4-inch pressure gauge shall be furnished and installed.

(n) Motor. - Electric motor shall be of the squirrel cage induction type, low starting current, normal torque, operated at 1750 RPM 220 volt, 3 phase, 60 cycles. The motor shall meet all applicable requirements, for the size and type noted, of the National Electrical Manufacturers' Association and the temperature rise shall not exceed 40°C.

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SECTION 26. BIDS.

26-01. Conformance with Bidding Data.- Unless specific exceptions to the provisions of the bidding data are mentioned in a bid, it shall be assumed that the bid is wholly in accord with the bidding data.

26-02. Items of Bids.- Bids shall be submitted, in duplicate, by letter and in accordance with Form No. 190d upon the following item:

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

26-03. Each bidder shall set forth in his bid the amount of the bid that is applicable to the work shown on Drawings Nos. 302 and 303 entitled "Water Mains, Holcomb Boulevard". The information is for statistical purposes only; the contract will be awarded for all of the work set forth in the drawings and the specification.

26-04. Telegraphic Modifications in accordance with paragraph 10 of form No. 190d may be made. Two signed carbon copies of the telegram in a sealed envelope marked "Copies of telegraphic modification of bid for Addition to Water Treatment Plant and Water Mains, Camp Lejeune, New River, N. C. ", Specification No. 15581 , " should be forwarded immediately to the office to which the written bids were submitted.

26-05. Information.- The Government specifications and forms mentioned and other information necessary may be had on application to the Chief of the Bureau of Yards and Docks or to Lt. Commander G. W. Battey, (CEC), U.S.N., Officer in Charge of Construction, Camp Lejeune, North Carolina.

... unless specific exceptions
for the majority of the population in a bid to shift
the burden of the cost to the private sector.

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to the ...

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